



Complete Service Package for the Refrigeration and Air-conditioning Industries



RAC-VNE

PRODUCTS FOR REFRIGERATION & AIR CONDITIONING APPLICATIONS



A POLICY FOR THE FUTURE

For over 40 years, ITE has been developing a strong distribution network supplying a wide range of well-known Tools, Instruments and Components for the Refrigeration and Air-Conditioning industries.

As an agent for major HVAC manufacturers, ITE has become one of the most important Master Distributors supplying all national and major wholesale organisations in Eastern and Western Europe, Russia and Africa. In addition, much work has taken place to develop a unique range of service products. The company has established a strong image and reputation within the industry and is recognized as a very reliable partner to its customers in Europe.

The secret of ITE's success is that they maintain high stock levels of products available at competitive prices, and it is the company's philosophy to provide fast deliveries, good technical support, and after sales services.

With its Head Office in Belgium, Branch offices in the UK and Germany, the ITE organization employs 55 well qualified and trained staff. Total warehouse capacity in Belgium is 30.000 m³ with an additional 1.000 m³ workshop and repair facilities.



ITE N.V.

Europark Oost 24
9100 Sint-Niklaas
Belgium
Tel : +32 3 766 02 02
Fax: +32 3 766 10 67
be@ite-tools.com
GPS: N 51 9.685; E 4 10.495



ITE (UK) Ltd

Unit 8, Pipers Lane
Thatcham, Berkshire
RG19 4NA
United Kingdom
Tel : +44 1635 873 877
Fax: +44 1635 873 778
uk@ite-tools.co.uk
GPS: N 51 23.74; W 1 14.443



ITE GmbH

Hanns- M. - Schleyer - Str. 23a
47877 Willich Münchheide II
Deutschland
Tel.: +49 2154 9156 0
Fax: +49 2154 9156 56
de@ite-tools.com
GPS: N 51 16.447; E 6 31.093



Contents

A

ABRASIVE PRODUCTS	100
ACCES TEES FULL FORGED BRASS	125 - 126
ACCESS VALVES - NUT TYPE	123 - 125
ACCESS VALVES - SWIVEL TYPE	121 - 122
ACCESS VALVES 1/4"	115 - 117
ACCESS VALVES 1/4" - SOLDER TEE	120
ACCESS VALVES 1/4" - SOLDER TYPE	118 - 119
ACCESS VALVES for R410A	130 - 131
ACID / MOISTURE TESTER KIT "TOTALTEST"	198
ACID AND REFRIGERATION NEUTRALISER	199
ACID TEST KITS	199
ANEMO-THERMOMETER	8
ANTI-VIBRATION MOUNTING FEET	194
ANTI-VIBRATION MOUNTING PADS	194
APRON FOR BRASING/SOLDERING	106
AUTOMOTIVE ACCESSORIES	39
AUTOMOTIVE FITTINGS	133 - 136
AUTOMOTIVE TOOLS	104
AUTO-START PROPANE TORCH	105

B

BALL VALVES	64
BALL VALVES - ANGLED 90°	114
BALL VALVES - BI-DIRECTIONAL	209
BALL VALVES - STRAIGHT	114
BLUE-C CHARGING STATIONS	38
BLUE-R OIL FREE RECOVERY STATION	42
BRACKETS - UNIVERSAL	196
BRASS FITTINGS - FLARED TUBE	139 - 146
BRASS FITTINGS - NPT PIPE FORGED	147 - 149
BRAZING ALLOYS & SILVER SOLDER	162 - 163
BRUSHES	98 - 101

C

CAP R410A	131
CAPACITANCE METER - DIGITAL	27
CAPILLARY TUBE GAUGE	103
CAPILLARY-TUBE CLEANING DEVICE	37
CAPS	129
CHARGING CYLINDERS - STAINLESS STEEL	41
CHARGING STATIONS BLUE-C	38
CHECK-VALVES - MAGNI	217
CHECK-VALVES - STAINLESS "BALL"	216
CLEANING PRODUCTS	205
CLEANING TOOLS	98 - 101
COMPRESSOR ADAPTER KITS	258
CONDENSATE REMOVAL PUMPS	190

CONDENSER AND HEAT EXCHANGER BRUSHES.....	101
CONDENSER TUBE CLEANER - ADJUSTABLE	100
CONTROLS TEST PUMP FOR PRESSURE OR VACUUM TESTING	37
CONVERSION TABLES	259 - 260
COPPER CAP COILS - A/C & R	162
COPPER COILS (EU STANDARD).....	160
COPPER COILS (US STANDARD).....	160
COPPER STRAIGHT LENGTHS (EU STANDARD).....	161
COPPER TUBE FITTINGS - INCH.....	168 - 178
COPPER TUBE FITTINGS - METRIC.....	179 - 184
CORE REMOVAL TOOLS.....	94, 127 - 128
CORES - FILTER DRIERS	237 - 238
CORES + ACCESSORIES	132
COUPLERS R410A.....	130 - 131
CRANKCASE HEATERS.....	193
CRIMPING PLIER.....	67

D

DIAGNOSTIC METER 5 IN 1.....	9
DIGITAL CALIPER	103
DOOR STRIPS - MULTI PURPOSE.....	195
DRAIN HOSES - PVC CLEAR.....	190
DRAIN HOSES - PVC REINFORCED.....	190
DRIERS XH - VARIOUS	225 - 226
DRYER "THAWZONE".....	200

E

EXTENSION RODS FOR CONDENSER TUBE BRUSHES	101
---	-----

F

FAN BRACKETS.....	188
FAN PULLER TOOL	189
FANS - ALUMINIUM	188
FASTENING AND FIXING SOLUTIONS	163 - 164
FILTER DRIER SHELLS - LIQUID OR SUCTION 3 FUNCTION.....	235 - 236
FILTER DRIERS - LIQUID	227 - 228
FILTER DRIERS - REVERSIBLE "HEAT- PUMP".....	229
FILTER DRIERS - SUCTION LINE	230
FILTER DRIERS - SUCTION LINE - COMPACT	231
FILTER SHELLS - MICRONIC SUCTION	239
FLARING & SWAGING TOOL SET	82
FLARING & SWAGING TOOLS.....	87 - 88
FLARING TOOL DELUXE.....	88
FLARING TOOLS.....	83 - 86
FLEXIBLE CAPILLARY TUBE	66 - 67
FLUORESCENT DYE UNIVERSAL A/C	39

G

GAS CYLINDER - PROPANE.....	105
GAS LEAK DETECTOR - LOW TEMP - NON HAZARDOUS	200
GAUGES - DRY - PULSE FREE - CLASS 1.0 - Ø 80 mm.....	55

GAUGES - DRY - PULSE FREE - CLASS 1.6 - ISOBUTANE	56
GAUGES - DRY - PULSE FREE - CLASS 1.6 - Ø 60 mm.....	55
GAUGES - DRY - PULSE FREE - CLASS 1.6 - Ø 80 mm.....	54
GAUGES - GLYCERINE FILLED - CLASS 1.6 - Ø 80 mm.....	56
GAUGES - PULSE FREE - AMMONIA.....	68

H

HARD START RELAYS + CAPACITORS	192
HEAT BARRIERS	203 - 204
HEAT EXCHANGERS.....	224
HEATING BELTS	40
HEATING CABLES - CONSTANT WATTAGE	26
HEATING CABLES - DRAIN LINE.....	27
HEATING CABLES - SELF REGULATING	25
HEX KEY WRENCH SET	92
HOLE CUTTING TOOLS	102
HOSES - AMMONIA	68
HOSES - AUTOMOTIVE A/C.....	65
HOSES - HEAVY DUTY - 1 STRAIGHT - 1 ANGLED 45° - R410A	63
HOSES - HEAVY DUTY - ANGLED 45°.....	61
HOSES - HEAVY DUTY - ANGLED 90°.....	61
HOSES - HEAVY DUTY - STRAIGHT	59 - 60
HOSES - HEAVY DUTY - STRAIGHT - R410A	62
HOSES - SPARE PARTS	64
HOSES - STANDARD SERIES	58
HYGRO-THERMOMETER - MULTI PROBE	11

I

ICE MACHINE CLEANER.....	204
INSULATED COPPER TUBE	165
INSULATION - ACCESSORIES.....	167
INSULATION SLEEVES	166
INTERNAL LEAK DETECTOR " TRACE 2".....	201

K

KWIK-CHARGE CYLINDERS	49
-----------------------------	----

L

LEAK DETECTOR - ELECTRONIC - HALOGEN	3
LEAK DETECTOR - HEATED DIODE	5
LEAK DETECTOR - OTHER GASES	4
LIQUID LEAK DETECTOR - "TRAX"	200
LIQUID PUMP	36

M

MANIFOLD - DIGITAL.....	53
MANIFOLDS - ALUMINIUM - TWO VALVE - PISTON	51
MANIFOLDS - AMMONIA	68
MANIFOLDS - FIVE VALVE - DIAPHRAGM	48
MANIFOLDS - FOUR VALVE - DIAPHRAGM	47

MANIFOLDS - SINGLE VALVE - DIAPHRAGM	45
MANIFOLDS - SPARE PARTS	52
MANIFOLDS - TWO VALVE - DIAPHRAGM	46
MANIFOLDS - BRASS - TWO VALVE - PISTON	50
MANIFOLDS FOR R410A AND CO2 WITH PISTON	49
MIRRORS - INSPECTION	105
MOISTURE LIQUID INDICATORS	249 - 251
MOTORS - MULTI-FIT FOR VENTILATORS	187
MUFFLERS - ADJUSTABLE	223
MUFFLERS - DISCHARGE	223
MUFFLERS - SUCTION	224
MULTIMETER - DIGITAL - AUTO RANGE	30

O

OIL FOR VACUUM PUMP	35
OIL LEVEL CONTROLS	255
OIL RECEIVER - VERTICAL	255 - 257
OIL SEPARATORS	253 - 254
OILS - "ITE"	206
OILS - "SUNISO"	206
OILS - "L'UNITE HERMETIQUE - TECUMSEH"	206
OILS - "MANEUROP"	206
OILS - SYNTHETIC "ZEROL 150"	206
O-RING GASKETS	132

P

PIERCING VALVES - SCREW ON TYPE	110 - 111
PIERCING VALVES - SOLDER TYPE	111 - 112
PIPE WRENCHES	97
PLIERS	95 - 97
PLIERS - SNAP RING	97
PLIERS - UNIVERSAL	97
PRESSURE CONTROLS	189
PRESSURE SWITCHES	191

Q

QUICK COUPLERS - "HANSEN"	113
QUICK COUPLERS - SERVICE PORT	113

R

R410A ACCESS VALVES	130 - 131
R410A COUPLERS	130 - 131
RECEIVERS - LIQUID	256
RECOVERY & RECYCLING EQUIPMENT	42
RECOVERY CYLINDERS - REFRIGERANT	40
REFRACTOMETERS	198
REFRIGERANT CYLINDER HEATER	193
REFRIGERANT GAS ANALYZER - PORTABLE	5
REFRIGERANT OIL PUMPS	36
REFRIGERATION STEEL FITTINGS	150 - 153
REFRIGERATION STEEL FITTINGS FOR WELDING	154 - 156

RELAYS	192
"ROTALOC" VALVES.....	213 - 215

S

SCREW PITCH GAUGES	103
SCREWDRIVERS	94
SEALING MATERIAL.....	201 - 202
SERVICE TOOL KITS.....	69 - 70
SIGHT GLASSES - LIQUID EYE.....	252
SIGHT GLASSES - LIQUID WITH FLOATING BALL	251
SIGHT GLASSES - MOISTURE	252
SOCKET SETS	93
SOLDER FLUXES.....	202 - 203
SOLDER HEAT SHIELD.....	106
SOLDERING UNIT.....	106
SOLENOID COILS - "DIN" STANDARD	242
SOLENOID VALVE OPERATING CONTROLLER	242
SOLENOID VALVES.....	240 - 241
SOLENOID VALVES CAPACITY TABLES.....	243 - 248
SOLID STATE RELAYS OVERLOAD.....	192
SOUND LEVEL METER - DIGITAL	29
STRAINERS	255
SUCTION ACCUMULATORS.....	218 - 222
SUPER FLUSH	204
SWAGING PUNCHES	88
SYSTEM INJECTOR.....	39

T

TACHOMETER - DIGITAL - OPTICAL	28
TAPES.....	197
TEMPERATURE CONTROLLERS - PANEL MOUNTING	22
TEMPERATURE CONTROLLERS - WALL MOUNTING	22
TEMPERATURE RECORDERS	20 - 21
TERMS AND CONDITIONS OF SALE	263
TEST PLUGS TUBING	106
TESTER - PHASE ROTATION.....	28
TESTER - VOLTAGE - UNIVERSAL.....	29
THERMO-ANEMOMETER.....	8
THERMO-HYGROMETER - DIGITAL - POCKET - HAND HELD	16
THERMO-HYGROMETER - MULTI PROBE	11
THERMOMETER - DIGITAL.....	15
THERMOMETER - DIGITAL - POCKET - HAND HELD.....	16
THERMOMETER - INDUSTRIAL.....	19
THERMOMETER - INFRARED.....	12 - 13
THERMOMETER - PANEL/WALL MOUNT - POCKET	13 - 14
THERMOMETER - POCKET - SURFACE.....	17
THERMOMETER - REFRIGERATOR - FREEZER	18
THERMOMETER - SOLAR.....	16
THERMOMETER - SURFACE - MAGNET	19
THERMOMETER - SURFACE - SPRING.....	19
THERMOMETER - WIRELESS	17
THERMOMETER SINGLE PROBE- MULTI PROBE.....	10
THERMOSTATS - COMMERCIAL - DOMESTIC	23

THERMOSTATS - UNIVERSAL ECONOMY	23
TIE DOWNS AND STRAPS.....	195
TIMERS - PROGRAMMABLE.....	24
TIN SNIPS.....	96
TOOL CASE.....	70
TORQUE WRENCHES.....	92
TUBE BENDERS - GEAR TYPE	80
TUBE BENDERS - HYDRAULIC - PORTABLE.....	82
TUBE BENDERS - MECHANICAL - PORTABLE.....	81
TUBE BENDERS - MULTI DIAMETERS	80
TUBE BENDERS - STRAIGHT HANDLE	78 - 79
TUBE BENDERS - SWIVEL HANDLE.....	79
TUBE BENDERS - TRIPLE HEAD	80 - 81
TUBE BENDING SPRINGS	77
TUBE CUTTERS - VARIOUS	73 - 77
TUBE EXPANDERS.....	89

U

UNIVERSAL A/C FLUORESCENT DYE.....	201
UV DETECTION LAMP.....	4

V

VACUUM GAUGES - ELECTRONIC.....	57
VACUUM GAUGES - MECHANICAL	57
VACUUM PUMP ACCESSORIES - SPARE PARTS.....	35
VACUUM PUMPS - BLUE VAC	33 - 34
VALVE - PRESSURE CONTROL	256
VALVE - SERVICE ANGLE	257
VALVES - BRAZED STEEL ANGLE.....	212
VALVES - PIERCING - SPLIT AIR	210
VALVES - SERVICE - PACKED ANGLE	211
VALVES SHUT-OFF - 1/4" TO 1 1/8"	210
VIBRATION ABSORBERS.....	232 - 234
VOLT-OHM-AMMETER - DIGITAL - CLAMP-ON.....	30

W

WATER PUMP PLIER.....	97
WEIGHING SCALES - ELECTRONIC.....	6 - 7
WELDING GLOVE	106
WIRE TIES	193
WRENCHES.....	90 - 92

Part. nr.	Pag.	Part. nr.	Pag.	Part. nr.	Pag.	Part. nr.	Pag.	Part. nr.	Pag.	Part. nr.	Pag.
1002-BC/247	50	120-B-08x08	148	2041-BT-2S2	243-247	2805-BC/447	48	2825-G-BC	48	3841	219-221-222
1002-BC/447	50	121-B-02 (P3-A)	149	2041-BT-3	240	2805-BC-1.0	48	2825-G-BC/247	48	38610	87
1002-BPC	50	121-B-04 (P3-B)	149	2041-BT-3	243-247	2805-BC-1.0/447	48	2825-G-BC/4	48	3873	221-222
1003	37	121-B-06 (P3-C)	149	2041-BT-3S3	240	2805-BPC	48	2825-G-BC/447	48	3874	221-222
1004-BC/247	51	121-B-08 (P3-D)	149	2041-BT-3S3	243-247	2805-G-BC	48	2825-G-BPC	48	38760	87
1004-BC/447	51	121-B-12 (P3-E)	149	2041-BT-4	240	2805-G-BC/247	48	2831-BC	45	38760M	87
1004-BPC	51	122-B-02 (U10-A)	149	2041-BT-4	243-247	2805-G-BC/4	48	2831-BC/247	45	38770	87
100-B-02	147	122-B-04 (U10-B)	149	2041-BT-4S4	240	2805-G-BC/447	48	2831-BC/27	45	38770M	87
100-B-04	147	122-B-06 (U10-C)	149	2041-BT-4S4	243-247	2805-G-BPC	48	2831-BC/4	45	395-FAM	85
100-B-06	147	122-B-08 (U10-D)	149	2041-BT-4S5	240	2812-BC	46	2831-BC/447	45	3HDA-120	61
100-B-08	147	123-B-04x02	149	2041-BT-4S5	243-247	2812-BC/247	46	2831-BC-1.0	45	3HDA-36	61
1012-BC/247	50	123-B-06x04	149	2041-BT-5	240	2812-BC/27	46	2831-BC-1.0/447	45	3HDA-60	61
1012-BC/447	50	124-RW	90	2041-BT-5	243-247	2812-BC/4	46	2831-BPC	45	3HDA-72	61
1012-BPC	50	127-RW	90	2041-BT-5S5	240	2812-BC/447	46	2831-G-BC	45	3HDA-120	63
101-B-02	147	127-RWO	90	2041-BT-5S5	243-247	2812-BC-1.0	46	2831-G-BC/247	45	3HDA-120/410	63
101-B-04	147	1284-BC	51	2041-BT-5S6	240	2812-BC-1.0/447	46	2831-G-BC/4	45	3HDA-36	63
101-B-06	147	1284-BC/247	51	2041-BT-5S6	243-247	2812-BPC	46	2831-G-BC/447	45	3HDA-36/410	63
101-B-08	147	1284-BC/27	51	2041-BT-5S7	240	2812-G-BC	46	2831-G-BPC	45	3HDA-48/410	63
103-B-02	147	1284-BC/4	51	2041-BT-5S7	243-247	2812-G-BC/247	46	2851-BC	45	3HDA-60	63
103-B-04	147	1284-BC/447	51	205-P06	35-206	2812-G-BC/4	46	2851-BC/247	45	3HDA-60/410	63
103-B-06	147	1284-BC-1.0	51	205-P1	35-206	2812-G-BC/447	46	2851-BC/27	45	3HDCS-72	63
103-B-08	147	1284-BC-1.0/447	51	205-P4	35-206	2812-G-BPC	46	2851-BC/4	45	3HDCS-72/410	63
103-FS	85	1284-BPC	51	206-FB	75	2812P-BPC/410	49	2851-BC/447	45	3HDCS-120/410/V	62
104-B-02	147	1284-G-BC	51	206-FB-SP	75	2812P-BPC/410/27	49	2851-BC-1.0	45	3HDCS-120/V	62
104-B-04	147	1284-G-BC/247	51	20-A	113	2812P-BPC-1.0/410	49	2851-BC-1.0/447	45	3HDCS-36/410/V	62
105-FF	96	1284-G-BC/4	51	21702-0	36	2812P-G-BC/410/127	49	2851-BCP	45	3HDCS-36/V	62
1084 BC	51	1284-G-BC/447	51	21751	36	2812P-G-BC/CO2	49	2851-G-BC	45	3HDCS-60/410/V	62
1084 BC/247	51	1284-G-BPC	51	227-FA	75	2812P-G-BPC/410	49	2851-G-BC/247	45	3HDCS-60/V	62
1084 BC/27	51	129-B-02x24	149	241-F-03	106	2814-BC	47	2851-G-BC/4	45	3HDCS-72/410/V	62
1084 BC/4	51	1342-BT-06S06	241	241-F-04	106	2814-BC/247	47	2851-G-BC/447	45	3HDCS-72/V	62
1084 BC/447	51	1342-BT-06S06	243-247	2444-RC	206	2814-BC/27	47	2851-G-BPC	45	3HDS-120/V	59
1084 BC-1.0	51	1342-BT-06S07	241	260-FHA	80	2814-BC/4	47	300-CO1	206	3HDS-36/V	59
1084 BC-1.0/447	51	1342-BT-06S07	243-247	26880	74	2814-BC/447	47	300-FB	85	3HDS-60/V	59
1084 BPC	51	1342-BT-06S09	241	26-C	130	2814-BC-1.0	47	312-FC	75	3HDS-36	60
1084 G-BC	51	1342-BT-06S09	243-247	270-F-06	80	2814-BC-1.0/447	47	312-FC-SP	75	3HDS-36/V	60
1084 G-BC/247	51	1342-BT-08S09	241	270-F-08	80	2814-BPC	47	32650	74	3HDS-60	60
1084 G-BC/4	51	1342-BT-08S09	243-247	270-F-10	80	2814-G-BC	47	350-FHA	80	3HDS-60/V	60
1084 G-BC/447	51	1342-BT-08S11	241	270-F-12	80	2814-G-BC/247	47	360-FHA	80	3HDS-72	60
1084 G-BPC	51	1342-BT-08S11	243-247	270-F-14	80	2814-G-BC/4	47	3639	219-221-222	3HDS-72/V	60
108-B-02	147	140-F-04	106	270-F-16	80	2814-G-BC/447	47	3640	219-221-222	3HDS-72/V	59
108-B-04	147	140-F-06	106	270-F-18	80	2814-G-BPC	47	3641	219-221-222	40190	68
108-B-06	147	140-F-08	106	271-F	80	2815-BC	48	364-FH-02	79	40192	68
108-B-08	147	140-F-10	106	275-FS	88	2815-BC/247	48	364-FH-03	79	40193	68
109-B-02	147	140-F-12	106	275-FSC	88	2815-BC/27	48	364-FHA-04	79	40200	37
109-B-04	147	140-F-14	106	275-FSM	88	2815-BC/4	48	364-FHA-05	79	406-FA	75
109-B-06	147	140-F-18	106	27805	87	2815-BC/447	48	364-FHA-06	79	5001A-06	180
109-B-08	147	140-F-22	106	27806	87	2815-BC-1.0	48	364-FHA-08	79	5001A-08	180
110-B-04x02	148	140-F-26	106	27806M	87	2815-BC-1.0/447	48	364-FHA-10	79	5001A-10	180
110-B-06x02	148	160-P2	206	27808	87	2815-BPC	48	364-FHA-12	79	5001A-108	180
110-B-06x04	148	160-P5	206	27808M	87	2815-G-BC	48	364-FHA-14	79	5001A-12	180
110-B-08x02	148	16801	68	27810	87	2815-G-BC/247	48	364-FHA-16	79	5001A-133	180
110-B-08x04	148	16802	68	27810M	87	2815-G-BC/4	48	364-FHB-04	79	5001A-14	180
110-B-08x06	148	16803	68	27812	87	2815-G-BC/447	48	364-FHB-05	79	5001A-15	180
110-B-12x06	148	16-C	69-113	27812M	87	2815-G-BPC	48	364-FHB-06	79	5001A-16	180
110-B-12x08	148	174-F	75	27814M	87	2822-BC	46	364-FHB-08	79	5001A-18	180
111-B-02	148	174-F-SP	75	27816M	87	2822-BC/247	46	364-FHB-06 mm	79	5001A-22	180
111-B-04	148	17-C	113	27818M	87	2822-BC/27	46	364-FHB-08 mm	79	5001A-28	180
111-B-06	148	1802-BC	50	27820M	87	2822-BC/4	46	364-FHB-10 mm	79	5001A-35	180
111-B-08	148	1802-BC/247	50	27-C	130	2822-BC/447	46	364-FHB-12 mm	79	5001A-42	180
112-B-02	148	1802-BC/27	50	2802-BC	46-69	2822-BC-1.0	46	3670	219-221-222	5001A-54	180
112-B-04	148	1802-BC/4	50	2802-BC/247	46	2822-BC-1.0/447	46	3673	221-222	5001A-64	180
112-B-06	148	1802-BC/447	50	2802-BC/27	46	2822-BPC	46	3680	221-222	5001A-67	180
112-B-08	148	1802-BC-1.0	50	2802-BC/4	46	2822-BPC-AUTO	39	3684	221-222	5001A-70	180
113-B-02x24	148	1802-BC-1.0/447	50	2802-BC/447	46	2822-G-BC	46	3685	221-222	5001A-76	180
113-B-04x24	148	1802-BPC	50	2802-BC-1.0	46	2822-G-BC/247	46	368-FH	80	5001A-80	180
113-B-04x32	148	1802-G-BC	50	2802-BC-1.0/447	46	2822-G-BC/4	46	3698	221-222	5001A-89	180
113-B-04x48	148	1802-G-BC/247	50	2802-BPC	46-69	2822-G-BC/447	46	3700	219-221-222	5002A-06	180
116-B-02	148	1802-G-BC/4	50	2802-G-BC	46	2822-G-BPC	46	3701	219-221-222	5002A-08	180
116-B-04	148	1802-G-BC/447	50	2802-G-BC/247	46	2822P-BPC/410	49	3702	219-221-222	5002A-10	180
116-B-06	148	1802-G-BC/4	50	2802-G-BC/4	46	2822P-BPC/410/27	49	3703	219-221-222	5002A-108	180
116-B-08	148	1812-BC	50	2802-G-BC/447	46	2822P-BPC-1.0/410	49	3704	219-221-222	5002A-12	180
117-B-02	148	1812-BC/247	50	2802-G-BC/4	46	2822P-BPC/410/127	49	3706	219-221-222	5002A-133	180
117-B-04	148	1812-BC/27	50	2802P-BPC/410	49	2822P-G-BC/CO2	49	370-FH	80	5002A-14	180
117-B-06	148	1812-BC/4	50	2802P-BPC/410/27	49	2822P-G-BC/410	49	3738	219-221-222	5002A-15	180
1184-BC	51	1812-BC/447	50	2802P-BPC/1.0/410	49	2824-BC	47	3743	221-222	5002A-159	180
1184-BC/247	51	1812-BC-1.0	50	2802P-G-BC/410/127	49	2824-BC/247	47	375-FS	88	5002A-16	180
1184-BC/27	51	1812-BC-1.0/447	50	2802P-G-BC/CO2	49	2824-BC/27	47	3809	221-222	5002A-18	180
1184-BC/4	51	1812-BPC	50	2802P-G-BC/410	49	2824-BC/4	47	3810	219-221-222	5002A-22	180
1184-BC/447	51	1812-G-BC	50	2804-BC	47	2824-BC/447	47	3815	221-222	5002A-28	180
1184-BC-1.0	51	1812-G-BC/247	50	2804-BC/247	47	2824-BC-1.0	47	3816	219-221-222	5002A-35	180
1184-BC-1.0/447	51	1812-G-BC/4	50	2804-BC/27	47	2824-BC-1.0/447	47	3817	219-221-222	5002A-42	180
1184-BPC	51	1812-G-BC/447	50	2804-BC/4	47	2824-BPC	47	3820	221-222		

Part. nr.	Pag.	Part. nr.	Pag.	Part. nr.	Pag.	Part. nr.	Pag.	Part. nr.	Pag.	Part. nr.	Pag.
5040-06	180	5092-35	181	5130R-18-15B-18	182	5130R-54-22B-54	183	5243-133-108	184	5301-108	184
5040-08	180	5092-42	181	5130R-18-16B-14	182	5130R-54-22B-42	183	5243-133-76	184	5301-12	184
5040-10	180	5092-54	181	5130R-18-16B-16	182	5130R-54-22B-54	183	5243-133-89	184	5301-14	184
5040-108	180	5130-06	181	5130R-18-16B-18	182	5130R-54-35B-35	183	5243-14-10	184	5301-15	184
5040-12	180	5130-08	181	5130R-18-18B-10	182	5130R-54-35B-42	183	5243-14-12	184	5301-16	184
5040-133	180	5130-10	181	5130R-18-18B-12	182	5130R-54-35B-54	183	5243-15-08	184	5301-18	184
5040-14	180	5130-108	181	5130R-18-18B-14	182	5130R-54-42B-42	183	5243-15-10	184	5301-22	184
5040-15	180	5130-12	181	5130R-18-18B-15	182	5130R-54-42B-54	183	5243-15-12	184	5301-28	184
5040-16	180	5130-133	181	5130R-18-18B-16	182	5130R-54-54B-42	183	5243-15-14	184	5301-35	184
5040-18	180	5130-14	181	5130R-18-22B-15	182	5130R-64-35B-64	183	5243-159-108	184	5301-42	184
5040-22	180	5130-15	181	5130R-18-22B-18	182	5130R-64-42B-64	183	5243-159-133	184	5301-54	184
5040-28	180	5130-159	181	5130R-18-28B-18	182	5130R-64-54B-64	183	5243-16-10	184	5301-64	184
5040-35	180	5130-16	181	5130R-22-06B-22	182	5130R-76-35B-76	183	5243-16-12	184	5301-67	184
5040-42	180	5130-18	181	5130R-22-10B-22	182	5130R-76-42B-76	183	5243-16-14	184	5301-76	184
5040-54	180	5130-22	181	5130R-22-12B-12	182	5130R-76-54B-76	183	5243-16-15	184	5301-89	184
5040-64	180	5130-28	181	5130R-22-12B-14	182	5130R-76-64B-76	183	5243-18-10	184	535-C	49
5040-67	180	5130-35	181	5130R-22-12B-15	182	5130R-89-35B-89	183	5243-18-12	184	545-C	49
5040-76	180	5130-42	181	5130R-22-12B-22	182	5130R-89-42B-89	183	5243-18-14	184	623-BC/247	55
5040-80	180	5130-54	181	5130R-22-14B-14	182	5130R-89-54B-89	183	5243-18-15	184	623-BC/410	55
5040-89	180	5130-64	181	5130R-22-14B-16	182	5130R-89-64B-89	183	5243-18-16	184	623-BC/447	55
5041-06	180	5130-67	181	5130R-22-14B-18	182	5130R-89-76B-89	183	5243-22-10	184	623-BPC	55
5041-08	180	5130-76	181	5130R-22-14B-22	182	5240-08-06	183	5243-22-12	184	623-WG	68
5041-10	180	5130-89	181	5130R-22-15B-12	182	5240-10-06	183	5243-22-14	184	625-BC/247	55
5041-108	180	5130R-06-08B-06	182	5130R-22-15B-15	182	5240-10-08	183	5243-22-15	184	625-BC/410	55
5041-12	180	5130R-06-08B-06	182	5130R-22-15B-18	182	5240-10-08	183	5243-22-16	184	625-BC/447	55
5041-133	180	5130R-08-06B-06	182	5130R-22-15B-22	182	5240-12-06	183	5243-22-18	184	625-BPC	55
5041-14	180	5130R-08-06B-08	182	5130R-22-16B-16	182	5240-12-08	183	5243-28-12	184	625-WG	68
5041-15	180	5130R-08-10B-08	182	5130R-22-16B-18	182	5240-12-10	183	5243-28-14	184	627-VRP	35-57
5041-159	180	5130R-10-06B-10	182	5130R-22-16B-22	182	5240-133-108	183	5243-28-15	184	66914/TB	78
5041-16	180	5130R-10-08B-08	182	5130R-22-18B-12	182	5240-133-76	183	5243-28-16	184	68481/TB	78
5041-18	180	5130R-10-08B-10	182	5130R-22-18B-14	182	5240-14-10	183	5243-28-18	184	74760	74
5041-22	180	5130R-10-10B-08	182	5130R-22-18B-15	182	5240-14-12	183	5243-28-22	184	74770	74
5041-28	180	5130R-10-12B-10	182	5130R-22-18B-16	182	5240-15-08	183	5243-35-15	184	75020	74
5041-35	180	5130R-10-15B-10	182	5130R-22-18B-18	182	5240-15-10	183	5243-35-18	184	75530	84
5041-42	180	5130R-10B-54B-108	183	5130R-22-18B-22	182	5240-15-12	183	5243-35-22	184	75540	84
5041-54	180	5130R-10B-64B-108	183	5130R-22-22B-14	182	5240-15-14	183	5243-35-28	184	77510	74
5041-64	180	5130R-10B-76B-108	183	5130R-22-22B-15	182	5240-15-108	183	5243-42-15	184	77520	74
5041-67	180	5130R-10B-99B-108	183	5130R-22-22B-16	182	5240-15-133	183	5243-42-18	184	7885805	87
5041-76	180	5130R-12-06B-12	182	5130R-22-22B-18	182	5240-16-10	183	5243-42-22	184	78931	106
5041-80	180	5130R-12-08B-12	182	5130R-22-28B-15	182	5240-16-12	183	5243-42-28	184	7899205	84
5041-89	180	5130R-12-10B-10	182	5130R-22-28B-22	182	5240-16-14	183	5243-42-35	184	7931805	74
5060-08	181	5130R-12-10B-12	182	5130R-22-35B-22	182	5240-16-15	183	5243-54-22	184	7958301	58-64-68
5060-12	181	5130R-12-12B-10	182	5130R-28-10B-28	182	5240-18-10	183	5243-54-28	184	7958301-HD	65
5060-14	181	5130R-12-14B-12	182	5130R-28-12B-28	182	5240-18-12	183	5243-54-35	184	7958302	58-64
5060-15	181	5130R-12-15B-12	182	5130R-28-14B-28	182	5240-18-14	183	5243-54-42	184	7976105	84
5060-16	181	5130R-12-16B-12	182	5130R-28-15B-15	182	5240-18-15	183	5243-64-35	184	7976107	84
5060-18	181	5130R-12-18B-12	182	5130R-28-15B-18	182	5240-18-16	183	5243-64-42	184	801000	169
5060-22	181	5130R-133-108B-133	183	5130R-28-15B-22	182	5240-22-10	183	5243-64-54	184	801001	169
5060-28	181	5130R-15-10B-14	182	5130R-28-15B-28	182	5240-22-12	183	5243-67-35	184	801003	169
5060-35	181	5130R-14-12B-12	182	5130R-28-16B-16	182	5240-22-14	183	5243-67-42	184	801004	170
5060-42	181	5130R-14-12B-14	182	5130R-28-16B-28	182	5240-22-15	183	5243-67-54	184	801005	170
5060-54	181	5130R-14-14B-12	182	5130R-28-18B-15	182	5240-22-16	183	5243-70-54	184	801009	169
5085-12	181	5130R-14-16B-12	182	5130R-28-18B-18	182	5240-22-18	183	5243-70-64	184	801010	170
5085-14	181	5130R-14-16B-14	182	5130R-28-18B-22	182	5240-28-12	183	5243-76-35	184	801011	170
5085-15	181	5130R-14-18B-14	182	5130R-28-18B-28	182	5240-28-14	183	5243-76-42	184	801017	169
5085-16	181	5130R-14-22B-14	182	5130R-28-22B-15	182	5240-28-15	183	5243-76-54	184	801019	170
5085-18	181	5130R-15-06B-15	182	5130R-28-22B-22	182	5240-28-16	183	5243-76-64	184	801021	170
5085-22	181	5130R-15-08B-15	182	5130R-28-22B-28	182	5240-28-18	183	5243-76-70	184	801022	169
5086-12	181	5130R-15-10B-10	182	5130R-28-28B-12	182	5240-28-22	183	5243-80-54	184	801023	170
5086-14	181	5130R-15-10B-12	182	5130R-28-28B-15	182	5240-35-15	183	5243-80-64	184	801025	170
5086-15	181	5130R-15-10B-15	182	5130R-28-28B-16	182	5240-35-18	183	5243-80-67	184	801027	170
5086-16	181	5130R-15-12B-10	182	5130R-28-28B-18	182	5240-35-22	183	5243-89-76	184	801028	169
5086-18	181	5130R-15-12B-12	182	5130R-28-28B-22	182	5240-35-28	183	5245-F-SP	86	801029	170
5086-22	181	5130R-15-12B-15	182	5130R-28-35B-28	182	5240-42-18	183	5245-F-SP	86	801030	170
5090-06	181	5130R-15-15B-10	182	5130R-35-15B-28	183	5240-42-22	183	5270-06	184	801031	170
5090-08	181	5130R-15-15B-12	182	5130R-35-15B-35	183	5240-42-28	183	5270-08	184	801034	169
5090-10	181	5130R-15-18B-15	182	5130R-35-18B-28	183	5240-42-35	183	5270-10	184	801035	170
5090-108	181	5130R-15-22B-15	182	5130R-35-18B-35	183	5240-54-22	183	5270-108	184	801036	170
5090-12	181	5130R-15-25B-15	182	5130R-35-22B-28	183	5240-54-28	183	5270-12	184	801037	170
5090-14	181	5130R-16-06B-16	182	5130R-35-22B-35	183	5240-54-35	183	5270-133	184	801038	170
5090-15	181	5130R-16-10B-16	182	5130R-35-28B-22	183	5240-54-42	183	5270-14	184	801040	169
5090-15-12	181	5130R-16-12B-12	182	5130R-35-28B-28	183	5240-64-35	183	5270-15	184	801047	169
5090-16	181	5130R-16-12B-14	182	5130R-35-28B-35	183	5240-64-42	183	5270-159	184	801049	170
5090-18	181	5130R-16-12B-16	182	5130R-35-35B-15	183	5240-64-54	183	5270-16	184	801050	170
5090-18-15	181	5130R-16-14B-12	182</								

Part. nr.	Pag.	Part. nr.	Pag.								
801085	170	801327	176	801911	170	802701	173	804048	176	8085205	84
801086	170	801337	176	801913	170	802710	173	804049	174	810100	169
801092	169	801338	176	802003	172	802711	173	804050	174	810101	170
801093	170	801339	176	802009	172	802715	173	804051	174	810107	169
801094	170	801340	176	802011	173	802716	173	804052	174	810108	170
801095	170	801343	176	802017	172	802717	173	804055	174	810109	170
801105	171	801345	176	802019	173	802719	173	804056	174	810110	170
801106	171	801347	176	802023	173	802722	173	804057	174	810111	170
801107	171	801350	176	802025	173	802723	173	804058	174	810130	169
801109	171	801351	176	802028	172	802725	173	804059	174	810141	169
801110	171	801353	176	802029	173	802728	173	804061	174	810142	169
801113	171	801355	176	802030	173	802734	173	804062	174	810143	169
801114	171	801358	176	802035	173	802735	173	804063	174	810144	169
801115	171	801359	176	802036	173	802736	173	804065	174	810145	169
801116	171	801360	176	802037	173	802747	173	804067	174	810146	169
801123	171	801362	176	802040	172	802749	173	804068	176	810147	169
801124	171	801364	176	802049	173	802756	173	804069	174	810148	169
801125	171	801367	176	802050	173	802809	173	804070	174	810149	169
801126	171	801368	176	802051	173	802817	173	804071	174	810150	169
801129	171	801369	176	802052	173	802822	173	804072	174	810151	169
801130	171	801370	176	802055	173	802828	173	804073	174	810152	169
801131	171	801376	176	802056	173	802834	173	804074	174	810153	169
801132	171	801377	176	802058	173	802847	173	804075	174	810154	169
801133	171	801378	176	802060	173	803005	172	804076	174	810155	169
801138	171	801379	176	802063	173	803012	172	804077	174	810156	169
801139	171	801381	176	802064	173	803021	172	804078	174	810157	169
801145	171	801382	176	802065	173	803026	172	804079	174	8201505	74
801146	171	801383	176	802067	173	803030	172	804080	174	823-B	54
801147	171	801386	176	802072	173	803034	172	804081	174	823-BC	54
801150	171	801387	176	802073	173	803044	172	804082	174	823-BC/247	54
801161	171	801388	176	802074	173	803050	172	804083	174	823-BC/27	54
801162	171	801389	176	802075	173	803055	172	804084	176	823-BC/4	54
801163	171	801414	171	802077	173	803059	172	804085	174	823-BC/447	54
801164	171	801425	171	802078	173	803063	172	804086	174	823-BC-1.0	55
801165	171	801431	171	802082	173	803067	172	804087	174	823-BC-1.0/447	55
801170	171	801432	171	802083	173	803070	172	804088	174	823-BPC	54
801171	171	801446	171	802084	172	803073	172	804089	174	823-BPC/410	54
801172	171	801447	171	802085	172	8030312	172	804090	174	823-BPC/410/27	54
801173	171	801463	171	802086	172	803321	172	804091	174	823-BPC-1.0/410	55
801178	171	801464	171	802087	172	803326	172	804092	174	823-C-B	54
801179	171	801471	171	802088	172	803330	172	804093	174	823-C-BC	54
801180	171	801479	171	802089	172	803334	172	804094	174	823-C-BC/247	54
801181	171	801487	171	802090	172	803344	172	804095	174	823-C-BC/27	54
801187	171	801496	171	802092	173	803350	172	804096	174	823-C-BC/4	54
801188	171	801514	171	802093	173	803355	172	804097	174	823-C-BC/447	54
801189	171	801524	171	802095	173	803359	172	804098	174	823-C-BPC	54
801196	171	801525	171	802097	172	803363	172	804099	175	823-C-BPC/410	54
801197	171	801526	171	802106	149	803368	172	804106	176	823-C-BPC/410/27	54
801198	171	801531	171	802107	149	803373	172	804131	176	823-G-BC/24	56
801199	171	801532	171	802115	149	803621	172	804208	149	823-G-BC/247	56
801204	171	801546	171	802116	149	803626	172	804209	149	823-G-BC/410/127	56
801205	171	801547	171	802125	149	803634	172	804228	149	823-G-BC/447	56
801206	171	801563	171	802132	149	803644	172	804229	149	823-G-BC/CO2	56
801207	171	801564	171	802206	149	804000	176	804230	149	823-G-BPC	56
801214	171	801571	171	802207	149	804001	176	804259	149	823-G-BPC/410	56
801215	171	801579	171	802214	149	804002	174	804283	149	823-S-B	54
801216	171	801587	171	802216	149	804003	174	8057205	78	823-S-BC	54
801223	171	801596	171	802225	149	804004	174	806020	178	823-S-BC/247	54
801224	171	801622	172	802226	149	804005	174	806025	178	823-S-BC/27	54
801225	171	801634	172	802305	173	804006	176	806032	178	823-S-BC/4	54
801226	171	801647	172	802312	173	804007	174	806036	178	823-S-BC/447	54
801230	171	801652	173	802321	173	804008	174	806041	178	823-S-BC-1.0	55
801231	171	801654	173	802326	173	804009	174	806045	178	823-S-BC-1.0/447	55
801232	171	801706	177	802330	173	804010	174	806048	178	823-S-BPC	54
801233	171	801712	177	802334	173	804011	174	806051	178	823-S-BPC/410	54
801238	171	801714	177	802344	173	804012	174	806053	178	823-S-BPC/410/27	54
801239	171	801715	177	802350	173	804013	174	806056	178	823-S-BPC-1.0/410	55
801245	171	801717	177	802355	173	804014	174	806058	178	823-WM-B	54
801246	171	801720	177	802359	173	804015	174	806060	178	823-WM-BC	54
801247	171	801721	177	802363	173	804016	174	806069	178	823-WM-BC/247	54
801261	171	801722	177	802368	173	804017	176	806074	178	823-WM-BC/27	54
801263	171	801725	173	802384	173	804018	174	806077	178	823-WM-BC/4	54
801264	171	801726	177	802385	173	804019	174	806084	178	823-WM-BC/447	54
801265	171	801727	177	802386	173	804020	174	806092	178	823-WM-BPC	54
801270	171	801737	177	802387	173	804021	174	806095	178	823-WM-BPC/410	54
801271	171	801738	177	802388	173	804022	174	807002	176	823-WM-BPC/410/27	54
801272	171	801739	177	802389	173	804023	174	807004	176	825-B	54
801278	171	801743	177	802390	173	804025	174	807006	176	825-BC	54
801279	171	801745	177	802393	173	804026	174	807007	176	825-BC/247	54
801280	171	801750	177	802395	173	804027	174	807008	176	825-BC/27	54
801287	171	801751	177	802612	172	804029	174	807009	176	825-BC/4	54
801288	171	801758	177	802621	172	804031	176	807011	176	825-BC/447	54
801296	171	801759	177	802626	172	804032	174	807012	176	825-BC-1.0	55
801297	171	801767	177	802634	172	804033	174	807013	176	825-BC-1.0/447	55
801302	176	801900	170	802644	172	804034	174	807014	176	825-BPC	54
801306	176	801901	170	802650	172	804035	174	807015	176	825-BPC/410	54
801312	176	801902	170	802655	172	804036	174	807016	176	825-BPC/410/27	54
801314	176	801903	170	802659	172	804037	174	807017	176	825-BPC-1.0/410	55
801315	176	801904	170	802684	172	804041	174	807018	176	825-C-B	54
80131											

Part. nr.	Pag.	Part. nr.	Pag.	Part. nr.	Pag.	Part. nr.	Pag.	Part. nr.	Pag.	Part. nr.	Pag.
825-C-BPC/410	54	840165	175	93-S-08	88	ATW-2080	92	BH-200	224	BVS-06-04Y	64-114
825-C-BPC/410/27	54	840167	175	93-S-10	88	AVC-6	132	BH-300	224	BVS-06B	64-114
825-G-BC/24	56	840174	175	93-S-12	88	AVCA-BP	135	BH-33	224	BVS-06R	64-114
825-G-BC/247	56	840178	175	93-S-14	88	AVCA-HP	135	BH-50	224	BVS-06Y	64-114
825-G-BC/410/127	56	840179	175	A01203	177	AVC-GD	135	BH-500	224	BVS-1/2-ACME/B	64-114
825-G-BC/447	56	840181	175	A01211	177	AVC-GD/HNBR	135	BH-750	224	BVS-1/2-ACME/R	64-114
825-G-BC/C02	56	840190	176	A01278	177	AVC-HNBR	136	BLOCK-ITE	203	BVS-1/2-ACME/Y	64-114
825-G-BPC	56	840191	175	A01366	177	AVCI-BP	135	BLT-024	235	BVS-1L	6-114-133
825-G-BPC/410	56	840192	175	A01392	176	AVCI-HP	135	BLT-048	235	BVS-1L-WS-005-1/4 SAE	
825-S-B	54	840193	175	A01402	176	AVC-JRA	135	BLT-100	235	BVS-1L-WS-005-1/4 SAE	6-114
825-S-BC	54	840194	175	A01422	176	AVC-NEO/TEFLON	136	BLUE-C-040-005-1L/4/		BVS-1L-WS-005-5/16 SAE	
825-S-BC/247	54	840195	175	A01467	177	AVC-NEOPRENE	136	R600a/Hose	38	6-114	
825-S-BC/27	54	840196	175	A01504	176	B1-04	141	BLUE-C-040-005-1L/4/		BVS-1L-WS-005-7/16 SAE	
825-S-BC/4	54	840197	175	A01529	176	B1-06	141	R600a-R134a/Hose	38	6-114	
825-S-BC/447	54	840198	175	A01556	176	B1-08	141	BLUE-C-040-055-2/410 38		C1-04	141
825-S-BC-1.0	55	840200	176	A01590	176	B1-10	141	BLUE-C-040-055-2/447 38		C1-06	141
825-S-BC-1.0/447	55	840204	175	A01628	176	B1-12	141	BLUE-C-040-055-4/247 38		CA-06/24-50	162
825-S-BPC	54	840205	175	A02529	177	B2-03	141	BLUE-C-040-055-4/447 38		CA-06/30-50	162
825-S-BPC/410	54	840206	175	A02574	177	B2-04	141	BLUE-C-060-055-2/410 38		CA-07/18-03	162
825-S-BPC/410/27	54	840208	175	A02614	177	B2-05	141	BLUE-C-060-055-2/447 38		CA-07/20-03	162
825-S-BPC-1.0/410	55	840212	175	A02650	177	B2-06	141	BLUE-C-060-055-4/247 38		CA-08/24-50	162
825-WM-B	54	840213	175	A02675	177	B2-08	141	BLUE-C-060-055-4/447 38		CA-10/23-036	162
825-WM-BC	54	840214	175	A02708	177	B2-10	141	BLUE-R-95/OFP	42	CA-10/30-50	162
825-WM-BC/247	54	840215	175	A03167	177	B2-12	141	BLUE-R-95/V2	42	CA-12/24-50	162
825-WM-BC/27	54	840216	175	A03168	177	B-602	101	BM-01	153	CA-13/23-036	162
825-WM-BC/4	54	840220	175	A03171	177	B-604	101	BM-02	153	CA-13/23-30	162
825-WM-BC/447	54	840221	175	A07812	177	B-607	101	BM-03	153	CA-15/30-50	162
825-WM-BPC	54	840222	175	A07813	177	B-610	101	BM-04	153	CA-16/31-036	162
825-WM-BPC/410	54	840230	174	A07814	177	B-613	101	BM-06	153	CA-20/30-50	162
825-WM-BPC/410/27	54	840231	174	A07815	177	B-616	101	BM-08	153	CA-20/40-50	162
827-VRP	57	840232	174	A07816	177	B-619	101	BM-10	153	CA-25/40-50	162
840100	174	840233	174	A07817	177	B-622	101	BM-12	153	CA-30/40-50	162
840101	174	840234	174	A07819	177	B-625	101	BM-16	153	CA-30/50-50	162
840102	176	840235	174	A-10971	103	B-628	101	BM-20	153	CA-5PAK	162
840103	175	840236	174	A11205	170	B-631	101	BM-24	153	CAP-RT08	214
840104	175	840237	174	A11206	170	B-633	101	BS-02	153	CAP-RT10	214
840105	175	840238	175	A11207	170	B-702	101	BS-03	153	CAP-RT14	214
840106	175	840239	175	A11216	170	B-704	101	BS-04	153	CD-02	151
840107	175	840240	175	A11217	170	B-707	101	BS-06	153	CD-03	151
840108	175	840243	175	AA-HDS-36-B	65	B-710	101	BS-08	153	CD-04	151
840109	175	840244	175	AA-HDS-36-B/V	65	B-713	101	BS-10	153	CD-06	151
840110	175	840245	175	AA-HDS-36-R	65	B-716	101	BS-101	77	CD-08	151
840111	175	840247	175	AA-HDS-36-R/V	65	B-719	101	BS-102-04	69-77	CD-10	151
840112	175	840248	175	AA-HDS-36-Y	65	B-722	101	BS-102-05/8mm	77	CD-12	151
840113	175	840249	175	AA-HDS-36-Y/V	65	B-728	101	BS-102-06	69-77	CDR-03-02	152
840114	175	840250	175	AA-HDS-60-B	65	B-731	101	BS-102-06mm	77	CDR-04-03	152
840115	175	840251	175	AA-HDS-60-B/V	65	B-733	101	BS-102-08	69-77	CDR-06-03	152
840116	175	840252	175	AA-HDS-60-R	65	B-804	101	BS-102-10	69-77	CDR-06-04	152
840117	175	840253	175	AA-HDS-60-R/V	65	B-807	101	BS-102-10mm	77	CDR-08-06	152
840118	175	840254	175	AA-HDS-60-Y	65	B-810	101	BS-102-12	69-77	CDR-10-08	152
840119	175	840255	175	AA-HDS-60-Y/V	65	B-813	101	BS-102-12mm	77	CDR-12-10	152
840120	175	840256	175	AA-HDS-72-B	65	B-816	101	BS-12	153	CDR-16-10	152
840121	174	840257	175	AA-HDS-72-R	65	B-822	101	BS-163	77	CDR-16-12	152
840122	174	840258	175	AA-HDS-72-Y	65	B-828	101	BSG-104	251	CFF-45-02	151
840123	176	840259	175	AC-BP	135	B-833	101	BSG-106	251	CFF-45-03	151
840124	175	840302	176	AC-HP	135	BB-9	205	BSG-108	251	CFF-45-04	151
840125	175	840306	176	ACID-118	199	BCV-05	216	BSG-110	251	CFF-45-06	151
840126	175	840308	174	ACK-001	258	BCV-07	216	BSG-112	251	CFF-45-08	151
840127	175	840313	176	ACK-003	258	BCV-09	216	BSG-116	251	CFF-45-10	151
840128	175	840324	174	ACK-004	258	BCV-11	216	BSG-M2615	251	CFF-90-02	151
840129	175	840330	174	ACK-005	258	BCV-4-4	216	BSG-M3615	251	CFF-90-03	151
840130	175	840332	174	ACK-007	258	BCV-4-6	216	BSG-M522	251	CFF-90-04	151
840131	175	840334	174	ACK-008	258	BE-24	101	BS-02	156	CFF-90-06	151
840132	175	840350	174	ACT-6	104	BE-36	101	BS-03	156	CFF-90-08	151
840133	175	840358	174	ADP-0604	92	BE-48	101	BS-04	156	CFF-90-10	151
840134	175	840363	174	ADP-0608	92	BF-01	153	BS-S-06	156	CFF-90-12	151
840135	175	840364	174	AG-100	197	BF-02	153	BS-S-08	156	CFF-90-16	151
840136	175	840366	174	AG104	162	BF-03	153	BS-S-10	156	CFF-S-45-02	154
840137	175	840367	174	AG106	162	BF-04	153	BS-S-12	156	CFF-S-45-03	154
840138	175	840368	174	AG-2	197	BF-06	153	BS-S-16	156	CFF-S-45-04	154
840139	175	840500	176	AM-05	223	BF-08	153	BTB-1	110	CFF-S-45-06	154
840140	175	840503	175	AM-10	223	BF-10	153	BTB-2	110	CFF-S-45-08	154
840141	175	840504	175	AM-25	223	BF-12	153	BVA-04B	64-114	CFF-S-45-10	154
840142	175	840505	175	AM-HDS-36-B	65	BF-16	153	BVA-04R	64-114	CFF-S-45-12	154
840143	175	84617-E/N	52	AM-HDS-36-R	65	BF-20	153	BVA-04Y	64-114	CFF-S-45-16	154
840144	175	860110	178	AM-HDS-36-Y	65	BF-24	153	BVA-05-04B	64-130	CFF-S-45-20	154
840145	175	860111	178	AM-HDS-60-B	65	BF-28-154	188	BVA-05-04R	64-130	CFF-S-90-02	154
840146	175	860121	178	AM-HDS-60-R	65	BF-28-172	188	BVA-05-04Y	64-130	CFF-S-90-03	154
840147	175	860131	178	AM-HDS-60-Y	65	BF-28-200	188	BVA-06B	64-114	CFF-S-90-04	154
840148	175	860140	178	AM-HDS-72-B	65	BF-28-230	188	BVA-06R	64-114	CFF-S-90-06	154
840149	175	860999	177	AM-HDS-72-R	65	BF-28-254	188	BVA-06Y	64-114	CFF-S-90-08	154
840150	175	861000	177	AM-HDS-72-Y	65	BF-28-300	188	BVS-02B	64-114	CFF-S-90-10	154
840151	175	861001	177	AMS-065	100	BF-S-02	156	BVS-02R	64-114	CFF-S-90-12	154
840152	176	861002	177	AMS-070	100	BF-S-03	156	BVS-02Y	64-114	CFF-S-90-16	154
840153	175	861003	177	AMS-090	100	BF-S-04	156	BVS-04-06B	64-114	CFF-S-90-20	154
840154	175	861008	177	AMS-100	100	BF-S-06	156	BVS-04-06R	64-114	CFF-S-90-24	154
840155	175	861009	177	AMS-120	100	BF-S-08	156	BVS-04-06Y	64-114	CH-101	193
840156	175	86109	193	AMS-181	100	BF-S-10	156	BVS-04B	64-114	CH-102	193
840157	175	86111	193	AP-1	110	BF-S-12	156	BVS-04R	64-114	CH-103	193
840158	175	8694405	87	AP-2	110						

Part. nr.	Pag.	Part. nr.	Pag.	Part. nr.	Pag.	Part. nr.	Pag.	Part. nr.	Pag.	Part. nr.	Pag.
CIT-120L	19	DHC-06x09 mm	190	E314-FTY	58	FPB-210	142	H-1/2	89	HDS-120-R/V	59
CIT-120S	19	DHC-10x14 mm	190	E336-FTB	58	FPB-283	142	H-3/4	89	HDS-120-Y/V	59
CLIMEX	205	DHC-16x21 mm	190	E336-FTR	58	FPC-168	142	H-3/8	89	HDS-12-B	59
CMF-90-02	151	DHC-18x24 mm	190	E336-FTY	58	FPC-210	142	H-5/8	89	HDS-12-B/V	59
CMF-90-03	151	DHC-20x26 mm	190	E348-FTB	58	FPC-283	142	H-7/8	89	HDS-12-R	59
CMF-90-04	151	DHCR-06x12 mm	190	E348-FTR	58	FSBC-M6	164	H-1	89	HDS-12-R/V	59
CMF-90-06	151	DHCR-10x16 mm	190	E348-F1Y	58	FSBC-M8	164	H-1 1/8	89	HDS-12-Y	59
CMF-90-08	151	DHCR-12x19 mm	190	E360-FTB	58	FSCC-0507	163	H-1 3/8	89	HDS-12-Y/V	59
CMF-90-10	151	DHCR-16x24 mm	190	E360-FTR	58	FSCC-0507-R	163	H-1 5/8	89	HDS-36-B/V	59
CMT-080	19	DHCR-20x28 mm	190	E360-FTY	58	FSCC-0710	163	H-10 mm	89	HDS-36-R/V	59
CMT-120	19	DHCR-25x34 mm	190	E372-FTB	58	FSCC-0710-R	163	H-100	224	HDS-36-Y/V	59
CO-04	160	DIMA-4	53	E372-FTR	58	FSCC-1113	163	H-12 mm	70-89	HDS-60-B/V	59
CO-04I	160	DIMA-4/COMPLETE	53	E372-FTY	58	FSCC-1113-R	163	H-15 mm	70-89	HDS-60-R/V	39-59
CO-05I	160	DIMA-4/NH3	53	E4-44	142	FSCC-1315	163	H-150	224	HDS-60-Y/V	39-59
CO-06	160	DLC-040	27	E4-66	142	FSCC-1315-R	163	H-16 mm	89	HDS-12-B/V	60
CO-06I	160	DLC-040-E	27	E4-88	142	FSCC-1619	163	H-18 mm	70-89	HDS-12-R/V	60
CO-08	160	DLC-052	27	E5120-FTY	58	FSCC-1619-R	163	H-20 mm	89	HDS-12-Y/V	60
CO-08I	160	DLC-060	27	E536-FTY	58	FSCC-2022	163	H-200	224	HDS-36-B	60
CO-10I	160	DLC-080	27	E548-FTY	58	FSCC-2022-R	163	H-22 mm	70-89	HDS-36-B	60
CO-12I	160	DLC-080-E	27	E560-FTY	58	FSCC-2528	163	H-28 mm	70-89	HDS-36-R	60
CO-14I	160	DLC-120	27	E572-FTY	58	FSCC-2528-R	163	H-300	224	HDS-6-36-R/V	60
COV-024	235	DLC-120-E	27	EB-06	100	FSCC-3335	163	H-35 mm	89	HDS-6-36-Y	60
COV-048	235	DLC-160	27	EB-08	100	FSCC-3335-R	163	H-42 mm	89	HDS-6-36-Y/V	60
COV-100	235	DLC-160-E	27	EB-10	100	FSCC-4244	163	H-75	224	HDS-60-B	60
CP102	162	DLC-200	27	EC-56	100	FSCC-4244-R	163	H-750	224	HDS-60-B	60
CP104	162	DLC-240	27	EC-810	100	FSCC-5255	163	HB-251	81	HDS-60-R	60
CP105	162	DLC-240-E	27	EE-30	100	FSCC-5255-R	163	HB-251M	81	HDS-60-R/V	60
CR4-220	20	DLC-320	27	EH-1	100	FSCC-5864	163	HB-451	82	HDS-60-Y	60
CR4-220/KPP	20	DLC-360	27	ER2-0064	142	FSCE-5864-R	163	HB-451M	82	HDS-60-Y/V	60
CR4-220/KTE	20	DLC-400	27	ER2-0084	142	FSCC-6571	163	HC-221-1	25	HDS-72-B	60
CR4-220/KTH	20	DM-1676	224	ER2-0086	142	FSCC-6571-R	163	HC-221-10	25	HDS-72-B/V	60
CR4-220/KTP	20	DM-1677	224	ER2-0108	142	FSCC-7280	163	HC-221-5	25	HDS-72-R	60
CR4-220/KTT	20	DM-1678	224	ES4-0044	142	FSCC-7280-R	163	HC-221-50	25	HDS-72-R/V	60
CR87-10	21	DM-1679	224	ES4-0066	142	FSCE-8892	163	HC-234-1	26	HDS-72-Y	60
CR87-14	21	DMF-S-02	156	ES4-0088	142	FSCE-8892-R	163	HC-2341-1	26	HDS-72-Y/V	60
CR87-16	21	DMF-S-03	156	ES4-1010	142	FSCC-98107	163	HC-2341-150	26	HDS-72-B/V	59
CR87-17	21	DMF-S-04	156	ES4-1212	142	FSCC-98107-R	163	HC-2341-50	26	HDS-72-R/V	59
CR87-18	21	DMF-S-06	156	FB-11	98	FSCO-3550	164	HC-234-150	26	HDS-72-Y/V	59
CR87-22	21	DMF-S-08	156	FB-2	98	FSCO-3575	164	HC-234-50	26	HER-319	226
CR87B-220C	21	DMF-S-10	156	FB-3	98	FSEC-3419	164	HCSS-404	26	HNS4-04	142
CRISTAL CLEAR	52-55	DMF-S-12	156	FB-4	98	FSEC-3535	164	HCT-212	102	HNS4-06	142
CRPEN	21	DMF-S-16	156	FB-5	98	FSNK-30M10	164	HCT-B	102	HNS4-08	142
CRPENB	20-21	DMF-S-20	156	FB-6	98	FSNK-30M8	164	HCTK-239	25	HNS4-10	142
CRPENR	20-21	DMF-S-24	156	FB-7	98	FSN-M10	164	HCTK-383	26	HNS4-12	142
CRX-02	151	DPS-300C	14	FB-8	98	FSN-M8	164	HCT-P	102	HP-3700	220-221-222
CRX-03	151	DS/O-12	39	FB-9	98	FSP2-3419	164	HCT-S	102	HP-3701	220-221-222
CRX-04	151	DS/O-134/6	39	FC-351	98	FSP3-3535	164	HDA-120-B	61	HP-3702	220-221-222
CRX-06	151	DT-1001C	14	FCB-353	98	FST-275	69-87	HDA-120-R	61	HP-3703	220-221-222
CRX-08	151	D1-1630	16	FCI-1	67	FST-275-M	87	HDA-120-Y	61	HP-3704	220-221-222
CRX-10	151	DT-50	197	FCT-2059	66	FST-450	82	HDA-36-B	61	HP-3706	220-221-222
CRX-12	151	DTH-1628	16	FCT-2059-030-2S	66	FST-450M	82	HDA-36-R	61	HP-3738	220-221-222
CRX-S-02	156	E-05	100	FCT-2059-030-AS	66	FSTR-1M6	164	HDA-36-Y	61	HPBV-04P	209
CRX-S-03	156	E-06	100	FCT-2059-050-2S	66	FSTR-1M8	164	HDA-60-B	61	HPBV-06MMP	209
CRX-S-04	156	E-08	100	FCT-2059-050-AS	66	FT-195	84	HDA-60-R	61	HPBV-06P	209
CRX-S-06	156	E-10	100	FCT-2059-080-2S	66	FT-220	88	HDA-60-Y	61	HPBV-08P	209
CRX-S-08	156	E1-03A	141	FCT-2059-080-AS	66	FT-220-B	88	HDA-72-B	61	HPBV-10MMP	209
CRX-S-10	156	E1-04A	141	FCT-2059-1000	66	FT-500	84	HDA-72-R	61	HPBV-10P	209
CRX-S-12	156	E1-04B	141	FCT-2059-100-2S	66	FT-500-M	69-84	HDA-72-Y	61	HPBV-12MMP	209
CRX-S-16	156	E1-04C	141	FCT-2059-100-AS	66	FT-525	70-84	HDCA-120-B	63	HPBV-12P	209
CRX-S-20	156	E1-05B	141	FCT-2059-120-2S	66	FT-525/C	84	HDCA-120-R	63	HPBV-14P	209
CRX-S-24	156	E1-06A	141	FCT-2059-120-AS	66	FTE-080	83	HDCA-120-Y	63	HPBV-16MMP	209
CSL-144-S	231	E1-06B	141	FCT-2059-150-2S	66	FTE-080-M	83	HDCA-36-B	63	HPBV-18P	209
CSL-145-S	231	E1-06C	141	FCT-2059-150-AS	66	FTE-089	83	HDCA-36-B/410	63	HPBV-19MMP	209
CSL-146-S	231	E1-06D	141	FCT-2059-180-2S	66	FTE-089-A	83	HDCA-36-R	63	HPBV-22MMP	209
CSL-147-S	231	E1-08B	141	FCT-2059-180-AS	66	FTE-800	83	HDCA-36-R/410	63	HPBV-22P	209
CSL-149-S	231	E1-08C	141	FCT-2059-200-2S	66	FTE-800-IM	83	HDCA-36-Y	63	HPBV-26P	209
CST-080	19	E1-08D	141	FCT-2059-200-AS	66	FTE-800-IMTRW	83	HDCA-60-B	63	HPBV-28MMP	209
CST-120	19	E1-08E	141	FCT-2059-5000	66	FTE-800-IMTRWS	83	HDCA-60-B/410	63	HPBV-34P	209
CT-ACP	193	E1-10C	141	FCT-4082B	67	FTE-800-IMTRWP	83	HDCA-60-R	63	HPBV-35MMP	209
CTP-1	76	E1-10D	141	FCT-4082B-050-2S	67	FTE-800-ITRWP	83	HDCA-60-R/410	63	HPBV-42MMP	209
CV-2G	110	E1-10E	141	FCT-4082B-050-AS	67	FTE-800-M	83	HDCA-60-Y	63	HPBV-42P	209
CV-3G	110	E1-12D	141	FCT-4082B-1000	67	G3F	106	HDCA-72-B	63	HPBV-50P	209
CW08-22	91	E1-12E	141	FCT-4082B-100-2S	67	GCHS	104	HDCA-72-B/410	63	HPBV-54MMP	209
CW08-32	91	E2-04	141	FCT-4082B-100-AS	67	GHNBR-06	104	HDCA-72-R	63	HPN	102
CW10-22	91	E2-06	141	FCT-4082B-150-2S	67	GHNBR-08	104	HDCA-72-R/410	63	HWS-8	92
D02050	160	E2-08	141	FCT-4082B-150-AS	67	GHNBR-10	104	HDCA-72-Y	63	HWS-8mm	92
D03050	160	E2-10	141	FCT-4082B-200-2S	67	GHNBR-12	104	HDCA-72-B/V	62	HX-3639	220-221-222
D04050	160	E2-12	141	FCT-4082B-200-AS	67	GL-050	167	HDCA-72-B/R/V	62	HX-3640	220-221-222
D05050	160	E303-FT-036	58-69	FCT-4082B-5000	67	GL-250	167	HDCA-120-Y/V	62	HX-3641	220-221-222
D06050	160	E303-FT-048	58	FCT-FRA-2059	66	GLD-237	200	HDCA-36-B/410/V	62	HX-3700	220-221-222
D08050	160	E303-FT-060	58	FCT-FNB-2059	66	GLD-3790	200	HDCS-36-B/V	62	HX-3701	221-222
D10050	160	E303-FT-072	58	FCT-FNR-2059	66	GLD-947	200	HDCS-36-R/410/V	62	HX-3702	220-221-222
D12050	160	E303-FT-120	58	FCT-FS-2059	66	GRT-143	214	HDCS-36-R/V	62	HX-3703	220-221-222
D14050	160	E3-04A	141	FCT-FT-2059	66	GRT-191	214	HDCS-36-Y/V	62	HX-3704	220-221-222
D18050	160	E3-04B	141	FCT-RFA-4082	67	GRT-254	214	HDCS-60-B/410/V	62	HX-3706	220-221-222
D22050	160	E3-06A	141	FCT-RFS-4082	67	GRT-318	214	HDCS-60-B/V	62	HX-3738	220-221-222
D26050	160	E3-06B	141	FCT-SET-2059C	66	GRT-381	214	HDCS-60-R/410/V	62	HX-3810	220-221-222
DB-009	188	E3-06C	141	FDL-032	42	GRT-510	214	HDCS-60-R/V	62	HX-3836	220-221-222
DB-061	188	E3-06D	141	FLUX-1802-D	163	GSK-024	235	HDCS-60-Y/V	62	HX-3839	220-221-222
DB-157	188	E3-08C	141	FLUX-1802-PF	163	GSK-048	235				

Part. nr.	Pag.	Part. nr.	Pag.	Part. nr.	Pag.	Part. nr.	Pag.	Part. nr.	Pag.	Part. nr.	Pag.
IMS-10	91	M-10	223	MP-02C	194	MV-2019	121	MV-5060	130	NS4-05	143
IMS-11	91	M-110	223	MP-03	194	MV-2020	121	MV-5164	131	NS4-06	143
IMS-12	91	M-15	223	MP-03C	194	MV-2028	121	MV-5171	122	NS4-06mm	143
IMS-13	91	M-20	223	MP-04	194	MV-2035	122	MV-5421	120	NS4-08	143
IMS-14	91	M2-106	55	MP-04C	194	MV-2037	122	MV-5501	132	NS4-10	143
IMS-15	91	M2-108	55	MP-06	194	MV-2038	121	MV-5512	112	NS4-10mm	143
IMS-16	91	M2-12MHH	50	MP-06C	194	MV-2041	121	MV-5514	112	NS4-12	143
IMS-17	91	M2-14	51	MP-08	194	MV-2050	115	MV-5516	112	NS4-12mm	143
IMS-18	91	M-30	223	MP-08C	194	MV-2060	115	MV-5518	112	NS4-16mm	143
IMS-19	91	M-60	223	MP-12	194	MV-2070	115	MV-5534	112	NS4-18mm	143
IMS-4D-37	93	M-80	223	MPF-M12	194	MV-2080	130	MV-5538	112	NS4-22mm	143
INC-100-05	212	MB1-ADS	45	MP-18	194	MV-2090	122	MV-5555	128	OAV-06FS	257
INC-100-08	212	MB1-ADS/VAC	45	MP-18C	194	MV-2094	122	MV-5558	112	OFD-553	255
INC-200-11	212	MB2-ADS	46	MPF-M10	194	MV-2098	122	MV-5560	128	OLC-12	255
INC-300-14	212	MB2-AP	49	MPF-M12	194	MV-2120	111	MV-5577	128	OPCV-1400	256
INC-300-17	212	MB4-ADS	47	MPF-M16	194	MV-2140	111	MV-5578	112	ORS-08	91
INC-300-22	212	MB5-ADS	48	MPF-M08	194	MV-2160	111	MV-7100	136	ORS-10	91
INC-400-27	212	MB-EP	52-69	MPR-M10	194	MV-2210	129	MV-7102	136	ORS-11	91
INC-500-31	212	MB-HH	52	MPR-M12	194	MV-2215	129	MV-7114	136	ORS-12	91
INJEC	4-39	MB-IP	52-69	MPR-M16	194	MV-2216	129	MV-7414	134	ORS-13	91
INSUL TAPE	167	MBP-EP	52	MR-14-BH	52	MV-2219	129	MV-7418	134	ORS-14	91
INT-024	235	MBP-IP	52	MR-14-RH	52	MV-2220	129	MV-8400	115	ORS-15	91
INT-300	235	MB-SP	52	MR-14-VK	52	MV-2225	129	MV-8403	118	ORS-16	91
INT-400	235	MB-SR	52	MR-14-VS	52	MV-2235	129	MV-8404	118	ORS-17	91
IPD-0406	165	MCO-06	160	MR-MM-032	152	MV-2243	117	MV-8405	118	ORS-18	91
IPD-0408	165	MCO-08	160	MR-MM-042	152	MV-2245	129-143	MV-8406	118	ORS-19	91
IPD-0410	165	MCO-10	160	MR-MM-043	152	MV-2250	129	MV-8408	118	ORS-20	91
IPD-0608	165	MCO-12	160	MR-MM-064	152	MV-2380	111	MV-8412	120	ORS-21	91
IPD-0610	165	MCO-15	160	MR-MM-082	152	MV-2500	117	MV-8414	120	ORS-22	91
IPD-0612	165	MCO-18	160	MR-MM-084	152	MV-2525	119	MV-8416	120	ORS-23	91
IPD-0812	165	MCO-22	160	MR-MM-086	152	MV-2540	125	MV-8418	120	ORS-24	91
IPS-04	165	MCSS-1	41	MR-MM-106	152	MV-2541	125	MV-8420	120	ORS-26	91
IPS-05	165	MCSS-1/44	41	MR-MM-108	152	MV-2542	125	MV-8434	120	ORV-08	255
IPS-06	165	MCSS-2	41	MS-04	217	MV-2580	111	MV-8438	120	ORV-12	255
IPS-08	165	MCSS-2/44	41	MS-06	217	MV-2594	123	MV-8458	120	ORV-15	255
IPS-10	165	MET-100-06	212	MS-08	217	MV-2595	123	MV-8478	120	ORVS-1008	256
IPS-12	165	MET-100-07	212	MS-10	217	MV-2597	123	MV-8490	120	OS-81	254
IPS-14	165	MET-200-12	212	MS-12	217	MV-2613	125	MV-85/G	131	OS-82	254
KRT-7920	12	MET-300-13	212	MS-14	217	MV-2812	112	MV-8500	130	OS-85	254
ITE-3700	30	MET-300-16	212	MS-18	217	MV-2814	112	MV-8505-050	131	OS-87	254
ITE-50V	57	MET-300-21	212	MS-22	217	MV-2816	112	MV-8520	52	OS-88	254
ITE-54V	57	MET-400-28	212	MS-26	217	MV-2834	112	MV-8725	116	OS-90	254
ITE-8010	28	MET-500-32	212	MS-34	217	MV-2838	112	MV-9160	117	OSC-85	254
ITE-8015	27	MF-1150C-024U	242	MSK-08	94	MV-2878	112	MV-94/G	118	OSC-87	254
ITE-8031	15	MF-1150C-048U	242	MSSK-26	94	MV-3018	111	MV-9404	118	OSC-88	254
ITE-8060	8	MF-1150C-230U	242	MT-02	152	MV-3034	111	MV-9601	123	OSC-90	254
ITE-8090	30	MF-1360C-110U	242	MT-03	152	MV-3036	111	MV-9602	123	OSC-92	254
ITE-8806B	4	MF-1900C-024U	242	MT-04	152	MV-3078	111	MV-9603	126	OST-2270	255
ITE-8900A	4	MF-4/LP-4/V2	36	MTI-06	152	MV-3090	128	MV-9608	124	OSI-700	255
ITE-8909	13	MF-4/LP-4/V2	36	MT-08	152	MV-3092	111	MV-9610	124	P2-03	144
ITE-H10PM	5	MFF-S-02	156	MT-10	152	MV-3094	111	MV-9611	126	P2-04	144
ITE-XTRA	3	MFF-S-03	156	MT-12	152	MV-3095	111	MV-9612	126	P2-05	144
ITE-XTRA-2	3	MFF-S-04	156	MT-16	152	MV-3098	111	MV-9613	126	P2-06	144
K1-01	142	MFF-S-06	156	MT-20	152	MV-3346	115	MV-9614	126	P2-08	144
K1-03	142	MFF-S-08	156	MT-24	152	MV-3368	115	MV-9616	126	P2-10	144
K1-05	142	MFF-S-10	156	MTS-04	217	MV-3570	189	MV-9620	126	P2-12	144
K1-08	142	MFF-S-12	156	MTS-06	217	MV-3600	116	MV-9628	126	PAS-090	211
K1-1/2-BSP	142	MFF-S-16	156	MTU-06	161	MV-3602	119	MV-AVX-6-050	118	PAS-22B	211
K1-10	142	MFF-S-20	156	MTU-08	161	MV-3603	119	MV-AVX-6-100	118	PAS-23B	211
K1-11	142	MFF-S-24	156	MTU-10	161	MV-3604	119	MV-AVX-6810	116	PAS-32B	211
K1-12	39-142	MFF-S-32	156	MTU-12	161	MV-3605	119	N4-04	143	PAS-33B	211
K1-12G	142	M-HDL-12-B	61	MTU-15	161	MV-3606	119	N4-05	143	PAS-761-US	211
K1-13	142	M-HDL-12-R	61	MTU-18	161	MV-3608	119	N4-06	143	PAS-768-US	211
K1-D	142	M-HDL-12-Y	61	MTU-22	161	MV-3619	116	N4-08	143	PAS-768-US	211
K1-E	142	M-HDL-6	39	MTU-28	161	MV-3688	132	N4-10	143	PAS-771B-US	211
KCK-F	113	M-HDL-6-B	61	MTU-35	161	MV-3800	132	N4-12	143	PAS-771R-US	211
KCK-M	113	M-HDL-6-R	61	MTU-42	161	MV-3813	132-135	N5-04	143	PAS-771-US	211
KIT-906	25	M-HDL-6-Y	61	MTU-64	161	MV-3814	132-135	N5-05	143	PAS-773-US	211
L-11509	203	MI-CAP	251	MTU-89	161	MV-3816	94-132-135	N5-06	143	PC-42	67-77
L-11511	204	MIR-1	69-105	MV-0077	132	MV-3820	128	N5-08	143	PC-42/BLADE	77
L-11513	203	MIR-1R	105	MV-0099	132	MV-3825	128	N5-10	143	PC-63	77
L-11575	70-202	MIR-2	70-105	MV-0101	132	MV-3827	128	N5-12	143	PCG-2642	77
L-22101	70	MIR-2R	105	MV-0111	132	MV-3900	127	NFT5-6	143	PCG-35	77
L-36473	203	MIR-3	105	MV-1010	119	MV-3910	127	NH3-2S-048	68	PCG-B2642	77
L-41600	202	MIR-3R	105	MV-1060	132	MV-3915	128	NH3-2S-060	68		
L-49050	202	MIR-4	105	MV-1090	132	MV-3916	128	NH3-2S-06-072	68	PCG-B35	77
LEAK-118	201	MIR-4R	105	MV-1200	115	MV-3917	128	NH3-2S-06-120	68	PFB-06	99
LEAK-40	201	MIR-5	105	MV-1212	119	MV-3920	127	NH3-2S-072	68	PFB-08	99
LEAK-474	201	MIR-5R	105	MV-1414	116	MV-3930	127	NH3-2S-120	68	PFB-10	99
LEAK-TEFLON-40	201	MK-040-DS	34	MV-1414C	116	MV-3936	127	NRS4-0043	143	PFB-12	99
LG-712	226	MK-060-DS	34	MV-1428	125	MV-3956	131	NRS4-0054	143	PFB-14	99
LP-4	36	MK-120-DS	34	MV-1438	125	MV-4338	110	NRS4-0064	143	PFB-16	99
LRV-1018	256	MK-180-DS	34	MV-1440	124	MV-4358	110	NRS4-0065	143	PFB-18	99
LRV-1039	256	MK-280-DS	34	MV-1441	116	MV-4445	132	NRS4-0086	143	PIPETTE/1	198
LRV-1092	256	M-MM-02	152	MV-1444	124	MV-4449	132	NRS4-0108	143	PIPETTE/2	198
LT-10G	110	M-MM-03	152	MV-1446	124	MV-4545	117	NRS4-1/2x10mm	143	PM-120C	13
LT-3G	110	M-MM-04	152	MV-1454	116	MV-4900	115	NRS4-1210	143	PM-80-B	55
LT-4G	110	M-MM-06	152	MV-1808	119	MV-4910	131-143	NRS4-3/4x16mm	143	PM-80-R	55
LT-5G	110	M-MM-08	152	MV-1818	116	MV-5013	39-134	NRS4-3/8x6mm	143	PM-823-GC-BC/247	56
LT-6G	110	M-MM-10	152	MV-1818C	116	MV-5014	134	NRS4-3/8x8mm	143	PM-823-GC-BC/447	56
LT-8G	110	M-MM-12	152	MV-2000	121	MV-5016	39-134	NRS4-5/8x12mm	143	PM-823-GC-BC/CO2	56
LTC-1	70	M-MM-16	152	MV-2010	121	MV-5036	134	NRS4-5/8x15mm	143	PM-823-GC-BPC/410	56
M-02	223	MMS-200	226	MV-2012	121	MV-5044	125	NRS4-7/8x20mm	143	PM-825-GC-BC/247	56
M-03	223	MMS-80	226	MV-2014	121	MV-5050	115	NS			

Part. nr.	Pag.	Part. nr.	Pag.	Part. nr.	Pag.	Part. nr.	Pag.	Part. nr.	Pag.	Part. nr.	Pag.
PM-825-GC-BPC/410	56	QVA-03	39-133	RHP-163	229	SF-28-254	188	T2-12	144	TM-99A	10
PMK-08-ALL	35	QVA-03/R1234y	133	RHP-163-S	229	SF-28-300	188	T3-04A	144	TP113-010	166
PMK-09-ALL	35	QVA-05	39-133	RHP-164	229	SG-110	252	T3-04B	144	TP113-012	166
PMK-10-ALL	35	QVA-05/R1234y	133	RHP-164-S	229	SG-110R	252	T3-06B	144	TP113-015	166
PMK-11-ALL	35	QVA-103	133	RHP-165	229	SG-111	252	T3-08D	144	TP113-018	166
PMK-29-ALL	35	QVA-105	133	RHP-165-S	229	SG-111R	252	T3-12E	144	TPI13-022	166
PMK-30-ALL	35	QVA-SET1	133	RIO-208	69-70-98	SG-114	252	T3F-02	151	TPI13-028	166
PO-230	192	QVA-SET1	133	RK-800B	55	SG-114R	252	T3F-03	151	TPI13-035	166
PPL-10	96	QWIKCHECK	199	RK-800R	55	SG-115	252	T3F-04	151	TPI13-042	166
PR-AIR	15	R-600A-BP	56	RO-41	192	SG-115R	252	T3F-06	151	TPI13-048	166
PRH-4D-24	92	R-600A-HP	56	RO-42	192	SG-118	252	T3F-08	151	TPI13-054	166
PROBE-01/V2	22	RA-500	5	RO-62	192	SG-118R	252	T3F-10	151	TPI13-060	166
PROBE-03/V2	22	RA-500P	5	RO-82	192	SG-119	252	T3F-12	151	TPI13-064	166
PROBE-06/V2	22	RB-4240	70-162	ROP-06	36	SG-119R	252	T3F-16	151	TPI13-070	166
PR-PUNCT	15	RCH-10	40-193	ROT-100-S02-C	213	SG-204	252	T3F-S-02	155	TPI13-076	166
PR-SURF	15	RCH-10/V2	40-193	ROT-100-S03-C	213	SG-204R	252	T3F-S-03	155	TPI13-089	166
PRT-8020	28	RCO-420	192	ROT-100-S05-C	213	SG-205	252	T3F-S-04	155	TPI13-102	166
PSBD-606	191	RCYL-12L	40	ROT-100-S06-C	213	SG-205R	252	T3F-S-06	155	TPI13-108	166
PSBD-606M	191	RCYL-30L	40	ROT-200-1x3/8	213	SG-206	252	T3F-S-08	155	TPI13-114	166
PSBS-02*	191	RCYL-50L	40	ROT-200-S07-C	213	SG-206R	252	T3F-S-10	155	TPI13-125	166
PSBS-03*	191	RED-FF-S-0021	155	ROT-200-S08-C	213	SG-207	252	T3F-S-12	155	TPI13-140	166
PSBS-04*	191	RED-FF-S-0032	155	ROT-200-S11-C	213	SG-207R	252	T3F-S-16	155	TPI13-160	166
PSBS-05*	191	RED-FF-S-0042	155	ROT-200-S12-C	213	SG-208	252	T3F-S-20	155	TPI20-015	166
PSBS-10*	191	RED-FF-S-0043	155	ROT-200-S14-C	213	SG-208R	252	T3F-S-24	155	TPI20-018	166
PS-HP200-150	189	RED-FF-S-0062	155	ROT-202-1x1/2	213	SG-209	252	T6-4	144	TPI20-022	166
PS-HP250-150	189	RED-FF-S-0063	155	ROT-202-1x3/8	213	SG-209R	252	TAHL-5	9	TPI20-028	166
PS-HP300-200	189	RED-FF-S-0064	155	ROT-222-11/4x3/4	213	SH-1075	11	TB-03	99	TPI20-035	166
PS-HP350-250	189	RED-FF-S-0082	155	ROT-222-11/4x5/8	213	SH-2010	11	TB-06	70-99	TPI20-042	166
PS-HP400-200	189	RED-FF-S-0083	155	ROT-222-1x5/8	213	SH-4011	11	TB-16	70-99	TPI20-048	166
PS-HP400-300	189	RED-FF-S-0084	155	ROT-300-S17-C	213	SH-4040	11	TB-364-04	78	TPI20-054	166
PS-HP450-250	189	RED-FF-S-0086	155	ROT-300-S21-C	213	SH-5005	11	TB-364-05/8mm	78	TPI20-060	166
PS-LP05-20	189	RED-FF-S-0102	155	ROT-300-S22-C	213	SH-5028	11	TB-364-06	78	TPI20-064	166
PS-LP10-25	189	RED-FF-S-0103	155	ROT-302-11/4x11/8	213	SH-66-AC	10	TB-364-06mm	78	TPI20-070	166
PS-LP25-50	189	RED-FF-S-0104	155	ROT-302-11/4x3/4	213	SH-9010	11	TB-364-08	78	TPI20-076	166
PS-LP25-80	189	RED-FF-S-0106	155	ROT-302-11/4x7/8	213	SH-9015	11	TB-364-10	78	TPI20-089	166
PS-LP40-80	189	RED-FF-S-0108	155	ROT-302-13/4x7/8	213	SK-11	69	TB-364-10mm	78	TPI20-102	166
PS-MF-HP-410	189	RED-FF-S-0122	155	ROT-352-13/4x11/8	213	SK-21	69	TB-364-12	78	TPI20-108	166
PSO-2B	210	RED-FF-S-0123	155	ROT-352-13/4x13/8	213	SK-21A	69	TB-364-12/H	78	TPI20-114	166
PSO-2S	210	RED-FF-S-0124	155	ROT-400-S28-C	213	SK-21E	69	TB-364-12mm	78	TPI20-125	166
PSO-3B	210	RED-FF-S-0126	155	ROT-500-S31-C	213	SK-61	70	TB-364-15mm	78	TPI20-140	166
PSO-3S	210	RED-FF-S-0128	155	ROT-500-S32-C	213	SK-6/inch	70	TB-364-16mm	78	TPI20-160	166
PSO-4B	210	RED-FF-S-0162	155	RS-09	195	SLM-8050	29	TC-0316	73	TPI32-018	166
PSO-4S	210	RED-FF-S-0163	155	RS-128C	17	SOLDER-118	202	TC-0316-H	73	TPI32-022	166
PSO-5B	210	RED-FF-S-0164	155	RS-128R	17	SP-120	16	TC-0328	73	TPI32-028	166
PSO-5S	210	RED-FF-S-0166	155	RS-15	195	SP-94	88	TC-0328-H	73	TPI32-035	166
PSO-7S	210	RED-FF-S-0168	155	RS-20	195	SP-95	88	TC-0432-ZR	73	TPI32-042	166
PSO-9S	210	RED-FF-S-1210	155	RS-31	195	SPUN-619	225	TC-0432-ZRH	73	TPI32-048	166
PT-100	17	RED-FF-S-1612	155	RSD-175	94	SPUN-621	225	TC-0638-R	74	TPI32-054	166
PT-109	95	RED-FF-S-2008	155	RSS-62	93	SRH-77A	11	TC-0638-RH	74	TPI32-060	166
PT-14285	96	RED-FF-S-2012	155	RTC-127	76	SRP-08	97	TC-1000	75	TPI32-064	166
PTCB-340	101	RED-FF-S-2016	155	RTC-127-A	76	SSL-083	230	TC-1000-SP	75	TPI32-070	166
PTCB-350	101	RED-FF-S-2412	155	RTC-127-B	76	SSL-084	230	TC-10168-Z	77	TPI32-076	166
PTCB-360	101	RED-FF-S-2416	155	RTC-274	76	SSL-084-S	230	TC-10168-ZC	74	TPI32-089	166
PTCB-370	101	RED-FF-S-2420	155	RTC-274-A	76	SSL-165	230	TC-1020	75	TPI32-108	166
PTCB-380	101	RED-FF-M-0032	153	RTC-274-B	76	SSL-165-S	230	TC-1050	75	TPI32-114	166
PTCB-390	101	RED-MF-0042	153	RW-0608/1012	90	SSL-166-S	230	TC-1050-SP	75	TPI32-125	166
PTR-1	70-98	RED-MF-0043	153	RW-0910/1112	90	SSL-307-S	230	TC-127	69-73	TPI32-140	166
PTR-1B	98	RED-MF-0062	153	RW-1012/1314	90	SSL-419-S	230	TC-2050	75	TPI32-160	166
PTR-2	98	RED-MF-0064	153	RW-124	90	SSL-4811-S	230	TC-206	74	TPI9-006	166
PV3P-10102	76	RED-MF-0084	153	RW-127	69-90	SSL-4813-S	230	TC-274	69-70-73	TPI9-008	166
PVB-10102	76	RED-MF-0086	153	RW-1314/1719	90	STB-7000	70-105	TC-307	67-76	TPI9-010	166
PVC-200/2 mm	195	RED-MF-0106	153	SA-1/8	251	STT-796	197	TC-312	74	TPI9-012	166
PVC-300/3 mm	195	RED-MF-0108	153	SA-13/8	251	STT-800	197	TC-5140-Z	77	TPI9-015	166
PVC-CLIP-200	195	RED-MF-0128	153	SA-15/8	251	STT-891	197	TC-5140-ZC	74	TPI9-018	166
PVC-CLIP-300	195	RED-MF-1210	153	SA-21/8	251	SUNISO-3,5GS-04	206	TC-B307	76	TPI9-022	166
PVC-RAIL	195	RED-MF-S-0032	155	SA-507	254	SUNISO-3GS-04	206	TC-R06C	74	TPI9-028	166
PW-5014	97	RED-MF-S-0042	155	SACV2-04	210	SUNISO-3GS-20	206	TC-R06H	74	TPI9-035	166
PW-5036	97	RED-MF-S-0043	155	SACV3-04	210	SUNISO-4GS-04	206	TC-S03	74	TPI9-042	166
QAA-04	113	RED-MF-S-0062	155	SACV3-06	210	SUNISO-4GS-20	206	TCS-0332	76	TPI9-048	166
QAA-05	113	RED-MF-S-0063	155	SACV3-08	210	SUNISO-5G-04	206	TC-S04	74	TPI9-054	166
QAA-06	113	RED-MF-S-0064	155	SACV3-10	210	SUNISO-SL22-04	206	TC-S05	74	TPI9-060	166
QAG-04	113	RED-MF-S-0082	155	SACV3-12	210	SUNISO-SL32-04	206	TCS-38114	76	TPI9-064	166
QAG-05	113	RED-MF-S-0083	155	SB-002	188	SUNISO-SL46-04	206	TC-W03C	74	TPI9-070	166
QAG-06	113	RED-MF-S-0084	155	SB-003	188	SUNISO-SL68-04	206	TC-W03H	74	TPI9-076	166
QAI-04	113	RED-MF-S-0086	155	SB-007	188	SUPER-3790	204	TC-W06A	74	TPI9-089	166
QAI-05	113	RED-MF-S-0104	155	SB-049	188	SUPER-947	204	TC-W06H	74	TPI9-102	166
QAI-06	113	RED-MF-S-0106	155	SB-101	188	SV2W-38/110	35	TC-W51A	74-77	TPI9-108	166
QC-13445-134a	133	RED-MF-S-0108	155	SB-103	188	SV2W-38/220	35	TC-W51C	74-77	TPI9-114	166
QC-2342	133	RED-MF-S-0122	155	SB-110	188	SV2W-38/627-VRP-11035	35	TE-6-01	70-89	TPM-1/V2	22
QCA-5/16x1/4	131	RED-MF-S-0123	155	SB-113	188	SV2W-38/627-VRP-22035	35	TE-6-02	89	TPM-2/V3	22
QCCA	99	RED-MF-S-0124	155	SBLT-024	235	SWM-4D-41	93	TEC-7	89	TPM-58	14
QC-E3	39	RED-MF-S-0126	155	SBLT-048	235	TEC-7/TR	89	TPM-62	14	TPM-62	14
QC-E64	121	RED-MF-S-0128	155	SBLT-100	235	TEC-8/TR	89	TR2-00446	144	TR2-00446	144
QCF-04	113	RED-MF-S-0168	155	T1-04C	144	TECM-6	89	TR2-00664	144	TR2-00664	144
QCF-06	113	RED-MF-S-1210	155	T1-06B	144	TEM-6	89	TR2-00668	144	TR2-00668	144
QCM-04	113	RED-MF-S-1610	155	SBS-2754	192	T1-06C	144	TG-01	103	TR2-00886	144
QCM-06	113	RED-MF-S-1612	155	SBS-3178	192	T1-08C	144	TH-820	24	TRACE2-118	201
QC-S2	133	RED-MF-S-2016	155								

Part. nr.	Pag.	Part. nr.	Pag.	Part. nr.	Pag.	Part. nr.	Pag.	Part. nr.	Pag.	Part. nr.	Pag.
TS-RC	96	U3-04C	145	US-1/4-MM	250	VAS-11	234	WS-ASV	7		
TS-SC	96	U3-05A	145	US-14412-SW	236	VAS-12 mm	234	X01050	177		
TSWM-10	23	U3-05B	145	US-14413	236	VAS-16 mm	234	X01051	177		
TSWM-2/V2	22	U3-06A	145	US-162	227-228	VAS-18 mm	234	X01052	177		
TSWM-30	23	U3-06B	145	US-163	227-228	VAS-22 mm	234	XLD-6050	3		
TSWM-35	23	U3-06C	145	US-163-S	227-228	VAS-28 mm	234	XPC-06M	89		
TSWM-35/EXT	23	U3-06D	145	US-164	227-228	VAS-35 mm	234	XPC-07I	89		
TT1-001	198	U3-08B	145	US-164-S	227-228	VAS-42 mm	234	XPC-T	89		
TT2-001	198	U3-08C	145	US-165	227-228	VAS-54 mm	234	ZERICE	206		
TU-04	161	U3-08D	145	US-165-S	227-228	VAS-82	234	ZEROL-150-5L	206		
TU-06	161	U3-10C	145	US-19216-SW	236	VAS-83	234				
TU-08	161	U3-10D	145	US-30021	236	VAS-84	234				
TU-10	161	U3-10E	145	US-304	146	VAS-86	234				
TU-12	161	U-400-S17	214	US-304-S	146	VASC-01	233				
TU-14	161	U4-04	145	US-304-S	146	VASC-02	233				
TU-16	161	U4-06	145	US-3064	146	VASC-03	233				
TU-18	161	U4-08	145	US-3065	146	VASC-04	233				
TU-22	161	U4-10	145	US-3066	146	VASC-05	233				
TU-26	161	U4-12	145	US-3068	146	VASC-06	233				
TU-34	161	U-500-S22	214	US-3086	146	VASC-07	233				
TWM-1/V2	22	U-500-S27	214	US3-0088	146	VASC-08	233				
TX-9	70-105	U5-04A	145	US3-0108	146	VASC-09	233				
U1-03A	144	U5-04B	145	US-303	227-228	VASC-10	233				
U1-04A	144	U5-06B	145	US-304	227-228	VASC-10 mm	233				
U1-04B	144	U5-08D	145	US-304-S	227-228	VASC-11	233				
U1-04C	36-144	U6-4A	145	US-305	227-228	VASC-12 mm	233				
U1-04D	144	U6-4B	145	US-305-S	227-228	VASC-16 mm	233				
U1-04M14	39-133	UFF-02	152	US-30610	146	VASC-18 mm	233				
U1-05A	144	UFF-03	152	US-307-S	227-228	VASC-22 mm	233				
U1-05B	144	UFF-04	152	US-30810	146	VASC-28 mm	233				
U1-05C	144	UFF-06	152	US-31010	146	VASC-35 mm	233				
U1-06A	144	UFF-08	152	US-31012	146	VASC-42 mm	233				
U1-06B	144	UFF-10	152	US-31014	146	VASC-54 mm	233				
U1-06C	36-144	UFF-12	152	US-31212	146	VASC-82	233				
U1-06D	144	UFF-S-02	156	US-31214	146	VASC-83	233				
U1-06E	144	UFF-S-03	156	US-40016-SW	236	VASC-84	233				
U1-06M14	39-133-144	UFF-S-04	156	US-40017	236	VASC-85	233				
U1-08A	144	UFF-S-06	156	US-40021	236	VASC-86	233				
U1-08B	144	UFF-S-08	156	US-404	146	VG-10	96				
U1-08C	144	UFF-S-10	156	US-406	146	VG-12	95				
U1-08D	144	UFF-S-12	156	US-408	146	VG-12ING	95				
U1-08E	144	UFF-S-16	156	US-410	146	VG-14	95				
U1-1100-S03	215	UFF-S-20	156	US-414	227-228	VG-14G	95				
U1-1100-S05	215	UFF-S-24	156	US-415	227-228	VG-14I	95				
U1-1100-S06	215	UMF-02	152	US-415-S	227-228	VG-16	97				
U1-10B	144	UMF-03	152	US-417-S	227-228	VG-17	97				
U1-10C	144	UMF-04	152	US-419-S	227-228	VG-18	95				
U1-10D	144	UMF-06	152	US-485	236	VG-19	96				
U1-10E	144	UMF-08	152	US-487	236	VN-05-13/1056/V2	187				
U1-12D	144	UMF-10	152	US-489	236	VN-10-20/1103/V2	187				
U1-12E	144	UMF-12	152	US5-0044	146	VNT--18-30/46/V2	187				
U1-1200-S07	215	UMF-16	152	US5-0066	146	VNT--25-40/25/V2	187				
U1-1200-S08	215	UR2-0043	145	US5-0088	146	VNT--34-45/25/V2	187				
U1-1200-S12	215	UR2-0054	145	US5-1010	146	VOC-10	242				
U1-1300-S13	215	UR2-0064	145	US-810-CF	237-238	VOC-15	242				
U-1300-S14	215	UR2-0065	145	US-810-CM	236-237-238	VOC-18	242				
U-1300-S16	215	UR2-0084	145	US-810-F	236-237-238	VPC-40	35				
U-1300-S17	215	UR2-0086	145	US-824-CM	237-238	VPF-40	35				
U-1300-S21	215	UR2-0104	145	US-83713	239	VT-400	29				
U-1300-S22	215	UR2-0106	145	US-848-C	236-237-238	W3-V-80	57				
U-1400-S28	215	UR2-0108	145	US-848-CC	236-237-238	WA-1000	106				
U-1400-S31	215	UR2-0128	145	US-848-CF	237-238	WB-1	99				
U-1400-S32	215	UR2-1210	145	US-848-F	236-237-238	WBO-100	196				
U-1500-S05	215	UR3-0045	146	US-85713	239	WBO-100N	196				
U-1500-S06	215	UR3-0046	146	US-85721	239	WBO-120	196				
U-1600-S08	215	UR3-0048	146	US-86725	239	WBO-120N	196				
U-1600-S11	215	UR3-0064	146	US-9610-SW	236	WBO-150R	196				
U-1700-S13	215	UR3-0065	146	US-9613	236	WBO-250	196				
U-1700-S14	215	UR3-0068	146	USTK-04	146	WBO-K10	196				
U-1700-S16	215	UR3-0084	146	USTK-06	146	WBO-K10N	196				
U-1700-S17	215	UR3-0086	146	USTK-08	146	WBO-K12	196				
U-1700-S21	215	UR3-0106	146	USTK-10	146	WBO-K12N	196				
U-1700-S22	215	UR3-0108	146	USTK-12	146	WBO-K15	196				
U-1800-S28	215	UR3-0810	146	USTKR-46	146	WBO-K15R	196				
U-1800-S31	215	UR3-1012	146	UVL-240	4-39-201	WBO-K25	196				
U-1800-S32	215	UR3-1210	146	UVL-50W	4	WCP-010/230V	190				
U-2000-S07	214	URSC-20	192	UVL-AC	4	WCP-020/230V	190				
U-2000-S08	214	US-032	227-228	UVL-BCQ	4	WDT-128-BODY	17				
U2-03	145	US-032-S	227-228	UVL-BCS	4	WDT-128C	17				
U2-04	145	US-033-S	227-228	UVL-GLASS	4	WDT-128R	17				
U2-05	145	US-052	227-228	UVL-PBP	4	WKL-5	106				
U2-06	145	US-052-S	227-228	UX1-4A	146	WM-80-B	55				
U2-08	145	US-053	227-228	UX1-4B	146	WM-80-R	55				
U2-10	145	US-053-S	227-228	V-35040	212	WPP-9	97				
U2-12	145	US-082	227-228	V-35042	212	WS-005	6				
U-2300-06	214	US-082-S	227-228	VA-39	116	WS-005-1L-1/4	6				
U-2300-08	214	US-083	227-228	VAS-01	234	WS-005-1L-5/16	6				
U-2300-10	214	US-083-S	227-228	VAS-03	234	WS-005-1L-7/16	6				
U-2300-14	214	US-084	227-228	VAS-04	234	WS-055	6				
U-300-S08	214	US-084-S	227-228	VAS-05	234	WS-150	7				
U-300-S11	214	US-1/2-SS	250	VAS-06	234	WS-30	42				
U-300-S13	214	US-3/8-SS	250	VAS-08	234	WS-AC	7				
U-300-S14	214	US-5/8-SS	250	VAS-09	234	WS-AC-EU	7				
U3-04A	55-145	US-11/8-SS-RC	250	VAS-10	234	WS-AC-UK	7				
U3-04B	55-145	US-1/4-MF	250	VAS-10 mm	234	WS-AC-USA	7				

ELECTRONIC MEASUREMENT and CONTROL INSTRUMENTS



ELECTRONIC MEASUREMENT and CONTROL INSTRUMENTS



ELECTRONIC MEASUREMENT AND CONTROL INSTRUMENTS

1. "ITE" XTRA LEAK DETECTOR

The new ITE-XTRA offers every feature you've ever wished for in a halogen leak detector. Innovative MPC circuitry with advanced digital signal processing which monitors the sensing tip 2000 times per second. This is a professional grade, contractor tough tool designed with reliability and sensitivity in mind.

ITE-XTRA AUTOMATIC HALOGEN LEAK DETECTOR

FEATURES

- Detects all halogenated refrigerants CFC, HFC and HCFC.
- Tricolor visual display.
- Ideal for refrigeration, airconditioning and automotive A/C maintenance.
- Certified to SAEJ1627 and EN35-422 for R134a, R12, R22.
- Microprocessor control with advanced digital signal processing.
- **35,5 cm (14") flexible, stainless probe.**
- Seven (7) levels of sensitivity provide an increase of up to 64x.
- Tactile keypad controls. Real time sensitivity adjustment.
- Battery test function with battery voltage indication.
- True mechanical pumping provides positive airflow through sensing tip.
- Mute feature included.
- Cordless and portable, operates on 2 "C" cell alkaline batteries (3 V DC).
- Supplied in resistant carrying case.

SPECIFICATIONS

- Ultimate sensitivity: Less than 3 g (0,1 oz) / year for all halogen based refrigerants. Sensitivity: Less than 14 g (1,5 oz) / year for R12, R22 and R134a.
- Sensing tip life: Approx. 20 hours.
- Operating temperature: **0°C to +52°C (30°F to +125°F)**.
- 2 batteries LR14 (1,5 V) included.
- Battery life: approx. 30 hours normal use.
- Duty cycle: continuous, no limitation.
- Response time: instantaneous.
- Reset time: one second.
- Warm-up time: approximately 2 seconds.
- Dimensions: 23 cm x 6,5 cm x 6,5 cm.
- Weight: 560 g.

SPARE PARTS

ITE-XTRA-2 Maintenance kit (3 sensor tips and 3 tip protectors)

2. "ITE" XTREME LEAK DETECTOR

XLD-6050

AUTOMATIC HALOGEN LEAK DETECTOR for CFC, HFC, HCFC including R134a and R404A. With a flexible probe 450 mm (18") long for access to motor compartments or other 'hard to reach' areas.

FEATURES

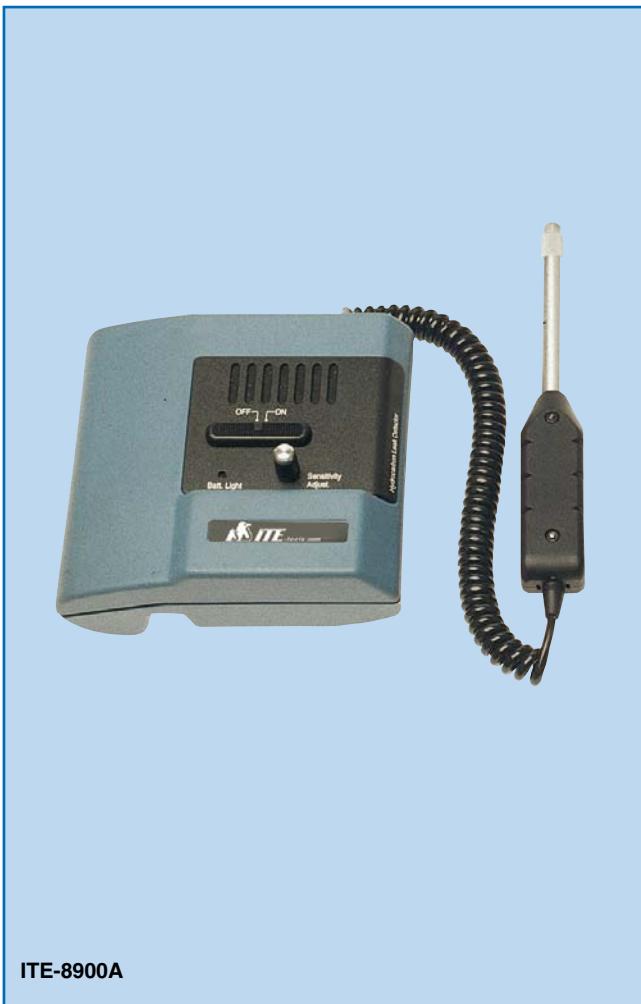
- Microprocessor controlled and advanced digital signal processing ability.
- Tricolor visual display.
- Seven levels of sensitivity allowing to increase the sensitivity up to 64 times.
- Touchpad controlled.
- Real time sensitivity adjustment.
- Battery condition indication.
- Suitable for all halogenated refrigerants.
- Reset touchpad on the probe handle to eliminate ambient influences at any time.
- Equipped with mechanical pump to provide a positive and increased airflow through the sensor tip.
- Audio mute function.
- Extendable coiled cord connection between the probe handle and instrument case for more convenient use.
- Flexible, rubber protected stainless steel end probe, length 45 cm.
- Supplied with rechargeable batteries and charger with interchangeable EU and UK electrical plugs.



ITE-XTRA



XLD-6050



3. "ITE" ELECTRONIC LEAK DETECTOR FOR OTHER GASES

Suitable for most combustible gases, including PROPANE, ISO-BUTANE and AMMONIA. All are suitable for use in Class 1, Group A, B,C and D (Hazardous) locations.

ITE-8900A

MICRO-PUMP LEAK DETECTOR

Automatic combustible gas detector. Visual leak size indicator. Adjustable sensitivity.

Sensitivity from **5 PPM** to **2000 PPM**.

Suitable for gasoline, propane, Iso-butane, natural gas, ammonia (NH_3) and other compounds.

FEATURES

- Visual leak size indicator.
- High efficiency pump in probe handle reduces response time.
- Automatic warm-up time \pm 30 seconds. Adjustable sensitivity.
- Cordless operation - power supply rechargeable 2 (2,4 V) Ni-cad batteries (included).
- Battery charge life: 4 hours - battery charger included.
- Low battery indicator. Response time: instantaneous.
- Operating temperature range: **0°C** to **+50°C**.
- Sensitivity for Iso-butane is **50 PPM**.
- Supplied with CE mark.

APPLICATIONS

- Detect leaks in automobile exhaust and fuel systems.
- Detect leaks in liquid or gas fired heating systems.
- Safety checks at propane filling stations.
- Search for arson residue (detect accelerants).
- Detect fuel in marine bilges.
- Check fuel tanks before welding.
- Check manholes / sewers for safety.
- Check for cracked heat exchangers.
- Detect solvent residues.

REPLACEMENT PARTS

ITE-8806B

Battery charger



4. UV LEAK DETECTION LAMP

UVL-50W

UV LAMP, 12 V DC 50 W

FEATURES

- The lamp is fan cooled to lower the temperature, to protect the operator from harm, and to extend bulb life when in use.
- Compact size for easy use.
- The filter is made of highest grade material allowing stronger light output.
- Delivered with glasses and 12 V car battery charger.

ACCESSORIES AND SPARE PARTS

UVL-BCQ

Battery charger, 230 V - 50 Hz (1,5 A - 5 hours)

UVL-BCS

Battery charger, 230 V - 50 Hz (0,5 A - 14 hours)

UVL-AC

Switching adapter to directly connect to the lamp, 100 V - 240 V, 50 Hz - 60 Hz, 1,5 A

UVL-PBP

Portable battery pack with bag, 12 V, 7,2 Ah

UVL-GLASS

UV protection glasses

UVL-240

Universal A/C fluorescent DYE 240 ml (see page 201)

INJEC

System injector (see page 39)

5. "ITE" HEATED DIODE PROFESSIONAL REFRIGERANT LEAK DETECTOR

ITE-H10PM PROFESSIONAL REFRIGERANT LEAK DETECTOR
EXCEEDS "SAE J1627" MOVING PROBE SPECS.

FEATURES

- The most sensitive battery powered leak detector on the market today. New extended sensor life mode.
- Certified to meet SAE J1627 moving probe specifications.
- Auto-balance (auto zero) circuitry and 3 sensitivity ranges allow you to "WALK IN" on leaks without further adjustments.
- Suitable for any CFC, HCFC, HFC or blends.
- Supplied in resistant ABS casing. Made in the U.S.A.
- Power supply: lead acid battery including 220 V adapter.
- Battery clamp or cigarette lighter adapter.
- Supplied with CE mark.

SPECIFICATIONS

SENSITIVITY:	Small position: 14,2 g / yr HFC - 1,5 g / yr CFC and HCFC
	Medium position: 28,4 g / yr HFC - 14,2 g / yr CFC and HCFC
	Sensor Saver: 141,8 g / yr HFC - 56,7 g / yr CFC and HCFC

REFERENCE LEAK: equal to \pm 12 g / yr R134a (\pm 6 months life time)
POWER SUPPLY: 10 V DC to 16 V DC recharge circuit built in (Std 12V)

POWER OPTIONS: 220 V AC Adapter (Included)

12 V DC battery clamp adapter

Automotive cigarette lighter adapter

LOW BATTERY: Indicator light "ON" \pm 5 min. before end
BATTERY LIFE: 1,5 hours (continuous) before recharging



ITE-H10PM



6. "ITE" PORTABLE REFRIGERANT GAS ANALYZER

RA-500 REFRIGERANT ANALYSER

FEATURES

- RA-500 utilizes dispersive infrared (NDIR) technology to determine the weight concentrations of R12, R134a, R22, hydrocarbons and air.
- It also features exclusive "Blend-ID" analytical software, which quickly and accurately indicates the presence of EPA S.N.A.P. approved blend refrigerants.
- This instrument automatically determines if the purity of R12 and R134a refrigerant is at industry acceptable levels, eliminating potential for human error. Pure refrigerant is defined as a refrigerant that is 98 % pure by weight or greater of either R12 or R134a.

SPECIFICATIONS

- Exceptionally portable design – goes anywhere you need to go.
- Identifies EPA S.N.A.P. approved blends on large graphing display.
- Versatile and easy-to-use.
- Weight: 3,50 kg (8,0 lbs).
- Power requirements: 12 V DC - 15 V DC, Optional battery pack (Internal).
- Battery LR14 (1,5 V) included.
- Output: Digital display and LED's, optional Printer module.
- Refrigerant: R12, R134a, R22, HC and EPA S.N.A.P. approved blends.
- Resolution: 0,1 %.
- Operating humidity: 0 % - 95 % RH non-condensing.
- Operating temperature: +5°C to +55°C (+40°F to +130°F).
- Display: 128 x 64 pixel graphing.

RA-500P REFRIGERANT ANALYSER WITH BUILT-IN PRINTER

FEATURES

- Same specifications as above.
- Printer module for on-the-spot receipt.



RA-500



“ITE“ ELECTRONIC CHARGING & RECOVERY UNITS

WS-005 DIGITAL WEIGHING SCALE

FEATURES

- Maximum weight capacity: **5000 g.**
- Accuracy: **0,5 g.**
- Operating temperature: **15°C to 30°C.**
- 3 batteries AA (1,5 V) included.
- Low battery indication.
- Auto power off (after 15 minutes without any change in weight, the scale will turn off. This auto off time of 15 min can be extended).
- Three display modes g, lb, oz.
- Can also be operated on 220 V.
- **Supplied with CE mark.**

WS-005-1L-1/4 DIGITAL WEIGHING SCALE

DIGITAL WEIGHING SCALE

equipped with refrigerant bottle valve with **1/4"** connection (+ depressor pin).

WS-005-1L-5/16 DIGITAL WEIGHING SCALE

DIGITAL WEIGHING SCALE

equipped with refrigerant bottle valve with **5/16"** connection (+ depressor pin).

WS-005-1L-7/16 DIGITAL WEIGHING SCALE

DIGITAL WEIGHING SCALE

equipped with refrigerant bottle valve with **7/16"** connection (+ depressor pin).

ACCESSORIES AND SPARE PARTS

BVS-1L

Refrigerant bottle valve **7/16" x 1/4" MFL**

BVS-1L-WS-005-1/4 SAE

Refrigerant bottle valve for WS-005 **1/4" FFL** (+ depressor pin) x **1/4" MFL** acces valve (+core)

BVS-1L-WS-005-5/16 SAE

Refrigerant bottle valve for WS-005 **5/16" FFL** (+ depressor pin) x **1/4" MFL** acces valve (+core)

BVS-1L-WS-005-7/16 SAE

Refrigerant bottle valve for WS-005 **7/16" FFL** (+ depressor pin) x **1/4" MFL** acces valve (+core)

WS-055

WEIGHING AND RECOVERY SCALE

FEATURES

- Designed for both charging and recovery. Can be used with **all** refrigerants and hydrocarbons.
- **55 kg** (120 lb) max capacity.
- Resolution selectable: **5 g / 0,2 oz / 0,010 lb**
2 g / 0,1 oz / 0,005 lb
- Accuracy: **± 0,01 %** of reading at 55 kg.
- Control function (with or without optional valve module): the scale can be programmed to a desired weight, so that when this value is reached, the scale will sound a signal.
- **9 V** battery (included) powers all functions.
- Battery life approximately **60 hours** (30 hours when using optional valve).
- Three display modes: kg, lb or lb-oz.
- Rugged removable platform with independent removable control module (including retractable table stand/hanging hook option).
- Auto power off (after 15 minutes without any change in weight the scale will turn off. This auto off time of 15 min can be extended.).
- Possible to zero scale at any point.
- Low battery indication.
- Operating temperature: **0°C to +40°C** (32°F to +104°F).
- Level sight glass and adjustable feet for perfect level measurement
- Weight: **4,25 kg** (9,4 lb) including carrying case
3,05 kg (6,7 lb) scale only.
- Carrying case dimensions: **430 mm x 330 mm x 100 mm** (17" x 13" x 4").
- Platform dimensions: **280 mm x 280 mm** (11" x 11").
- Supplied in tough ABS case.
- **Supplied with CE mark.**



WS-150 HIGH CAPACITY WEIGHING SCALE

FEATURES

- Designed for both charging and recovery. Can be used with **all** refrigerants and hydrocarbons.
 - 150 kg** (330 lb) max capacity.
 - Resolution selectable: **20 g** / 0,5 oz / 0,05 lb
 10 g / 0,5 oz / 0,02 lb
 - Accuracy: **± 0,01 %** of reading at 150 kg.
 - Control function (with or without optional valve module): the scale can be programmed to a desired weight, so that when this value is reached, the scale will sound a signal.
 - 9 V** battery (included) powers all functions.
 - Battery life approximately **60 hours** (30 hours when using optional valve).
 - Three display modes: kg, lb or lb-oz.
 - Rugged removable platform with independent removable control module (including retractable table stand/hanging hook option).
 - Auto power off (after 15 minutes without any change in weight the scale will turn off. This auto off time of 15 min can be extended).
 - Possible to zero scale at any point.
 - Low battery indication.
 - Operating temperature: **0°C** to **+40°C** (32°F to +104°F).
 - Level sight glass and adjustable feet for perfect level measurement
 - Weight: **4,40 kg** (9,7 lb) including carrying case.
3,20 kg (7,0 lb) scale only.
 - Carrying case dimensions: **430 mm x 330 mm x 100 mm** (17" x 13" x 4").
 - Platform dimensions: **280 mm x 280 mm** (11" x 11").
 - Supplied in tough ABS case.
 - Supplied with switching adapter with EU and UK plug model WS-AC-EU/UK.
- Input: 100 V AC - 240 V AC / 0,3 A / 50 Hz - 60 Hz
Output: 9 V DC / 0,6 A
Cable length: 175 cm
- Supplied with CE mark**

WS-AC

Adapter body is without plug
Please select your plug below and order it separately.

WS-AC-USA

USA plug to be used on adapter body WS-AC

WS-AC-EU

EU plug to be used on adapter body WS-AC

WS-AC-UK

UK plug to be used on adapter body WS-AC

WS-ASV

MODULE for WS-055 and WS-150

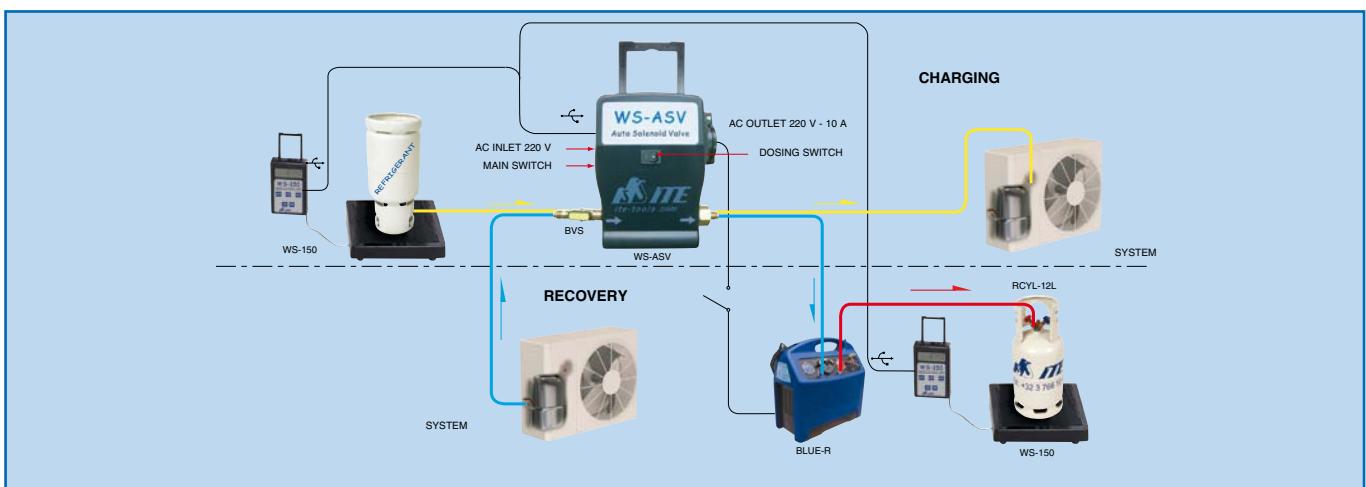
The WS-ASV in combination with the WS-150 or WS-055 weighing scale allows you to quickly dispense a preset amount of refrigerant into any air-conditioning or refrigeration system or cylinder.

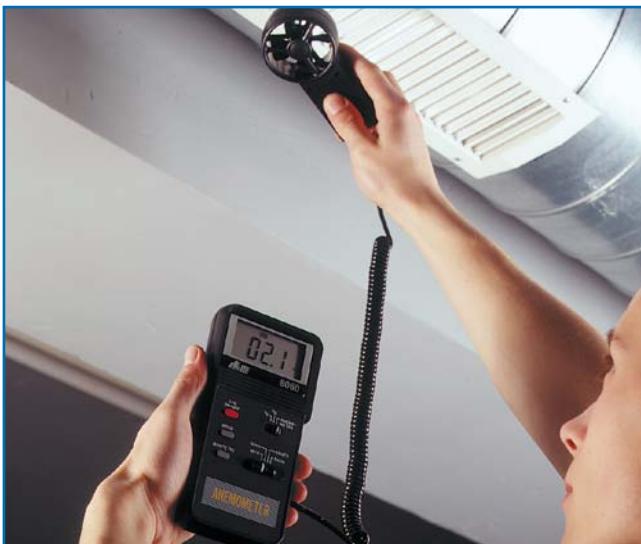
SPECIFICATIONS

- Capacity
WS-055 -> 55 kg / 120 lbs
WS-150 -> 150 kg / 330 lbs.
- Resolution / charge increments
2 g / 0,1 oz / 0,005 lb <-> 5 g / 0,2 oz / 0,01 lb for WS-055
10 g / 0,5 oz / 0,02 lb <-> 20 g / 0,5 oz / 0,05 lb for WS-150.
- Compatible for all halogenated refrigerants including R134a and R410A.
- Power supply: 220 V, ± 10 % - 50 Hz / 60 Hz with adapter (included).
- Accessory outlet rating: 10 A / 16 A.
- Weight: 1 kg.
- Dimensions: 21 cm x 7,5 cm x 17,5 cm including fittings.



WS-ASV





MULTI-ELECTRONIC DIGITAL ANALYSERS

1. THERMO-ANEMOMETER

ITE-8060

THERMOMETER & ANEMOMETER

For AIR VELOCITY & TEMPERATURE TESTING

FEATURES

- Sensitive and accurate (ultra low friction ball bearing).
- Ergonomic and easy-to-use design.
- Read while measuring (up two metres remote vane).
- Large **17 mm (5/8") LCD Digits** (Liquid Crystal Display).
- Telephone coiled style cable for Vane: **2 metres**.
- Low power consumption. Built in low battery indicator.
- Data hold function. Maximum hold for temperature.
- Vane dimensions: **66 mm x 133 mm x 30 mm**. Weight: **140 g**.
- Meter dimensions: **88 mm x 168 mm x 27 mm**. Weight: **210 g**.

SPECIFICATIONS

- Temperature sensor: "K" type thermocouple (built-in vane).
- Meter operating temperature: **0°C to +50°C (+32°F to +122°F)**.
- Vane operating temperature: **0°C to +60°C (+32°F to +140°F)**.
- Operating humidity: Less than **80 %** (Relative Humidity).
- Operating pressure: **500 mbar to 2 bar**.
- Storage temperature: **-40°C to +60°C (-40°F to +140°F)**.
- Battery included, type: **9 V** (50 hours life for 300 mA/h).
- With carrying case.

AIR VELOCITY READINGS:

m/s:	metre per second
ft/min:	feet per minute
knots:	nautical miles per hour
km/h:	kilometre per hour
mph:	miles per hour

AIR SPEED MEASUREMENT AVERAGING PERIOD:

m/s:	0,6 sec. (approx.).
ft/min:	1,2 sec. (approx.).
knots:	1,2 sec. (approx.).
km/h:	2,2 sec. (approx.).
mph:	1,4 sec. (approx.).

UNITS	RANGE	RESOLUTION	ACCURACY	THRESHOLD
m/s	0 to 45	0,1	± 3 % or 0,1	0,3
ft/min	0 to 8800	10	± 3 % or 10	60
knots	0 to 88	0,1	± 3 % or 0,1	0,6
km/h	0 to 140	0,1	± 3 % or 0,1	1,0
mph	0 to 100	0,1	± 3 % or 0,1	0,7

TEMPERATURE RANGE READINGS:

UNITS	RANGE	RESOLUTION	ACCURACY
°C	0 to 60,0	0,1	± 0,8°C
°F	32,0 to 140,0	0,1	± 1,5°F

2. 5 IN 1 DIAGNOSTIC METER

TAHL-5 THERMO-, ANEMO-, HUMIDITY, LIGHT METER

FEATURES

- 5 in 1 professional measuring instrument: Anemometer, Air Flow, Hygrometer, Thermometer and Light meter.
- Compact, lightweight, wristlet design for easy one hand operation.
- Low friction ball bearing mounted wheel design provides high accuracy at high and low air velocity.
- Exclusive photo diode and color correction filter light sensor, spectrum meets C.I.E. photopic.
- High precision thin film capacitance humidity sensor with fast response to the humidity changes.
- Standard type K thermocouple input jack suitable for all kind of type K probe.
- Built-in microprocessor circuit assures excellent performance and accuracy.
- Concise and compact button arrangement, easy operation.
- Memorizes the maximum and minimum value with recall.
- °C/°F selectable.
- Lux/foot-candle selectable.
- Air velocity measuring units selectable for five kind of units.
- Air flow (CFM, CMM) measurement can be set to the desired area dimension.
- Multi channel display for relative humidity and temperature measured values or air velocity and temperature measured values at the same time.
- Zero button design for light meter calibration.
- Hold function to freeze the current reading value.

SPECIFICATIONS

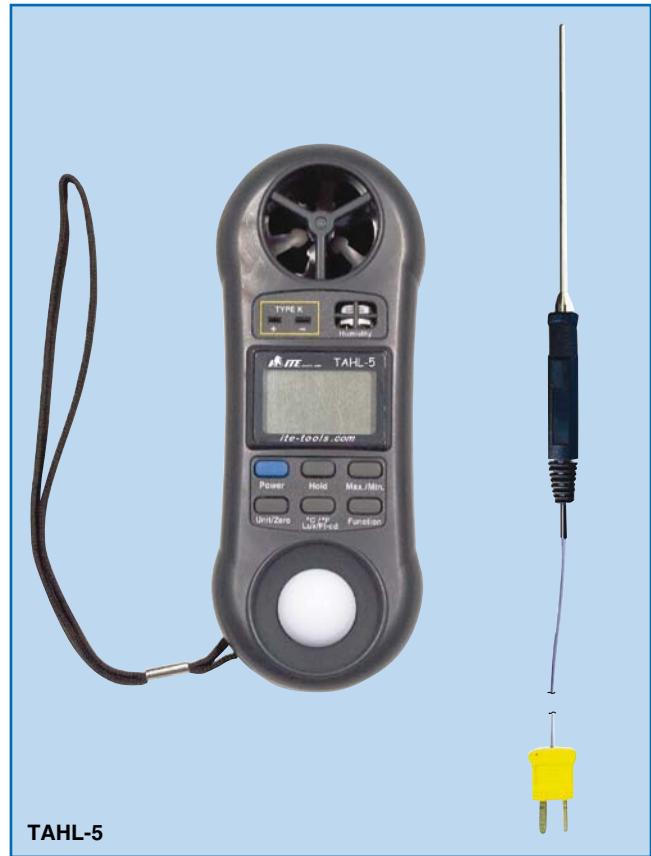
- Operating temperature: 0°C to +50°C (+32°F to +122°F).
- Operating humidity: Max. 80 % RH.
- Power supply: DC 9 V battery (heavy duty type), included.
- Power consumption: Approx. DC 6,2 mA.
- Dimensions: 156 mm x 60 mm x 33 mm (6,14" x 2,36" x 1,29").
- Weight: 160 g.
- Soft carrying case.
- TP-02A Temperature probe, type K, measuring range: -50°C to +900°C, dimensions: 10 cm tube, Ø 3,2 mm.

ELECTRICAL SPECIFICATIONS

MEASUREMENT	RANGE		RESOLUTION	ACCURACY	
Air velocity	ft/min	80 ft/min to 5,910 ft/min	1 ft/min	≤ 20 m/s: ± 3 % F.S. ≥ 20 m/s: ± 4 % F.S.	
	m/s	0,4 m/s to 30,0 m/s	0,1 m/s		
	km/h	1,4 km/h to 108,0 km/h	0,1 km/h		
	MPH	0,9 mile/h to 67,0 mile/h	0,1 MPH		
	knots	0,8 knots to 58,3 knots	0,1 knots		
	Temperature (thermister)	32°F to 122°F 0°C to 50°C	0,1°F 0,1°C		
Air flow	CMM cubic meter/min	54,000 CMM	0,001 to 1 CMM	± 2,5°F ± 1,2°C	
	CFM cubic feet/min	1.908,400 CFM	0,001 to 100 CFM		
Humidity	% RH	10 % RH to 95 % RH	0,1 % RH	< 70 % RH: ± 4 % RH ≥ 70 % RH: (± 4 % rdg + 1,2 % RH)	
	Temperature (thermister)	32°F to 122°F 0°C to 50°C	0,1°F 0,1°C		
Light	Lux	0 Lux to 2,200 Lux	1 Lux	± 5 % rdg ± 8 dgt	
		1,800 Lux to 20,000 Lux	10 Lux		
	ft-c	0 ft-c to 204,0 ft-c	0,1 ft-c		
		170 ft-c to 2,000 ft-c	1 ft-c		
Temperature (Type K)		-148°F to 2,372°F -100°C to 1,300°C	0,1°F 0,1°C	± (1 % rdg + 2°F) ± (1 % rdg + 1°C)	
MEASUREMENT		AREA SETTING			
CMM		0,001 m² to 30,000 m²			
CFM		0,01 square feet to 322,92 square feet			

REMARK:

ft/min: feet per minute	MPH: miles per hour
m/s: meters per second	knots: nautical miles per hour
km/h: kilometers per hour	ft-c: foot-candle





3. SINGLE PROBE THERMOMETER

TM-99A **SINGLE PROBE THERMOMETER** with °C or °F selection, 9 V battery and probe SH-1075

FEATURES

- Compact and strong hand-held unit.
- Sealed membrane touchpad.
- Temperature scale in °C and °F.
- Temperature range **-40°C to +150°C** (-40°F to +300°F).
- Ambient temperature range **-18°C to +54°C** (0°F to +130°F)
- Accuracy: $\pm 0,2^\circ\text{C}$ (0,3°F) or $\pm 0,5\%$ of reading whichever is greater.
- Resolution: **0,1°C** (0,1°F).
- Min/max memory and hold function.
- Auto shut-off after 5 minutes of non-use (can be disabled).
- With backlight function.
- Large LCD DISPLAY BOARD indicating either:
 - Temperature being measured in °C or °F
 - **LO** Temperature lower than **-40°C** (-40°F) or open probe or not connected probe.
 - **HI** Temperature above **+150°C** (+300°F) or the probe is shorted.
 - **LO.P.** Low battery.
- Detachable puncture probe SH-1075 with thermistor sensor included.
- 9 V DC battery included.
- Dimensions: **180 mm x 80 mm x 25 mm**.
- Supplied in tough detachable cover closed ABS case.
- Supplied with **CE** mark.



4. MULTI-TEMPERATURE TESTER

SH-66-AC **MULTI-PROBE THERMOMETER** in °C, 9 V battery and probes SH-1075, SH-2010, SH-4011.

FEATURES

- Compact and strong hand-held unit.
- Sealed membrane touchpad.
- Temperature scale in °C.
- Temperature range **-40°C to +150°C**.
- Ambient temperature range **-18°C to +54°C** (90 % RH non-condensing)
- Accuracy: $\pm 0,2^\circ\text{C}$ or $\pm 0,5\%$ of reading whichever is greater.
- Resolution: **0,1°C**.
- Min/max memory and hold function.
- Auto shut-off with override.
- With backlight function.
- Large LCD DISPLAY BOARD indicating either:
 - Temperature 1, 2 or 3 that is being monitored.
 - **LO** Temperature lower than **-40°C** or open probe or not connected probe.
 - **HI** Temperature above **+150°C** or the probe is shorted.
 - **LO.P.** Low battery.
- Detachable probes SH-1075 (puncture probe), SH-2010 (air probe), SH-4011 (surface probe) with thermistor sensors included.
- 9 V DC battery included.
- Dimensions (complete case): **240 mm x 170 mm x 90 mm**.
- Supplied in tough detachable cover closed ABS case.
- Supplied with **CE** mark.

5. MULTI-TEMPERATURE AND RELATIVE HUMIDITY TESTER

SRH-77A **MULTI-PROBE THERMO-HYGROMETER** (complete) with °C or °F selection, 9 V battery and probes SH-1075, SH-4011, SH-5028.

FEATURES

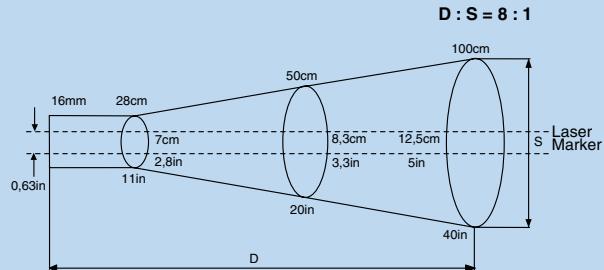
- Compact and strong hand-held unit.
- Sealed membrane touchpad.
- Temperature scale in °C and °F.
- Temperature range **-40°C to +150°C** (-40°F to +300°F).
- Ambient temperature range **-18°C to +54°C** (0°F to +130°F) (90 % RH non-condensing).
- Humidity range from **10 % to 95 % RH**
- Accuracy: $\pm 0,2^\circ\text{C}$ (0,3°F) or $\pm 0,5\%$ of reading whichever is greater.
- Temperature resolution: **0,1°C** (0,1°F).
- Humidity resolution: **1 % RH**.
- Min/max memory and hold function.
- Auto shut-off after 15 minutes of non-use (can be disabled).
- With backlight function.
- With wet bulb calculation feature.
- Large LCD DISPLAY BOARD indicating either:
 - Temperature 1, 2 or 3 that is being monitored.
 - **LO** Temperature lower than **-40°C** (-40°F) or open probe or not connected probe.
 - **HI** Temperature above **+150°C** (+300°F) or the probe is shorted.
 - **LO.P.** Low battery.
- Detachable probes SH-1075 (puncture probe), SH-4011 (surface probe), SH-5028 (humidity probe) with thermistor sensors included.
- 9 V DC battery included.
- Dimensions (complete case): **240 mm x 170 mm x 90 mm**.
- Supplied in tough detachable cover closed ABS case.
- Supplied with **CE** mark.

SPARE PARTS

SH-1075	Puncture probe 152 cm Temperature range -40°C to +150°C
SH-2010	Air and surface probe 305 cm Temperature range -40°C to +93°C
SH-4011	Aluminium surface probe With snap-on elastic strap. 305 cm Temperature range -32°C to +100°C
SH-4040	Fast surface contact probe 152 cm Temperature range -40°C to +150°C
SH-5005	Air probe with coil cord 183 cm Temperature range -40°C to +150°C
SH-5028	Humidity probe 152 cm Temperature range -18°C to +66°C Humidity range from 10 % to 95 % RH
SH-9010	Extension cable of 3 m (10')
SH-9015	Extension cable of 15 m (50')



SRH-77A



IRT-7920

6. DIGITAL THERMOMETERS

IRT-7920 INFRARED THERMOMETER WITH K-TYPE PROBE

FEATURES

- IR with laser pointer or K-type thermocouple probe thermometer.
- Hand-held, easy to operate.
- °C/F selectable.
- Backlit LCD display.
- Max/min readings.
- Audible and visible Hi/Lo alarm function.
- Data memory (50 sets of data) and read function.
- Over range indication (OL or -OL).
- Auto hold after IR measurement.
- Auto power off function (IR: 10 sec. or continuous; K-type 30 min).
- Power supply: 1 x 9 V battery included.
- Low battery indication.
- Battery life ±150 hours (laser pointer and backlight turned off).

SPECIFICATIONS IR

- Temperature range: **-20°C to +500°C (-4°F to +932°F)**.
- Resolution **0,1°C (0,2°F)**.
- Accuracy: **± 2 % of reading or ± 2°C (4°F)**, whichever is greater (+ see temp. coefficient).
- Adjustable emissivity from 0,17 to 1 (preset at 0,95).
- Laser pointer 1 mW (class 2).
- Optical reading ratio: 8:1 with a 25,4 mm (1") min target.
- Spectral response: 6 µm to 14 µm.

SPECIFICATIONS K-TYPE PROBE

- Temperature range: **-100°C to +1333°C (-148°F to +1999°F)**.
- Resolution and basic accuracy: (at 23 ± 5°C calibration) accuracy is at 18°C to 28°C with relative humidity up 80 % (+ see temp. coefficient).

Function	Resolution	Range	Accuracy
°C	0,1°C	-100°C~0°C	±(0,2 % rdg + 1,0°C)
		0°C~200°C	±(0,1 % rdg + 1,0°C)
	1°C	200°C~1333°C	±(0,2 % rdg +2°C)
°F	0,1°F	-148°F~32°F	±(0,2 % rdg + 2°F)
		32°F~200°F	±(0,1 % rdg + 2°F)
	1°F	200°F~1999°F	±(0,2 % rdg + 4°F)

- The basic accuracy does not include the probe-error.

GENERAL

- Temperature coefficient: 0,1 x the applicable accuracy specification per °C from **0°C to 18°C** and 28°C to 50°C (32°F to 64°F and 82°F to 122°F).
- Response time: once per second.
- Operating temperature: 0°C to +50°C (+32°F to +122°F).
- Operating humidity: below 80 % RH.
- Storage conditions: -10°C to +60°C (+14°F to +140°F); below 70 % RH.
- Dimensions: **170 mm x 52 mm x 38 mm (6,7" x 2,1" x 1,5")**.
- Weight: **180 g**, with battery.
- Supplied with 1 probe, battery, carrying case and instruction manual.
- See **SPARE PARTS** page 15 for all 'PR' available probes.

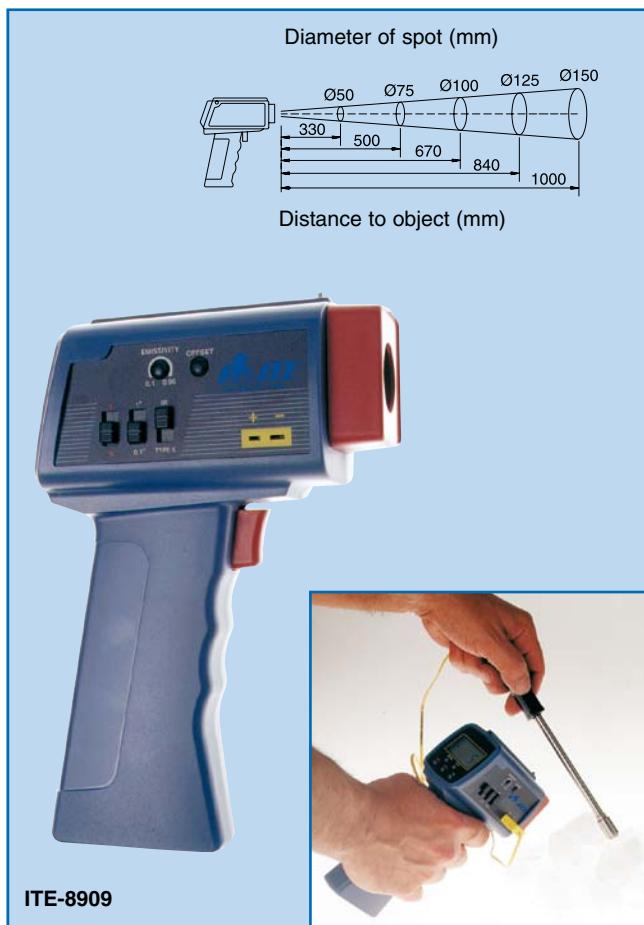
ITE-8909 **NON-CONTACT INFRARED, GUN SHAPE THERMOMETER** (probe not included)

FEATURES

- Non contact temperature measurement.
- Build-in type K thermometer.
- °C/°F display selectable.
- LCD display, easy readout.
- Gun type, heavy duty & compact housing case.
- Records max. & min. readings with recall.
- Data hold.
- Auto shut off saves battery life.
- 9 V DC battery included.

SPECIFICATIONS

- Temperature readings: **-10°C to +350°C** (+14°F to +662°F).
- Resolution: 1°C. Sampling time: approx. 1 second.
- Accuracy: $\pm 2\%$ of reading or $\pm 2^\circ\text{C}$ ($\pm 3^\circ\text{F}$) whichever is greater.
- Operating temperature: **0°C to +50°C** (+32°F to +122°F).
- Operating humidity: less than **80 % RH**.
- Emissivity adjustment from **0,1** to **0,95**.
- Dimensions: **195 mm x 120 mm x 58 mm** (7,7" x 4,7" x 2,3").
- Weight: **265 g** (0,6 lbs).
- See **SPARE PARTS** page 15 for all 'PR' available probes.

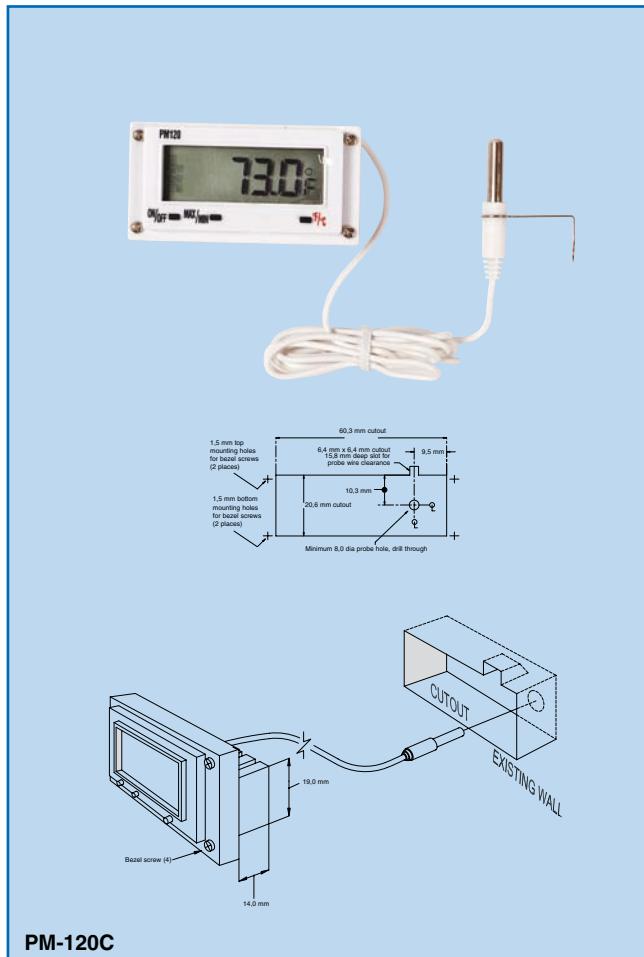


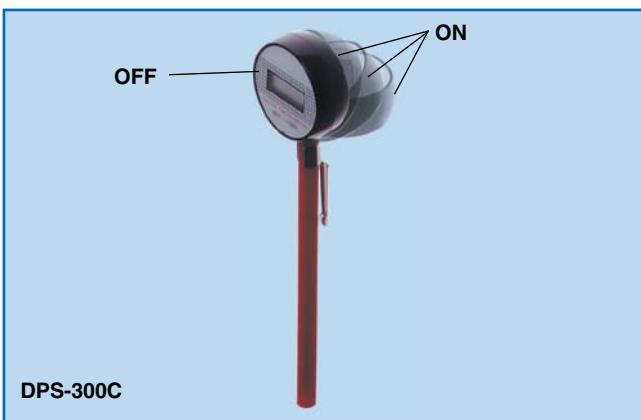
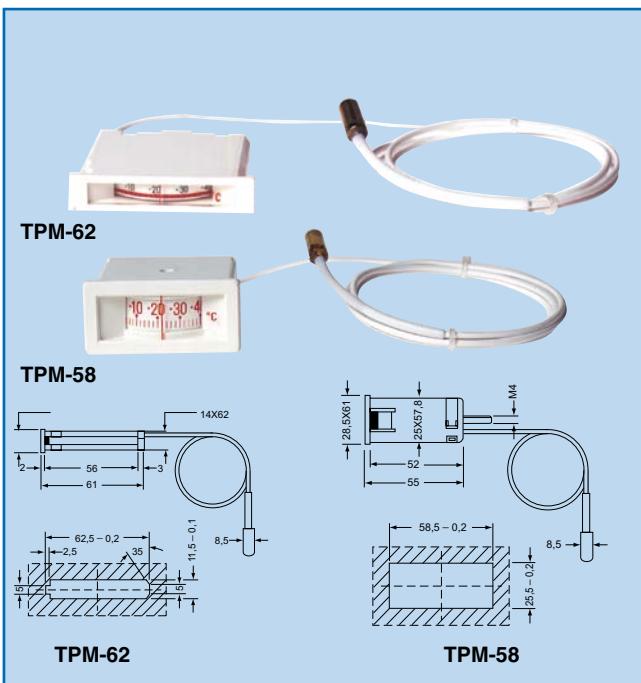
7. PANEL MOUNT & POCKET THERMOMETERS

PM-120C **PANEL MOUNT PLASTIC THERMOMETER**
 With 1,5 V DC battery.

FEATURES

- Rectangular remote reading thermometer ideal for use where mounting space is limited or where a plastic housing is preferred.
- White polycarbonate body. ABS plastic probe with thermistor sensor in stainless steel tip.
- Remote sensor length: **1 metre** (39").
- 47,5 mm x 15,8 mm LCD display.
- **ON/OFF** button.
- °C/°F selection button.
- **MAX/MIN** button.
- Temperature range: **-40°C to +50°C** (-40°F to +122°F).
- Resolution: **0,1°C** (0,1°F).
- Accuracy: $\pm 1^\circ\text{C}$ ($\pm 1,8^\circ\text{F}$) from **-20°C to +50°C** (-4°F to +122°F)
 $\pm 2^\circ\text{C}$ ($\pm 3,6^\circ\text{F}$) below **-20°C** (-4°F)
- Ambient temperature range: **-18°C to +48°C** (0°F to +120°F)
- Response time: **30 seconds**.
- Operating temperature: **-18°C to +50°C** (0°F to +120°F).
- **1,5 V AA** battery included (battery life approx. 1 year).
- Dimensions: **69 mm x 36 mm x 28 mm** (2,7" x 1,4" x 1,1").
- Cutout for mounting: **60,3 mm x 20,6 mm** (2,375" x 0,812").
- 6 months warranty.





TPM-62 **PANEL MOUNT PLASTIC THERMOMETER**
with capillary remote sensor

FEATURES

- Rectangular thin shape, depth 56 mm.
- Fixing system with moulded-in elastic clips.
- Capillary length 1,5 meter plastic covered.
- Temperature range: -40°C to +40°C.
- 6 months warranty.

TPM-58 **PANEL MOUNT PLASTIC THERMOMETER**
with capillary remote sensor

FEATURES

- Rectangular shape, depth 52 mm.
- Fixing system with moulded-in elastic clips.
- Capillary length 1,5 meter plastic covered.
- Temperature range: -40°C to +40°C.
- 6 months warranty.

DT-1001C **HORIZONTAL WALL MOUNT THERMOMETER**

FEATURES

- 1,2 m (48") wire sensor.
- 114 mm x 29 mm x 16 mm.
- Works by solar power and has an easy to replace battery to provide power once light level decreases (battery included).
- Temperature range: -40°C to +70°C.
- 6 months warranty.

DPS-300C **DIGITAL ELECTRONIC SWIVEL HEAD POCKET THERMOMETER**

Designed and ideal for use in air conditioning, Refrigeration, heating, automotive, etc...

FEATURES

- Never need calibration. Stainless steel stem with pocket clip case.
- Battery A76 (1,5 V) included.
- Battery life: **6 months**.
- **3 seconds** update.
- Swivel head orientable: **30°, 60° and 90°**.
- Stem length: 127 mm (5")
- Ambient temperature of use: **-10°C to +40°C (+14°F to +104°F)**.
- Reading temperature range: **-50°C to +150°C (-58°F to +302°F)**.
- Accuracy: $\pm 1^\circ\text{C}$ ($\pm 2^\circ\text{F}$) from **-18°C to +71°C (0°F to +160°F)**
 $\pm 2^\circ\text{C}$ ($\pm 4^\circ\text{F}$) all other ranges
- 6 months warranty.

DGT-1415C **POCKET THERMOMETER**

FEATURES

- Precision temperature instrument for refrigeration, air conditioning, food service, industrial, laboratory, automotive, general purpose.
- **32 mm (1 1/4") diameter**.
- **127 mm (5") stainless steel stem with pocket clip case**.
- Temperature range: **-50°C to +150°C**.
- Resolution: **0,1°C** between **-19°C and +150°C**.
1°C all other ranges.
- Battery: 1 x 1,5 V or equivalent (included).
- 6 months warranty.

8. POPULAR ALL PURPOSE THERMOMETERS

ITE-8031

DIGITAL THERMOMETER
With °C or °F selection

FEATURES

- Measurement range: -50°C - 1300°C (-50°F - 1999°F).
- Type 'K' thermocouple.
- Operating temperature and humidity:
0°C to 50°C (32°F to 122°F), 0 % - 80 % RH.
- Storage temperature and humidity:
-10°C to 60°C (14°F to 140°F), 0 % - 70 % RH.
- Data Hold function.
- T1 & T2 dual points display.
- T1 - T2 differential measurement.
- 9 V battery included.



ITE-8031

Following "PR" probes are available

PR-AIR

Air probe for general conditions, especially complex or hard to reach places.

With Teflon tape insulation

Maximum insulating temperature: 260°C

Puncture probe for temperature measurement of liquids, gels or air.

3,2 φ x 150 mm metal sheath

100 cm Compensating wire

Surface probe for flat or curved surface measurements.

100 cm Compensating wire

12,5 φ x 94 mm handle

PR-PUNCT

Air probe for general conditions, especially complex or hard to reach places.

With Teflon tape insulation

Maximum insulating temperature: 260°C

Puncture probe for temperature measurement of liquids, gels or air.

3,2 φ x 150 mm metal sheath

100 cm Compensating wire

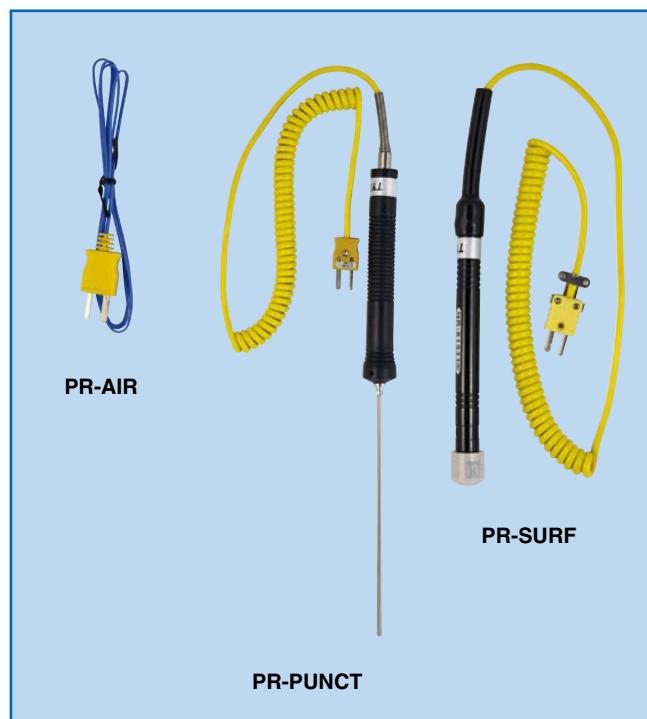
Surface probe for flat or curved surface measurements.

100 cm Compensating wire

12,5 φ x 94 mm handle

PR-SURF

MODEL	RANGE	TOLERANCES
PR-AIR Air probe	-50°C to 200°C -58°F to 392°F	± 2,2°C or ± 0,75 % (± 3,6°F or ± 0,75 %)
PR-PUNCT Puncture probe	-50°C to 1000°C -58°F to 1832°F	± 2,2°C or ± 0,75 % (± 3,6°F or ± 0,75 %)
PR-SURF Surface probe	-50°C to 750°C -58°F to 1382°F	± 2,2°C or ± 0,75 % (± 3,6°F or ± 0,75 %)



PR-PUNCT



DT-1630

DT-1630

HAND HELD & POCKET DIGITAL THERMOMETER

Our most popular, practical and user-friendly model.
 With "HI-LOW" programmable alarm function.
 With °C or °F selection, battery and probe.

FEATURES

- Temperature range: **-50°C to +300°C** (-58°F to +572°F).
- Read out in Celsius (°C) or Fahrenheit (°F).
- Soft cable with probe: **100 cm** long.
- Stainless steel probe: **10 cm** long (with tip protector).
- Retractable desk stand.
- Resolution: **0,1°C (0,1°F)**.
- Accuracy: **± 1°C from -20°C to +60°C**
± 5°C all other ranges
- Alarm sounds when temperature reaches "HIGH" or "LOW" values as pre-selected.
- Battery AAA (1,5 V) included.
- Dimensions: **59 mm x 107 mm x 20 mm** (W x H x D).
- 6 months warranty.



DTH-1628

DTH-1628

HAND HELD & POCKET DUAL DIGITAL THERMO-HYGROMETER (°C & °F)

Displays indoor and outdoor temperatures and indoor relative humidity simultaneously.

FEATURES

- Temperature measuring range (unit: indoor sensor) **0°C to +50°C** (+32°F to +122°F).
 Temperature measuring range (probe: outdoor sensor) **-50°C to +70°C** (-58°F to +158°F).
- Operation temperature: **0°C to +50°C** (+32° to +122°F).
- Relative humidity: **25 % to 95 % at +25°C (77°F)**.
- Temperature display resolution indoor sensor: **1°C (2°F)**.
- Temperature display resolution outdoor sensor: **0,1°C (0,1°F)**.
- Resolution of humidity: **1 % (Relative Humidity)**.
- Temperature sampling cycle: 10 seconds.
- Humidity sampling cycle: 10 seconds.
- Selection of Celsius (°C) or Fahrenheit (°F) by slide switch.
- Relative humidity measurement is temperature-compensated.
- "WET" Indicator: **Over 65 % of Relative Humidity**.
- "DRY" Indicator: **Below 45 % of Relative Humidity**.
- Wall mounting feature.
- 2 batteries AA (1,5 V) included.
- Battery life: ± 1 year.
- Dimensions: **82 mm x 154 mm x 20,5 mm** (W x H x D).
- 6 months warranty.



SP-120

SP-120

SOLAR POCKET POWER THERMOMETER

Switchable in Celsius (°C) or Fahrenheit (°F)

FEATURES

- Operates by using ambient light sources.
- Back up battery AAA (1,5 V DC) included.
- Measuring range: **-50°C to +70°C** (-58°F to +158°F).
- Resolution: **0,1°C**.
- Accuracy: **± 1,5°C (± 3°F)**.
- Ambient temperature: **-18°C to +48°C** (0°F to +120°F).
- **47,5 mm x 15,8 mm** LCD display.
- Remote sensor length: 3 meter (120").
- 6 months warranty.

WDT-128-BODY	WIRELESS DIGITAL TEMPERATURE UNIT body only
WDT-128R	WIRELESS DIGITAL TEMPERATURE UNIT with 1 remote sensor
WDT-128C	WIRELESS DIGITAL TEMPERATURE UNIT with 1 remote sensor and extended cable 3 m.
RS-128R	REMOTE SENSOR UNIT with temperature display
RS-128C	REMOTE SENSOR UNIT with temperature display, with extended cable of 3 m.

FEATURES

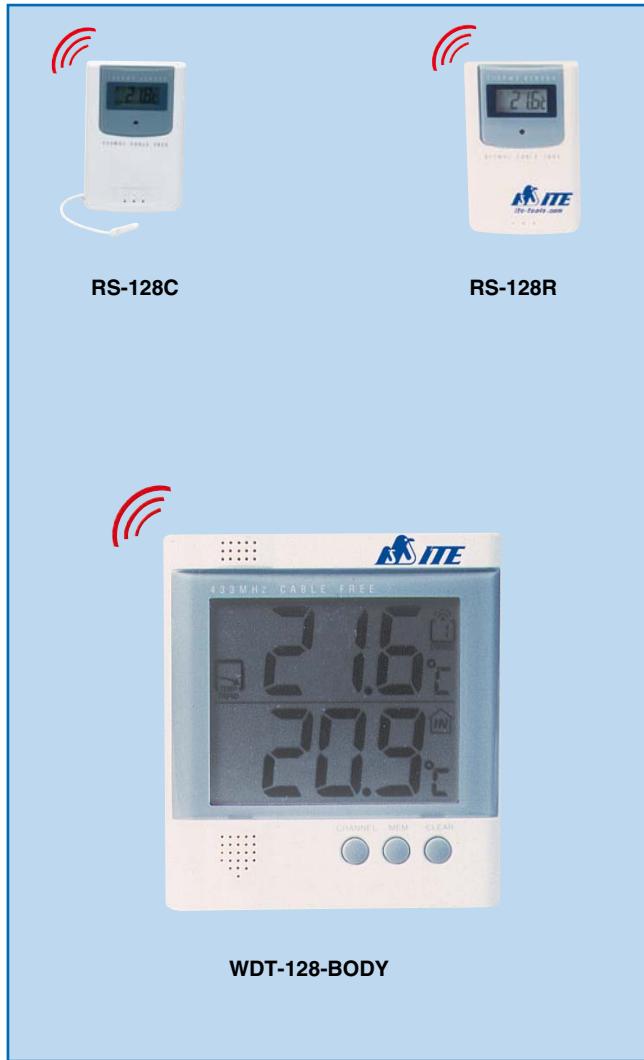
MAIN UNIT

- Wireless temperature data transfer from remote sensor unit.
- Wireless transfer: **433 MHZ** frequency.
- Memory for min/max temperature.
- Temperature alarm for every channel.
- Resolution: **0,1°C** (0,2°F).
- Measuring range for main unit:
indoor -9,9°C to +70°C (-14°F to +158°F).
outdoor -50°C to +70°C (-58°F to +158°F).
- Operating temperature: -5°C to +50°C (+23°F to +122°F).
- Switchable from °C to °F.
- Table stand, wall mount feature.
- 2 batteries AA (1,5 V) included.
- Dimensions: **117 mm x 107 mm x 26 mm**. Weight: 250 g.
- 6 months warranty.

The main unit can be extended with maximum 3 remote sensor units.

REMOTE SENSOR UNIT

- Measuring range: -50°C to +70°C (-58°F to +158°F).
- Operating temperature (for RS-128R only): -20°C to +60°C (-4°F to +140°F).
- Water resistant remote sensor unit with LCD and LED indicator.
- Data transfer: every 30 seconds.
- Range depends on location: up till maximum 30 m.
- Incl. wall mount feature.
- 2 batteries AA (1,5 V) included.
- Dimensions: **92 mm x 60 mm x 21 mm**. Weight: 100 g.
- 6 months warranty.



PT-100

DIGITAL POCKET SURFACE THERMOMETER

For an easy and permanent professional use

FEATURES

- Measures temperature of evaporator plate and condensing temperatures.
- Provides fast response - within seconds.

SPECIFICATIONS

- Measuring range: -40°C to +93°C.
- Resolution: **0,1°C**
- Accuracy: **0,2°C** on surface
1°C in air.
- Ultra sensitive air and surface reading probe.
- Large LCD display - 7/16" high.
- Durable hi-impact case but still lightweight.
- Battery operated: one 9 V battery.
- Temperature hold switch.
- Dimensions: **38 mm x 170 mm x 22 mm**.
- 6 months warranty.



PT-100

THM-50


THM-50 REFRIGERATOR & FREEZER THERMOMETER
FEATURES

- Thermometer with rotating hook for placement inside refrigerators or freezers.
- Dial has 4 temperature zones with symbols indicating:
 - **Red** : warning zone
 - **Green*** : the temperature range for refrigerators
 - **Blue**** : the ** storage temperature for freezers (for storage over a medium period of time)
 - **Blue***** : the frost zone *** storage temperature for freezers (for storage over an extended period of time).
- 1°C increments.
- Reading temperature range: -50°C to +50°C.
- Dimensions: 210 mm x Ø 17 mm.
- 6 months warranty.

THM-50-S


THM-50-S REFRIGERATOR & FREEZER THERMOMETER
FEATURES

- Non-toxic spirit-filled glass tube completely enclosed.
- Hangs or may be permanently mounted.
- Dial has 4 temperature zones with symbols indicating:
 - **Red** : warning zone
 - **Green*** : the temperature range for refrigerators
 - **Blue**** : the ** storage temperature for freezers (for storage over a medium period of time)
 - **Blue***** : the frost zone *** storage temperature for freezers (for storage over an extended period of time).
- 1°C increments.
- Reading temperature range: -50°C to +50°C.
- Dimensions: 16 mm x 94 mm x 8 mm rectangular frame.
- 6 months warranty.

THM-5025-H


THM-5025-H REFRIGERATOR & FREEZER THERMOMETER
FEATURES

- Non-toxic liquid filled glass tube and magnifying acrylic lens.
- Unit is completely enclosed and hangs or stands.
- Dial has 4 temperature zones with symbols indicating:
 - **Red** : warning zone
 - **Green*** : the temperature range for refrigerators
 - **Blue**** : the ** storage temperature for freezers (for storage over a medium period of time)
 - **Blue***** : the frost zone *** storage temperature for freezers (for storage over an extended period of time).
- 1°C increments.
- Reading temperature range: -50°C to +25°C.
- Dimensions: 31 mm x 123 mm rectangular aluminium frame.
- 6 months warranty.

CST-080	SURFACE SPRING THERMOMETER from -40°C to +80°C
CST-120	SURFACE SPRING THERMOMETER from -10°C to +120°C

FEATURES

- Provides fast and accurate temperature readings of pipes with diameters between **12,7 mm (1/2")** and **100 mm (4")**.
- °C temperature scale.
- **63 mm (2,5")** stainless steel case.
- Glass window.
- Accuracy: ± 2°C.
- Flexible steel spring fastening.

CMT-080	SURFACE MAGNET THERMOMETER from -40°C to +80°C
CMT-120	SURFACE MAGNET THERMOMETER from -10°C to +120°C

FEATURES

- Ideal for use on bearings, ovens, pipes, engines, tanks, dies, moulds or any other flat metallic surface.
- °C temperature scale.
- **63 mm (2,5")** stainless steel case.
- Glass window.
- Accuracy: ± 2°C.
- Dual magnets.



CIT-080S	INDUSTRIAL THERMOMETER straight stem, from -40°C to +80°C
CIT-120S	INDUSTRIAL THERMOMETER straight stem, from -10°C to +120°C

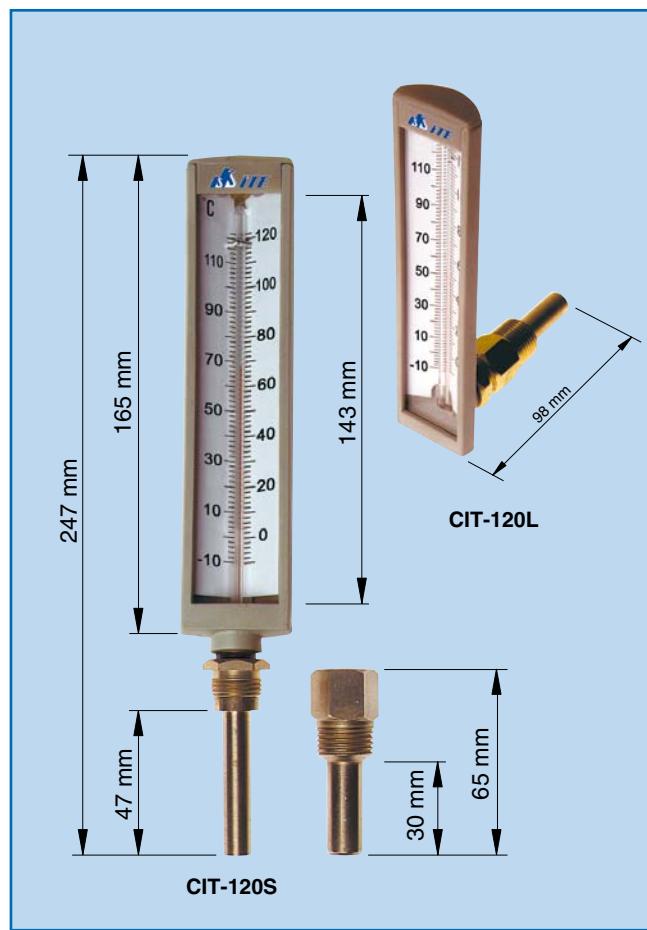
FEATURES

- Economical socket connected thermometer for use in small pipelines, tanks and other pressurized systems.
- **165 mm** grey plastic case.
- °C temperature scale.
- Glass lens.
- 100 % mercury free.
- Accuracy: ± 2°C.
- **47 mm stem** with swivel nut to mount into socket.
- Socket with **1/2" MPT** connection to be fitted on system.

CIT-080L	INDUSTRIAL THERMOMETER angled stem 90°, from -40°C to +80°C
CIT-120L	INDUSTRIAL THERMOMETER angled stem 90°, from -10°C to +120°C

FEATURES

- Economical socket connected thermometer for use in small pipelines, tanks and other pressurized systems.
- **165 mm** plastic case.
- °C temperature scale.
- Glass lens.
- 100 % mercury free.
- Accuracy: ± 2°C.
- **47 mm stem** with swivel nut to mount into socket.
- Socket with **1/2" MPT** connection to be fitted on system.





9. TEMPERATURE RECORDERS

CR4-220
CR4-220/KTH

TWO PEN RECORDER without sensor
TWO PEN RECORDER with temperature / humidity probe

CR4-220/KTT
CR4-220/KTP

TWO PEN RECORDER with dual temperature probe
TWO PEN RECORDER with temperature / pressure probe

CR4-220/KPP
CR4-220/KTE

TWO PEN RECORDER with dual pressure probe
TWO PEN RECORDER with temperature / event probe

FEATURES

- Two pen, remote reading, chart recorder.
- Recordings are displayed digitally as well as on paper chart.
- Offers numerous measurement applications when connected with one of our 5 plug-in probes (not included).
- Recorder automatically recognizes and controls whichever probes are attached.
- All functions are managed through simple menus and shown on a backlit alphanumeric LCD display (16 characters x 2 lines).
- Touch pad provides simple operation.
- All settings retained during power off and power loss, no need to restore settings after power failure.
- Battery backup, 8 x AA alkaline batteries (48 h continuous use), to continue operation during power failure (batteries not included).
- 12 V operation allows use in vehicle or marine applications (adapter not included).
- Two independent channel alarms give an audible alarm + relay.
- Probe is field replaceable and calibrated with no special equipment.
- Free standing or wall mounted + fold away carrying handle.

SPECIFICATIONS

- Ambient operating temperature: 0°C to +49°C (+32°F to +120°F). °C or °F selectable.
- Chart rotation speed, selectable: 1,5, 3, 6, 12 and 24 hours, 7 and 31 days.
- Chart rotation mode, selectable: continuous or single turn.
- Chart speed accuracy: ± 1 %.
- Chart diameter: 152 mm (6") (60 assorted charts supplied).
- Temperature alarm range: -30°C to +50°C (-20°F to +120°F).
- Relative humidity alarm range: 0 % to 100 % RH.
- Pressure alarm range: 0 bar to 35 bar (0 psi to 500 psi).
- Selectable alarm delay (No delay, 10 min, 30 min, 1 h, 2 h) to prevent nuisance alarms.
- Remote alarm connection: normally open contacts 48 V AC/DC, 0,1 A resistive load.
- 220 V AC - 240 V AC - 50 Hz / 60 Hz adapter included.
- Power consumption: 3,5 W / hour.
- Dimensions: 185 mm x 70 mm x 235 mm (7,25" x 2,75" x 9,25"). Weight: 1,13 kg (2,5 lb).
- CE approved.

SPARE PARTS

CRPENR
CRPENB

Replacement pen red
Replacement pen blue

SEPARATE PROBE SELECTION, to be used on CR4-220

PART N°	PROBE TYPE	TEMP. RANGE / ACCURACY	VOLTAGE RANGE	RH RANGE / ACCURACY	PRESS. RANGE / ACCURACY	DEW POINT RANGE
KTH	Temperature / humidity	-40°C to +55°C ± 1°C (-40°F to +130°F ± 2°F)	-	0 % -100 % at 0°C to +55°C (+32°F to +130°F) ambient, ± 2 %	-	0°C to +55°C (+32°F to +130°F)
KTT	Dual temperature	-40°C to +55°C ± 1°C (-40°F to +130°F ± 2°F)	-	-	-	-
KTP	Temperature / pressure	-40°C to +55°C ± 1°C (-40°F to +130°F ± 2°F)	-	-	0 bar to 35 bar (0 psi to 500 psi) ± 1 % FS	-
KPP	Dual pressure	-	-	-	0 bar to 35 bar (0 psi to 500 psi) ± 1 % FS	-
KTE	Temperature / event	-40°C to +55°C ± 1°C (-40°F to +130°F ± 2°F)	24 V AC-270 V AC 24 V DC-180 V DC	-	-	-

Maximum ranges on different charts	-30°C to +50°C (-20°F to +120°F)	ON – OFF	0 % to 100 %	0 bar to 35 bar (0 psi to 500 psi)
------------------------------------	-------------------------------------	----------	--------------	---------------------------------------

CR87B-220C TEMPERATURE RECORDER
Remote reading, with 3 different temperature ranges and 4 different recording speeds

FEATURES

- Designed specifically for refrigerator, freezer and environmental temperature measurement.
- Employs advanced microcontroller design that enables this versatile instrument to accurately measure and record temperatures in air, gas, liquids, powders, solids, and semi-solids.
- Recordings can be made from any distance up to 30 meters (100 feet) away by using an optional long length sensor wire.
- All controls on front panel for fast and easy setup.
- Furnished complete with 2 cartridge pens and 60 assorted charts.
- Convenient fold down carrying handle.
- Free standing or wall mounted.

SPECIFICATIONS

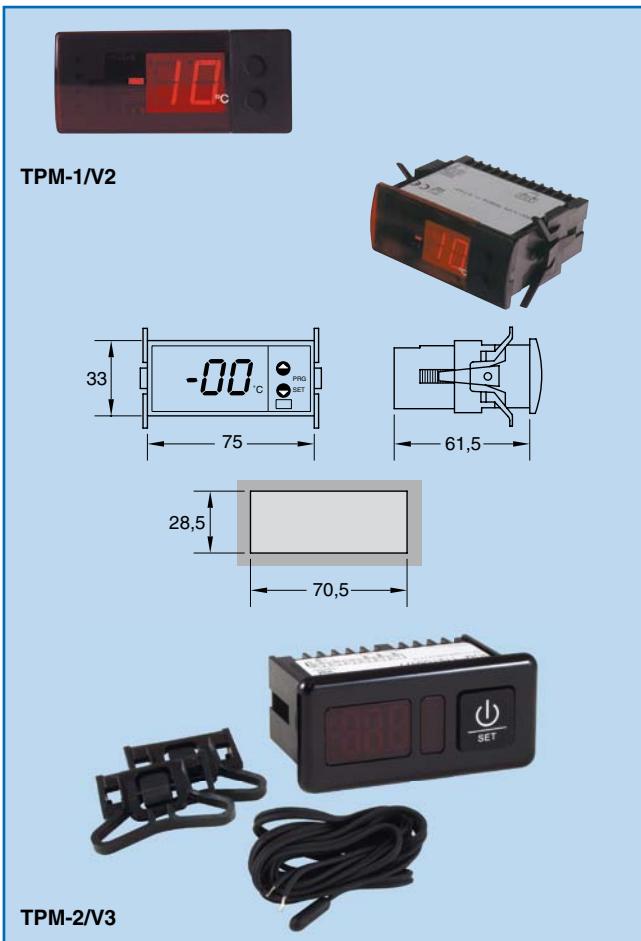
- Temp. scale selectable: -40°C to 0°C, -30°C to +10°C, +10°C to +50°C.
- Ambient operating temperature range: 0°C to +49°C.
- Ambient operating relative humidity: 96 % maximum.
- Temperature accuracy: ± 1°C.
- Chart speed selectable: **6 h, 24 h, 7 days, 31 days**.
- Chart rotation mode: Selectable - single turn or continuous.
- Chart speed accuracy: ± 1 %.
- Chart diameter: **152 mm (6")**.
- Large 3 digit LED display 13 mm (0,5").
- Temperature sensor: **4,5 m (15')** long sensor wire with **102 mm (4")** stainless steel submersible probe.
- Primary power supply: 220 V AC - 240 V AC, 50 Hz / 60 Hz.
- Alternative power: 12 Volt vehicle operation with optional adapter.
- Battery backup: 8 AA Alkaline batteries (not supplied).
- Battery life: 48 hours continuous use.
- Ink type recording pen (black).
- Case size: **235 mm x 184 mm x 70 mm (9 1/4" x 7 1/4" x 2 3/4")**.
- Weight: **2 kg** (4,7 lbs).

SPARE PARTS

CR87-10	Replacement charts -40°C to 0°C / 24 h (60 charts)
CR87-14	Replacement charts -30°C to +10°C / 6 h (60 charts)
CR87-16	Replacement charts -40°C to 0°C / 7 days (60 charts)
CR87-17	Replacement charts -30°C to +10°C / 7 days (60 charts)
CR87-18	Replacement charts +10°C to +50°C / 7 days (60 charts)
CR87-22	Replacement charts -40°C to 0°C / 31 days (60 charts)
CRPEN	Replacement pen black
CRPENR	Replacement pen (standard) red
CRPENB	Replacement pen (standard) blue



CR87B-220C



TEMPERATURE CONTROLLERS

"TOP CLASS PERFORMANCE"

"ALL IN ONE THERMOSTAT"

"SMALL IN DIMENSIONS"

APPLICATION

- Used to display and regulate TEMPERATURES and suitable for controlling heating or cooling units or systems.
- Modular design for easy panel mounting.

FEATURES

- Easy to use following the simple instructions in each unit.
- Suitable to limit the SET POINT temperature, setting minimum and maximum values.
- Adjustable DIFFERENTIAL (hysteresis) from 0,1°C to 20°C.
- Adjustable TIME DELAY between relay commutations: from 0 to 255 min.
- Adjustable DEFROST TIME duration (cold operation): from 0 to 255 min.
- Adjustable DEFROST FREQUENCY from 0 to 120 hours.
- In case of probe failure the unit displays a MALFUNCTION CODE and the DEFROST RELAY continues to operate for 255 min.

SPECIFICATIONS

- "CE" Marking
- Relay output: 13 A, 230 V, $\cos \varphi = 1$.
- Temperature range: -50°C to +99°C (-58°F to +210°F).
- Controller accuracy: $\pm 1^\circ\text{C}$ ($\pm 1.8^\circ\text{F}$).
- Probe tolerance at 25°C: $\pm 0.4^\circ\text{C}$ ($\pm 32.7^\circ\text{F}$).
- Standard PROBE-01/V2 included: 1,5 m length (5').
- Maximum probe temperature: 150°C (300°F).
- Ambient temperature range: +5°C to +50°C (+41°F to +122°F).
- Storage temperature: -30°C to +70°C (-22°F to +158°F).
- Maximum input power: 3 V A.
- Resolution: 0,1°C (0,1°F).
- Dimensions: 75 mm x 33 mm (2,96" x 1,30")
- Panel cut-out dimensions: 70,5 mm x 28,5 mm (2,76" x 1,13").

1. CONTROLLERS FOR PANEL MOUNTING

TPM-1/V2
TPM-2/V3

THERMOMETER: 230 V AC $\pm 10\%$ (8 mA)
THERMOMETER: 12 V DC / 24 V DC $\pm 20\%$ (88 mA)

TSPM-2/V2

THERMOSTAT: 230 V AC $\pm 10\%$ (9 mA) with 1 relay

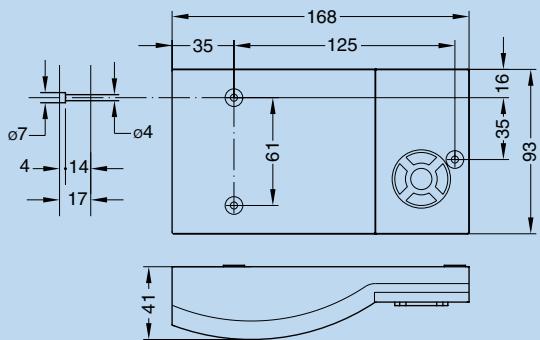
TSPM-1/V3

THERMOSTAT: 12 V DC / 24 V DC $\pm 20\%$ (182 mA) with 1 relay

TSPM-3

THERMOSTAT 3 DIGIT: 230 V AC $\pm 10\%$ (18 mA). Decimal read out with 3 relays
Relay 1: Control (compressor) 16 A, 250 V, $\cos \varphi = 1$
Relay 2: Defrost 8 A, 250 V, $\cos \varphi = 1$, SPDT switch
Relay 3: Fan 6 A, 250 V, $\cos \varphi = 1$, SPST
Equipped with digital input and connector for parameter transfer and data communication.

TSPM-2/V2



2. CONTROLLERS FOR WALL MOUNTING

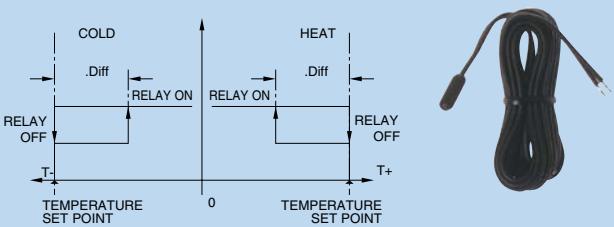
IDEAS AS "CONTROLLERS FOR PANEL MOUNTING" EXCEPT FOR:

- Dimensions: 168 mm x 93 mm x 41 mm (6,7" x 3,6" x 1,5").
- Relay output: 16 A, 230 V, $\cos \varphi = 1$.

TSPW-2/V2
TWM-1/V2

THERMOSTAT: 230 V AC $\pm 10\%$ (17 mA)
THERMOMETER: 230 V AC $\pm 10\%$ (15 mA)

CONTROL OPERATION



PROBES FOR ABOVE PANEL AND WALL MOUNTING CONTROLLERS

PROBE-01/V2

Probe NTC,
Length: 1,5 m (5,0') included with above

PROBE-03/V2

Probe NTC,
Length: 3,0 m (10')

PROBE-06/V2

Probe NTC,
Length: 6,0 m (20')

3. COMMERCIAL - DOMESTIC THERMOSTATS

TSWM-10 PROGRAMMABLE DIGITAL THERMOSTAT for heat and cool installation

FEATURES

- Pre-set 7 days programs.
- Easy to change pre-set programs.
- Manual temperature override.
- Permanent temperature override.
- Time, room temperature and settings permanently showing on the display.
- Adjustable differential.
- Short cycle delay for cool mode.
- 2 batteries AA (1,5 V), not included.
- Heat and cool selectable.

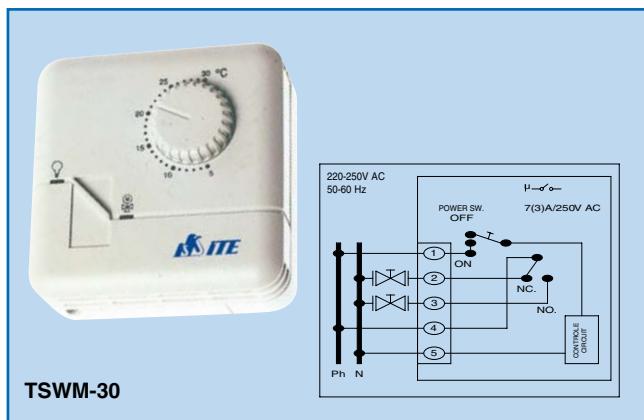
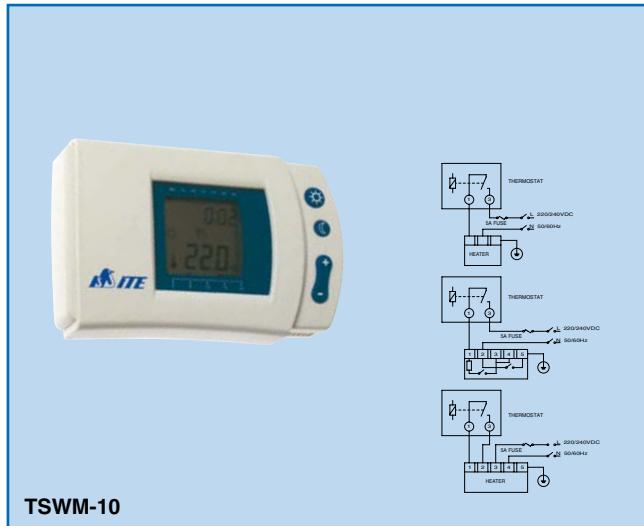
SPECIFICATIONS

- Temperature range: **5°C to 30°C**.
- Differential: dip switch selectable $\pm 0,5^\circ\text{C}$ or $\pm 0,2^\circ\text{C}$.
- Temperature accuracy: $\pm 0,5^\circ\text{C}$.
- Rated switching power: **250 V**, 6 A resistive load or 2 A inductive load.
- Min on time in heating mode: 1 minute.
- Min off time air-conditioning mode: 3 minutes.
- Size: **130 mm x 84 mm x 30 mm**.
- CE, GS approved.

TSWM-30 ELECTRONIC ROOM THERMOSTAT for heat and cool installation

FEATURES

- Designed with highly accurate NTC thermistor sensor that, incorporated with a high performance electronic control circuit, provides accurate temperature switching control.
- Easy to operate and to install.
- Input range: **220 V AC - 250 V AC**.
- Output: Resistive load: 7 AMPS at 230 V AC Max. 1,600 W Inductive load: 3 AMPS at 230 V AC.
- CE, GS approved.



4. UNIVERSAL ECONOMY THERMOSTATS

TSWM-35 THERMOSTAT -35°C to +35°C

FEATURES

- Fully encased adjustable thermostat.
- Easy to operate and to install.
- Can be used for heating or cooling applications.
- Particularly suitable for automatic adjustment of refrigeration equipment.
- Liquid filled sensing bulb (for ambient sensing).

SPECIFICATIONS

- Temperature range: **-35°C to +35°C**.
- Max. allowable temperature: **+60°C**.
- Accuracy: $\pm 3^\circ\text{C}$.
- Differential: 1 till 3,5°C.
- Contact Resistance: Less than 50 mΩ.
- Insulation resistance: 100 mΩ.
- SPDT switch: 16 A (8 A); 250 V AC.
- Size: **86 mm x 58 mm x 35 mm**.
- CE approved.

TSWM-35/EXT THERMOSTAT WITH CAPILLARY -35°C to +35°C

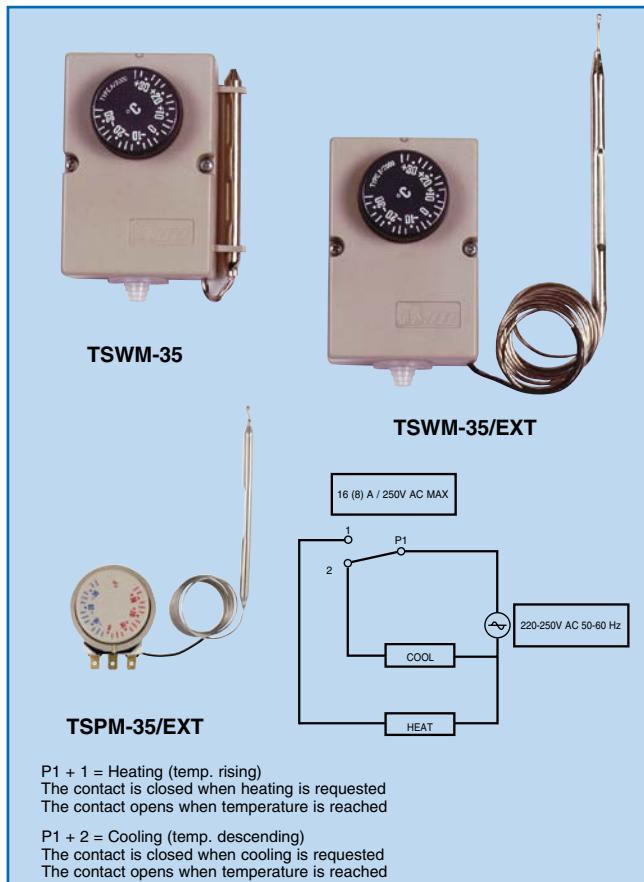
FEATURES

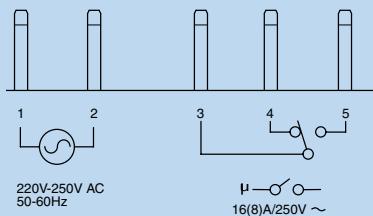
- Same as above TSWM-35 but with remote sensing bulb.
- Capillary length: 1,7 m.
- Smallest bending radius of capillary tube: 6 mm.
- Probe: copper tube (nickel plated).

TSPM-35/EXT THERMOSTAT WITH CAPILLARY -35°C to +35°C

FEATURES

- Same as TSWM-35/EXT but for panel mounting.





TH-820

5. PROGRAMMABLE TIMERS

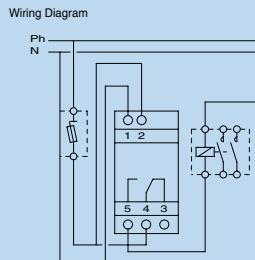
TH-820 WEEKLY & DAILY TIMER MODULE

FEATURES

- Latest technology CMOS quartz micro-controller.
- Digital electronics general purpose time switch with daily and weekly programs.
- Repeat programs with 8 ON/OFF locations.
- Shortest switching interval 1 minute.
- LCD indication for time-of-day, weekday and switching status.
- NiMH rechargeable button cell back up battery for power reserve more than 200 hours after fully charged. NiMH is an environmental protection free green battery.
- Three ways override operating mode for ON/AUTO/OFF by push button.
- Simple and easy to program and operate by multi-functional keys.
- LED indicates ON/OFF status.

SPECIFICATIONS

- Input range: 220 V AC - 250 V AC
- Output: Resistive load: 16 AMPS at 250 V AC
Inductive load: 8 AMPS at 250 V AC.
- Back up battery: 1,5 V DC NiMH rechargeable battery.
- Battery life cycle: 1,000 times from empty to fully charged.
- Battery reserve time: more than 200 hours after fully charged.
- **CE, GS** approved.



TH-850

TH-850 ELECTRONIC PROGRAMMABLE TIMER FOR DIN RAIL INSTALLATION

FEATURES

- Same features as TH-820.
- Easy installation for DIN rail application.
- Protected with transparent front cover.
- Designed for full module of 35 mm size.

SPECIFICATIONS

- Input range: 220 V - 250 V AC.
- Output: Resistive load: 16 AMPS at 230 V AC Max. 3,680 WATT
Inductive load: 8 AMPS at 230 V AC.
- Back up battery: 1,5 V DC NiMH rechargeable battery.
- Battery life cycle: 1,000 times from empty to fully charged.
- Battery reserve time: more than 200 hours after fully charged.
- **CE, GS** approved.

HEATING CABLES

1. SELF-REGULATING FLEXIBLE HEATING CABLES FOR TEMPERATURE up to +65°C

HC-221-1 CABLE SET: 1 m
HC-221-5 CABLE SET: 5 m
HC-221-10 CABLE SET: 10 m
HC-221-50 CABLE SET: 50 m

KIT-906 Jointing kit
HCTK-239 Termination kit

APPLICATION

- This is a parallel circuit **SELF-REGULATING CABLE** mainly used for protection against ice formations in pipes and tanks.
- It can be used to maintain temperatures of up to +65°C (+150°F) and is suitable for the general following applications:
 - AERA CLASSIFICATION:** Normal use.
 - PIPE MATERIAL or SURFACE:** Carbon steel, stainless steel, plastic, painted metallic pipes or surfaces.
 - ENVIRONMENT:** Dry or damp but not corrosive.

FEATURES

- The heating element consists of a special polymer with a carbon mixture which acts as a semi-conductor.
- When the temperature drops in the cable, conductivity is created in the polymer reducing its electrical resistance and therefore, the current travel through the polymer increasing the temperature which controls the temperature level. This allows to maintain constantly the temperature on and around the element to protect.
- Conversely, when the cable temperature rises, its conductivity reduces therefore increasing its electrical resistance and reducing its power requirements.

SPECIFICATIONS

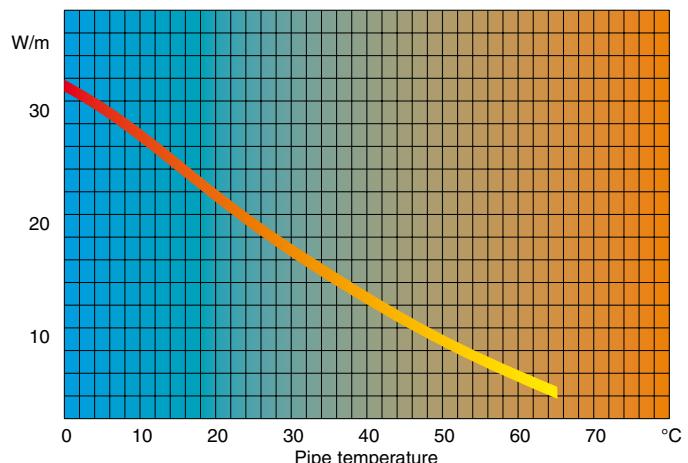
- Power output at 230 V and +10°C (+50°F): **25,3 W/m**.
- Power output depending on temperature: See graph.
- Continuous max. exposure temperature: **+65°C** (+150°F).
- Intermittent maximum exposure temperature for a maximum cumulative exposure time: **+85°C** (+185°F) for **1000 hours**.
- Electric strength voltage: **1500 V**.
- Nominal external dimensions: **5 mm x 12 mm**.
- Nominal weight: **100 g/m** (1,2 oz/ft).
- Maximum cable length per circuit starting at +10°C (+50°F) and according to protection sizing:
16 A = 105 m (344'), 20 A & 25 A = 120 m (393').
*NOTE: The lengths indicated are only approx. for each circuit.
For maximum safety a 30 mA differential must be maintained.*
- Minimum installation temperature: **-60°C** (-76°F).
- Minimum bend radius at **-20°C**: 30 mm

ACCESSORIES

- The appropriate connection kit must be used to join and seal the end of the cable.



POWER OUTPUT (230V) ON INSULATED STEEL PIPES



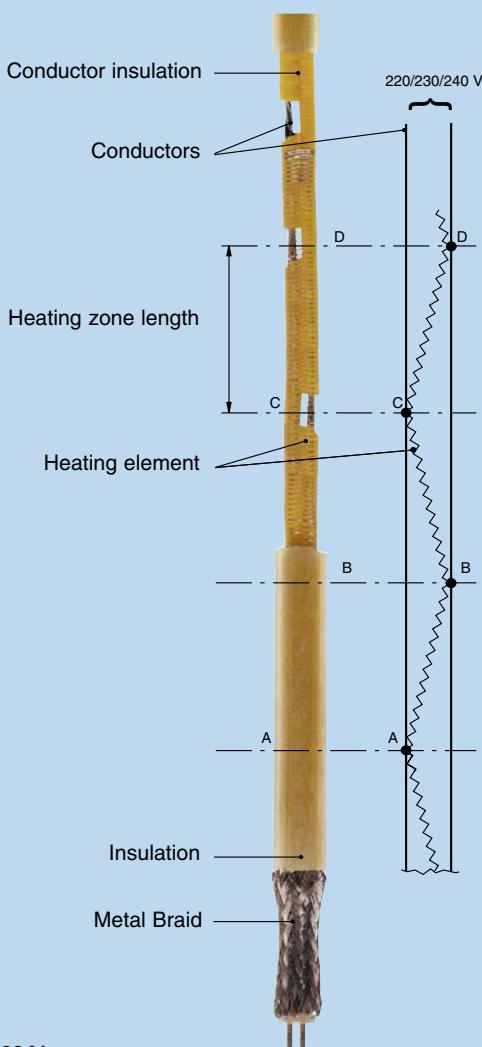
Jointing kit KIT-906



HCTK-239 Termination kit



Structure and internal circuit diagram



2. CONSTANT 30W/m WATTAGE HEATING CABLES (230V)

HC-234-1	CABLE WITHOUT BRAIDING PROTECTION
length 1 m	
HC-234-50	CABLE WITHOUT BRAIDING PROTECTION
length 50 m	
HC-234-150	CABLE WITHOUT BRAIDING PROTECTION
length 150 m	
HC-2341-1	CABLE WITH BRAIDING PROTECTION
length 1 m	
HC-2341-50	CABLE WITH BRAIDING PROTECTION
length 50 m	
HC-2341-150	CABLE WITH BRAIDING PROTECTION
length 150 m	

FEATURES

- These cables offer a permanent **CONSTANT WATTAGE** power output per **LINEAR METRE** (At any length).
- Use as frost protection of any metal surface (up to +55°C) as well as in drainage pipes (Commercial and industrial).
- A continuous heating element wire is coiled around the two main insulated conductors (touching them at regular interval points). This forms many identical parallel resistors and makes it possible to cut the cable at any required length on refrigeration site.
- The power output is constant between **A-B**, **B-C**, **C-D**, etc... (See picture explanation).

SPECIFICATIONS

• Power output at 230 V:	30 W/m
• Max. exposure temp. power on:	+55°C
• Max. exposure temp. power off:	+180°C
• Maximum circuit length:	60 m
• Heating zone length:	595 mm
• Tinned copper conductors:	0,75 mm ² (two)
• Heating conductor element:	Nickel-chrome
• Insulation material:	Silicone rubber
• Braided tinned copper sheath:	1 mm ² (HC-234)
• Test voltage and "CE" marking:	1500 V
• Loading tolerance:	± 7 %
• Outer dimensions:	8 mm x 5 mm (HC-234)
• Minimum bend radius at -40°C:	10 mm
• Standard reel length:	150 m

HCTK-383

CABLE TERMINATION KIT

For both ends as shown on bottom picture

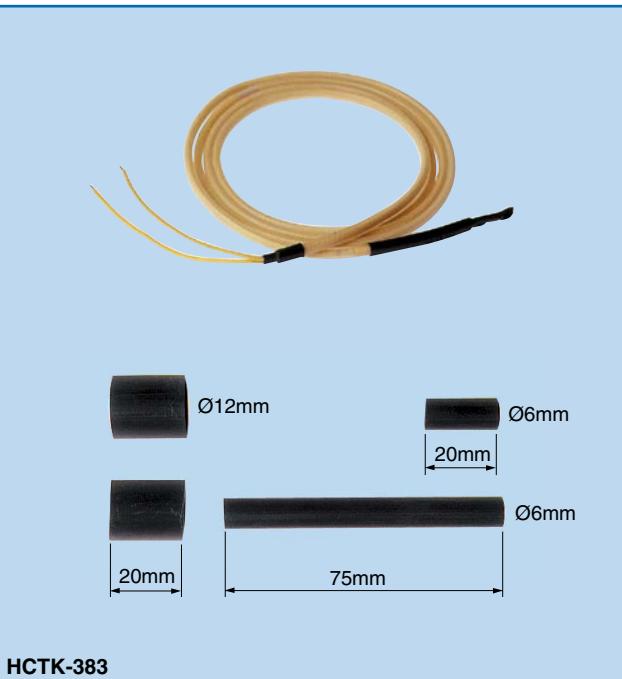
CONTENTS

- 20 mm **HEAT-SHRINK SLEEVE**, Ø 6 mm
To be used with both **HC-234** and **HC-2341** HEATING CABLES.
- 75 mm **HEAT-SHRINK SLEEVE**, Ø 6 mm
To be used with both **HC-234** and **HC-2341** HEATING CABLES.
- **TWO** 20 mm **HEAT-SHRINK SLEEVES**, Ø 12 mm
Used for **HC-2341** HEATING CABLE (only).

The **HCTK-383 CABLE TERMINATION KIT** is used to protect and insulate the connection cold lead and the end seal for each length of any **HC-234** and **HC-2341 HEATING CABLES** cut of the reel. To use the **TERMINATION KIT**, check the corresponding general instructions of safety for any constant wattage parallel **HEATING CABLES**.

HCSS-404

Heat-shrink sleeve, Ø 6 mm, length 75 mm
Used for **HC-234** and **HC-2341** heating cables.



3. "ITE" DRAIN LINE HEATING CABLES

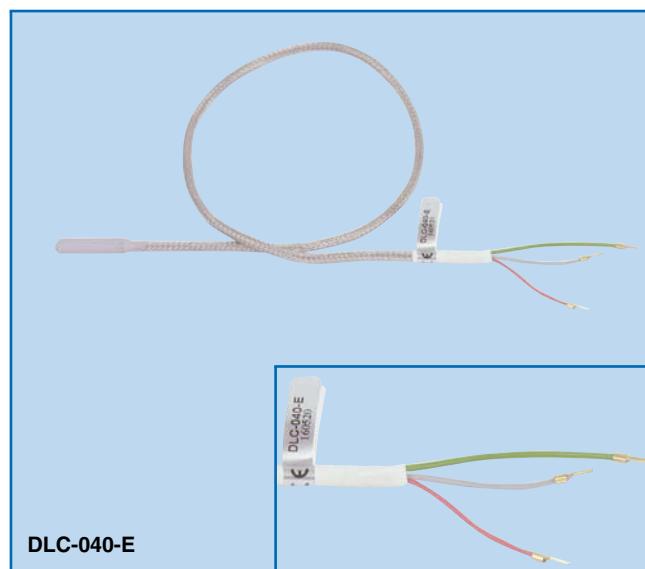
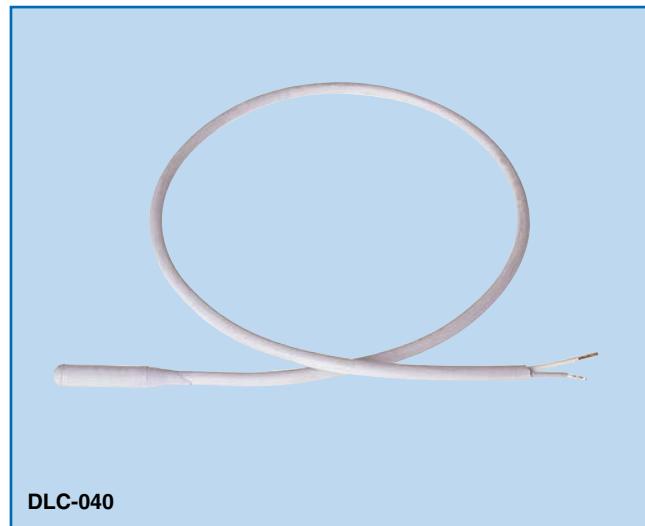
DLC-040	DRAIN LINE HEATER, length 1 m, 40 W, 1322 ohm/m (Wattage on 110 V: 10 W)
DLC-040-E	Same as DLC-040, but with earth contact
DLC-052	DRAIN LINE HEATER, length 1,3 m, 52 W, 793 ohm/m (Wattage on 110 V: 13 W)
DLC-060	DRAIN LINE HEATER, length 1,5 m, 60 W, 588 ohm/m (Wattage on 110 V: 15 W)
DLC-080	DRAIN LINE HEATER, length 2 m, 80 W, 330 ohm/m (Wattage on 110 V: 20 W)
DLC-080-E	Same as DLC-080, but with earth contact
DLC-120	DRAIN LINE HEATER, length 3 m, 120 W, 147 ohm/m (Wattage on 110 V: 30 W)
DLC-120-E	Same as DLC-120, but with earth contact
DLC-160	DRAIN LINE HEATER, length 4 m, 160 W, 82 ohm/m (Wattage on 110 V: 40 W)
DLC-160-E	Same as DLC-160, but with earth contact
DLC-200	DRAIN LINE HEATER, length 5 m, 200 W, 53 ohm/m (Wattage on 110 V: 50 W)
DLC-240	DRAIN LINE HEATER, length 6 m, 240 W, 36 ohm/m (Wattage on 110 V: 60 W)
DLC-240-E	Same as DLC-240, but with earth contact
DLC-320	DRAIN LINE HEATER, length 8 m, 320 W, 21 ohm/m (Wattage on 110 V: 80 W)
DLC-360	DRAIN LINE HEATER, length 9 m, 360 W, 16 ohm/m (Wattage on 110 V: 90 W)
DLC-400	DRAIN LINE HEATER, length 10 m, 400 W, 13,7 ohm/m (Wattage on 110 V: 100 W)

FEATURES

- Condensates draining.
- No condensation for electronic cases.
- Temperature maintenance for process heating.

SPECIFICATIONS

- Cold length = 1 m.
- External diameter: 5,5 mm.
- Wall thickness: min. 1,1 mm.
- Voltage: 110 V or 230 V.
- Internal and external insulating material: Silicone rubber.
- Heater material: Resistive wire Ni/Cr 60/15 or Cu/Ni.
- Maximum temperature: +200°C (392°F).
- Minimum temperature: -40°C (-40°F).
- 110 V models with 40 W/m capacity available upon request.



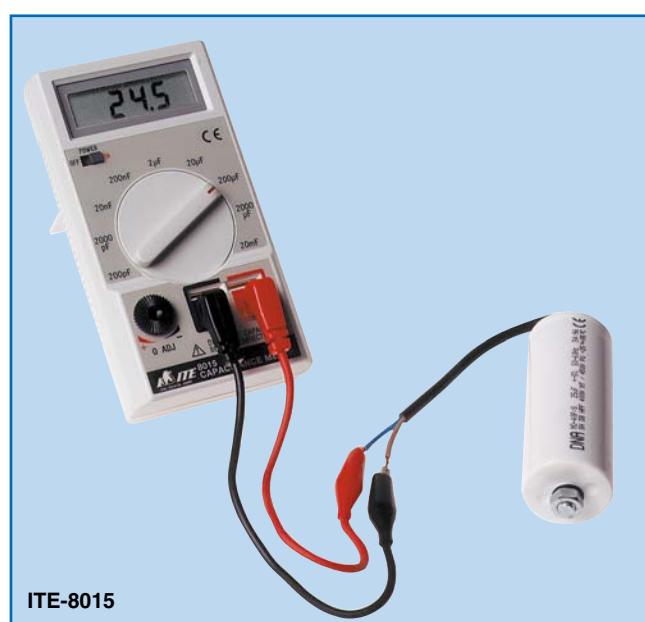
ANALYSERS, TESTERS & MULTIMETERS

1. DIGITAL TESTERS

ITE-8015 DIGITAL CAPACITANCE METER

FEATURES

- Range: 0 μ F - 20000 μ F.
- Over range indication.
- Fuse protected.
- Low battery indication.
- Zero adjustment.
- Accuracy: 0,5 % between 0 and 200 μ F
1 % between 200 μ F and 2000 μ F
2 % between 2000 μ F and 20 mF
- Operating temperature: 0°C to +40°C (+32°F to +104°F), 0 % - 80 % relative humidity.
- 9 V battery included.
- Battery live: 200 hours (with Alkaline battery).
- Dimensions: 72 mm x 135 mm x 33 mm (W x H x D).
- Weight: 207 g (7,3 oz).





PRT-8020 PHASE ROTATION TESTER

FEATURES

- Shows the correct way to make 3 phase connections and prevents such costly damage.
- Saves time, no need to disconnect drive shaft couplings.
- Identifies open windings.
- Visual as well as audible phase rotation indication.
- Low battery indicator (insufficient battery power will lead to faulty testing).
- Electrical safety : Double insulated IEC/EN 61010-1 CAT III / 600 V / CE.
- Reliable solid state components.
- Alligator test clips open 12 mm (1/2") to fit most terminals.
- Shirt pocket size.

SPECIFICATIONS

- Signal input voltage: 50 V AC to 500 V AC overload protection till 750 V AC.
- Signal input frequency: 45 Hz to 65 Hz.
- Operating temperature: 0°C to +40°C.
- Operating humidity: less than 80 % relative humidity.
- Power supply: 9 V battery included.
- Dimensions: 85 mm x 50 mm x 20 mm (height x width x depth).
- Weight: 210 g including battery.
- Accessories included: 200 cm test leads with alligator test clips, instruction manual, vinyl pouch.



ITE-8010 DIGITAL OPTICAL TACHOMETER

FEATURES

- Range: 10 rpm to 100000 rpm.
- Direct light-beam sensing.
- Measuring distance: 50 mm to 200 mm.
- Low battery indication.
- Memory recall function (maximum or minimum value).
- Data hold function.
- Automatic range selection.
- Operating temperature: 0°C to +50°C (+32°F to +122°F).
- Accuracy: ± 0,01 % ± 1 digit (10 rpm to 6000 rpm)
 ± 0,04 % ± 1 digit (6000 rpm to 12000 rpm)
 ± 0,08 % ± 1 digit (12000 rpm to 30000 rpm)
 ± 0,15 % ± 1 digit (over 30000 rpm).
- Resolution: 0,1 rpm (10 rpm to 9999,9 rpm)
 1 rpm (10000 rpm to 99999 rpm)
 10 rpm (over 100000 rpm).
- Measuring rate: 1 sec above 60 rpm
 1 sec to 6 sec below 60 rpm
- 4 batteries AA (1,5 V) included.
- Dimensions: 192 mm x 96 mm x 38 mm.
- Weight: 300 g (including battery).

SLM-8050 DIGITAL SOUND LEVEL METER

FEATURES

- AUTO Measuring Range: 30 dB to 130 dB.
- Self-calibration
- Frequency reading in: dB.
- Measuring level range:
 - A: **30 dB to 130 dB**
 - C: **35 dB to 130 dB**
- Frequency Range: 30 Hz to 8 kHz
- Microphone: 1/2" electret condenser microphone.
- LCD Digital Display: 1999 (4 digits) Back Light, Auto Power Off.
- Resolution: **0,1 dB**.
- Display update: **0,5 sec.**
- Selectable sensing cycle: FAST or SLOW selectable.
- Accuracy: **± 1,5 dB** (under reference conditions, 94 dB at 1 kHz).
- Dynamic Range: **50 dB**.
- Maximum and minimum hold function.
- Power supply: 9 V battery included.
- Battery life: approximately 50 hours (with alkaline battery).
- Operation Temperature: **5°C to 40 °C**.
- Operation Humidity: <80 % RH.
- Storage Temperature: **-10°C to 60°C**.
- Storage Humidity: <70 % RH.
- In accordance with IEC651 Type 2, ANSI S1.4 Type 2.
- Dimensions: **200 mm x 55 mm x 38 mm** (L x W x H).
- Weight: about **290 g** (including battery).
- Accessories included: Carrying case, 9 V battery, instruction manual and windscreen.



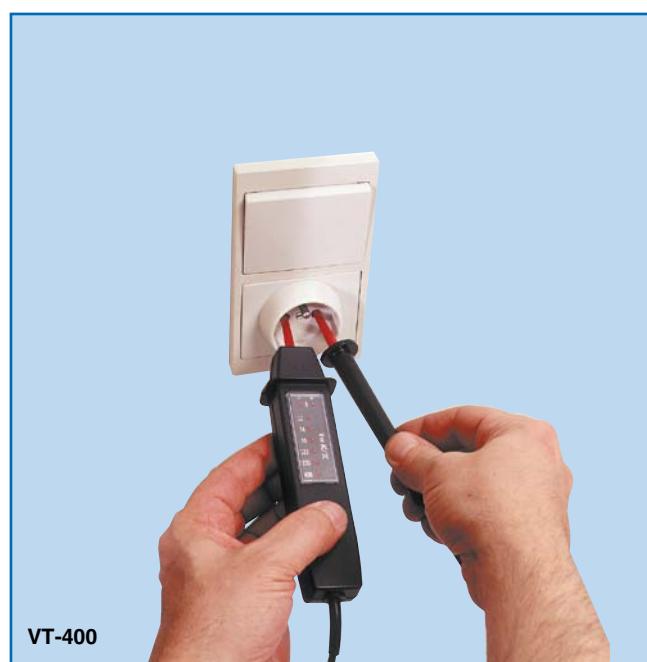
SLM-8050

2. DIGITAL MULTIMETERS

VT-400 UNIVERSAL VOLTAGE TESTER

FEATURES

- Designed for industrial purposes and suitable for voltage checks across two terminals in low voltage, domestic and heavy current circuits.
- Testing range: **6 V AC/DC - 400 V AC/DC**.
- Led indication and polarity for 6 V, 12 V, 24 V, 50 V, 120 V, 220 V and 400 V AC/DC.
- Max current: **30 mA**.
- Working temperature: **-10°C to +50°C**.
- Frequency: **0 Hz - 100 Hz**.
- CE and GS approved.
- Dimensions Overall length: **20 cm**
 - Tip only: **5 cm**
 - Thickness: **2 cm**.
- Weight: **130 g**.



VT-400


ITE-8090
DIGITAL CLAMP-ON VOLT-OHM-AMMETER

The ideal meter for field maintenance and inspection work on all types of electrical equipment.

FEATURES

- Maximum jaw opening: **40 mm**.
- Peak hold function.
- Data hold function.
- Continuity alarm below **100 Ω**.
- Frequency measurements.
- Diode check.
- Low battery indication.
- Operating temperature and humidity: **0°C to +40°C** (+32°F to +104°F), below **80 % RH**.
- Storage temperature and humidity: **-10°C to +60°C** (+14°F to +140°F), below **70 % RH**.
- Dimensions: **208 mm x 65 mm x 31 mm**.
- Weight: **330 g**.
- Supplied with test probe, instruction manual, carrying case, 9V battery.
- Supplied with CE mark.
- Ranges

AC current:	0 A	-	600	A
AC voltage:	0 V	-	750	V
DC voltage:	0 V	-	1000	V
Resistance:	0 kΩ	-	20	kΩ
Frequency:	0 MHz	-	2	MHz
Diode test:	0 V DC	-	3,50	V DC
- Display update: 2,5 times / second
- Automatic negative polarity indication.
- Over range indication.


ITE-3700
AUTO RANGE DIGITAL MULTIMETER (AC-DC)

Capable of measuring, with very high accuracy, all of the parameters needed for troubleshooting and field maintenance. Easy to use because of single rotary function switch and autoranging feature.

FEATURES

- Automatic power shut-off. Min/max recording.
- Data hold. Overload indication.
- Polarity indication. Diode check. Low battery indication.
- Operating temperature and humidity: **0°C to +40°C**, below **80 % RH**.
- Storage temperature and humidity: **-10°C to +60°C**, below **70 % RH**.
- Dimensions: **186 mm x 86 mm x 39 mm** (L x W x H).
- Weight: **506 g**.
- Supplied with test leads, instruction manual, carrying case, battery and spare fuse (250 V).
- Supplied with CE mark.
- Ranges

AC current:	0 A	-	20	A
DC current:	0 A	-	20	A
AC voltage:	0 V	-	750	V
DC voltage:	0 V	-	1000	V
Resistance:	0 MΩ	-	40	MΩ
Frequency:	0 kHz	-	500	kHz
Capacity test:	0 μF	-	30	μF
Diode test:	0 V DC	-	4	V DC
Continuity test:	alarm below 400 Ω			
- Display update: 2 times / second

EVACUATING AND CHARGING EQUIPMENT



EVACUATING AND CHARGING EQUIPMENT



EVACUATING AND CHARGING EQUIPMENT



1. BLUE VAC "ITE®" VACUUM PUMPS

"ITE®" offers a wide range of CE marked VACUUM PUMPS suitable for use on all CFC, HCFC and HFC systems. These pumps can be used with "MINERAL" or "ESTER" oil.

Equipped with:

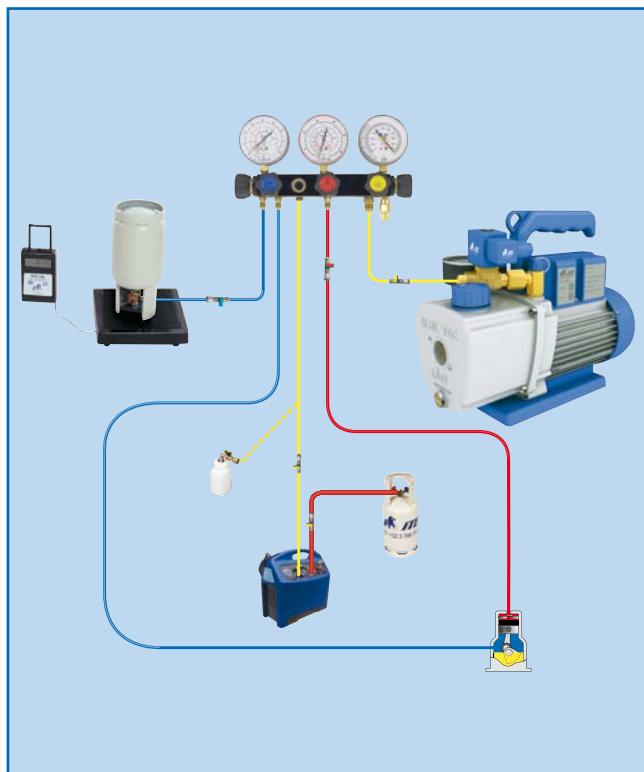
- Electrically operated solenoid valve.
- Vacuum gauge.
- Oil mist filter.
- Non return valve.
- Dual voltage switch.

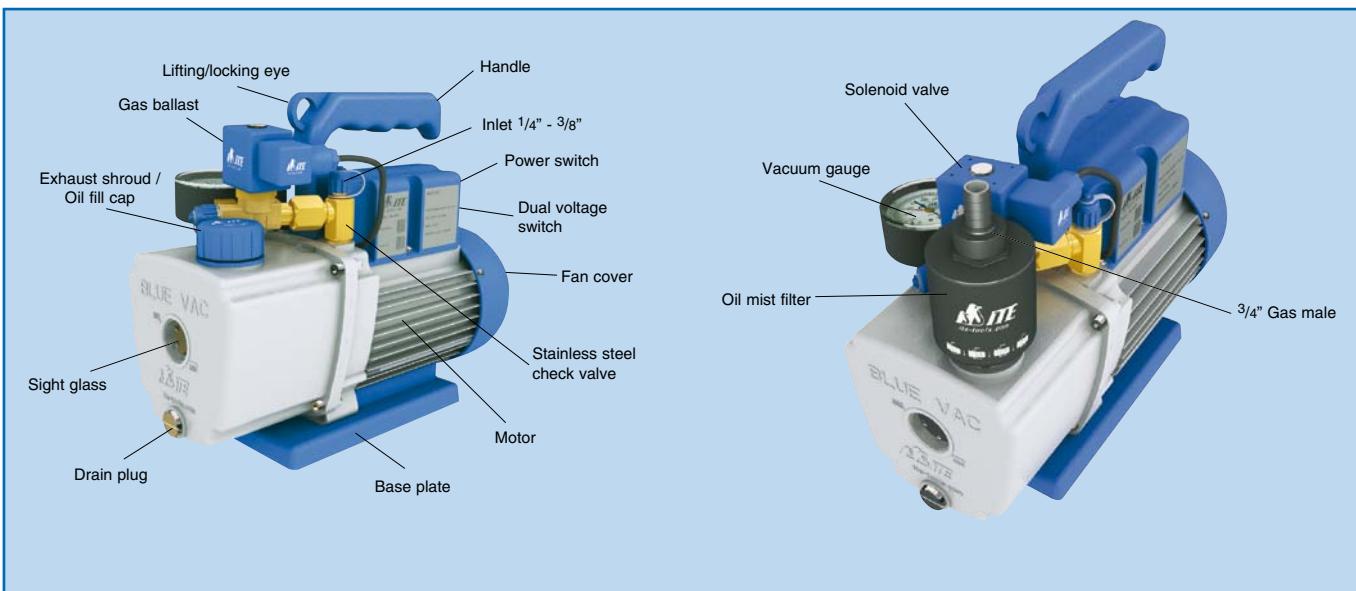
GENERAL FEATURES

- Thermal overload protection.
- Cold start: 0°C.
- Optional manifold bracket.
- 4 different types of electrical connections/plugs (EC, UK, USA, Italy) to be specified when ordering.
- Pump can operate on all CFC, HCFC and HFC refrigerant systems.
- For continuous use on CFC and HCFC systems, we recommend ITE 205-P mineral oil.
- For continuous use on HFC systems, we recommend ITE 500-P ester oil.

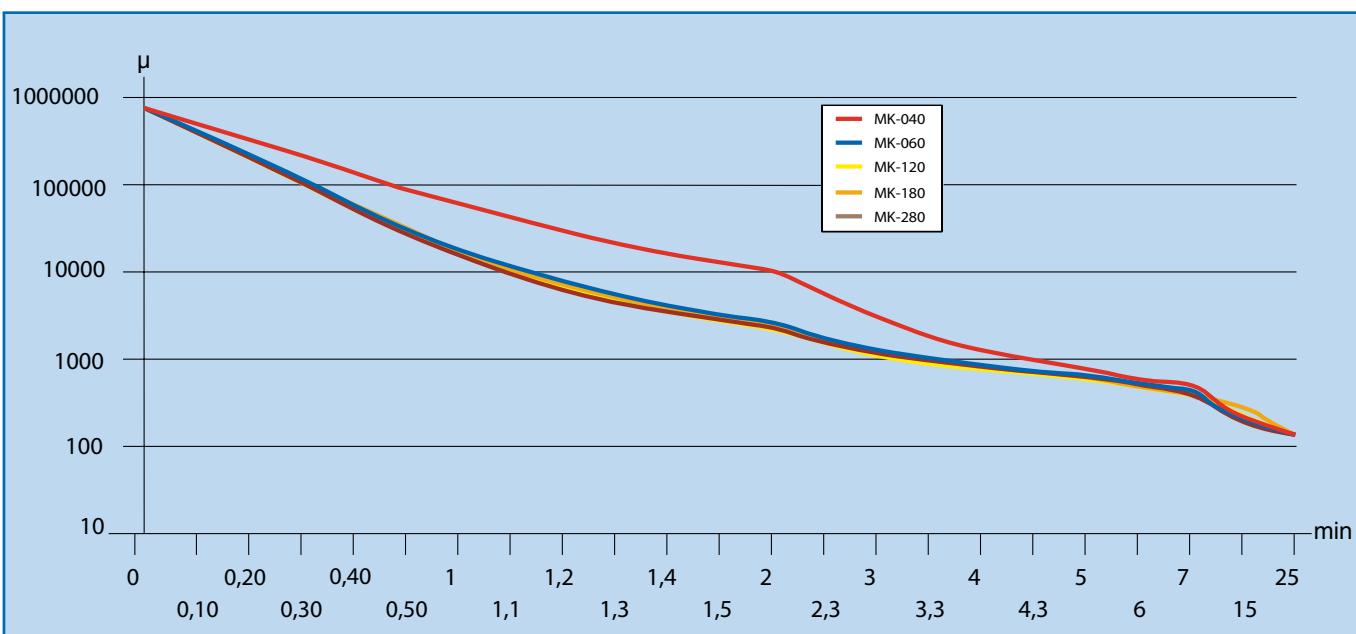
NOTICE:

- Only start using the vacuum pump when all refrigerant is recovered from the system. Never try to transfer liquid with this vacuum pump.
- Pump needs to be connected at the highest point of the system.
- For 110 V use see optional adaptor page 35.





	Voltage	Free air displacement		Ultimate vacuum		Motor		Motor Speed	Oil cap.	Dimensions	Net weight
MK-040-DS	220 V/50 Hz 110 V/60 Hz	40 L/min 48 L/min	1,44 CFM 1,70 CFM	15 micron 0,020 mBar	0,19 kW 0,19 kW	1/4 HP 1/4 HP	1440 RPM 1720 RPM	480 ml	350 mm x 160 mm x 270 mm	10,40 kg	
MK-060-DS	220 V/50 Hz 110 V/60 Hz	66 L/min 78 L/min	2,30 CFM 2,75 CFM	15 micron 0,020 mBar	0,25 kW 0,25 kW	1/3 HP 1/3 HP	1440 RPM 1720 RPM	480 ml	350 mm x 160 mm x 270 mm	11,00 kg	
MK-120-DS	220 V/50 Hz 110 V/60 Hz	132 L/min 156 L/min	4,66 CFM 5,50 CFM	15 micron 0,020 mBar	0,25 kW 0,37 kW	1/3 HP 1/2 HP	2880 RPM 3440 RPM	800 ml	385 mm x 170 mm x 310 mm	14,60 kg	
MK-180-DS	220 V/50 Hz 110 V/60 Hz	176 L/min 212 L/min	6,23 CFM 7,50 CFM	12 micron 0,016 mBar	0,37 kW 0,50 kW	1/2 HP 2/3 HP	2880 RPM 3440 RPM	1120 ml	385 mm x 170 mm x 310 mm	16,40 kg	
MK-280-DS	220 V/50 Hz 110 V/60 Hz	273 L/min 326 L/min	9,64 CFM 11,50 CFM	12 micron 0,016 mBar	0,50 kW 0,56 kW	2/3 HP 3/4 HP	2880 RPM 3440 RPM	1070 ml	385 mm x 170 mm x 310 mm	16,90 kg	



2. SPARE PARTS FOR VACUUM PUMPS

VPF-40 OIL MIST EXHAUST FILTER

DESCRIPTION

- Designed to be mounted on the exhaust of our complete Blue Vac series vacuum pumps.
- Ensures perfect filtration of the exhaust mist and optimal separation of air and oil.
- The metal housing is treated against corrosion.
- Contains a replaceable cartridge element, which allows extended use, even in poor working conditions.
- Very low maintenance cost, as only the cartridge has to be replaced.
- It is recommended to change the filter cartridge (model VPC-40) each time an oil change or maintenance has been performed.
- When using the outlet connection on the filter, do not reduce the original outlet diameter. If an exhaust hose is mounted on the outlet of the filter, use the shortest possible length and make sure that the hose is not kinked, pinched off, reduced or clogged along its length.

FEATURES

- Element type: Fibre glass.
- Filtering rate: 99,97 % (0,3 µm).

ACCESSORIES AND SPARE PARTS

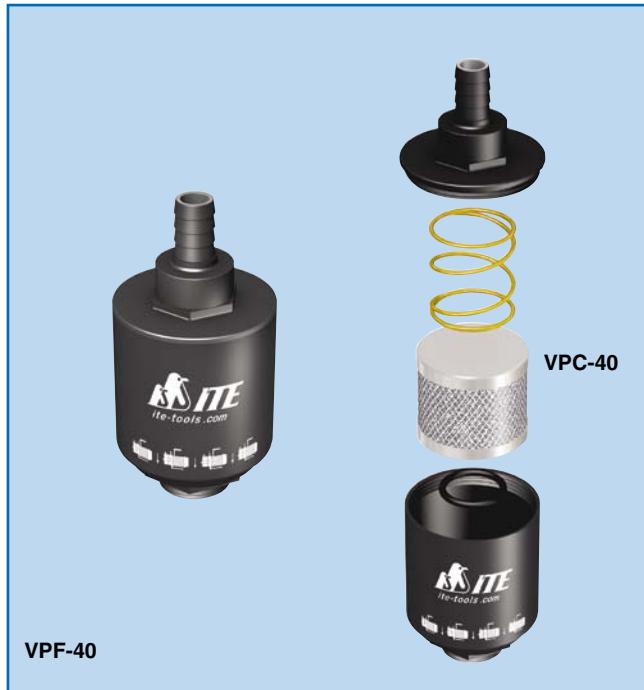
VPC-40	Vacuum pump cartridge for VPF-40
SV2W-38/627-VRP-110	Kit solenoid valve 3/8" SAE + vacuum gauge Only use for dual voltage MK pumps
SV2W-38/627-VRP-220	Kit solenoid valve 3/8" SAE + vacuum gauge Only use for MK pumps in 220 V Do not use this solenoid valve for the ITE BLUE VAC line pumps
SV2W-38/110	Solenoid valve 3/8" SAE Only use for dual voltage MK pumps
SV2W-38/220	Solenoid valve 3/8" SAE Only use for MK pumps in 220 V Do not use this solenoid valve for the ITE BLUE VAC line pumps

627-VRP RELATIVE VACUUM GAUGE Ø 60 mm

DESCRIPTION

- 60 mm "PULSE-FREE" relative vacuum gauge.
- Adjustable red pointer for reference mark.
- 1/8" male NPT bottom connection.
- Reading in mbar, 1000 - 0 mbar. Class 1.6.
- Zero calibration screw.
- 1/4" turn screw-type crystal lens.

PMK-08-ALL	Spare electrical cable with USA plug
PMK-09-ALL	Spare electrical cable with EC plug
PMK-10-ALL	Spare electrical cable with UK plug
PMK-11-ALL	Spare electrical cable with Italian plug
PMK-29-ALL	110 V Industrial Plug + Cable
PMK-30-ALL	220 V Industrial Plug + Cable

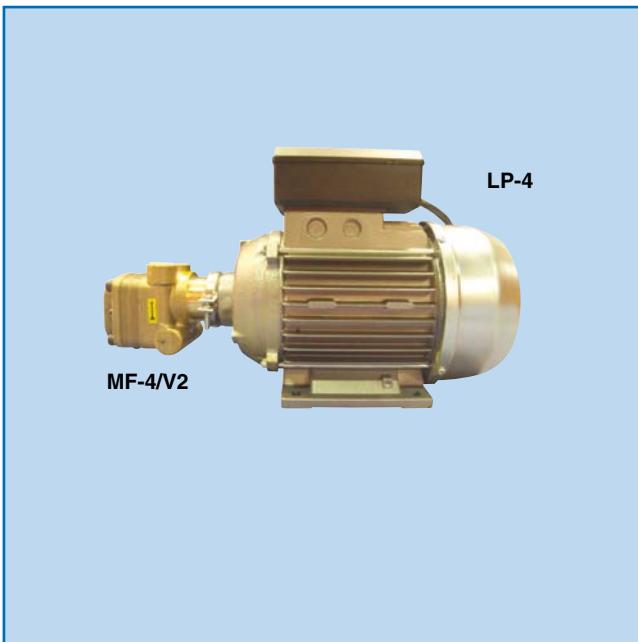


3. "ITE®" VACUUM PUMP OILS

205-P06	600 ml PLASTIC BOTTLE MINERAL OIL
205-P1	ONE LITRE PLASTIC BOTTLE MINERAL OIL
205-P4	FOUR LITRE PLASTIC BOTTLE MINERAL OIL
500-P1	ONE LITRE PLASTIC BOTTLE ESTER OIL
500-P4	FOUR LITRE PLASTIC BOTTLE ESTER OIL

NOTE: We recommend that the oil is changed after every service job. Clear oil after checking is not necessarily safe one ...
Protect your pump... Remember, never store your pump with oil... Carefully drain it...





4. LIQUID PUMP MF-4 WITH LP-4

MF-4+LP-4/V2 COMPLETE LIQUID PUMP ASSEMBLY
MF-4/V2 LIQUID PUMP ONLY
LP-4 MOTOR ONLY

FEATURES

- Liquid pump suitable for all refrigerants in liquid phase.
- Rapid transfer of liquids.
- Positive displacement and volumetric gear pump.
- New gears realized with new generation polymers: can work dry for a short while.
- Compatible for use with R410A.

SPECIFICATIONS

- Flow rate with 20 cP fluid viscosity: 3 to 4 litre/min.
- Flow rate with lubricant: 4 to 5 litre/min.
- Maximum Delta Δ : 15 bar.
- Maximum inlet pressure: 15 bar.
- Viscosity range: 1 to 60 cP.
- Connections: 3/8" female NPT.
- Power supply: 230 V – 50 Hz.
- Dimensions of the pump only (without motor): 335 mm x 140 mm x 175 mm.
- Weight of the pump only: 8.60 kg.

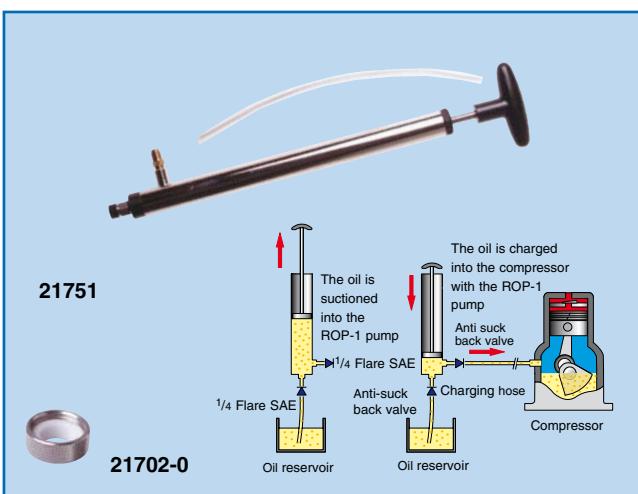
U1-04C Adapter 3/8" MPT pipe x 1/4" male fl. SAE
U1-06C Adapter 3/8" MPT pipe x 3/8" male fl. SAE



5. REFRIGERANT OIL PUMPS

ROP-06 OIL EXTRACTOR

- This hand pump is used to extract oil and lubricants.
- With relief valve button. Press the relief valve button for approximately 5 seconds to release the vacuum.
- 1 litre gradation.
- With footstep.
- Content: 6,5 litre.



21751 CHARGING AND EVACUATION PUMP (Complete)
21702-0 SUCTION ADAPTER FOR SUNISO BARREL

This hand pump is used to charge or evacuate oil into or from the compressor. It can also be used to transfer, charge or take samples of oil for analysis.

- Rapid.
- Precise.
- Clean.

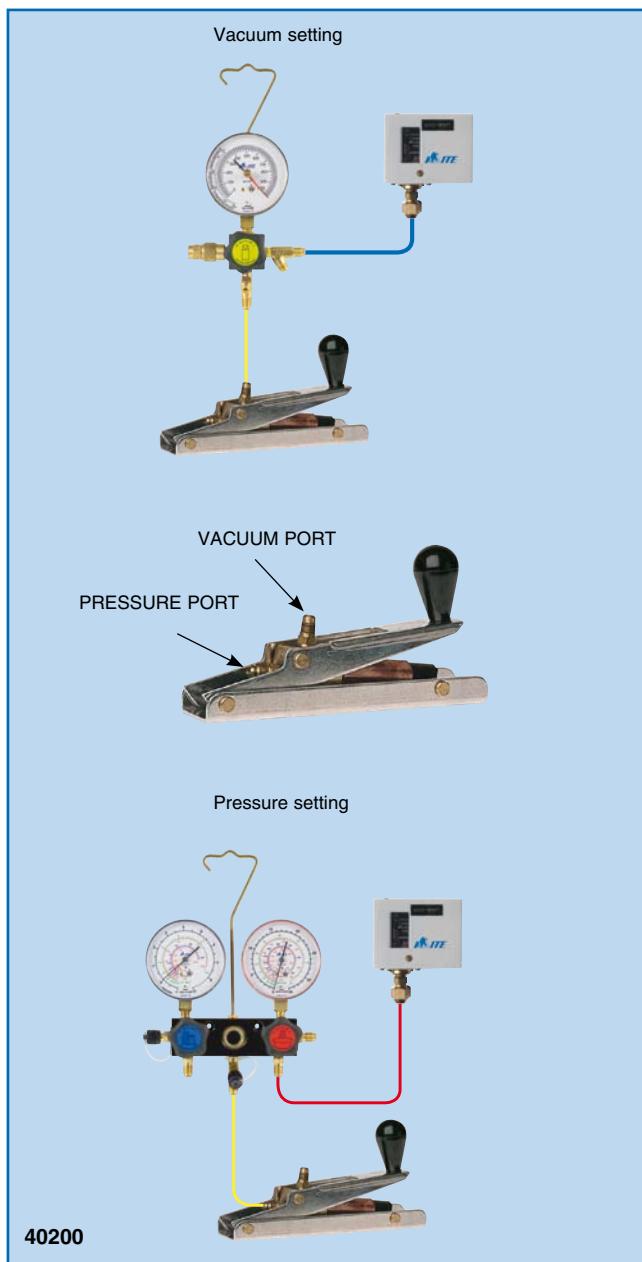
6. CONTROLS TEST PUMP FOR PRESSURE OR VACUUM TESTING

40200

MANUAL TEST PUMP (vacuum/pressure)

DESCRIPTION

- Quickly and accurately test any assembly for vacuum or pressure.
- Easy use for testing and setting single and dual pressure or vacuum controls.
- Can be used with or for any gauge-manifold assembly.
- Test range: **846 mbar (12,30 psi) vacuum or 20 bar (300 psi) pressure.**
- Two **1/4" male flare SAE** connections (pressure and vacuum).
- Supplied complete with adapter (40201).



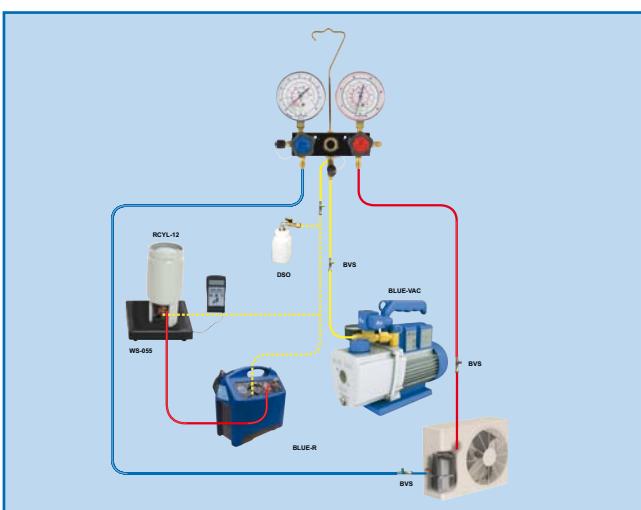
7. CAPILLARY CHECK

1003

CAPILLARY-TUBE CLEANING DEVICE

- For cleaning and unblocking capillary tubes in refrigeration systems.
- Possibility to clean individual, free sections of capillary tubes.
- The cleaning operation is done by pushing oil under high pressure into the capillary tube.
- Maximum pressure: **170 bar.**
- Suitable for different sizes of capillary tube.
- Weight: **1,9 kg.**





BLUE-C CHARGING STATIONS

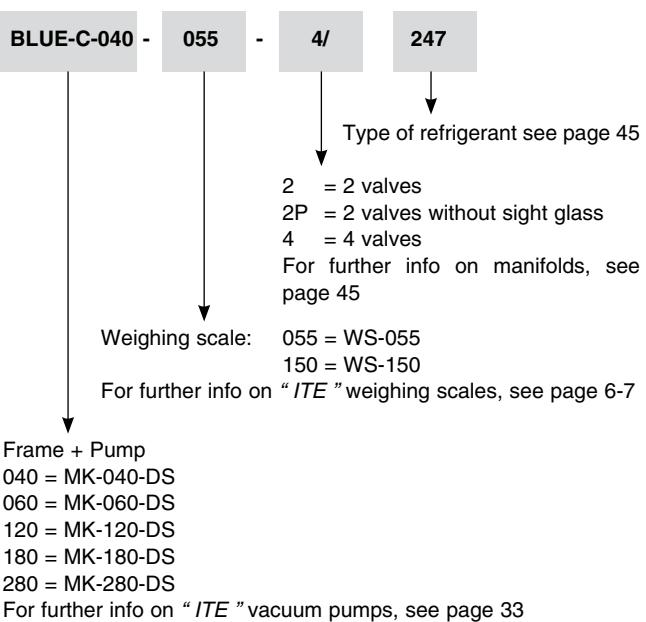
FOR ALL CFC, HCFC & HFC REFRIGERANTS

SPECIFICATIONS

- Multi functional frame allows different assembly versions (2 valves or 4 valves manifolds).
- Easy operation.
- Equipped with weighing scale (see page 6-7).
- Manifold with diaphragm type valves for deep vacuum service.
- Equipped with 80 mm PULSE FREE gauges with zero calibration screw.
- Supplied with bottle of mineral vacuum pump oil type ITE 205-P or ester oil type ITE 500-P.
- 3 heavy duty charging hoses with ball valve (L: 150 cm): 3HDCS-60/V.
- Supplied with CE mark.

HOW TO ORDER

Since we can supply the station with different types of pumps, manifolds, weighing scales, we have developed a simple system to generate the part number (see below).



MOST BLUE-C CHARGING STATION

BLUE-C-040-055-2/410	BLUE-C charging station
BLUE-C-040-055-2/447	BLUE-C charging station
BLUE-C-040-055-4/447	BLUE-C charging station
BLUE-C-060-055-2/410	BLUE-C charging station
BLUE-C-060-055-2/447	BLUE-C charging station
BLUE-C-060-055-4/247	BLUE-C charging station
BLUE-C-060-055-4/447	BLUE-C charging station

SPECIAL MODELS

With exhaust hose (4 M) for venting combustible gasses away from the pump.

BLUE-C-040-005-1L/4/R600a/Hose

BLUE-C-040-005-1L/4/R600a+R134a/Hose

AUTOMOTIVE ACCESSORIES

UNIVERSAL A/C FLUORESCENT DYE

UVL-240 UNIVERSAL A/C FLUORESCENT DYE
240 ml (8 oz)

- Can be used in any A/C unit.
- 240 ml / 8 oz. bottle (enough for use in approx. 32 systems).
- Permanently remains in the unit, so leaks can be located anytime for repair.
- Works with any high intensity black light.
- Certified to meet SAE-J2297 for R134a and PAG oil lubricants. Compatible with R1234yf refrigerant.
- Bottle with graduated scale for correct dosage in automotive A/C systems. Use 7,5 ml (1/4 oz.) for systems containing up to 1,8 kg (4 lbs.) of refrigerant or 0,5 L (16 oz.) of oil, or 7,5 ml for every 1,8 kg of refrigerant.
- Will not harm equipment, recovery systems, A/C systems or filters
- To allow you to charge this liquid into the system, use INJEC, see below.

INJEC SYSTEM INJECTOR

- Used for introducing any liquid into the low side of a charged hermetic system.
- The System Injector helps prevent the venting of refrigerants into the atmosphere, as well as the introduction of air into an operating system. It can be used on sealed operating systems to avoid shutdowns.
- Entirely reusable. Constructed of rugged aluminium for long life.
- Equipped with 2 standard connections 1/4" male flare SAE with core for standard hoses and for all standard hose with depressor.
- Designed for use with any standard manifold gauge and requires no extra valves or fittings.
- Dip proof, no spill design takes the mess out of maintenance.
- **For use with Trace 2, Thawzone, Acid Neutraliser, UVL-240.**



UVL-240



INJEC

KIT WITH 3/8" Flare SAE Connections

DS/O-134/6 HDS-60-Y/V	OIL DOSOMETER with 3/8" flare female SAE FLEXIBLE HOSE "HEAVY DUTY" with one end 1/4" turn valve equipped with core depressor and 1 swivel end. Length: 150 cm (60") (see page 59).
QVA-05	AUTOMOTIVE Low pressure service valve with U1-04M14, U1-06M14 adapters and spare gaskets
QVA-03	AUTOMOTIVE High pressure service valve with U1-04M14, U1-06M14 adapters and spare gaskets
U1-04M14 U1-06M14	ADAPTER 1/4" x M14 + O-ring ADAPTER 3/8" x M14 + O-ring



DS/O-134/6



HDS-60Y/V

QVA-03



QVA-05

DS/O-12 HDS-60-Y/V	OIL DOSOMETER with 1/4" SAE female flare swivel FLEXIBLE HOSE "HEAVY DUTY" with one end 1/4" turn valve equipped with core depressor and 1 swivel end. Length: 150 cm (60") (see page 59).
M-HDL-6	SHORT FLEXIBLE HOSE with 1/4" flare SAE with ball valve (colour coded). Length: 15 cm (6") (see page 61).
K1-12 QC-E3 MV-5013 MV-5016	CYLINDER ADAPTER ADAPTER (3/16" female x 1/4" male flare SAE) R134a RETROFIT BRASS ADAPTER (see page 134) R134a RETROFIT BRASS ADAPTER (see page 134)

2822-BPC-AUTO See manifolds page 46.



2822-BPC-AUTO

CHARGING AND RECOVERY CYLINDERS



1. REFRIGERANT RECOVERY CYLINDERS

- These different sized ITE recovery cylinders have a double valve (blue/red) with 1/4" male flare SAE connections.
- Test pressure 42 bar.
- Can be used for R410A.
- Manufactured according to EC 1322-1.

RCYL-12L RECOVERY CYLINDER

- Cylinder volume: 12,5 L
- Height: 50 cm
- Diameter: 23,3 cm
- Tare weight: 7,50 kg

RCYL-30L RECOVERY CYLINDER

- Cylinder volume: 27,2 L
- Height: 64 cm
- Diameter: 30 cm
- Tare weight: 14 kg

RCYL-50L RECOVERY CYLINDER

- Cylinder volume: 61 L
- Height: 115 cm
- Diameter: 30 cm
- Tare weight: 28 kg
- Other cylinders available upon request.

2. HEATING BELTS

RCH-10 HEATING BELT with springs RCH-10/V2 HEATING BELT with elastics

- For max temperature of +60°C (+140°F)
- Power consumption: 230 V / 400 W
- Dimensions Length: 70 cm
Width: 8 cm
Minimum Ø: 23 cm
Maximum Ø: 32,5 cm
- See page 193



RCH-10



RCH-10/V2

3. "ITE®" STAINLESS STEEL WELDED CHARGING CYLINDERS

MCSS-1	1100 g CYLINDER	R12, R22, R502
MCSS-2	2200 g CYLINDER	R12, R22, R502
MCSS-1/44	1100 g CYLINDER	R134a / R404A
MCSS-2/44	2200 g CYLINDER	R134a / R404A

This 2nd generation of charging cylinders which can be supplied from stock offers a number of advantages over the traditional models on the market.

FEATURES

- No leakage: welded stainless steel design.
- Less fragile during transport, sight glass protection and impact resistant, polyethylene external cylinder with high flexibility.
- Higher accuracy because of temperature reading instead of pressure reading.
- Special marker eliminates the reading error (parallax error).
- Easy operation, double valve for liquid and vapour charging.
- Self regulating electrical heating element - 60 W.
- Easy change of refrigerant scale.

Other refrigerant scales are available on request.

HIGHER ACCURACY

Instead of determining the volume in the cylinder by pressure, this cylinder is **equipped with a temperature tester which measures the temperature of the refrigerant** and uses this read out to determine the volume. This **eliminates the effect of non-condensing gases** on the pressure read out.

ELIMINATES THE READING ERROR (PARALLAX ERROR)

Red marker is placed on the outer scales which guarantees a 100% straight read off.

Advantage: Combined with the higher accuracy of the temperature read out, this concept offers a general accuracy for filling of ± 2 g.



MCSS-1

We still can supply Portable ITE Charging Stations with stainless steel charging cylinder upon request.



Portable ITE Charging Station with MCSS cylinder



BLUE-R-95/V2



OPTIONAL ACCESSORIES

BLUE-R/95/OFP	Cable for DOT cylinder
FDL-032	Filter drier 1/4" flare, 25 bar
WS-30	Weighing scale
	• Scale 0 kg to 25 kg.
	• Maximum weight 30 kg.

RECOVERY & RECYCLING EQUIPMENT

1. BLUE-R OIL FREE PORTABLE RECOVERY STATION

BLUE-R-95/V2 PORTABLE "ITE" STATION

FEATURES

- Suitable for all CFC, HCFC and HFC refrigerants with an evaporation pressure lower than 21 bar, R410A included.
- Recovery unit with maintenance free **oilless** compressor.
- Refrigerant selectable recovery. 3 position selector allows complete automatic recovery of all refrigerants categorized in pressure group low, medium or high (see below).
- Large built-in condenser ensures high efficient recovery and will make sure that recovered refrigerant will be liquified before it is being discharged in the recovery bottle.
- Equipped with electrical DIN connector to allow use with WS-30 or recovery bottle (float) overfill protection.
- Equipped with a self discharge mode allowing change from one refrigerant to another without cross contamination.
- Supplied with filter drier model **FDL-032** which can be replaced quickly and easily.
- Equipped with adjustable strap for easy carriage.
- Supplied with a set of 3 hoses 36" (90 cm) with integrated ball valves.
- Faster and easier self-cleaning procedure (with added **MV-5050** valve core actuator).
- Upgraded high pressure protection.

SPECIFICATIONS

- Refrigerants:

Pressure Group Low:

CFC-11, CFC-12, CFC-113, CFC-114, CFC-115, HCFC-123, HCFC-124, HFC-134a, HCFC-401C, HCFC-406A, CFC-500

Pressure Group Medium:

HCFC-22, HCFC-401A, HCFC-401B, HCFC-402A, HCFC-402B, HFC-407C, HFC-407D, HCFC-408A, HCFC-409A, HCFC-411A, HCFC-411B, HCFC-412A, HCFC-415A, HCFC-415B, CFC-502, HCFC-509A

Pressure Group High:

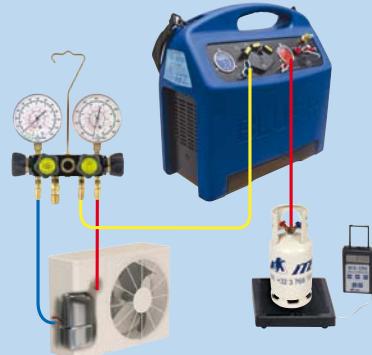
HFC-404A, HFC-407A, HFC-407B, HFC-410A, HFC-507

	Vapor	Liquid	Push/pull
Pressure Group Low:	14 kg/hour	94 kg/hour	278 kg/hour
Pressure Group Medium:	15 kg/hour	109 kg/hour	334 kg/hour
Pressure Group High:	16 kg/hour	111 kg/hour	373 kg/hour
• Power supply:	220 V - 240 V / 50 Hz or 110 V - 120 V / 60 Hz		
• Motor:	1/2 HP		
• Motor speed:	1450 RPM at 50 Hz or 1750 RPM at 60 Hz		
• Max. current draw:	4 A at 220 V or 8 A at 110 V		
• Compressor type:	oilless, air cooled		
• High pressure shut off:	38,6 bar / 3860 kPa / 560 psi		
• Operating temperature:	0°C to +40°C		
• Dimensions:	468 mm x 472 mm x 236 mm		
• Weight:	18 kg		

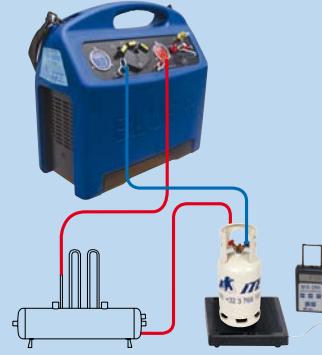
Direct Operation



MB4 Recovery



Push Pull



SERVICE MANIFOLDS, GAUGES and CHARGING HOSES



SERVICE MANIFOLDS, GAUGES and CHARGING HOSES



"ITE" SERVICE MANIFOLDS

Connections: **MFL** = male flare sae **FFL** = female flare sae
MPT = male NPT **FPT** = female NPT

1. "ITE" SINGLE VALVE DIAPHRAGM MANIFOLDS

80 mm gauge SCALE options:

			CLASS
BC	bar/°C	R12, R22, R502	1.6
BC-1.0	bar/°C	R12, R22, R502	1.0
BPC	bar/psi/°C	R12, R22, R502	1.6
BC/4	bar/°C	R134a, R404A	1.6
BC/447	bar/°C	R134a, R404A, R407C, R507	1.6
BC-1.0/447	bar/°C	R134a, R404A, R407C, R507	1.0
BC/27	bar/°C	R22, R407C	1.6
BC/247	bar/°C	R22, R134a, R404A, R407C	1.6
G-BC	bar/°C	R12, R22, R502 (glycerine)	1.6
G-BPC	bar/psi/°C	R12, R22, R502 (glycerine)	1.6
G-BC/4	bar/°C	R134a, R404A (glycerine)	1.6
G-BC/447	bar/°C	R134a, R404A, R407C, R507 (glyc.)	1.6
G-BC/247	bar/°C	R22, R134a, R404A, R407C (glyc.)	1.6

DESCRIPTION

- High density black aluminium body with hook.
- Possibility to panel mount.
- Deep vacuum valve design: proven leak proof, easy replaceable diaphragm type valves require only fingertip pressure to close tightly and can be fully opened with only 1 turn.
- Standard delivered with a 80 mm "pulse free" gauge (see page 54).
- Single valve unit is ideal for quick single point service.
- Durable non slip surface, soft touch handles.

MB1-ADS **SINGLE MANIFOLD BODY, HIGH or LOW side**
 Hook and 1 valve with 2 labels (red and blue).
 Connections: 2 x 1/4" MFL.
 Equipped with blind nipples for easy hose storage.
 Without gauges, hoses and carrying case.

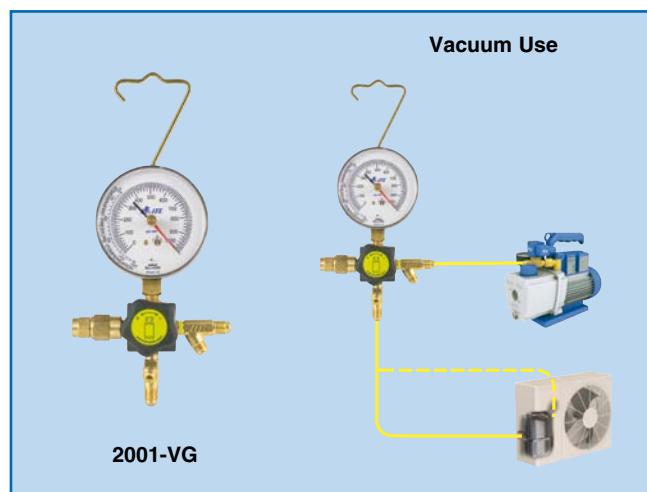
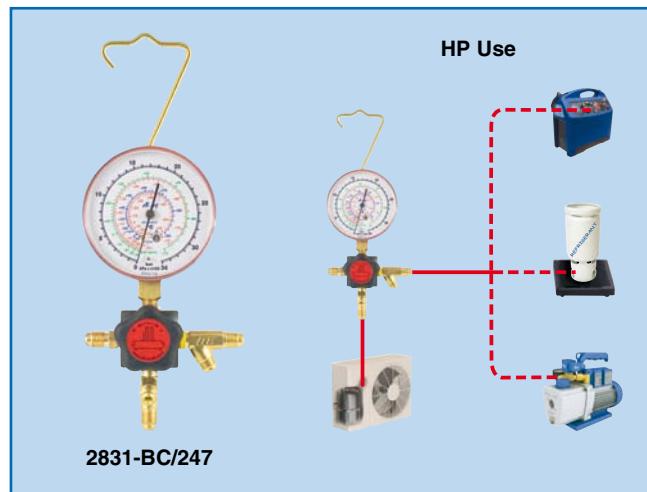
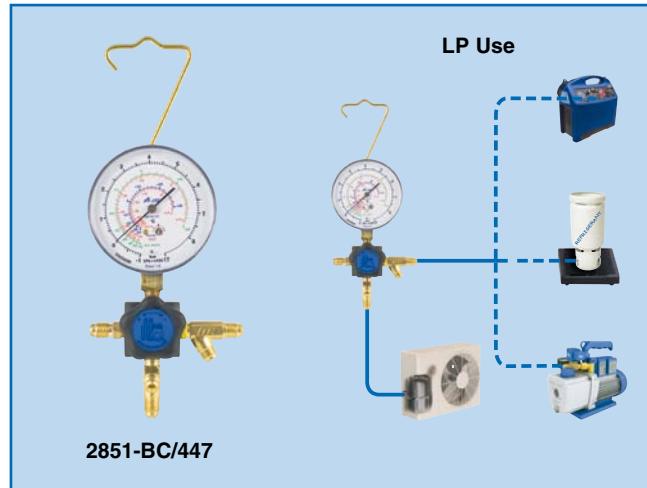
2831-SCALE **MB1-ADS + red gauge**
 Add your 80 mm gauge SCALE option from the above list (example: 2831-BC/247).
 Without hoses.
 Packed in a carton.

2851-SCALE **MB1-ADS + blue gauge**
 Add your 80 mm gauge SCALE option from the above list (example: 2851-BC/247).
 Without hoses.
 Packed in a carton.

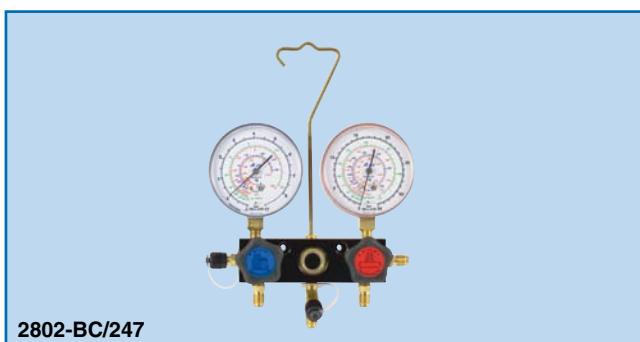
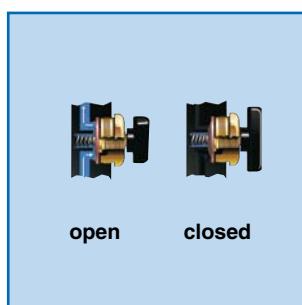
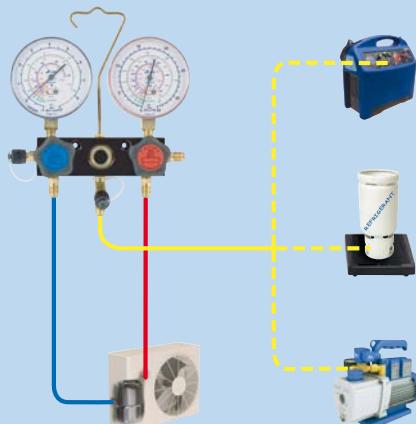
MB1-ADS/VAC **SINGLE MANIFOLD BODY VACUUM**
 Hook and 1 yellow vacuum valve.
 Connections: 2 x 1/4" MFL + safety valve.
 Equipped with blind nipples for easy hose storage.
 Without gauges, hoses and carrying case.

2001-VG **MB1-ADS/VAC + vacuum gauge**
 827-VRP, relative vacuum gauge.
 Without hoses .
 Packed in a carton.

SPARE PARTS See MANIFOLD SPARE PARTS page 52.



ITE®



2. "ITE" TWO VALVE DIAPHRAGM MANIFOLDS

80 mm gauge SCALE options:			CLASS
BC	bar/°C	R12, R22, R502	1.6
BC-1.0	bar/°C	R12, R22, R502	1.0
BPC	bar/psi/°C	R12, R22, R502	1.6
BC/4	bar/°C	R134a, R404A	1.6
BC/447	bar/°C	R134a, R404A, R407C, R507	1.6
BC-1.0/447	bar/°C	R134a, R404A, R407C, R507	1.0
BC/27	bar/°C	R22, R407C	1.6
BC/247	bar/°C	R22, R134a, R404A, R407C	1.6
G-BC	bar/°C	R12, R22, R502 (glycerine)	1.6
G-BPC	bar/psi/°C	R12, R22, R502 (glycerine)	1.6
G-BC/4	bar/°C	R134a, R404A (glycerine)	1.6
G-BC/447	bar/°C	R134a, R404A, R407C, R507 (glyc.)	1.6
G-BC/247	bar/°C	R22, R134a, R404A, R407C (glyc.)	1.6

R410A gauges + manifolds with special body, see page 49.

DESCRIPTION

- High density black aluminium 2 valve body with tested leak proof sight glass and hook.
- Possibility to panel mount.
- Equipped with 5 x 1/4" MFL connections of which 2 have a schraeder valve (central tee + left (low) side of body). Provides additional hookups for use with e.g. vacuum gauge, adding oil, etc.
- Deep vacuum valve design: proven leak proof, easy replaceable diaphragm type valves require only fingertip pressure to close tightly and can be fully opened with only 1 turn.
- Standard delivered with 80 mm "pulse free" gauges (see page 54).
- Durable non slip surface, soft touch handles.

MB2-ADS 2-VALVE MANIFOLD BODY HP/LP

Hook and red and blue valve.
Connections : 5 x 1/4" MFL.
Equipped with blind nipples for easy hose storage.
Without gauges, hoses and carrying case.

2802-SCALE MB2-ADS + gauges

Add your 80 mm gauge SCALE option from the above list (example: 2802-BC).
Without hoses .
Packed in a carton.

2812-SCALE MB2-ADS + gauges + hoses

Add your 80 mm gauge SCALE option from the above list (example: 2812-BC).
3 hoses 1/4" FFL, 90 cm (select your hoses on page 58 - 63).
Packed in a carton

2822-SCALE MB2-ADS + gauges + hoses + case

Add your 80 mm gauge SCALE option from the above list (example: 2822-BC).
3 hoses 1/4" FFL, 90 cm (select your hoses on page 58 - 63).
Packed in 1 anti-shock, portable carrying case.

SPARE PARTS See MANIFOLD SPARE PARTS page 52.

3. "ITE" FOUR VALVE DIAPHRAGM MANIFOLDS

80 mm gauge SCALE options:

			CLASS
BC	bar/°C	R12, R22, R502	1.6
BC-1.0	bar/°C	R12, R22, R502	1.0
BPC	bar/psi/°C	R12, R22, R502	1.6
BC/4	bar/°C	R134a, R404A	1.6
BC/447	bar/°C	R134a, R404A, R407C, R507	1.6
BC-1.0/447	bar/°C	R134a, R404A, R407C, R507	1.0
BC/27	bar/°C	R22, R407C	1.6
BC/247	bar/°C	R22, R134a, R404A, R407C	1.6
G-BC	bar/°C	R12, R22, R502 (glycerine)	1.6
G-BPC	bar/psi/°C	R12, R22, R502 (glycerine)	1.6
G-BC/4	bar/°C	R134a, R404A (glycerine)	1.6
G-BC/447	bar/°C	R134a, R404A, R407C, R507 (glyc.)	1.6
G-BC/247	bar/°C	R22, R134a, R404A, R407C (glyc.)	1.6

DESCRIPTION

- High density black aluminium 4 valve body with tested leak proof sight glass and hook.
- Possibility to panel mount.
- Equipped with 3 x 1/4" MFL and 1 x 3/8" MFL connections. A fifth bottom connection is plugged. Removal of this plug (1/8" NPT) allows installation of an extra service connection. 3/8" vacuum port allows 4 times faster evacuation than ordinary manifolds.
- Deep vacuum valve design: proven leak proof, easy replaceable diaphragm type valves require only fingertip pressure to close tightly and can be fully opened with only 1 turn.
- Standard delivered with 80 mm "pulse free" gauges (see page 54).
- Durable non slip surface, soft touch handles.

MB4-ADS

4-VALVE MANIFOLD BODY HP/LP

Hook and red, blue and 2 yellow valves.
Connections : 3 x 1/4" MFL + 1 x 3/8" MFL.
Equipped with blind nipples for easy hose storage.
Without gauges, hoses and carrying case.

2804-SCALE

MB4-ADS + gauges

Add your 80 mm gauge SCALE option from the above list (example: 2804-BC).
Without hoses .
Packed in a carton.

2814-SCALE

MB4-ADS + gauges + hoses

Add your 80 mm gauge SCALE option from the above list (example: 2814-BC).
3 hoses 1/4" FFL + 1 hose 3/8" FFL, 150 cm
(select your hoses on page 58 - 63).
Packed in a carton

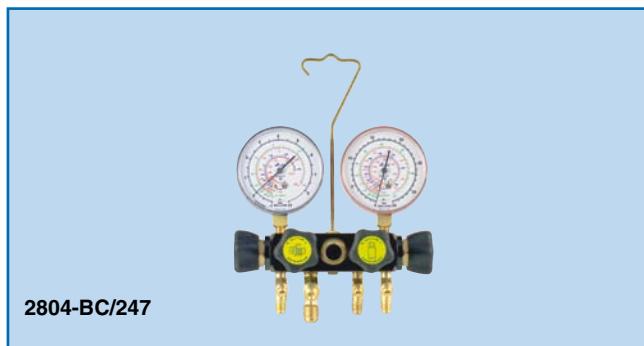
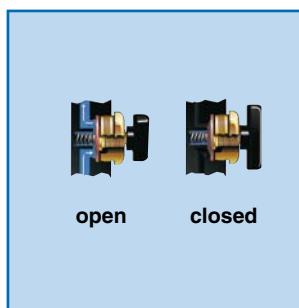
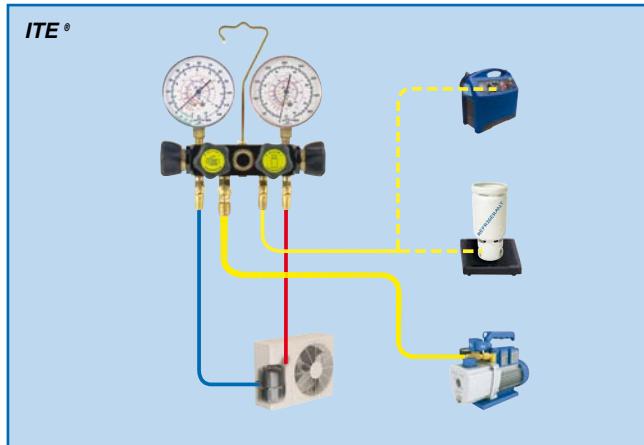
2824-SCALE

MB4-ADS + gauges + hoses + case

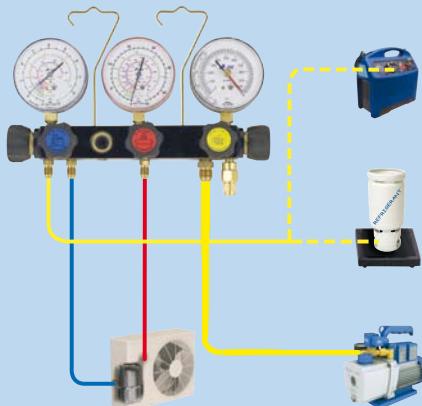
Add your 80 mm gauge SCALE option from the above list (example: 2824-BC).
3 hoses 1/4" FFL + 1 hose 3/8" FFL, 150 cm
(select your hoses on page 58 - 63).
Packed in 1 anti-shock, portable carrying case.

SPARE PARTS

See MANIFOLD SPARE PARTS page 52.



ITE®



MB5-ADS



open closed



2805-BC/447



2815-BC/447



2825-BC/447

4. "ITE" FIVE VALVE DIAPHRAGM MANIFOLDS

80 mm gauge SCALE options:				CLASS
BC	bar/°C	R12, R22, R502		1.6
BC-1.0	bar/°C	R12, R22, R502		1.0
BPC	bar/psi/°C	R12, R22, R502		1.6
BC/4	bar/°C	R134a, R404A		1.6
BC/447	bar/°C	R134a, R404A, R407C, R507		1.6
BC-1.0/447	bar/°C	R134a, R404A, R407C, R507		1.0
BC/27	bar/°C	R22, R407C		1.6
BC/247	bar/°C	R22, R134a, R404A, R407C		1.6
G-BC	bar/°C	R12, R22, R502 (glycerine)		1.6
G-BPC	bar/psi/°C	R12, R22, R502 (glycerine)		1.6
G-BC/4	bar/°C	R134a, R404A (glycerine)		1.6
G-BC/447	bar/°C	R134a, R404A, R407C, R507 (glyc.)		1.6
G-BC/247	bar/°C	R22, R134a, R404A, R407C (glyc.)		1.6

DESCRIPTION

- High density black aluminium 5 valve body with tested leak proof sight glass and hook.
- Possibility to panel mount.
- Equipped with 3 x 1/4" MFL and 1 x 3/8" MFL connections. A fifth bottom connection is plugged. Removal of this plug (1/8" NPT) allows installation of an extra service connection. 3/8" vacuum port allows 4 times faster evacuation than ordinary manifolds.
- Deep vacuum valve design: proven leak proof, easy replaceable diaphragm type valves require only fingertip pressure to close tightly and can be fully opened with only 1 turn.
- Standard delivered with 80 mm "pulse free" gauges (see page 54) and vacuum gauge (overpressure protected).
- Durable non slip surface, soft touch handles.

MB5-ADS

5-VALVE MANIFOLD BODY HP/LP

Hook and red, blue and 3 yellow valves.
Connections : 3 x 1/4" MFL + 1 x 3/8" MFL + safety valve.
Equipped with blind nipples for easy hose storage.
Without gauges, hoses and carrying case.

2805-SCALE

MB5-ADS + gauges

827-VRP + add your 80 mm gauge SCALE option from the above list (example: 2805-BC).
Without hoses .
Packed in a carton.

2815-SCALE

MB5-ADS + gauges + hoses

827-VRP + add your 80 mm gauge SCALE option from the above list (example: 2815-BC).
3 hoses 1/4" FFL + 1 hose 3/8" FFL, 150 cm (select your hoses on page 58 - 63).
Packed in a carton

2825-SCALE

MB5-ADS + gauges + hoses + case

827-VRP + add your 80 mm gauge SCALE option from the above list (example: 2825-BC).
3 hoses 1/4" FFL + 1 hose 3/8" FFL, 150 cm (select your hoses on page 58 - 63).
Packed in 1 anti-shock, portable carrying case.

SPARE PARTS

See MANIFOLD SPARE PARTS page 52.

5. "ITE" "FREE-FLOATING" PISTON MANIFOLDS FOR R410A and (subcritical) CO₂ applications.

80 mm gauge SCALE options:		CLASS
BPC/410	bar/psi/°C	R410A 1.6
BPC-1.0/410	bar/psi/°C	R410A 1.0
BPC/410/27	bar/psi/°C	R22, R134a, R407C, R410A 1.6
G-BPC/410	bar/psi/°C	R410A (glycerine) 1.6
G-BC/410/127	bar/°C	R22, R134a, R407C, R410A (glyc.) 1.6
G-BC/CO ₂	bar/°C	R744 (glycerine) 1.6

DESCRIPTION

- High density aluminium 2 valve body with hook.
- Possibility to panel mount.
- Dual O-ring seal for high pressure valve use.
- Standard delivered with 80 mm "pulse free" gauges (see page 54)
- Equipped with 4 x 1/4" MFL connection (+ schrader valve in central tee).
- Durable non slip surface, soft touch handles.

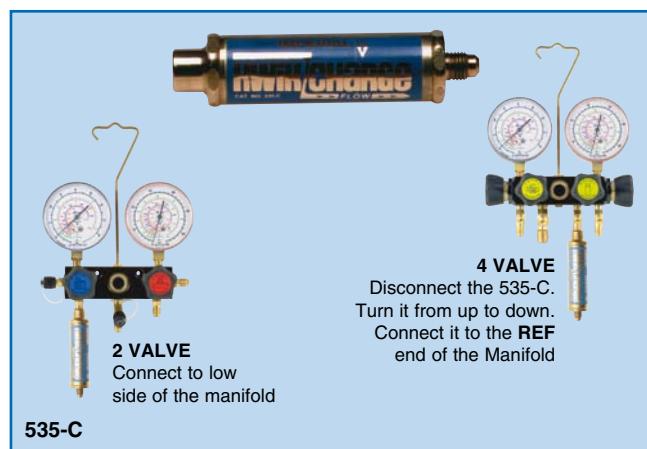
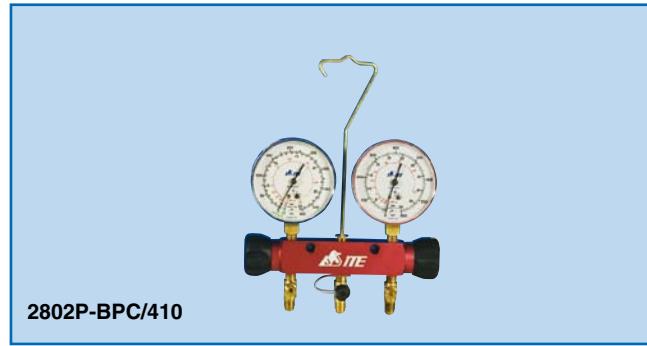
MB2-AP	2-VALVE MANIFOLD BODY HP/LP Hook and red and blue valve. Connections : 3 x 1/4" MFL. Equipped with blind nipples for easy hose storage. Without gauges, hoses and carrying case.
2802P-SCALE	MB2-AP + gauges Add your 80 mm gauge SCALE option from the above list (example: 2802P-BPC/410). Without hoses . Packed in a carton.
2812P-SCALE	MB2-AP + gauges + hoses Add your 80 mm gauge SCALE option from the above list (example: 2812P-BPC/410). 2 hoses 1/4" FFL - 5/16" FFL + 1 hose 1/4" FFL, 90 cm (select your hoses on page 62 - 63). Packed in a carton
2822P-SCALE	MB2-AP + gauges + hoses + case Add your 80 mm gauge SCALE option from the above list (example: 2822P-BPC/410). 2 hoses 1/4" FFL - 5/16" FFL + 1 hose 1/4" FFL, 90 cm (select your hoses on page 62 - 63). Packed in 1 anti-shock, portable carrying case.
SPARE PARTS See MANIFOLD SPARE PARTS page 52.	

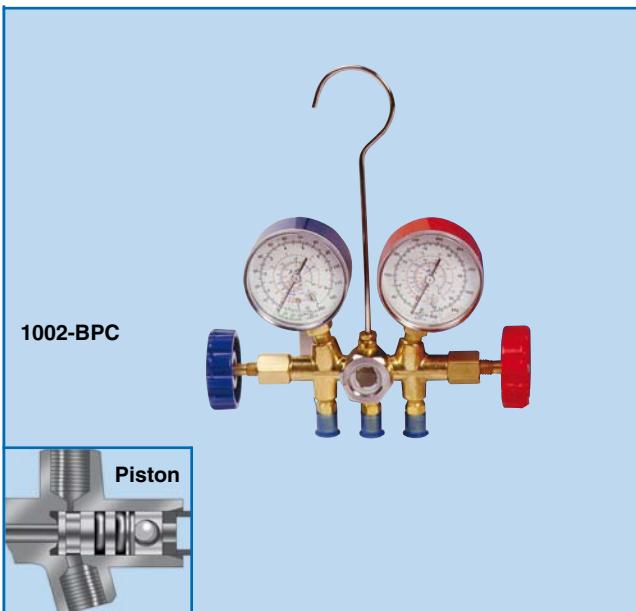
6. KWIK-CHARGE CYLINDERS

535-C	"KWIK-CHARGE" CYLINDER 1/4" FFL (inlet) x 1/4" MFL (outlet)
545-C	"KWIK-CHARGE" CYLINDER 5/16" FFL (inlet) x 5/16" MFL (outlet) for R410A applications

DESCRIPTION

- KWIK-CHARGE accepts liquid refrigerant from the refrigerant Cylinder (no need to heat it) and discharge directly into low side of the system (due to an expansion device).
- Charging rate is up to 8 times faster than vapour charging.
- In addition, liquid charging is required when using tracing dye.
- KWIK-CHARGE is screwed on to the low side of the Charging Manifold or Charging Station Manifold. Then, Charging Hose is connected from KWIK-CHARGE outlet to low side of the system.
- Also, KWIK-CHARGE measuring device reduces liquid flow to a level below capacity of compressor. This assures a safe, fast charge without endangering the compressor.
- A built-in Ball Check-Valve automatically opens when drawing a vacuum to assure rapid, unrestricted evacuation.
- Suitable for all CFC, HCFC and HFC refrigerant systems.
- 1 Charger services all units 1,76 Kw (1/2 ton) or larger.





7. BRASS PISTON MANIFOLDS

80 mm gauge SCALE options:

			CLASS
BC	bar/°C	R12, R22, R502	1.6
BC-1.0	bar/°C	R12, R22, R502	1.0
BPC	bar/psi/°C	R12, R22, R502	1.6
BC/4	bar/°C	R134a, R404A	1.6
BC/447	bar/°C	R134a, R404A, R407C, R507	1.6
BC-1.0/447	bar/°C	R134a, R404A, R407C, R507	1.0
BC/27	bar/°C	R22, R407C	1.6
BC/247	bar/°C	R22, R134a, R404A, R407C	1.6

			CLASS
G-BC	bar/°C	R12, R22, R502 (glycerine)	1.6
G-BPC	bar/psi/°C	R12, R22, R502 (glycerine)	1.6
G-BC/4	bar/°C	R134a, R404A (glycerine)	1.6
G-BC/447	bar/°C	R134a, R404A, R407C, R507 (glyc.)	1.6
G-BC/247	bar/°C	R22, R134a, R404A, R407C (glyc.)	1.6

		CLASS
BPC	bar/psi/°C	R12, R22, R502
BC/447	bar/°C	R134a, R404A, R407C, R507
BC/247	bar/°C	R22, R134a, R404A, R407C

DESCRIPTION

- Brass body with tested leak proof sight glass and hook.
- Equipped with 3 x 1/4" MFL connections.
- Available with 62 mm or 80 mm "pulse free" gauges (see page 54).

M2-12MHH 2-VALVE MANIFOLD BODY HP/LP

Hook and red and blue valve.
 Connections : 3 x 1/4" MFL.
 Equipped with blind nipples for easy hose storage.
 Without gauges, hoses and carrying case.

1002-SCALE M2-12MHH + gauges 62 mm

Add your 62 mm gauge SCALE option from the above list (example: 1002-BC).
 Without hoses .
 Packed in a carton.

1802-SCALE M2-12MHH + gauges 80 mm

Add your 80 mm gauge SCALE option from the above list (example: 1802-BC).
 Without hoses .
 Packed in a carton.

1012-SCALE M2-12MHH + gauges 62 mm + hoses.

Add your 62 mm gauge SCALE option from the above list (example: 1012-BC).
 3 hoses 1/4" FFL, 90 cm (select your hoses on page 58 - 63).
 Packed in a carton.

1812-SCALE M2-12MHH + gauges 80 mm + hoses.

Add your 80 mm gauge SCALE option from the above list (example: 1812-BC).
 3 hoses 1/4" FFL, 90 cm (select your hoses on page 58 - 63).
 Packed in a carton.

8. ALUMINIUM PISTON MANIFOLDS

80 mm gauge SCALE options:

			CLASS
BC	bar/°C	R12, R22, R502	1.6
BC-1.0	bar/°C	R12, R22, R502	1.0
BPC	bar/psi/°C	R12, R22, R502	1.6
BC/4	bar/°C	R134a, R404A	1.6
BC/447	bar/°C	R134a, R404A, R407C, R507	1.6
BC-1/447	bar/°C	R134a, R404A, R407C, R507	1.0
BC/27	bar/°C	R22, R407C	1.6
BC/247	bar/°C	R22, R134a, R404A, R407C	1.6

G-BC	bar/°C	R12, R22, R502 (glycerine)	1.6
G-BPC	bar/psi/°C	R12, R22, R502 (glycerine)	1.6
G-BC/4	bar/°C	R134a, R404A (glycerine)	1.6
G-BC/447	bar/°C	R134a, R404A, R407C, R507 (glyc.)	1.6
G-BC/247	bar/°C	R22, R134a, R404A, R407C (glyc.)	1.6

62 mm gauge SCALE options:	CLASS	
BPC	bar/psi/°C R12, R22, R502	1.6
BC/447	bar/°C R134a, R404A, R407C, R507	1.6
BC/247	bar/°C R22, R134a, R404A, R407C	1.6

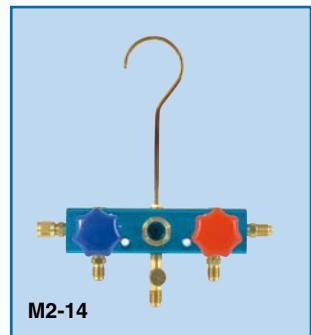
DESCRIPTION

- Aluminium body with tested leak proof sight glass and hook.
- Equipped with 5 x 1/4" MFL connections of which 2 have a schraeder valve (central tee + left (low) side of body). Provides additional hookups for use with e.g. vacuum gauge, adding oil, etc.
- Available with 62 mm or 80 mm "pulse free" gauges (see page 54).

M2-14

2-VALVE MANIFOLD BODY HP/LP

Hook and red and blue valve.
 Connections : 5 x 1/4" MFL.
 Equipped with blind nipples for easy hose storage.
 Without gauges, hoses and carrying case.



1004-SCALE

M2-14 + gauges 62 mm

Add your 62 mm gauge SCALE option from the above list (example: 1004-BC).
 Without hoses .
 Packed in a carton.

1084-SCALE

M2-14 + gauges 80 mm

Add your 80 mm gauge SCALE option from the above list (example: 1084-BC).
 Without hoses .
 Packed in a carton.

1184-SCALE

M2-14 + gauges 80 mm + hoses.

Add your 80 mm gauge SCALE option from the above list (example: 1184-BC).
 3 hoses 1/4" FFL, 90 cm (select your hoses on page 58 - 63).
 Packed in a carton.

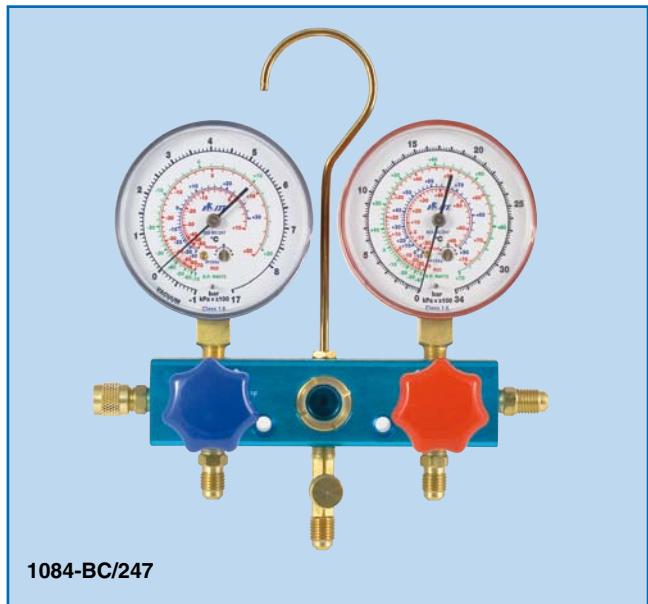
1284-SCALE

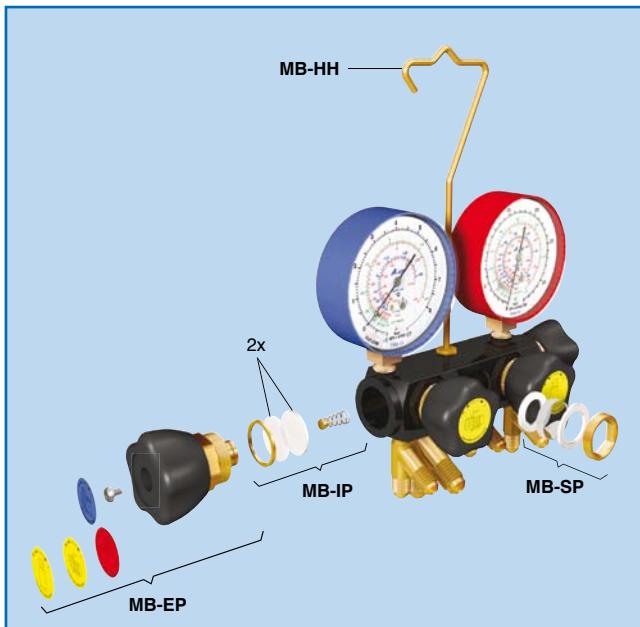
M2-14 + gauges 80 mm + hoses.

Add your 80 mm gauge SCALE option from the above list (example: 1284-BC).
 3 hoses 1/4" FFL, 90 cm (select your hoses on page 58 - 63).
 Packed in 1 anti-shock, portable carrying case.

SPARE PARTS

See MANIFOLD SPARE PARTS page 52.

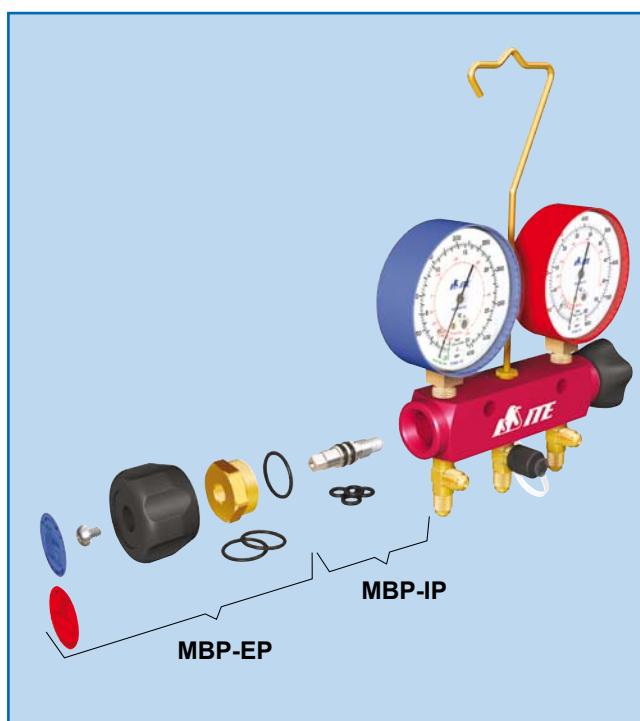




9. SPARE PARTS

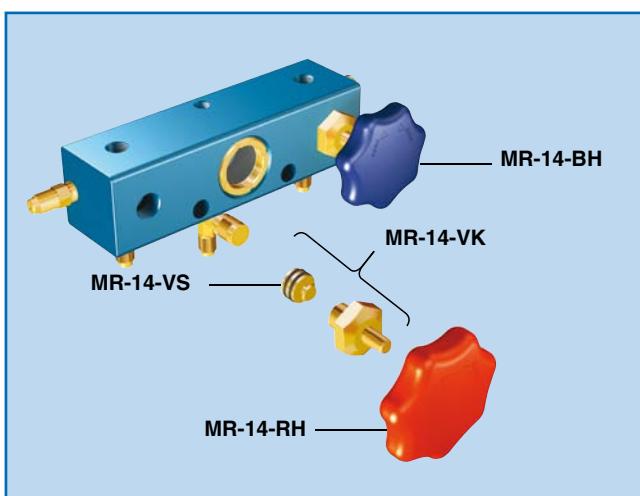
FOR "ITE" DIAPHRAGM MANIFOLDS

MB-EP	External spare parts kit
MB-HH	Spare hook
MB-IP	Internal spare parts kit + set of 4 coloured labels
MB-SP	Sight glass parts
MB-SR	Sight glass remover
MV-8520	Y-fitting 1/8" MPT x 1/4" MFL x 1/4" MFL



FOR MB2-AP

MBP-EP	External parts kit
MBP-IP	Internal parts kit + set of two coloured labels
MBP-HH	Spare hook



FOR M2-14

MR-14-BH	Blue handwheel
MR-14-RH	Red handwheel
MR-14-VK	Valve kit complete
MR-14-VS	Valve seat only

FOR ALL MANIFOLDS

CRISTAL CLEAR	Plastic screw-on gauge lens (80 mm)
84617-E/N	Anti-shock, portable carrying case.

10. DIGITAL MANIFOLDS

DIMA-4

DIGITAL MANIFOLD

This high quality digital manifold is suitable for use with any K-type thermocouple. Each manifold comes with a 9V battery (40 hours battery life).

FEATURES AND SPECIFICATIONS

- Suitable for more than 50 refrigerants like e.g.: R134a, R290a, R407C, R407F, R410A, R404A, R600a, R1234yf, R744 (CO₂), ...
- Possibility to add new refrigerants (will need re-programming).
- Liquid or vapour (possibility to switch between **LOW** and **HIGH**) indication with non-azeotropic refrigerants (e.g. R407C).
- Measuring of vacuum on both working lines (**0,01 bar**).
- Max operating pressure: **56 bar**.
- Accuracy better than 1% off scale.
- **4-way manifold** piston type (low, high, ref, vac).
- Sight glass.
- Includes 2 type K temperature probes (3 m cable), measurement readable in °C & °F.
- Calculation of the difference between temperatures T1 and T2.
- 1 ambient temperature sensor.
- 2 high quality ceramic pressure sensors (range -0,99 bar till 49,90 bar), measurement readable in **bar, MPa and psi**.
- Subcooling & superheating calculation function.

DIMA-4/NH3

Ammonia version upon request



DIMA-4/COMPLETE DIGITAL MANIFOLD COMPLETE

DIMA-4 including following hoses:

- **3HDCA-36**
($\frac{1}{4}$ " straight end, $\frac{1}{4}$ " 45° end + core depressor)
- **HDCSA-36-Y-1/4x3/8-45°**
($\frac{1}{4}$ " straight end, $\frac{3}{8}$ " 45° end, no core depressor)
- **HDCA-36-B/410**
($\frac{1}{4}$ " straight end, $\frac{5}{16}$ " 45° end + core depressor)
- **HDCA-36-R/410**
($\frac{1}{4}$ " straight end, $\frac{5}{16}$ " 45° end + core depressor)
- Delivered in a larger, more comfortable carrying case.

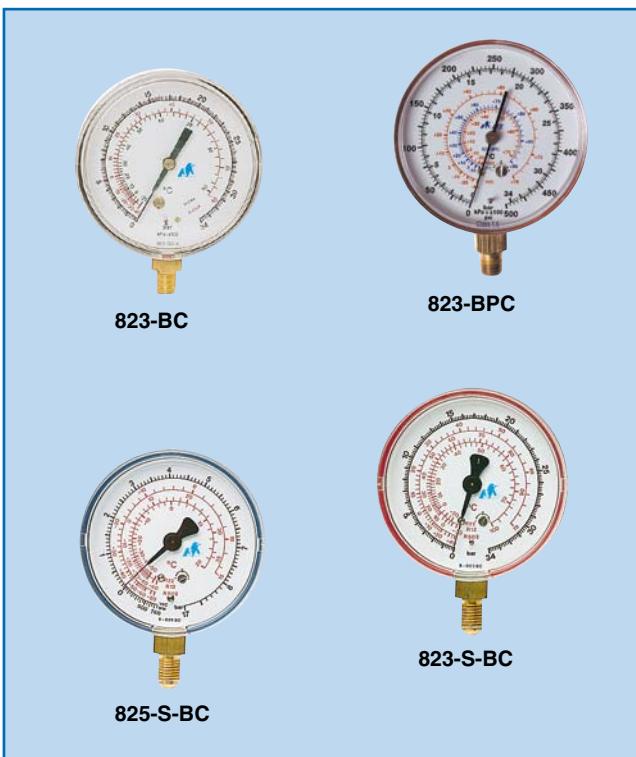




Other gauge



"ITE" pulse free gauge



"ITE® "CALIBRATABLE PRESSURE GAUGES

1. DRY PULSE-FREE GAUGES Series 820 Class 1.6 - Ø 80 mm

- All "823 & 825 SERIES" gauges are for CFC, HCFC and HFC.
- 80 mm Scale Diameter. 1/8" male NPT (= MPT) or 1/4" male flare SAE (= MFL).
- "PULSE FREE" mechanism offers a reading as stable as oil filled gauges but *WITH NO OIL*. Effective dampening of compressor pulsations on pointershaft.
- Gauges are calibratable (easy "zero positioning" needle).

TYPES FOR ORDERING

• 823 RED HIGH PRESSURE SERIES (= HP)

From 0 bar (0 psi) to 34 bar (500 psi).

For R410A gauges from 0 bar (0 psi) to 55 bar (800 psi).

• 825 BLUE LOW PRESSURE COMPOUND SERIES (= LP)

From -1 bar (-30 inch Hg) to 8 bar (120 psi) linear with retard up to 17 bar (250 psi).

For R410A gauges from -1 bar (-30 inch Hg) to 30 bar (440 psi).

Gauge SCALE options ordering

- Select it and Add it to the "823" or "825" gauge part number.

B	bar only	
BC	bar/°C	for R12, R22, R502
BPC	bar/psi/°C	for R12, R22, R502
BPC/410	bar/psi/°C	for R410A
BPC/410/27	bar/psi/C	for R22, R407C, R410A
BC/4	bar/°C	for R134a, R404A
BC/447	bar/°C	for R134a, R404A, R407C, R507
BC/27	bar/°C	for R22, R407C
BC/247	bar/°C	for R22, R134a, R404A, R407C

TYPES OFFERED

823 +SCALE

HP GAUGE 1/8" MPT vertical bottom connection

825 +SCALE

LP GAUGE 1/8" MPT vertical bottom connection

Example: 823-BC

823-S +SCALE

HP GAUGE 1/4" MFL vertical bottom connection

825-S +SCALE

LP GAUGE 1/4" MFL vertical bottom connection

Example: 823-S-BC

823-C +SCALE

HP GAUGE 1/4" MFL center back connection

825-C +SCALE

LP GAUGE 1/4" MFL center back connection

Example: 823-C-BC

823-WM +SCALE

HP GAUGE 1/4" MFL vertical bottom connection

825-WM +SCALE

+ front ring wall mounting

LP GAUGE 1/4" MFL vertical bottom connection

823-WM +SCALE

+ front ring wall mounting

Example: 823-WM-BC

ACCESSORIES

PM-80-B	Blue front ring panel mounting (80 mm)
PM-80-R	Red front ring panel mounting (80 mm)
WM-80-B	Blue ring wall mounting (80 mm)
WM-80-R	Red ring wall mounting (80 mm)
M2-106	1/8" gauges mounting bracket (brass)
M2-108	1/4" gauges mounting bracket (brass)
U3-04A	All gauges connector fitting (brass)
U3-04B	1/8" FPT x 1/4" MFL
U3-04B	All gauges connector fitting (brass)
U3-04B	1/4" FPT x 1/4" MFL
CRISTAL CLEAR	Plastic screw-on gauge lens (80 mm)
RK-800B	Rubber gauge protector blue
RK-800R	Rubber gauge protector red



2. DRY PULSE-FREE GAUGES Series 820 Class 1.0 - Ø 80 mm

- These gauges are similar to "823 & 825 SERIES STANDARD CLASS 1.6" shown on the previous page, except for accuracy.
- These gauges are **CLASS 1.0** tested, calibrated and marked with **KI. 1.0** (1% max error in function).

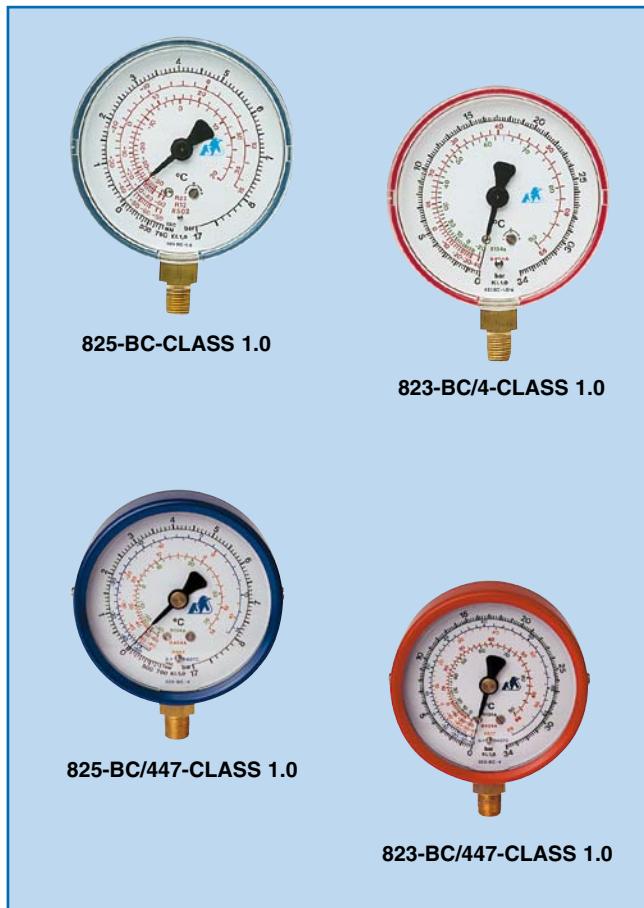
Gauge SCALE options ordering

- Select it and add it to the "823" or "825" gauge part number
- | | | |
|--------------------|---------------|-------------------------------|
| BC-1.0 | bar/°C | for R12, R22, R502 |
| BC-1.0/447 | bar/°C | for R134a, R404A, R407A, R507 |
| BPC-1.0/410 | bar/°C | for R410A |

TYPES OFFERED

823 +SCALE	CLASS 1.0 HP GAUGE 1/8" MPT vertical bottom connection
825 +SCALE	CLASS 1.0 LP GAUGE 1/8" MPT vertical bottom connection

823-S +SCALE	CLASS 1.0 HP GAUGE 1/4" MFL vertical bottom connection
825-S +SCALE	CLASS 1.0 LP GAUGE 1/4" MFL vertical bottom connection



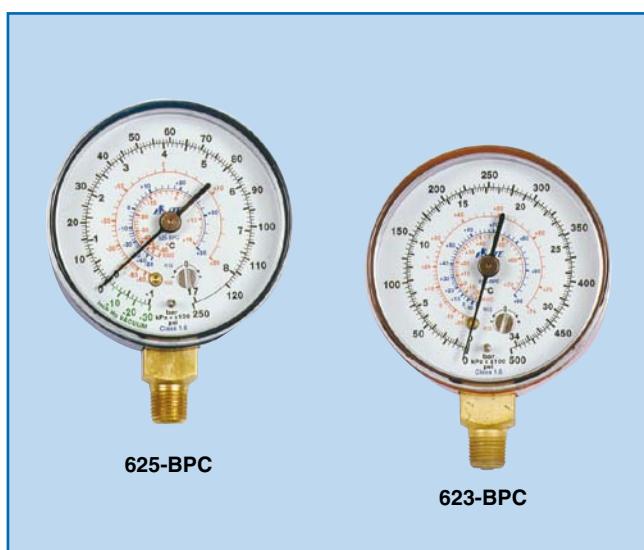
3. DRY PULSE-FREE GAUGES Series 620 Class 1.6 - Ø 60 mm

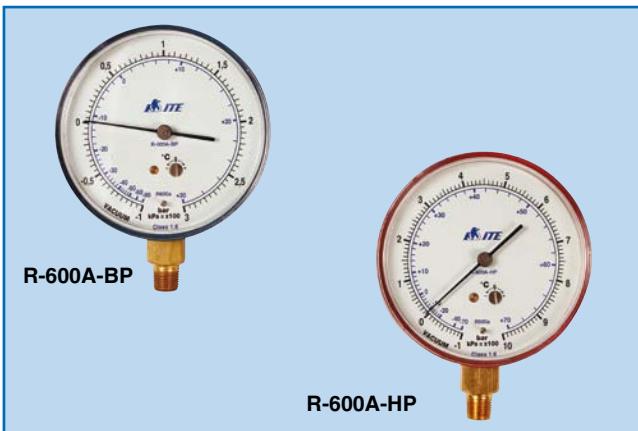
- Dry pressure gauges. classic **62 mm** scale diameter.
- 1/8" male NPT (= MPT)** vertical bottom connection.
- Zero-screw recalibration and unbreakable gauge front.

Gauge SCALE options ordering

- Select it and add it to the "623" or "625" gauge part number
- | | | |
|---------------|-------------------|-------------------------------|
| BPC | bar/psi/°C | for R12, R22, R502 |
| BC/447 | bar/°C | for R134a, R404A, R407C, R507 |
| BC/410 | bar/°C | for R410A |
| BC/247 | bar/°C | for R22, R134a, R404A, R407C |

623 +SCALE	HP GAUGE 1/8" MPT vertical bottom connection
625 +SCALE	LP GAUGE 1/8" MPT vertical bottom connection





4. DRY PULSE-FREE GAUGES

Series R-600 Class 1.6 - ISO-BUTANE

- Calibration for ISO-BUTANE application. 80 mm scale diameter.
- High and low pressure gauges. $1/8''$ male NPT (= MPT) connection.
- Zero-screw recalibration.

R-600A-HP

HP GAUGE $1/8''$ MPT vertical bottom connection (-1 bar to 10 bar)

R-600A-BP

LP GAUGE $1/8''$ MPT vertical bottom connection (-1 bar to 3 bar)



5. GLYCERINE FILLED GAUGES

Series 820-G Class 1.6 - Ø 80 mm

- Glycerine filled to dampen the moving components against the effects of vibration and provide accurate readings.
- These gauges are similar to "823 & 825 SERIES STANDARD CLASS 1.6 Ø 80 mm GAUGES".

Gauge **SCALE** options ordering

- Select it and add it to the "823" or "825" gauge part number

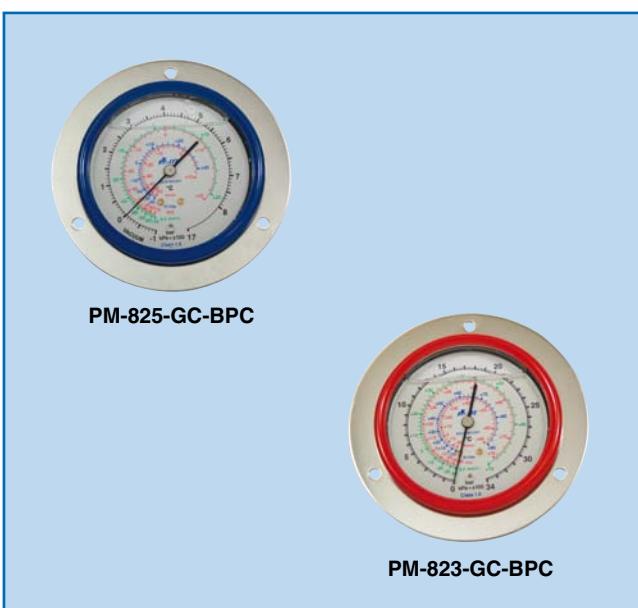
BC/24	bar/$^{\circ}$C	for R22, R134a, R404A
BC/247	bar/$^{\circ}$C	for R22, R134a, R404A, R407C
BC/410/127	bar/$^{\circ}$C	for R22, R134a, R407C, R410A
BC/447	bar/$^{\circ}$C	for R134a, R404A, R407C, R507
BC/CO2	bar/$^{\circ}$C	for R744
BPC	bar/psi/$^{\circ}$C	for R12, R22, R502
BPC/410	bar/psi/$^{\circ}$C	for R410A

823-G +SCALE

HP GAUGE $1/8''$ MPT vertical bottom connection

825-G +SCALE

LP GAUGE $1/8''$ MPT vertical bottom connection



6. GLYCERINE FILLED GAUGES with center back connection for panel mounting

Series 820-GC Class 1.6 - Ø 80 mm

- Glycerine filled to dampen the moving components against the effects of vibration and provide accurate readings.
- These gauges are similar to "823 & 825 SERIES STANDARD CLASS 1.6 Ø 80 mm GAUGES".

Gauge **SCALE** options ordering

- Select it and add it to the "823" or "825" gauge part number

BC/247	bar/$^{\circ}$C	for R22, R134a, R404A, R407C
BC/447	bar/$^{\circ}$C	for R134a, R404A, R407C, R507
BC/CO2	bar/$^{\circ}$C	for R744
BPC/410	bar/psi/$^{\circ}$C	for R410A

PM-823-GC +SCALE **HP GAUGE $1/4''$ MFL center back connection + panel mounting**

PM-825-GC +SCALE **LP GAUGE $1/4''$ MFL center back connection + panel mounting**

7. "MECHANICAL SERIES" "ITE" "VACUUM GAUGES"

827-VRP RELATIVE VACUUM GAUGE Ø 80 mm

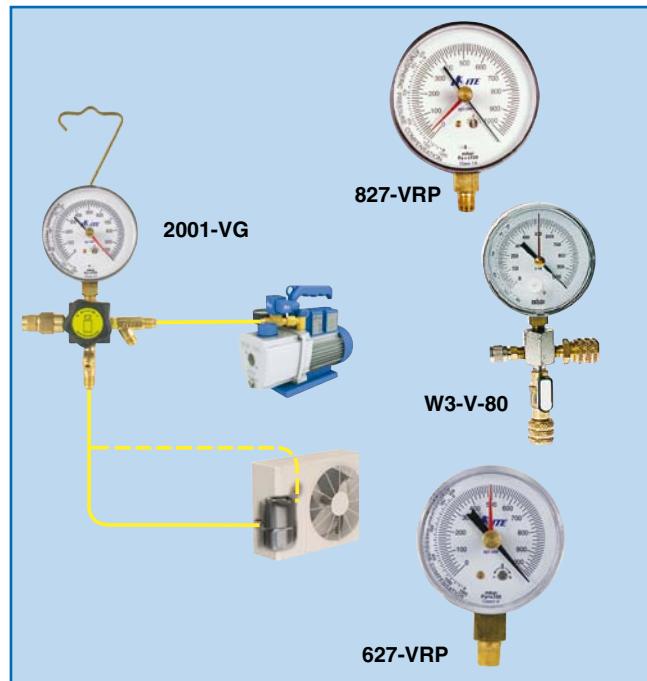
- 80 mm "PULSE FREE" relative vacuum gauge.
- Adjustable red pointer for reference mark.
- **1/8" MPT** bottom connection.
- Reading in mbar, 1000 – 0 mbar. Class 1.6.
- Zero calibration screw.
- **1/4" turn screw-type crystal lens.**
- Gauge has 3 holes in the back for fitting a wall mount bracket.

627-VRP RELATIVE VACUUM GAUGE Ø 60 mm

- 60 mm "PULSE-FREE" relative vacuum gauge.
- Adjustable red pointer for reference mark.
- **1/8" MPT** bottom connection.
- Reading in mbar, 1000 - 0 mbar. Class 1.6.
- Zero calibration screw.
- **1/4" turn screw-type crystal lens.**

2001-VG VAC MANIFOLD with 80 mm vacuum gauge and hook MB1-ADS/VAC manifold body with 827-VRP relative vacuum gauge

W3-V-80 3-WAY MANIFOLD with relative vacuum gauge and ball valve, Ø 80 mm
1/4" SAE OD x 3/8" SAE OD x 3/8" SAE ID



8. ELECTRONIC MICRON VACUUM GAUGES

ITE-50V LED VACUUM GAUGE (complete)

- A durable self contained battery powered vacuum gauge which displays the level of vacuum on **10 LED** color read out.
- Unique design for "in line" connection through the system or directly to the vacuum pump. Zipped vinyl carrying case.
- Pocket size: only **140 mm x 45 mm x 38 mm**.
- Cleanable thermistor sensor for repeat accuracy.
- Single switch operation (no adjustment required).
- Low battery indication. Colour coded LED display.
- Hanger and stand support for remote connections.
- High impact satin polycarbonate shell.

SPECIFICATIONS

- **10 LED** Segments from **atmosphere** to **50 microns**.
- Connections: Standard **1/4" MFL**.
- Power one battery (not included).
- **CE approval**.

ITE-54V DIGITAL VACUUM GAUGE

- Suitable for field or laboratory use.
- Cleanable thermistor sensor, cleaning port provides quick cleaning and drying.
- Standard **1/4 inch MFL** fitting.
- Built-in hanger.

SPECIFICATIONS

- Display updated every **1/2 second**. 1 micron resolution below 200 microns of vacuum.
- Vacuum range: **0 - 12,000 microns** (0 - 1,600 Pascals) with vacuum increasing/decreasing indicator when above 12,000 microns.
- Reads vacuum in 7 selectable international units: Microns, psi, InHg, millibars, Pascals, Torr, milliTorr.
- Operating temperature range: **+2°C to +52°C** (+35°F to +125°F).
- Overpressure: **34 bar max** (500 psi)
- Power source: **9 Volt Alkaline Battery** (not included), continuous usage over 35 hours.
- Auto shutoff after 10 minutes when vacuum reading is above 12,000 Microns (12 Torr).
- Dimensions: **140 mm x 76 mm x 32 mm** (5¹/₂" x 3" x 1¹/₄").
- Weight: **190 g** (6,7 ounces).





E303-FT-036



E303-FT-060



E560-FTY



8921626-E

7958301

STANDARD "ITE" SERVICE HOSES

- Working pressure: **50 bar** (700 psi).
- Burst pressure: **200 bar** (2800 psi).
- **IMPORTANT:** Safety PURGING SLOTS in swivel ends.
- **IMPORTANT:** 8 POINT CRIMP.
- Made in Germany.
- Special length upon request.

1. E300 - STANDARD SERIES

2 x 1/4" FFL

- One STRAIGHT swivel end and one 45° angled swivel end.
- "STANDARD SERIES" 1/4" FFL range.
- With adjustable and replaceable depressor on 45° end.
- Coloured hoses: **BLUE**, **RED** and **YELLOW**.
- **IMPORTANT:** Safety PURGING SLOTS in all swivel ends.

E314-FTY	Standard yellow hose	L = 36 cm (15")
E336-FTB	Standard blue hose	L = 90 cm (36")
E336-FTR	Standard red hose	L = 90 cm (36")
E336-FTY	Standard yellow hose	L = 90 cm (36")
E348-FTB	Standard blue hose	L = 120 cm (48")
E348-FTR	Standard red hose	L = 120 cm (48")
E348-FTY	Standard yellow hose	L = 120 cm (48")
E360-FTB	Standard blue hose	L = 150 cm (60")
E360-FTR	Standard red hose	L = 150 cm (60")
E360-FTY	Standard yellow hose	L = 150 cm (60")
E372-FTB	Standard blue hose	L = 180 cm (72")
E372-FTR	Standard red hose	L = 180 cm (72")
E372-FTY	Standard yellow hose	L = 180 cm (72")
E3120-FTB	Standard blue hose	L = 300 cm (120")
E3120-FTR	Standard red hose	L = 300 cm (120")
E3120-FTY	Standard yellow hose	L = 300 cm (120")

SET OF 3 HOSES (Blue + Red + Yellow)

E303-FT-036	Set of 3 hoses	L = 90 cm (36")
E303-FT-048	Set of 3 hoses	L = 120 cm (48")
E303-FT-060	Set of 3 hoses	L = 150 cm (60")
E303-FT-072	Set of 3 hoses	L = 180 cm (72")
E303-FT-120	Set of 3 hoses	L = 300 cm (120")

2. E500 - STANDARD SERIES

2 x 3/8" FFL

- Two swivel ends: **STRAIGHT**.
- Only one colour: **YELLOW**.
- **Without core depressor.**
- **IMPORTANT:** Safety PURGING SLOTS in swivel ends.

E536-FTY	Yellow standard hose	L = 90 cm (36")
E548-FTY	Yellow standard hose	L = 120 cm (48")
E560-FTY	Yellow standard hose	L = 150 cm (60")
E572-FTY	Yellow standard hose, without purging slots	L = 180 cm (72")
E5120-FTY	Yellow standard hose	L = 300 cm (120")

3. SPARE PARTS

7958301	Gasket for all ITE hoses with connections 1/4", 5/16" and 1/2" ACME
7958302 8921626-E	Gasket for all ITE hoses with connections 3/8" Core-depressor for all hoses with connections 1/4", 5/16" and 1/2" ACME

HEAVY-DUTY "ITE" SERVICE HOSES

- Working pressure: **55 bar** (800 psi).
- Burst pressure: **250 bar** (3500 psi).
- Designed according to **SAE J2196** and **SAE J2888** Norm (for no permeability).
- To be used with all **CFC**, **HCFC**, **HFC** and their specific lubricants.
- Colour coded **SWIVEL ends** (**BLUE**, **RED** and **YELLOW**).
- **IMPORTANT:** Real 3/16" diameter full flow and soft black material.
- **IMPORTANT:** Safety **PURGING SLOTS** in swivel ends.
- **IMPORTANT:** **8 POINT CRIMP**.
- Made in Germany.
- Special length upon request.
- Heavy duty black or coloured hose also suitable for R410A.

1. HD SERIES, STRAIGHT CONNECTIONS

1/4" FFL WITHOUT ball valve

- Two **STRAIGHT** connecting swivel colour coded ends.
- **IMPORTANT:** Safety **PURGING SLOTS** in all swivel ends.

HDS-12-B	HD black hose , blue ends	L = 30 cm (12")
HDS-12-R	HD black hose , red ends	L = 30 cm (12")
HDS-12-Y	HD black hose , yellow ends	L = 30 cm (12")



HDS-12-R



HDS-12-Y

1/4" FFL WITH ball valve

- Both **STRAIGHT** connecting swivel colour coded end.
- One end with **BALL VALVE** equipped with **CORE DEPRESSOR** (allows trapping gas and avoiding loss and spillage into the atmosphere).
- **IMPORTANT:** Safety **PURGING SLOTS** in all swivel ends.

HDS-12-B/V	HD black hose , blue ends	L = 30 cm (12")
HDS-12-R/V	HD black hose , red ends	L = 30 cm (12")
HDS-12-Y/V	HD black hose , yellow ends	L = 30 cm (12")
HDS-36-B/V	HD black hose , blue ends	L = 90 cm (36")
HDS-36-R/V	HD black hose , red ends	L = 90 cm (36")
HDS-36-Y/V	HD black hose , yellow ends	L = 90 cm (36")
HDS-60-B/V	HD black hose , blue ends	L = 150 cm (60")
HDS-60-R/V	HD black hose , red ends	L = 150 cm (60")
HDS-60-Y/V	HD black hose , yellow ends	L = 150 cm (60")
HDS-72-B/V	HD black hose , blue ends	L = 180 cm (72")
HDS-72-R/V	HD black hose , red ends	L = 180 cm (72")
HDS-72-Y/V	HD black hose , yellow ends	L = 180 cm (72")
HDS-120-B/V	HD black hose , blue ends	L = 300 cm (120")
HDS-120-R/V	HD black hose , red ends	L = 300 cm (120")
HDS-120-Y/V	HD black hose , yellow ends	L = 300 cm (120")



SET OF 3 HOSES (Blue + Red + Yellow)

3HDS-36/V	Set of 3 hoses	L = 90 cm (36")
3HDS-60/V	Set of 3 hoses	L = 150 cm (60")
3HDS-72/V	Set of 3 hoses	L = 180 cm (72")
3HDS-120/V	Set of 3 hoses	L = 300 cm (120")

3HDS-60/V





3HDS6-60



3HDS6-60/V

3/8" FFL WITHOUT ball valve

- Two STRAIGHT connecting swivel colour coded ends.
- **IMPORTANT:** Safety PURGING SLOTS in all swivel ends.

HDS6-36-B	HD black hose, blue ends	L = 90 cm (36")
HDS6-36-R	HD black hose, red ends	L = 90 cm (36")
HDS6-36-Y	HD black hose, yellow ends	L = 90 cm (36")
HDS6-60-B	HD black hose, blue ends	L = 150 cm (60")
HDS6-60-R	HD black hose, red ends	L = 150 cm (60")
HDS6-60-Y	HD black hose, yellow ends	L = 150 cm (60")
HDS6-72-B	HD black hose, blue ends	L = 180 cm (72")
HDS6-72-R	HD black hose, red ends	L = 180 cm (72")
HDS6-72-Y	HD black hose, yellow ends	L = 180 cm (72")

SET OF 3 HOSES (Blue + Red + Yellow)

3HDS6-36	Set of 3 hoses	L = 90 cm (36")
3HDS6-60	Set of 3 hoses	L = 150 cm (60")
3HDS6-72	Set of 3 hoses	L = 180 cm (72")

3/8" FFL WITH ball valve

- Both STRAIGHT connecting swivel colour coded end.
- One end with BALL VALVE equipped with CORE DEPRESSOR (allows trapping gas and avoiding loss and spillage into the atmosphere).
- **IMPORTANT:** Safety PURGING SLOTS in all swivel ends.

HDS6-12-B/V	HD black hose, blue ends	L = 30 cm (12")
HDS6-12-R/V	HD black hose, red ends	L = 30 cm (12")
HDS6-12-Y/V	HD black hose, yellow ends	L = 30 cm (12")
HDS6-36-B/V	HD black hose, blue ends	L = 90 cm (36")
HDS6-36-R/V	HD black hose, red ends	L = 90 cm (36")
HDS6-36-Y/V	HD black hose, yellow ends	L = 90 cm (36")
HDS6-60-B/V	HD black hose, blue ends	L = 150 cm (60")
HDS6-60-R/V	HD black hose, red ends	L = 150 cm (60")
HDS6-60-Y/V	HD black hose, yellow ends	L = 150 cm (60")
HDS6-72-B/V	HD black hose, blue ends	L = 180 cm (72")
HDS6-72-R/V	HD black hose, red ends	L = 180 cm (72")
HDS6-72-Y/V	HD black hose, yellow ends	L = 180 cm (72")

SET OF 3 HOSES (Blue + Red + Yellow)

3HDS6-36/V	Set of 3 hoses	L = 90 cm (36")
3HDS6-60/V	Set of 3 hoses	L = 150 cm (60")
3HDS6-72/V	Set of 3 hoses	L = 180 cm (72")

2. HD SERIES, 1 ANGLED CONNECTION 45°

1/4" FFL WITHOUT ball valve

- One threaded STRAIGHT swivel colour coded end for optional CORE DEPRESSOR.
- One 45° ANGLE swivel colour coded end with an adjustable and replaceable CORE DEPRESSOR.
- **IMPORTANT:** Safety PURGING SLOTS in all swivel ends.

HDA-36-B	HD black hose, blue ends L = 90 cm (36")
HDA-36-R	HD black hose, red ends L = 90 cm (36")
HDA-36-Y	HD black hose, yellow ends L = 90 cm (36")

HDA-60-B	HD black hose, blue ends L = 150 cm (60")
HDA-60-R	HD black hose, red ends L = 150 cm (60")
HDA-60-Y	HD black hose, yellow ends L = 150 cm (60")

HDA-72-B	HD black hose, blue ends L = 180 cm (72")
HDA-72-R	HD black hose, red ends L = 180 cm (72")
HDA-72-Y	HD black hose, yellow ends L = 180 cm (72")

HDA-120-B	HD black hose, blue ends L = 300 cm (120")
HDA-120-R	HD black hose, red ends L = 300 cm (120")
HDA-120-Y	HD black hose, yellow ends L = 300 cm (120")

SET OF 3 HOSES (Blue + red + Yellow)

3HDA-36	Set of 3 hoses L = 90 cm (36")
3HDA-60	Set of 3 hoses L = 150 cm (60")
3HDA-72	Set of 3 hoses L = 180 cm (72")
3HDA-120	Set of 3 hoses L = 300 cm (120")



3. HD SERIES, 1 ANGLED CONNECTION 90°

1/4" FFL x 1/4" MFL WITHOUT ball valve

- One threaded STRAIGHT swivel colour coded end for optional CORE DEPRESSOR.
- One 90° ANGLE swivel colour coded end with an adjustable and replaceable CORE DEPRESSOR.
- **IMPORTANT:** Safety PURGING SLOTS in all swivel ends.

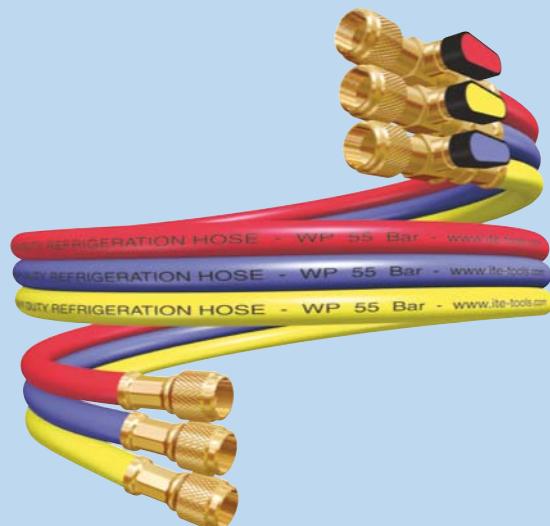
M-HDL-6-B	HD black hose, blue ends L = 15 cm (6")
M-HDL-6-R	HD black hose, red ends L = 15 cm (6")
M-HDL-6-Y	HD black hose, yellow ends L = 15 cm (6")

M-HDL-12-B	HD black hose, blue ends L = 30 cm (12")
M-HDL-12-R	HD black hose, red ends L = 30 cm (12")
M-HDL-12-Y	HD black hose, yellow ends L = 30 cm (12")





3HDCS-60/410/V



3HDCS-36/V

4. HD SERIES, STRAIGHT CONNECTIONS FOR R410A

1 end 1/4" FFL without ball valve

1 end 5/16" FFL with ball valve

- Two **STRAIGHT swivel ends** without **CORE DEPRESSOR**.
- One end with **BALL VALVE** equipped with **CORE DEPRESSOR** (allows trapping gas and avoiding loss and spillage into the atmosphere).
- IMPORTANT:** Safety **PURGING SLOTS** in all swivel ends.

HDCS-36-B/410/V	HD blue hose 5/16" x 1/4"	L = 90 cm	(36")
HDCS-36-R/410/V	HD red hose 5/16" x 1/4"	L = 90 cm	(36")
HDCS-36-Y/V	HD yellow hose 2x 1/4"	L = 90 cm	(36")

HDCS-60-B/410/V	HD blue hose 5/16" x 1/4"	L = 150 cm	(60")
HDCS-60-R/410/V	HD red hose 5/16" x 1/4"	L = 150 cm	(60")
HDCS-60-Y/V	HD yellow hose 2x 1/4"	L = 150 cm	(60")

HDCS-72-B/410/V	HD blue hose 5/16" x 1/4"	L = 180 cm	(72")
HDCS-72-R/410/V	HD red hose 5/16" x 1/4"	L = 180 cm	(72")
HDCS-72-Y/V	HD yellow hose 2x 1/4"	L = 180 cm	(72")

SET OF 3 HOSES (Blue + Red + Yellow)

HD Blue hose	1 end 1/4" FFL
	1 end 5/16" FFL with ball valve
HD Red hose	1 end 1/4" FFL
	1 end 5/16" FFL with ball valve
HD Yellow hose	1 end 1/4" FFL
	1 end 5/16" FFL with ball valve

3HDCS-36/410/V	Set of 3 hoses	L = 90 cm	(36")
3HDCS-60/410/V	Set of 3 hoses	L = 150 cm	(60")
3HDCS-72/410/V	Set of 3 hoses	L = 180 cm	(72")
3HDCS-120/410/V	Set of 3 hoses	L = 300 cm	(120")

1/4" FFL WITH ball valve

- Two **STRAIGHT connecting swivel ends**.
- One end with **BALL VALVE** equipped with **CORE DEPRESSOR** (allows trapping gas and avoiding loss and spillage into the atmosphere).
- IMPORTANT:** Safety **PURGING SLOTS** in all swivel ends.

HDCS-36-B/V	HD blue hose 1/4"	L = 90 cm	(36")
HDCS-36-R/V	HD red hose 1/4"	L = 90 cm	(36")
HDCS-36-Y/V	HD yellow hose 1/4"	L = 90 cm	(36")

HDCS-60-B/V	HD blue hose 1/4"	L = 150 cm	(60")
HDCS-60-R/V	HD red hose 1/4"	L = 150 cm	(60")
HDCS-60-Y/V	HD yellow hose 1/4"	L = 150 cm	(60")

HDCS-72-B/V	HD blue hose 1/4"	L = 180 cm	(72")
HDCS-72-R/V	HD red hose 1/4"	L = 180 cm	(72")
HDCS-72-Y/V	HD yellow hose 1/4"	L = 180 cm	(72")

HDCS-120-B/V	HD blue hose 1/4"	L = 300 cm	(120")
HDCS-120-R/V	HD red hose 1/4"	L = 300 cm	(120")
HDCS-120-Y/V	HD yellow hose 1/4"	L = 300 cm	(120")

SET OF 3 HOSES (Blue + Red + Yellow)

3HDCS-36/V	Set of 3 hoses	L = 90 cm	(36")
3HDCS-60/V	Set of 3 hoses	L = 150 cm	(60")
3HDCS-72/V	Set of 3 hoses	L = 180 cm	(72")
3HDCS-120/V	Set of 3 hoses	L = 300 cm	(120")

5. HD SERIES, 1 STRAIGHT AND 1 ANGLED CONNECTION 45° FOR R410A

1 end 1/4" FFL without ball valve

1 end 5/16" FFL without ball valve, angled

- One threaded *STRAIGHT swivel end* for optional CORE DEPRESSOR.
- One 45° *ANGLE swivel end* with an adjustable and replaceable *CORE DEPRESSOR*.
- **IMPORTANT:** Safety PURGING SLOTS in all swivel ends.

HDCA-36-B/410	HD blue hose 5/16" x 1/4" L = 90 cm (36")
HDCA-36-R/410	HD red hose 5/16" x 1/4" L = 90 cm (36")
HDCA-36-Y	HD yellow hose 2x 1/4" L = 90 cm (36")

HDCA-60-B/410	HD blue hose 5/16" x 1/4" L = 150 cm (60")
HDCA-60-R/410	HD red hose 5/16" x 1/4" L = 150 cm (60")
HDCA-60-Y	HD yellow hose 2x 1/4" L = 150 cm (60")

HDCA-72-B/410	HD blue hose 5/16" x 1/4" L = 180 cm (72")
HDCA-72-R/410	HD red hose 5/16" x 1/4" L = 180 cm (72")
HDCA-72-Y	HD yellow hose 2x 1/4" L = 180 cm (72")

SET OF 3 HOSES (Blue + Red + Yellow)

HD Blue hose 1 end 1/4" FFL

1 end 5/16" FFL angled 45°

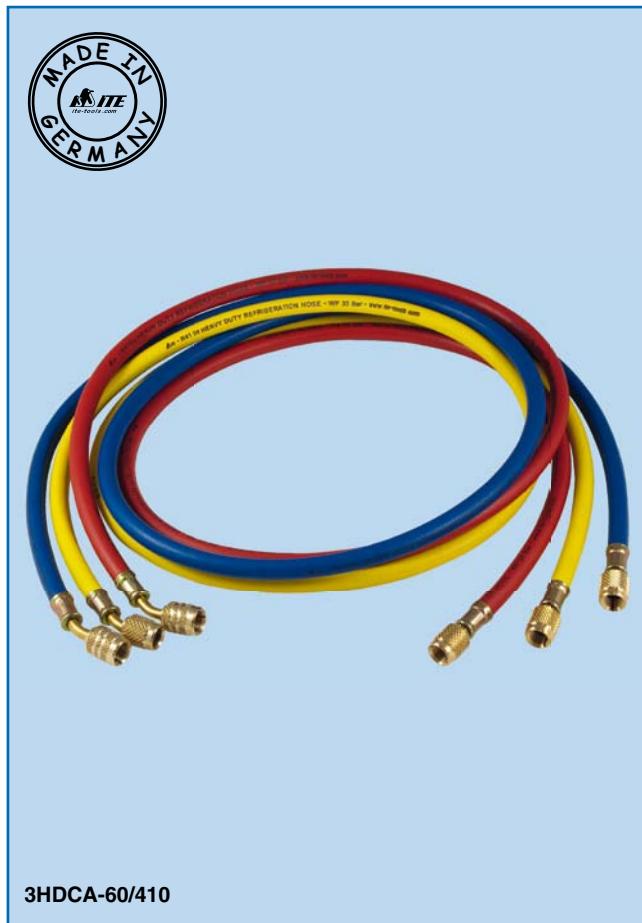
HD Red hose 1 end 1/4" FFL

1 end 5/16" FFL angled 45°

HD Yellow hose 1 end 1/4" FFL

1 end 5/16" FFL angled 45°

3HDCA-36/410	Set of 3 hoses	L = 90 cm (36")
3HDCA-48/410	Set of 3 hoses	L = 120 cm (48")
3HDCA-60/410	Set of 3 hoses	L = 150 cm (60")
3HDCA-72/410	Set of 3 hoses	L = 180 cm (72")
3HDCA-120/410	Set of 3 hoses	L = 300 cm (120")



2 ends 1/4" FFL WITHOUT ball valve

• One threaded *STRAIGHT swivel end* for optional core depressor.

• One 45° *ANGLE swivel end* with an adjustable and replaceable *CORE DEPRESSOR*.

• **IMPORTANT:** Safety PURGING SLOTS in all swivel ends.

HDCA-36-B	HD blue hose 1/4"	L = 90 cm (36")
HDCA-36-R	HD red hose 1/4"	L = 90 cm (36")
HDCA-36-Y	HD yellow hose 1/4"	L = 90 cm (36")

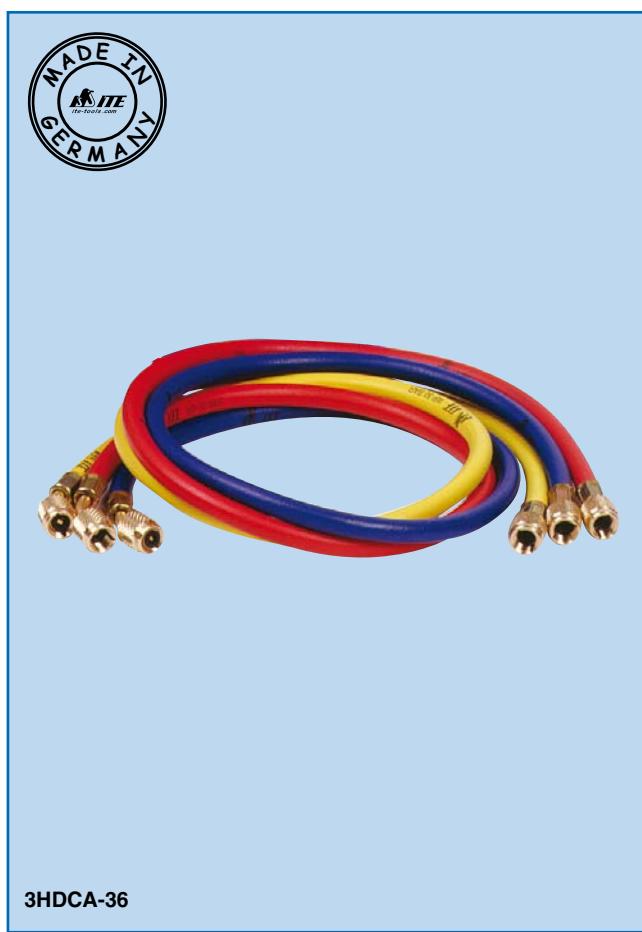
HDCA-60-B	HD blue hose 1/4"	L = 150 cm (60")
HDCA-60-R	HD red hose 1/4"	L = 150 cm (60")
HDCA-60-Y	HD yellow hose 1/4"	L = 150 cm (60")

HDCA-72-B	HD blue hose 1/4"	L = 180 cm (72")
HDCA-72-R	HD red hose 1/4"	L = 180 cm (72")
HDCA-72-Y	HD yellow hose 1/4"	L = 180 cm (72")

HDCA-120-B	HD blue hose 1/4"	L = 300 cm (120")
HDCA-120-R	HD red hose 1/4"	L = 300 cm (120")
HDCA-120-Y	HD yellow hose 1/4"	L = 300 cm (120")

SET OF 3 HOSES (Blue + Red + Yellow)

3HDCA-36	Set of 3 hoses	L = 90 cm (36")
3HDCA-60	Set of 3 hoses	L = 150 cm (60")
3HDCA-72	Set of 3 hoses	L = 180 cm (72")
3HDCA-120	Set of 3 hoses	L = 300 cm (120")



7958301
7958302



8921626-E



6. SPARE PARTS

7958301

Gasket for all ITE hoses with connections 1/4", 5/16" and 1/2" ACME

7958302

Gasket for all ITE hoses with connections 3/8" Core-depressor for all hoses with connections 1/4", 5/16" and 1/2" ACME

BVS-02



1/8" female NPT x
1/8" female NPT

BVS-04



1/4" male flare x
1/4" female flare

BVS-06



3/8" male flare x
3/8" female flare

BVA-04



1/4" female flare 90°
x 1/4" male flare

7. STRAIGHT & ANGLED BALL VALVES

FFL : Female Flare sae 45°

MFL : Male Flare sae 45°

FPT : Female national Pipe Thread

STRAIGHT BALL VALVES

- Colour coded valves
- Safety purging slots in swivel ends

BVS-02B	1/8" FPT	x	1/8" FPT, blue
BVS-02R	1/8" FPT	x	1/8" FPT, red
BVS-02Y	1/8" FPT	x	1/8" FPT, yellow

BVS-04B	1/4" FFL swivel	x	1/4" MFL, blue
BVS-04R	1/4" FFL swivel	x	1/4" MFL, red
BVS-04Y	1/4" FFL swivel	x	1/4" MFL, yellow

BVS-06B	3/8" FFL swivel	x	3/8" MFL, blue
BVS-06R	3/8" FFL swivel	x	3/8" MFL, red
BVS-06Y	3/8" FFL swivel	x	3/8" MFL, yellow

BVS-04-06B	1/4" FFL swivel	x	3/8" MFL, blue
BVS-04-06R	1/4" FFL swivel	x	3/8" MFL, red
BVS-04-06Y	1/4" FFL swivel	x	3/8" MFL, yellow

BVS-05-04B	5/16" FFL swivel	x	1/4" MFL, blue
BVS-05-04R	5/16" FFL swivel	x	1/4" MFL, red
BVS-05-04Y	5/16" FFL swivel	x	1/4" MFL, yellow

BVS-06-04B	3/8" FFL swivel	x	1/4" MFL, blue
BVS-06-04R	3/8" FFL swivel	x	1/4" MFL, red
BVS-06-04Y	3/8" FFL swivel	x	1/4" MFL, yellow

BVS-1/2-ACME/B	2 x 1/2-16 ACME, MFL x FFL swivel, blue		
BVS-1/2-ACME/R	2 x 1/2-16 ACME, MFL x FFL swivel, red		
BVS-1/2-ACME/Y	2 x 1/2-16 ACME, MFL x FFL swivel, yellow		

ANGLED (90°) BALL VALVES

- Colour coded valves
- Safety purging slots in swivel ends

BVA-04B	1/4" FFL swivel	x	1/4" MFL, blue
BVA-04R	1/4" FFL swivel	x	1/4" MFL, red
BVA-04Y	1/4" FFL swivel	x	1/4" MFL, yellow

BVA-06B	3/8" FFL swivel	x	3/8" MFL, blue
BVA-06R	3/8" FFL swivel	x	3/8" MFL, red
BVA-06Y	3/8" FFL swivel	x	3/8" MFL, yellow

BVA-05-04B	5/16" FFL swivel	x	1/4" MFL, blue
BVA-05-04R	5/16" FFL swivel	x	1/4" MFL, red
BVA-05-04Y	5/16" FFL swivel	x	1/4" MFL, yellow

A/C "ITE" SERVICES HOSES

- Special hoses for **AUTOMOTIVE AIR CONDITIONING** applications.
- When using **BALL VALVE HOSES**, you can trap the gas, avoiding loss and spillage into the atmosphere.
- Colour-coded ends: **BLUE, RED and YELLOW**.
- IMPORTANT: 8 POINT CRIMP.**
- IMPORTANT:** Safety **PURGING SLOTS** in all swivel ends.

1. 2 x 1/2" - 16 ACME WITHOUT ball valve

- Two **STRAIGHT** connecting swivel colour coded ends.

AA-HDS-36-B	AUTO A/C hose , blue end L = 90 cm (36")
AA-HDS-36-R	AUTO A/C hose , red end L = 90 cm (36")
AA-HDS-36-Y	AUTO A/C hose , yellow end L = 90 cm (36")

AA-HDS-60-B	AUTO A/C hose , blue end L = 150 cm (60")
AA-HDS-60-R	AUTO A/C hose , red end L = 150 cm (60")
AA-HDS-60-Y	AUTO A/C hose , yellow end L = 150 cm (60")

AA-HDS-72-B	AUTO A/C hose , blue end L = 180 cm (72")
AA-HDS-72-R	AUTO A/C hose , red end L = 180 cm (72")
AA-HDS-72-Y	AUTO A/C hose , yellow end L = 180 cm (72")



AA-HDS-60

2. 2 x 1/2" - 16 ACME WITH ball valve

- Both **STRAIGHT** connecting swivel colour coded end.
- One end with **BALL VALVE** equipped with **CORE DEPRESSOR** (allows trapping gas and avoiding loss and spillage into the atmosphere).

AA-HDS-36-B/V	AUTO A/C hose , blue end L = 90 cm (36")
AA-HDS-36-R/V	AUTO A/C hose , red end L = 90 cm (36")
AA-HDS-36-Y/V	AUTO A/C hose , yellow end L = 90 cm (36")

AA-HDS-60-B/V	AUTO A/C hose , blue end L = 150 cm (60")
AA-HDS-60-R/V	AUTO A/C hose , red end L = 150 cm (60")
AA-HDS-60-Y/V	AUTO A/C hose , yellow end L = 150 cm (60")



AA-HDS-60-B/V Series

3. 1/2" - 16 ACME x M14 x 1,5 (mm) WITHOUT ball valve

- One straight connecting swivel colour coded end.
- One colour coded male end.

AM-HDS-36-B	AUTO A/C hose , blue end L = 90 cm (36")
AM-HDS-36-R	AUTO A/C hose , red end L = 90 cm (36")
AM-HDS-36-Y	AUTO A/C hose , yellow end L = 90 cm (36")

AM-HDS-60-B	AUTO A/C hose , blue end L = 150 cm (60")
AM-HDS-60-R	AUTO A/C hose , red end L = 150 cm (60")
AM-HDS-60-Y	AUTO A/C hose , yellow end L = 150 cm (60")

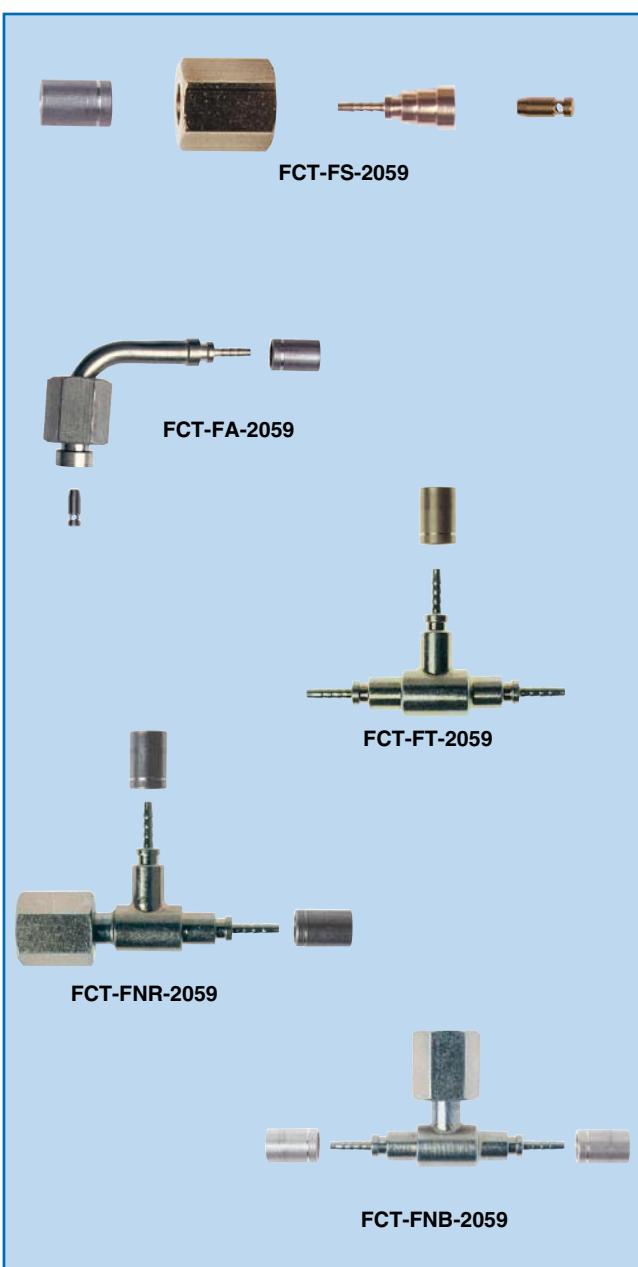
AM-HDS-72-B	AUTO A/C hose , blue end L = 180 cm (72")
AM-HDS-72-R	AUTO A/C hose , red end L = 180 cm (72")
AM-HDS-72-Y	AUTO A/C hose , yellow end L = 180 cm (72")



AM-HDS-60

4. SPARE PARTS FOR ALL HOSES

7958301	Gasket for all ITE hoses with connections 1/4", 5/16" and 1/2" ACME
----------------	---



FLEXIBLE CAPILLARY TUBES

The advent of new refrigerants and environmental issues has lead to re-thinking refrigerant systems. One of the major concerns is the reduction of refrigerant loss into the atmosphere due to system leaks. Service and maintenance people are well aware of how frequently systems can fail due to fracture of copper tubing (particularly capillary ones). To overcome this problem there has been an increase in the use of flexible hoses for this application.

FLEXIBLE CAPILLARY TUBES

- Suitable for all CFC, HFC & HCFC refrigerants and natural gases.
- Lining is made out of convoluted polyamide, specially formulated to suit new refrigerant gases requirements.
- Reinforced with high tensile polyester braid.
- Covered by flame retarder polyester (UL 94 HB class), black cover.
- Working temperature: -40°C to +130°C maximum.
- Working pressure: 60 bar (870 psi).
- Min. bend radius: 10 mm.

FCT-2059	2 mm ID x 5,9 mm OD	L = 100 m
FCT-2059-5000	2 mm ID x 5,9 mm OD	L = 50 m
FCT-2059-1000	2 mm ID x 5,9 mm OD	L = 10 m

CRIMPED FITTINGS FOR FCT-2059

- Nut, straight female insert and core depressor: made of brass.
- Ferrule: made of aluminium.
- Elbow and Tee inserts: made of brass with zinc plating finish.
- All below fitting kits are for **FCT-2059**, 1/4" FFL.
- All below fitting kits are sold in kits of 10 pcs.

FCT-FS-2059	STRAIGHT CRIMPED FITTING KIT
FCT-FA-2059	90° ANGLED CRIMPED FITTING KIT
FCT-FT-2059	TEE CRIMPED FITTING KIT 3 times barbed
FCT-FNB-2059	TEE CRIMPED FITTING KIT
FCT-FNR-2059	2 times barbed x female swivel on branch. TEE CRIMPED FITTING KIT 2 times barbed x female swivel on run

CAPILLARY TUBES WITH 2 STRAIGHT FITTINGS, TYPE 2S

- 2 ends 1/4" FFL straight with core depressor.

FCT-2059-030-2S	L = 30 cm	FCT-2059-120-2S	L = 120 cm
FCT-2059-050-2S	L = 50 cm	FCT-2059-150-2S	L = 150 cm
FCT-2059-080-2S	L = 80 cm	FCT-2059-180-2S	L = 180 cm
FCT-2059-100-2S	L = 100 cm	FCT-2059-200-2S	L = 200 cm

CAPILLARY TUBES WITH 1 STRAIGHT and 1 ANGLED FITTING, TYPE AS

- 1 end 1/4" FFL straight with core depressor.
- 1 end 1/4" FFL angled with core depressor.

FCT-2059-030-AS	L = 30 cm	FCT-2059-120-AS	L = 120 cm
FCT-2059-050-AS	L = 50 cm	FCT-2059-150-AS	L = 150 cm
FCT-2059-080-AS	L = 80 cm	FCT-2059-180-AS	L = 180 cm
FCT-2059-100-AS	L = 100 cm	FCT-2059-200-AS	L = 200 cm

FCT-SET-2059C

SET in plastic case, consisting of:

- 20 metres flexible capillary tube FCT-2059
- 20 x FCT-FS-2059 straight crimped fitting kit
- 20 x FCT-FA-2059 90° angled crimped fitting kit
- 5 x FCT-FT-2059 tee end fitting kit

FCT-1

MANUAL CRIMPING PLIER for FCT-2059 series

- Die sets are easily interchangeable with a screwdriver.
- Precision full cycle ratchet for accurate, repeatable crimps every cycle.
- Frames feature a tension adjustment preset at the factory for optimum performance.



FCT-1

FLEXIBLE CAPILLARY TUBES

- Suitable for all CFC, HFC & HCFC refrigerants and natural gases.
- Lining is made out of convoluted polyamide, specially formulated to suit new refrigerant gases requirements.
- Reinforced with high tensile polyester braid.
- Covered by flame retarder polyester (UL 94 HB class), black cover.
- Working temperature for hose assemblies with reusable fittings: -30°C to +90°C.
- Working pressure: 60 bar (870 psi).
- Min. bend radius: 35 mm.
- Certified to EN 1736.

FCT-4082B

FCT-4082B-5000

FCT-4082B-1000

4 mm ID x 8,2 mm OD

4 mm ID x 8,2 mm OD

4 mm ID x 8,2 mm OD

L = 100 m

L = 50 m

L = 10 m

FCT-4082B-050AS



REUSABLE FITTINGS FOR FCT-4082

Reusable fittings consist of a screw sleeve, to be fitted over the outside of the hose, and an insert, which is driven forcibly into the bore; the insert enlarges the internal diameter of the hose and compresses the wall against the inside of the sleeve, ensuring that the parts are held safely together.
All below fitting kits are for **FCT-4082**, 1/4" FFL.

FCT-RFS-4082
FCT-RFA-4082

STRAIGHT REUSABLE FITTING KIT
ANGLED REUSABLE FITTING KIT

CAPILLARY TUBES WITH 2 STRAIGHT FITTINGS, TYPE 2S

- 2 ends 1/4" FFL straight with core depressor.

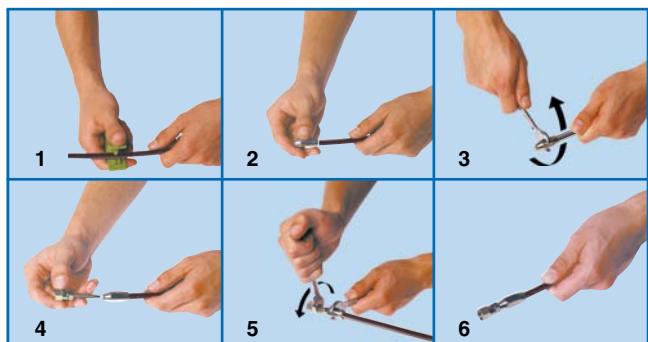
FCT-4082B-050-2S L = 50 cm FCT-4082B-150-2S L = 150 cm
FCT-4082B-100-2S L = 100 cm FCT-4082B-200-2S L = 200 cm

CAPILLARY TUBES WITH 1 STRAIGHT and 1 ANGLED FITTING, TYPE AS

- 1 end 1/4" FFL straight with core depressor.
- 1 end 1/4" FFL angled with core depressor.

FCT-4082B-050-AS L = 50 cm FCT-4082B-150-AS L = 150 cm
FCT-4082B-100-AS L = 100 cm FCT-4082B-200-AS L = 200 cm

Note: • Using a bit of oil on the reusable fittings will assure a problem free assembling-action and will facilitate this action.
• In re-using a disassembled fitting, you should cut off the already used and damaged tube-end first.



TC-307

PLASTIC TUBE CUTTER 1/16" to 1/2"
(1 mm to 13 mm). See also page 76.

PC-42

PLASTIC TUBE CUTTER 15/8" (42 mm).
See also page 77.



PC-42



TC-307



625-WG



623-WG



NH3-2S-048



NH3-2S-120



40192



16801



16803



16802



7958301

GAUGES, MANIFOLDS AND HOSES FOR AMMONIA

1. PULSE-FREE GAUGES Serie NH₃

- 68 mm scale diameter.
- 316 stainless steel bourdon tube.
- 1/4" MPT steel connection.
- Steel casing, black painted
- Polycarbonate crystals.
- Scales: bar and °C.

623-WG

HP GAUGE 1/4" MPT vertical bottom steel connection (-1 bar to +21 bar)

625-WG

LP GAUGE 1/4" MPT vertical bottom steel connection (-1 bar to +11 bar)

2. "AMMONIA SERIES" SERVICE HOSES

- Designed with straight stainless steel SWIVEL COUPLERS at both ends. Stainless steel CRIMPINGS.
- Available in soft black material.
- All hoses have straight female flare SAE connections on both ends (= FFL).

NH3-2S-048

NH₃ hose 2 x 1/4" FFL straight L = 120 cm (48")

NH3-2S-060

NH₃ hose 2 x 1/4" FFL straight L = 150 cm (60")

NH3-2S-072

NH₃ hose 2 x 1/4" FFL straight L = 180 cm (72")

NH3-2S-120

NH₃ hose 2 x 1/4" FFL straight L = 300 cm (120")

- Working pressure for 1/4": 55 bar.
- Burst pressure for 1/4": 220 bar.

NH3-2S-06-072 **NH₃ hose** 2 x 3/8" FFL straight L = 180 cm (72")
NH3-2S-06-120 **NH₃ hose** 2 x 3/8" FFL straight L = 300 cm (120")

- Working pressure for 3/8": 55 bar.
- Burst pressure for 3/8": 220 bar.

3. "AMMONIA" MANIFOLDS

40190

AMMONIA FORGED STEEL MANIFOLD

Non rotative Teflon seat. Finger-tight
2 x 1/4" FPT (for gauges)
3 x 1/4" MFL (for hoses)

40192

FORGED STEEL BODY 40190 with 623-WG and
625-WG Ammonia gauges

40193

FORGED STEEL BODY 40190 with 623-WG and
625-WG Ammonia gauges and 3 NH3-2S-048
hoses

4. Other "AMMONIA" components

16801

Steel fitting straight (1/4" MFL x 1/4" MPT)

16802

Steel fitting angled (1/4" MFL x 1/4" MPT)

16803

Steel fitting (3/8" MFL x 1/4" MPT)

7958301

Gasket for all ITE hoses with connections 1/4",
5/16" and 1/2" ACME

- See NH₃ "3000 STEEL FITTINGS" pages 150 to 156.

PROFESSIONAL SERVICE TOOL KITS

- Molded **ABS** and sturdy shock resistant portable cases.
- Internal arrangements for tools. See index tube working tools.

SK-1I

CARRYING TOOL KIT

Consisting of:

BS-102-04	Tube bender Ø 1/4"
BS-102-06	Tube bender Ø 3/8"
BS-102-08	Tube bender Ø 1/2"
BS-102-10	Tube bender Ø 5/8"
BS-102-12	Tube bender Ø 3/4"
RW-127	Ratchet wrench (1/4", 3/8", 3/16" and 5/16")
RIO-208	Reamer for reaming internal and external tubes from 1/8 " to 15/8"
FST-275	Flaring (SAE 45°) and swaging kit case for 1/8", 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", 5/8" and 3/4" tubing.
TC-274	Tube cutter for 1/8" to 11/8"
E303-FT-036	Set of 3 charging hoses (90 cm) (with 1/4" FFL swivel nuts)
2802-BPC	Two valve manifold with gauges (page 46)



SK-1I

SK-2I

CARRYING TOOL KIT

Consisting of:

TC-274	Tube cutter for 1/8" to 11/8" tubing
TC-127	Tube cutter for 1/8" to 5/8" tubing
FT-500-M	Flaring tool for 6 mm, 8 mm, 10 mm, 12 mm, 15 mm and 16 mm OD tubing.
16-C	Service port quick coupler (for all 1/4" flare SAE charging hoses).
RIO-208	Reamer for reaming internal and external tubes from 1/8 " to 15/8".
RW-127	Ratchet wrench (1/4", 3/8", 3/16" and 5/16").
MIR-1	Circular telescopic pocket mirror
2802-BC	Two valve manifold with gauges (page 46)
MB-EP	External spare parts kit (2x)
MB-IP	Internal spare parts kit (1x)
E303-FT-036	Set of 3 charging hoses (90 cm) (with 1/4" FFL swivel nuts)
	Adjustable spanner till 22 mm
	Adjustable spanner till 32 mm



SK-2IA

SK-2IA

as SK-2I but with
FT-525 flaring tool instead of FT-500-M

SK-2IE

as SK-2I but with
FT-500 flaring tool instead of FT-500-M

- Other refrigerants on request.


SK-6I
SK-6I
CARRYING TOOL KIT

Consisting of :

TE-6-01	Tube expander tool only
H-12 mm	Head 12 mm
H-15 mm	Head 15 mm
H-18 mm	Head 18 mm
H-22 mm	Head 22 mm
H-28 mm	Head 28 mm
RIO-208	Reamer for reaming internal and external tubes from 1/8" to 15/8"
FT-525	Flaring tool
RB-4240	Coat. Silver alloy 30% AG, 2 mm
MIR-2	Inspection mirror
L-22101	Regular flux 2 Oz
L-11575	Heat seal stick
PTR-1	Heavy duty deburring tool
TB-06	Tube brush
TB-16	Tube brush
TX-9	Propane cylinder
STB-7000	Auto-start propane torch
TC-274	Tube cutter

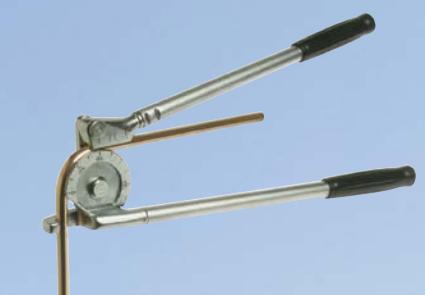
SK-6I/inch

Same as above SK-6I, but with 3/8", 1/2", 5/8", 3/4" and 1 1/8" heads


LTC-1
LTC-1
LEATHER TOOL CASE

Natural black leather box for the professional service engineer. Supplied with carrying belt. Can easily store all essential tools for AC & R system. Equipped with many compartments and elastic strips. Tools not included.

TUBE WORKING TOOLS



TUBE WORKING TOOLS



TUBE WORKING TOOLS

COPPER TUBE CUTTERS

TC-127 **TUBE CUTTER:** 1/8" to 5/8" (4 mm to 15 mm)

- Cuts copper, brass and aluminium tubing (+ thin wall steel and stainless steel with a wall thickness < 0,5 mm).
- New super compact design.
- Requires only 1³/₈" (35 mm) radius.
- Designed for use in tight areas where other cutters won't fit.
- Repositioned rollers on the bottom of tool allow for easier cutter engagement on tubing.
- New triangular shaped handle for better grip.
- Metal-aluminium alloy body.

TC-0316 **TUBE CUTTER:** 1/8" to 5/8" (3 mm to 16 mm) with cutting wheel for copper, brass and aluminium

TC-0316-H **TUBE CUTTER:** 1/8" to 5/8" (3 mm to 16 mm) with cutting wheel for copper, brass, aluminium and stainless steel

- Cuts copper, brass and aluminium tubing.
- Requires only 1³/₈" (35 mm) swing radius on 1/8" (3 mm) tube.
- Repositioned rollers on the bottom of tool allow for easier cutter engagement on tubing.
- Redesigned feed mechanism and new polished steel rollers with flare cut-off groove to stabilize tubing.
- New, larger iron handle for better grip.
- Metal alloy die cast body.

TC-274 **TUBE CUTTER:** 1/8" to 1¹/₈" (4 mm to 28 mm)

- Cuts copper, brass and aluminium tubing.
- Makes clean, right-angle cuts with no burrs or chips to clog tubing.
- Cutter includes rollers with flare cut-off groove to stabilize tubing, fold away reamer and spare cutting wheel.
- Enclosed feed screw mechanism.
- Rugged lightweight aluminium alloy body and knob designed for handling ease.

TC-0328 **TUBE CUTTER:** 1/8" to 1¹/₈" (3 mm to 28 mm) with cutting wheel for copper, brass and aluminium

TC-0328-H **TUBE CUTTER:** 1/8" to 1¹/₈" (3 mm to 28 mm) with durable cutting wheel for copper, brass, aluminium and stainless steel tubing (1 mounted, 1 spare)

- Cuts copper, brass and aluminium tubing.
- Works in tight areas.
- Repositioned rollers on the bottom of tool allow for easier cutter engagement on tubing.
- Steel rollers with flare cut-off groove.
- Metal alloy die cast body.

TC-0432-ZR **TUBE CUTTER:** 3/16" to 1¹/₄" (4 mm to 32 mm) with cutting wheel for copper, brass and aluminium (1 mounted, 1 spare)

TC-0432-ZRH **TUBE CUTTER:** 3/16" to 1¹/₄" (4 mm to 32 mm) with durable cutting wheel for copper, brass, aluminium and stainless steel tubing (1 mounted, 1 spare)

- Cuts copper, brass and aluminium tubing.
- Ratchet feed mechanism speeds up cutting operation - opens quickly to insert tubing, slides to cutting position instantly, fine feed adjustment for cutting action.
- Extra wide steel rollers with flare cut-off groove to stabilize tubing.
- Lightweight aluminium alloy die cast body.
- Retractable pen reamer.





TC-0638-R



TC-312



TC-206



TC-5140-ZC



TC-R06H

- TC-0638-R** **TUBE CUTTER:** 1/4" to 1 1/2" (6 mm to 38 mm) with cutting wheel for copper, brass and aluminium (1 mounted, 1 spare)
- TC-0638-RH** **TUBE CUTTER:** 1/4" to 1 1/2" (6 mm to 38 mm) with durable cutting wheel for copper, brass, aluminium and stainless steel tubing (1 mounted, 1 spare)

- Cuts copper, brass and aluminium tubing.
- Makes clean, right-angle cuts with no burrs or chips to clog tubing.
- Polished steel rollers with flare cut-off groove to stabilize tubing.
- Metal alloy die cast body.
- Retractable pen reamer.

- TC-312** **TUBE CUTTER:** 1/4" to 1 5/8" (7 mm to 41 mm)

- Cuts copper, brass and aluminium tubing.
- Makes clean, right-angle cuts with no burrs or chips to clog tubing.
- Cutter includes rollers with flare cut-off groove to stabilize tubing, fold away reamer and spare cutting wheel.
- Enclosed feed screw mechanism.
- Rugged lightweight aluminium alloy body and knob designed for handling ease.

- TC-206** **TUBE CUTTER:** 3/8" to 25/8" (10 mm to 66 mm)

- Cuts copper, brass and aluminium tubing (and thin wall steel and stainless steel with a wall thickness < 0,5 mm).
- Ratchet feed mechanism speeds up cutting operation - opens quickly to insert tubing, slides to cutting position instantly, fine feed adjustment for cutting action.
- Extra wide steel rollers with flare cut-off groove to stabilize tubing.
- Lightweight aluminium alloy die cast body.

- TC-5140-ZC** **TUBE CUTTER:** 2" to 5 1/2" (50 mm to 140 mm)
TC-10168-ZC **TUBE CUTTER:** 4" to 6 5/8" (100 mm to 168 mm)

- For cutting copper, brass and aluminium tubing.
- Ratchet feed mechanism speeds up cutting operation - opens quickly to insert tubing, slides to cutting position instantly, fine feed adjustment for cutting action.
- Aluminium alloy die cast body.
- Steel rollers.

SPARE PARTS FOR ABOVE

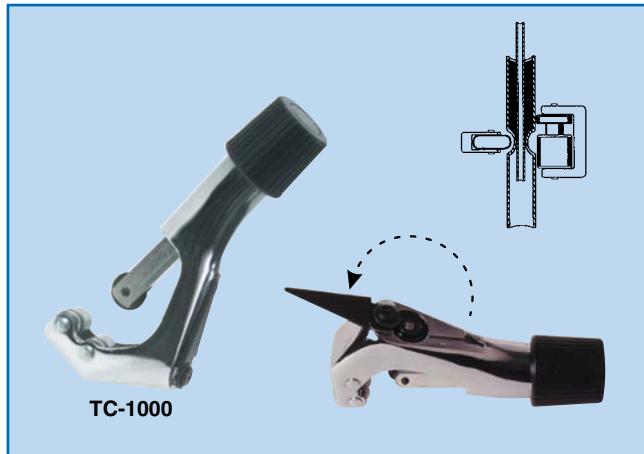
26880	Screw for cutting wheel (TC-127)
32650	Cutting wheel (TC-127)
74760	Screw for cutting wheel (TC-274, TC-0432-ZR, TC-0432-ZRH, TC-0638-R, TC-0638-RH)
75020	Cutting wheel (TC-274)
7931805	Reamer blade (TC-274, TC-312)
8201505	Screw for reamer blade (TC-274, TC-312)
74770	Cutting wheel (TC-206)
77520	Screw for cutting wheel (TC-206)
77510	Lock nut for wheel screw (TC-206)
TC-W03C	Cutting wheel for copper, brass and aluminium (TC-0316, TC-0328, TC-0328-H)
TC-W03H	Cutting wheel for copper, brass, aluminium and stainless steel (TC-0316, TC-0316-H, TC-0328, TC-0328-H)
TC-W06A	Cutting wheel for copper, brass and aluminium (TC-0432-ZR, TC-0432-ZRH, TC-0638-R, TC-0638-RH)
TC-W06H	Cutting wheel for copper, brass, aluminium and stainless steel (TC-0432-ZR, TC-0432-ZRH, TC-0638-R, TC-0638-RH)
TC-W51C	Cutting wheel for copper, brass, aluminium (TC-5140-Z, TC-5140-ZC, TC-10168-Z, TC-10168-ZC)
TC-W51A	Cutting wheel for plastic tubing (TC-5140-Z, TC-10168-Z)
TC-R06C	Pen reamer blade for copper, brass, aluminium (TC-0432-ZR, TC-0432-ZRH, TC-0638-R, TC-0638-RH)
TC-R06H	Pen reamer blade for copper, brass, aluminium and stainless steel (TC-0432-ZR, TC-0432-ZRH, TC-0638-R, TC-0638-RH)
TC-S03	Screw for cutting wheel (TC-0316 & TC-0328)
TC-S04	Screw for cutting wheel (TC-0432 & TC-0638)
TC-S05	Screw for cutting wheel (TC-5140 & TC-10168)

ATTENTION: Think "**IMPERIAL TOOLS**" for all your **AC & R Tube Working**. Unauthorized use of the names, logos and part numbers of "ITE" and "**IMPERIAL**" is not allowed due to international patents.

"**IMPERIAL**" TUBE CUTTERS

- Three cutting ranges: from **3/8"** to **4 1/8"** (10 mm to 104 mm).
- Big capacity, small size (**TC-1050** requires only **49 mm** radius).
- Designed for use in tight areas where other cutters won't fit.
- For hard or soft copper, brass, aluminium, thin wall steel, stainless steel, monel, titanium and other light tubing.
- Ideal for instrument panels, control cabinets, refrigeration and A/C conditioning units, cold boxes, freezers, heating units, ...
- Hard aluminium body and black finish with brushed highlights.

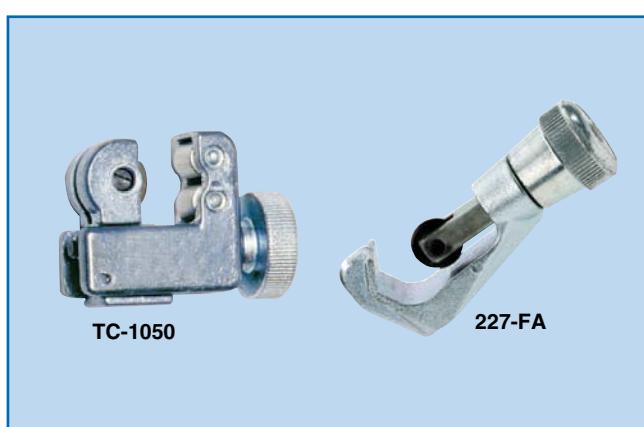
TC-1000 TUBE CUTTER: **1/8"** to **1 1/8"** (4 mm to 28 mm)
TC-1000-SP TUBE CUTTER: **1/8"** to **1 1/8"** (4 mm to 28 mm) with skin packing.



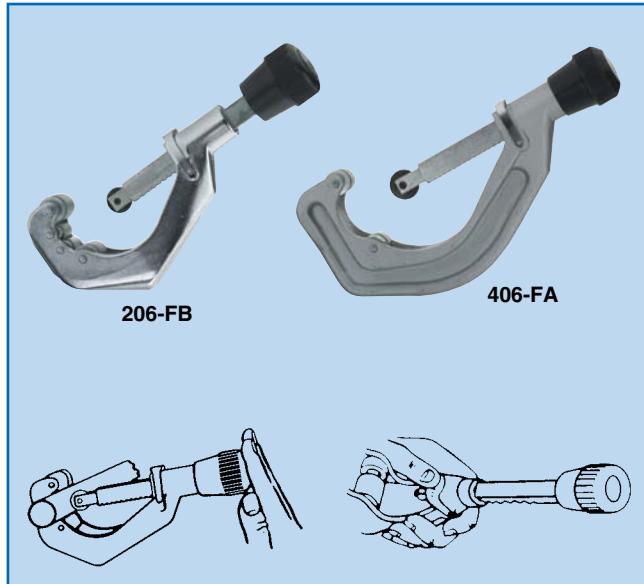
TC-1020 TUBE CUTTER: **1/8"** to **1 1/8"** (4 mm to 28 mm) + tube constrictor including reamer and spare cutting blade for stainless steel



174-F TUBE CUTTER: **3/8"** to **1 1/8"** (10 mm to 28 mm)
174-F-SP TUBE CUTTER: **3/8"** to **1 1/8"** (10 mm to 28 mm) with skin packing.



312-FC TUBE CUTTER: **1/4"** to **1 5/8"** (7 mm to 41 mm)
312-FC-SP TUBE CUTTER: **1/4"** to **1 5/8"** (7 mm to 41 mm) with skin packing.
TC-1050 TUBE CUTTER: **1/8"** to **5/8"** (4 mm to 15 mm)
Compact design, handle and feed mechanism.
Highly polished chrome finish
TC-1050-SP TUBE CUTTER: **1/8"** to **5/8"** (4 mm to 15 mm)
Compact design, handle and feed mechanism.
Highly polished chrome finish with skin packing.



TC-2050 TUBE CUTTER: **3/16"** to **7/8"** (5 mm to 22 mm)

227-FA TUBE CUTTER: **1/8"** to **3/4"** (4 mm to 19 mm)
Economic version WITHOUT flattening tube rollers

206-FB TUBE CUTTER: **3/8"** to **2 5/8"** (10 mm to 66 mm)
206-FB-SP TUBE CUTTER: **3/8"** to **2 5/8"** (10 mm to 66 mm) in skin packing.
406-FA TUBE CUTTER: **2"** to **4 1/8"** (51 mm to 104 mm)

- Ratchet feed mechanism speeds up cutting operation (opens quickly to insert tubing and slides to cutting position instantly).
- Extra wide rollers with flare cut-off groove stabilizing tubing.
- Handle recess contains spare cutting wheel. Enclosed screwtype feed mechanism. Light weight aluminium body.



RATCH-CUT TUBE CUTTERS

RTC-127 **RATCH CUTTER:** 1/8" to 3/8" (3 mm to 10 mm)

- Uniquely designed for fast, accurate pipe cutting, especially in confined, nearly inaccessible locations.
- Suitable for use on mild or stainless steel, copper or thinwall PVC and CPVC.

SPARE PARTS FOR RTC-127

RTC-127-A Cutting wheel

RTC-127-B Screw for cutting wheel

RTC-274 **RATCH CUTTER:** 5/16" to 1 1/8" (8 mm to 28 mm)

- Same as above but a wider tube cutting range.
- For quick, precise cutting of mild or stainless steel, copper or thinwall PVC and CPVC.

SPARE PARTS FOR RTC-274

RTC-274-A Cutting wheel

RTC-274-B Screw for cutting wheel



STEEL PIPE CUTTERS

TCS-0332 **STEEL TUBE CUTTER:** 1/8" to 1 1/4" (3 mm to 32 mm), weight: 15 kg

TCS-38114 **STEEL TUBE CUTTER:** 1 1/2" to 4 1/2" (38 mm to 114 mm), weight: 22 kg

PVB-10102 **BENCH PIPE VISE:** 3/8" to 4" (10 mm to 102 mm), weight: 17 kg

PV3P-10102 **TRIPOD PIPE VISE:** 3/8" to 4" (10 mm to 102 mm), weight: 18,6 kg



CAPILLARY TUBE CUTTER CTP-1

CTP-1 **CAPILLARY TUBE CUTTER**

- For cutting capillary tubes without collapsing or narrowing the tube.
- Cuts all sizes of capillary tube.



PLASTIC TUBE CUTTERS

TC-307 **TUBE CUTTER:** 1/16" to 1/2" (1 mm to 13 mm). Spare cutting blade

- For cutting flexible plastic and rubber tubing.
- Compact cutter, is spring loaded for safety.
- Designed to cut tubing up to 12,7 mm O.D. (3/8" I.D.).
- ABS body.
- High quality hardened steel cutting blade.

PC-42 **PVC PIPE CUTTER:** 1/4" - 1 5/8" (6 mm - 42 mm)
For cutting hard PVC, PE (polyethylene),
PP (polypropylene) and nylon
Spare cutter blade

PC-63 **PVC PIPE CUTTER:** 1/4" - 2 1/2" (6 mm - 63 mm)
For cutting hard PVC, PE (polyethylene),
PP (polypropylene) and nylon
Spare cutter blade

- Easy handling with step ratchet mechanism.
- Heat treated steel blade.
- Anti-rust, anti-wear.
- Cuts pipes made of synthetic resins, etc.

TC-5140-Z **TUBE CUTTER:** 2" to 5 1/2" (50 mm to 140 mm)
TC-10168-Z **TUBE CUTTER:** 4" to 6 5/8" (100 mm to 168 mm)

- For cutting plastic tubing (PE, PP and PVDF).
- Ratchet feed mechanism speeds up cutting operation - opens quickly to insert tubing, slides to cutting position instantly, fine feed adjustment for cutting action.
- Aluminium alloy die cast body.
- Steel rollers.

TC-W51A Spare cutting wheel for plastic tubing for TC-5140-Z and TC-10168-Z

TC-W51C Spare cutting wheel for copper, brass and aluminium tubing for TC-5140-ZC and TC-10168-ZC

PCG-35 **GUN TYPE PLASTIC PIPE CUTTER:** 1/4" to 1 3/8"
(6 mm to 35 mm)

PCG-B35 Spare cutter blade

- Designed for quick, clean and easy cutting of most plastic pipes up to 35 mm O.D.
- The ratchet mechanism on the cutting blade gives a smooth cutting action with minimal effort.
- The cutting blade is easily cleaned without opening the body of the cutter.

PCG-2642 **GUN TYPE PLASTIC PIPE CUTTER:** 1/4" to 1 5/8"
(6 mm to 42 mm), adjustable

PCG-B2642 Spare cutter blade

- Designed to cut plastic pipes up to 42 mm O.D.
- To speed up the operation with smaller diameter pipes, the cutting blade can be pre-set for cutting diameters between 6 mm and 26 mm O.D.
- The curved design of the cutting blade gives a smooth cutting action with minimal effort.



PC-42

PC-63



TC-5140-Z

PCG-2642

SPRING TYPE BENDERS

BS-102-04
BS-102-05/8mm
BS-102-06
BS-102-08
BS-102-10
BS-102-12
BS-163
BS-101

SPRING for tube O.D. size 1/4"
SPRING for tube O.D. size 5/16"
SPRING for tube O.D. size 3/8"
SPRING for tube O.D. size 1/2"
SPRING for tube O.D. size 5/8"
SPRING for tube O.D. size 3/4"
SET OF SPRING: 1/4", 3/8", 1/2" and 5/8"
SET OF SPRING: 1/4", 5/16", 3/8", 3/4", 1/2" and 5/8"

BS-102-06mm
BS-102-05/8mm
BS-102-10mm
BS-102-12mm

SPRING for tube O.D. size 6 mm
SPRING for tube O.D. size 8 mm
SPRING for tube O.D. size 10 mm
SPRING for tube O.D. size 12 mm

- Budget priced tools for hand bending soft tubing to any shape without collapsing walls.
- Special spring steel, nickel finished.
- End belled for quick tube removal (45°).



BS-102 Series



TB-364-04

"ITE" STRAIGHT HANDLE BENDERS

For inch tubing

TB-364-04	BENDER: tube O.D. size $\frac{1}{4}$ " Bend radius $\frac{9}{16}$ " (14,2 mm)
TB-364-05/8mm	BENDER: tube O.D. size $\frac{5}{16}$ " Bend radius $\frac{11}{16}$ " (17,5 mm)
TB-364-06	BENDER: tube O.D. size $\frac{3}{8}$ " Bend radius $\frac{15}{16}$ " (24,0 mm)
TB-364-08	BENDER: tube O.D. size $\frac{1}{2}$ " Bend radius $1\frac{1}{2}$ " (38,1 mm)
TB-364-10	BENDER: tube O.D. size $\frac{5}{8}$ " Bend radius $2\frac{1}{4}$ " (57,1 mm)
TB-364-12	BENDER: tube O.D. size $\frac{3}{4}$ " Bend radius 3" (76,2 mm)

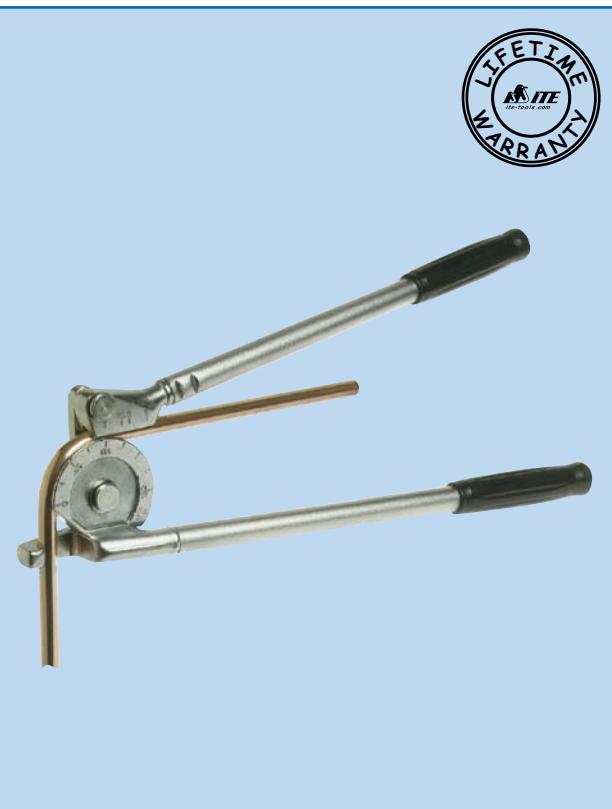
For metric tubing

TB-364-06mm	BENDER: tube O.D. size 6 mm Bend radius 14,2 mm ($\frac{9}{16}$ ")
TB-364-05/8mm	BENDER: tube O.D. size 8 mm Bend radius 17,5 mm ($\frac{11}{16}$ ")
TB-364-10mm	BENDER: tube O.D. size 10 mm Bend radius 24 mm ($\frac{15}{16}$ ")
TB-364-12mm	BENDER: tube O.D. size 12 mm Bend radius 38,1 mm ($1\frac{1}{2}$ ")
TB-364-15mm	BENDER: tube O.D. size 15 mm Bend radius 57,1 mm ($2\frac{1}{4}$ ")
TB-364-16mm	BENDER: tube O.D. size 16 mm Bend radius 57,1 mm ($2\frac{1}{4}$ ")

- Each tool bends one size.
- Open side type which slips over tube at any point.
- Makes smooth short radius bends up to **180°** with minimum effort.
No marking, scraping or flattening of tubing.
- Calibrated to show angle of bend.
- Fixed hook tube benders furnished for $\frac{1}{4}$ " to $\frac{1}{2}$ " O.D. sizes have easy **90°** start - require much less effort to make fast, accurate bends.
- Wide fixed hook simplifies operation, holds tubing securely.
- For bending soft copper, brass, aluminium, steel, stainless steel and other thin metals.

SPARE PARTS

68481/TB	Spring washer
66914/TB	Fulcrum screw
TB-364-12/H	Hook for TB-364-12
8057205	Hook for TB-364-15mm and TB-364-16mm



TB-364-10mm

Note: Bend radius is from center to center of tube.

"IMPERIAL" STRAIGHT HANDLE BENDERS

364-FH-02	BENDER: tube O.D. size $\frac{1}{8}$ " Bend radius $\frac{3}{8}$ " (10,0 mm)
364-FH-03	BENDER: tube O.D. size $\frac{3}{16}$ " Bend radius $\frac{7}{16}$ " (11,1 mm)
364-FHA-04	BENDER: tube O.D. size $\frac{1}{4}$ " Bend radius $\frac{9}{16}$ " (14,2 mm)
364-FHA-05	BENDER: tube O.D. size $\frac{5}{16}$ " Bend radius $\frac{11}{16}$ " (17,5 mm)
364-FHA-06	BENDER: tube O.D. size $\frac{3}{8}$ " Bend radius $\frac{15}{16}$ " (24,0 mm)
364-FHA-08	BENDER: tube O.D. size $\frac{1}{2}$ " Bend radius $\frac{11}{2}$ " (38,1 mm)
364-FHA-10	BENDER: tube O.D. size $\frac{5}{8}$ " Bend radius $2\frac{1}{4}$ " (57,1 mm)
364-FHA-12	BENDER: tube O.D. size $\frac{3}{4}$ " Bend radius 3" (76,2 mm)
364-FHA-14	BENDER: tube O.D. size $\frac{7}{8}$ " Bend radius 3" (76,2 mm)
364-FHA-16	BENDER: tube O.D. size 1" Bend radius $3\frac{1}{2}$ " (88,9 mm)

- Each tool bends one size.
- Open side type which slips over tube at any point.
- Makes smooth short radius bends up to 180° with minimum effort. No marking, scraping or flattening of tubing.
- Calibrated to show angle of bend.
- Fixed hook tube benders furnished for $\frac{1}{4}$ " to $\frac{1}{2}$ " O.D. sizes have easy 90° start - require much less effort to make fast, accurate bends.
- Wide fixed Hook simplifies operation, holds tubing securely.
- For bending soft copper, brass, aluminium, steel, stainless steel and other thin metals.

"IMPERIAL" SWIVEL HANDLE BENDERS

For inch tubing

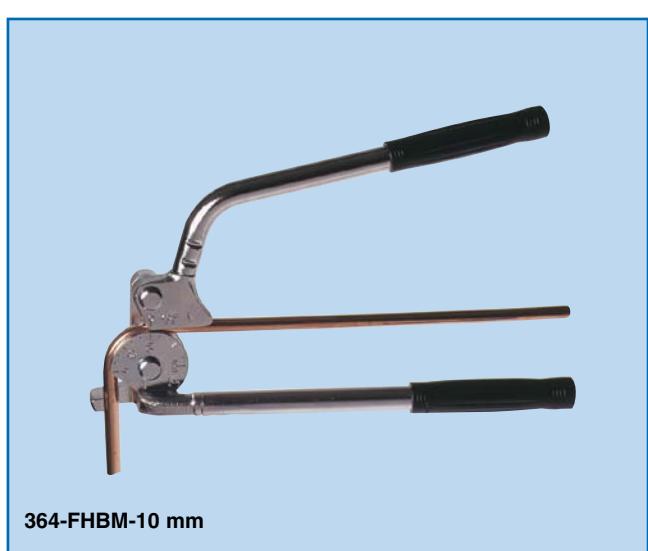
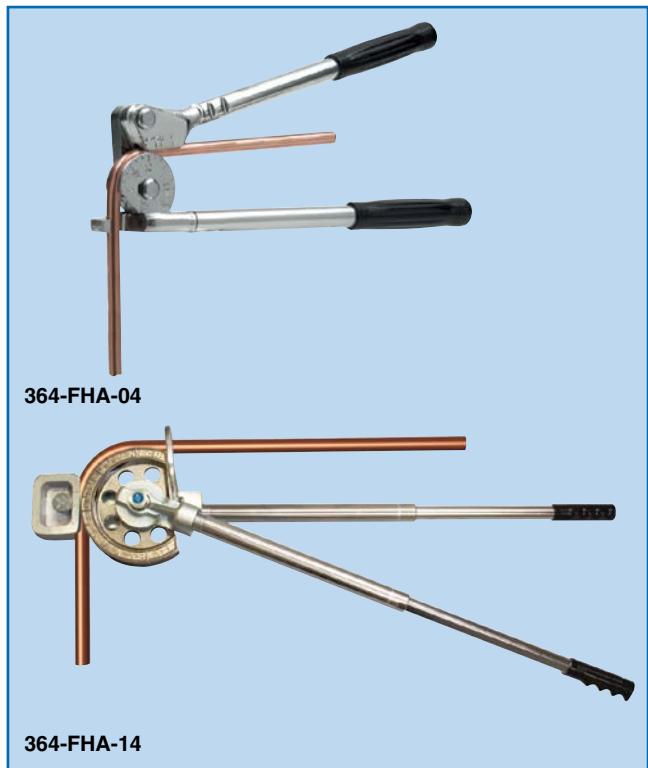
364-FHB-04	BENDER: tube O.D. size $\frac{1}{4}$ " Bend radius $\frac{9}{16}$ " (14,2 mm)
364-FHB-05	BENDER: tube O.D. size $\frac{5}{16}$ " Bend radius $\frac{11}{16}$ " (17,5 mm)
364-FHB-06	BENDER: tube O.D. size $\frac{3}{8}$ " Bend radius $\frac{15}{16}$ " (24,0 mm)
364-FHB-08	BENDER: tube O.D. size $\frac{1}{2}$ " Bend radius $1\frac{1}{2}$ " (38,1 mm)

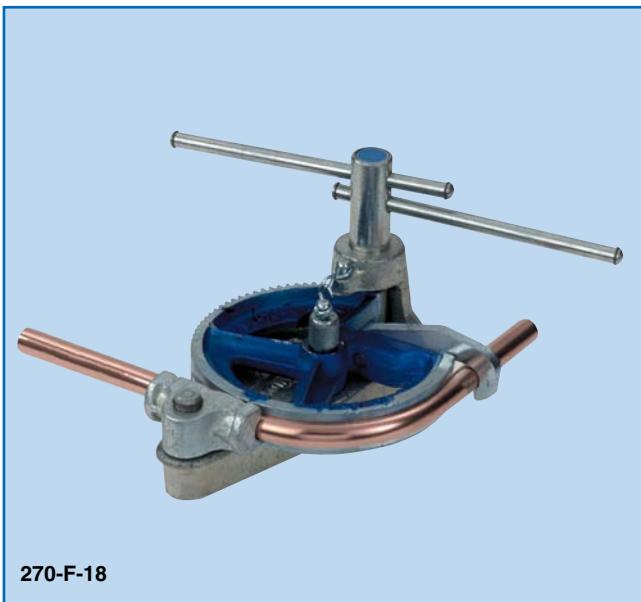
For metric tubing

364-FHBM-06 mm	BENDER: tube O.D. size 6 mm Bend radius $\frac{9}{16}$ " (14,2 mm)
364-FHBM-08 mm	BENDER: tube O.D. size 8 mm Bend radius $\frac{11}{16}$ " (17,5 mm)
364-FHBM-10 mm	BENDER: tube O.D. size 10 mm Bend radius $\frac{15}{16}$ " (24 mm)
364-FHBM-12 mm	BENDER: tube O.D. size 12 mm Bend radius $1\frac{1}{2}$ " (38,1 mm)

- The swivel handle can be repositioned to regain leverage for bends greater than 90° , eliminating bender twisting and handle crossing.
- Enclosed swivel mechanism provides extended life.
- Ideal for bending stainless steel and other tubing materials.

Note: Bend radius is from center to center of tube.





"IMPERIAL" BENDING KITS MULTI-DIAMETERS

260-FHA	BENDING KIT CASE for tube O.D.: 1/4", 5/16", 3/8", 1/2", 5/8", 3/4", 7/8"
350-FHA	BENDING KIT CASE for tube O.D.: 1/4", 5/16", 3/8", 1/2", 5/8", 3/4"
360-FHA	BENDING KIT CASE for tube O.D.: 3/8", 1/2", 5/8", 3/4"

Bend radius with 1/4" bender = 9/16" (14,29 mm)
 Bend radius with 5/16" bender = 11/16" (17,49 mm)
 Bend radius with 3/8" bender = 15/8" (41,28 mm)
 Bend radius with 1/2" bender = 15/8" (41,28 mm)
 Bend radius with 5/8" bender = 2 1/4" (57,15 mm)
 Bend radius with 3/4" bender = 3" (76,20 mm)
 Bend radius with 7/8" bender = 3" (76,20 mm)

- For bending soft copper, brass, aluminium, steel, stainless steel and other metals.
- Each tool quickly adapts to all sizes in its range by changing forming wheel and block.
- Long handles reposition during bend for best leverage. Calibrations show precise bend angle.
- One piece benders furnished for 1/4" and 5/16" O.D. sizes.
- Supplied in red metal carrying case with space for other tools needed on the job.

"IMPERIAL" GEAR TYPE BENDERS

270-F-06	BENDER: tube O.D. size 3/8" Bend radius 1 3/4" (44,45 mm)
270-F-08	BENDER: tube O.D. size 1/2" Bend radius 2 1/2" (63,50 mm)
270-F-10	BENDER: tube O.D. size 5/8" Bend radius 3" (76,20 mm)
270-F-12	BENDER: tube O.D. size 3/4" Bend radius 4" (101,60 mm)
270-F-14	BENDER: tube O.D. size 7/8" Bend radius 4" (101,60 mm)
270-F-16	BENDER: tube O.D. size 1" Bend radius 4" (101,60 mm)
270-F-18	BENDER: tube O.D. size 1 1/8" Bend radius 4" (101,60 mm)

271-F Extension handle

- Each tool bends one size.
- For all bending work. Spur gear type with 10:1 ratio for easy bending of all tempered tubing.
- Floating shoe aligns tube perfectly on calibrated forming wheel.
- Pull-pin on wheel speeds repositioning for bends over 90°.
- Portable. Can be hand held, clamped in vise or bolted to bench.
- 271-F fits all 270-F benders. For use when clamping bender in pipe vise.

"IMPERIAL" TRIPLE HEAD BENDER

370-FH	BENDER for tube O.D. sizes 3/16", 1/4", 3/8" and 1/2"
---------------	--

Bend radius with 1/4" bender = 11/16" (17,49 mm)
 Bend radius with 3/8" bender = 11/8" (28,00 mm)
 Bend radius with 1/2" bender = 1 1/2" (38,10 mm)

- Calibrated Markings - for making accurate left-hand, right-hand and offset bends.
- Adjustable hook.
- Optimum Bending Radius - for each tubing size.
- Cushion Grips - for extreme comfort.
- Made of Lightweight Die-Cast Aluminum.

368-FH	BENDER for tube 3/16", 1/4", 5/16", 3/8", 6 mm and 8 mm
---------------	--

Note: Bend radius is from center to center of tube.

"ITE" TRIPLE HEAD BENDER

THB-368

BENDER: For tube O.D. sizes $\frac{1}{4}$ ", $\frac{5}{16}$ " and $\frac{3}{8}$ " and 6 mm, 8 mm and 10 mm.
Bend radius $1\frac{1}{16}$ " (17,5 mm).

- Innovative multi-tube-size design does the work of three conventional lever-type benders.
- Calibrated markings for making accurate left-hand, right-hand, and offset bends. 90° start requires less effort. Makes bending fast and easy.
- Wide, fixed hook simplifies operation, holds tubing securely.
- Open size - slips on tubing at any point.
- Attractive black and chrome finish.



"ITE" PORTABLE TUBE BENDERS FOR COPPER TUBING

HB-251

Portable mechanical tube bender for soft inch copper tube in sturdy plastic carrying case.

Supplied with:

7 shoes for $\frac{1}{4}$ ", $\frac{5}{16}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{5}{8}$ ", $\frac{3}{4}$ ", $\frac{7}{8}$ "
OD sizes

3 counter formers:

10 mm - 12 mm to use for $\frac{1}{4}$ ", $\frac{5}{16}$ " and $\frac{3}{8}$ "
14 mm - 17 mm to use for $\frac{1}{2}$ " and $\frac{5}{8}$ "
18 mm - 22 mm to use for $\frac{3}{4}$ " and $\frac{7}{8}$ "

Bends:

- Annealed copper tube
- Annealed coated copper tube
- Double-coated aluminium pipes (Mepla)
- Soft thin wall steel pipes

Bend radius for size	$\frac{1}{4}$ "	=	31 mm
Bend radius for size	$\frac{5}{16}$ "	=	31 mm
Bend radius for size	$\frac{3}{8}$ "	=	31 mm
Bend radius for size	$\frac{1}{2}$ "	=	34 mm
Bend radius for size	$\frac{5}{8}$ "	=	49 mm
Bend radius for size	$\frac{3}{4}$ "	=	80 mm
Bend radius for size	$\frac{7}{8}$ "	=	88 mm

HB-251M

Portable mechanical tube bender for soft metric copper tube in sturdy plastic carrying case.

Supplied with:

7 shoes for 10 mm, 12 mm, 14 mm, 16 mm, 18 mm, 20 mm and 22 mm OD sizes

3 counter formers: 10 mm - 12 mm

14 mm - 17 mm

18 mm - 22 mm

Bend radius for size	10 mm	=	31 mm
Bend radius for size	12 mm	=	34 mm
Bend radius for size	14 mm	=	41 mm
Bend radius for size	16 mm	=	49 mm
Bend radius for size	18 mm	=	72 mm
Bend radius for size	20 mm	=	80 mm
Bend radius for size	22 mm	=	88 mm

FEATURES

- Light alloy high-resistance die-cast block.
- Die-cast aluminium shoes.
- Galvanised iron back-dies with die-cast aluminium parts.
- High resistance light alloy die-cast pump lever.
- Compact and easy to handle.
- Highly efficient: works with minimal effort even when handling large cross sections.
- Interchangeable quick-coupled counter formers.




HB-451

Portable hydraulic tube bender for soft inch copper tube in sturdy plastic carrying case.

Supplied with:

7 shoes for 1/4", 5/16", 3/8", 1/2", 5/8", 3/4", 7/8" OD sizes

3 counter formers:

10 mm - 12 mm to use for 1/4", 5/16" and 3/8"

14 mm - 17 mm to use for 1/2" and 5/8"

18 mm - 22 mm to use for 3/4" and 7/8"

Bends:

- Annealed copper tube of max 22 mm x 1,5 mm

- Annealed stainless steel pipe of max 22 mm x 1,2 mm

- Bonderized steel pipe of max 22 mm x 2 mm

Bend radius for size 1/4" = 31 mm

Bend radius for size 5/16" = 31 mm

Bend radius for size 3/8" = 31 mm

Bend radius for size 1/2" = 34 mm

Bend radius for size 5/8" = 49 mm

Bend radius for size 3/4" = 80 mm

Bend radius for size 7/8" = 88 mm

HB-451M

Portable hydraulic tube bender for soft metric copper tube in sturdy plastic carrying case.

Supplied with:

7 shoes for 10 mm, 12 mm, 14 mm, 16 mm, 18 mm, 20 mm and 22 mm OD sizes

3 counter formers: 10 mm - 12 mm

14 mm - 17 mm

18 mm - 22 mm

Bend radius for size 10 mm = 31 mm

Bend radius for size 12 mm = 34 mm

Bend radius for size 14 mm = 41 mm

Bend radius for size 16 mm = 49 mm

Bend radius for size 18 mm = 72 mm

Bend radius for size 20 mm = 80 mm

Bend radius for size 22 mm = 88 mm

FEATURES

- Light alloy high-resistance die-cast block.
- Die-cast aluminium shoes.
- Galvanised iron back-dies with die-cast aluminium parts.
- High resistance light alloy die-cast pump lever.
- Compact and easy to handle.
- Highly efficient: works with minimal effort even when handling large cross sections.
- Interchangeable quick-coupled counter formers.

FST-450

Flaring/swaging tool set inch

With use of the body of the HB-451 you can produce bells, as well as binders and neckings.

FST-450M

Flaring/swaging tool set metric

With use of the body of the HB-451M you can produce bells, as well as binders and neckings.

FEATURES

- Aluminium die-casted and steel body pump with double hydraulic circuit.
- Shoes in aluminium, die-casted.
- Counter formers in galvanised steel with die-casted aluminium laterals for quick coupling.

FLARING TOOLS

FTE-800

FLARING TOOL for inch sizes

Plastic case containing:

- inch bar 1/8", 3/16", 1/4", 5/16", 3/8", 1/2", 5/8" and 3/4"
- yoke
- adapter 3/8" x 5/16" yoke/cordless machine
- 127-RW not included

FTE-800-M

FLARING TOOL for metric sizes

Plastic case containing:

- metric bar 6 mm, 8 mm, 10 mm, 12 mm, 14 mm, 15 mm, 16 mm and 18 mm
- yoke
- adapter 3/8" x 5/16" yoke/cordless machine
- 127-RW not included

FTE-800-IM

FLARING TOOL for inch + metric sizes

Plastic case containing:

- inch bar 1/8", 3/16", 1/4", 5/16", 3/8", 1/2", 5/8" and 3/4"
- metric bar 6 mm, 8 mm, 10 mm, 12 mm, 14 mm, 15 mm, 16 mm and 18 mm
- yoke
- adapter 3/8" x 5/16" yoke/cordless machine
- 127-RW not included

FTE-800-IMTRW

FLARING TOOL

Same as above **FTE-800-IM**, but with

- TC-274 tube cutter 1/8" to 1 1/8" (4 mm to 28 mm)
- RIO-208 reamer 1/8" to 15/8" (3 mm to 41 mm)
- 127-RW ratchet wrench (3/8", 5/16", 1/4" and 3/16" sq. reversible ratchets)

FTE-800-IMTRWS

FLARING TOOL

Same as above **FTE-800-IM**, but with

- TC-274 tube cutter 1/8" to 1 1/8" (4 mm to 28 mm)
- RIO-208 reamer 1/8" to 15/8" (3 mm to 41 mm)
- 127-RW ratchet wrench (3/8", 5/16", 1/4" and 3/16" sq. reversible ratchets)
- BS-102 bending springs (4 pcs, for 1/4", 3/8", 1/2" and 5/8" O.D.)

FTE-800-IMTRWSP

FLARING TOOL

Same as above **FTE-800-IM**, but with

- TC-274 tube cutter 1/8" to 1 1/8" (4 mm to 28 mm)
- RIO-208 reamer 1/8" to 15/8" (3 mm to 41 mm)
- 127-RW ratchet wrench (3/8", 5/16", 1/4" and 3/16" sq. reversible ratchets)
- BS-102 bending springs (4 pcs, for 1/4", 3/8", 1/2" and 5/8" O.D.)
- SP-95 swaging punch (1/4", 5/16", 3/8", 1/2", 5/8")

FTE-800-ITRWSP

FLARING TOOL

Same as **FTE-800-IMTRWSP** but without metric bar

- Precision flaring tool for smooth, high strength flares.
- Large removable feed screw handle allows flaring with a minimum of effort.
- Eccentric placed hardened steel finished cone rolls out perfect 45° flares and automatically burnishes flare face.
- Original wall thickness is maintained at base of flare.
- Can be used on aluminium and/or soft copper.
- Feed screw handle with torque limitation avoids "overflaring". When correct flare has been produced, the feed screw mechanism of the yoke will be cut out mechanically.
- 3/8" square drive allows operation with a ratchet wrench or power tool.

SPARE PARTS

FTE-080

Inch bar 1/8", 3/16", 1/4", 5/16", 3/8", 1/2", 5/8", 3/4"

FTE-080-M

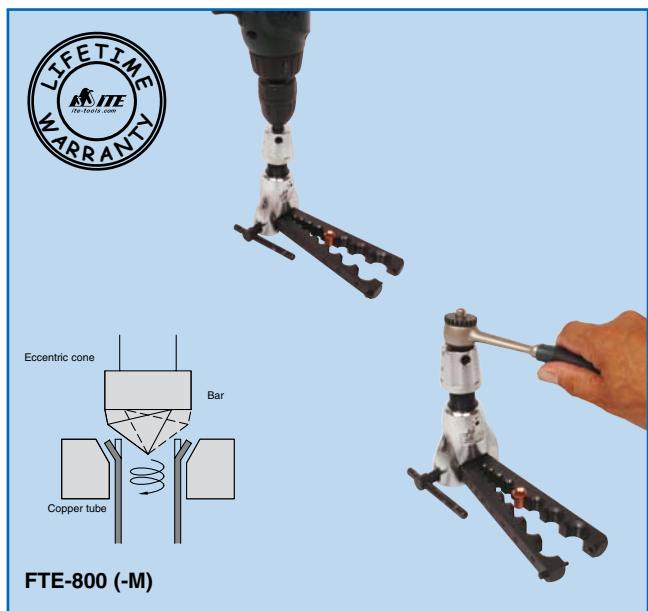
Metric bar 6 mm, 8 mm, 10 mm, 12 mm, 14 mm, 15 mm, 16 mm and 18 mm

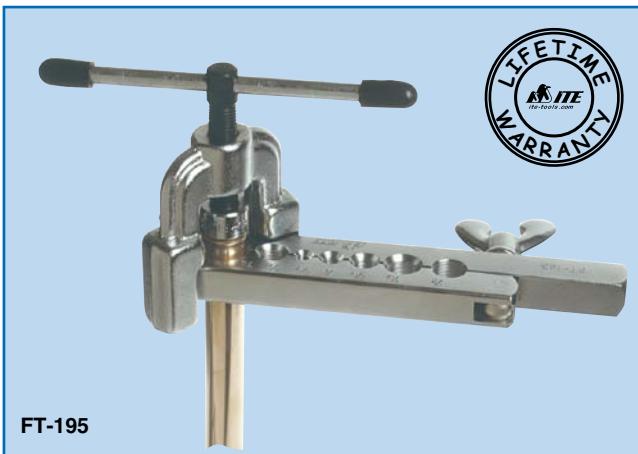
FTE-089

Yoke

FTE-089-A

Adapter 3/8" x 5/16" yoke/cordless machine




FT-195
FLARING TOOL: 3/16", 1/4", 5/16", 3/8", 7/16", 1/2" and 5/8"

- Flares 7 sizes of tubing. Rugged forged steel slip-on yoke and hardened flaring bar.
- Positive clamping action of bars prevents tube slippage. Self centering yoke with swivel type, hard chrome-finished flaring cone forms better flares with less effort.
- Design of yoke permits flaring where there is little space between nut and tube end.
- Satin finish nickel-chrome plated.

SPARE PARTS
75530

Bar assembly

75540

Yoke assembly


FT-500
FLARING TOOL: 3/16", 1/4", 5/16", 3/8", 1/2" and 5/8" O.D.

FT-500-M
FLARING TOOL: 6 mm, 8 mm, 10 mm, 12 mm, 15 mm and 16 mm

- For soft copper, aluminium, brass tubing.
- Faceted, hardened steel chrome finished cone rolls out perfect 45° flares above die block, then automatically burnishes flare face. Original wall thickness is maintained at base of flare. New slip-on yoke permits use in tight areas, lets you flare where there is little space between nut and tube end.
- Larger handle, allows better leverage, and precision threads on feed screw make flaring effortless. Heat treated dies grip tubing without scoring.
- Satin chrome and black finish add to tool life and smart professional appearance.

SPARE PARTS
7899205

Yoke assembly

7976105

Bar assembly for FT-500-M

7976107

Bar assembly for FT-500


FT-525
FLARING TOOL: 3/16" to 5/8" - 5 mm to 16 mm O.D.

- For soft copper, aluminium, brass tubing.
- Unique, self-adjusting, tube holding mechanism permits flaring any size tubing within the range of 3/16" (5 mm) to 5/8" (16 mm) O.D. Innovative, single opening design is more compact and easier to use than conventional multi-opening flaring bars.
- Faceted, hardened steel chrome finished cone rolls out and burnishes perfect 45° flare above the holding mechanism. Original wall thickness is maintained at base of flare. Slip-on self centering yoke permits use in tight areas.
- Large handle, allows better leverage, and precision threads on feed screw making flaring effortless. Satin chrome and black finish add to tool life and smart professional appearance.

SPARE PARTS
FT-525/C

Cone

8085105

Yoke assembly

8085205

Bar

"IMPERIAL" FLARING TOOLS

103-FS	FLARING TOOL KIT: 3/4", 7/8" and 1"
203-FA	FLARING TOOL KIT: 5/8", 3/4", 7/8" and 1 1/8"

- Flares larger tube sizes. Quick slip-on yoke.
- Hard chrome-finished, swivel flaring cone reduces effort required.
- Positive clamping action of flaring bar eliminates tube movement.
- Nickel chrome finish.



103-FS/203-FA

195-FB	DOUBLE FLARING TOOL 45°: 1/4", 5/16", 3/8", 1/2", 5/8" and 3/4"
---------------	--

- For soft tubing only - copper, aluminium, brass.
- Designed for automotive air conditioning service.
- Makes double flares in soft copper or aluminium tubing (wall thickness to 0,035").
- Easy operating ball bearing swivel-type hard chrome-finished flaring cone. Quick slip-on yoke. Flaring bar offers positive grip of tubing.
- Makes flare with double-thick, double-strength walls. Also makes single flares.



195-FB

195-FC	FLARING TOOL: 3/16", 1/4", 5/16", 3/8", 7/16", 1/2" and 5/8"
---------------	---

195-FC-SP	FLARING TOOL: 3/16", 1/4", 5/16", 3/8", 7/16", 1/2" and 5/8" in skin packing
------------------	---

395-FAM	FLARING TOOL: 4 mm, 6 mm, 8 mm, 10 mm, 12 mm, 15 mm and 16 mm
----------------	--

- Flares **7 sizes** of tubing. Rugged forced steel slip-on yoke and hardened flaring bar.
- Positive clamping action of bars prevents tube slippage. Self centering yoke with swivel type, hard chrome-finished flaring cone forms better flares with less effort.
- Design of yoke permits flaring where there is little space between nut and tube end.
- Satin finish nickel-chrome plated.



195-FC

300-FB	HI-DUTY FLARING TOOL: 3/16", 1/4", 5/16", 3/8", 1/2" and 5/8" O.D.
---------------	---

- Hardenend steel chrome finished cone makes exceptionally smooth high strength flares with a radius at base of flare - instead of the sharp angle formed by ordinary tools.
- New slip-on yoke permits use in tight quarters, lets you flare where there is little space between nut and tube end. New feed screw design provides smoother, easier operation.
- Positive gripping and self-gaging of tube for exact flare size.
- Sliding die blocks lock in place by lever clamp action to ensure even dispersal of force around full diameter of tube for superior grip.
- Satin chrome and black finish add to tool life and smart professional appearance.



300-FB



"IMPERIAL" "ROL-AIR"® FLARING TOOL

500-FC

FLARING TOOL: 3/16", 1/4", 5/16", 3/8", 1/2" and 5/8" O.D.

500-FC-SP

FLARING TOOL: 3/16", 1/4", 5/16", 3/8", 1/2" and 5/8" O.D. in skin packing

500-FCM

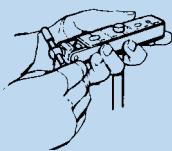
FLARING TOOL: 6 mm, 8 mm, 10 mm, 12 mm, 15 mm and 16 mm

- For soft copper, aluminium, brass tubing.
- Faceted, hardened steel chrome finished cone rolls out perfect 45° **flares** above die block, then automatically burnishes flare face. Original wall thickness is maintained at base of flare. New slip-on yoke permits use in tight quarters, lets you flare where there is little space between nut and tube end.
- Larger handle, with better leverage, and precision threads on feed screw make flaring effort less. Heat treated dies grip tubing without scoring.
- Satin chrome and black finish add to tool life and smart professional appearance.

Tube height gauge
Slot in yoke is used for tube height gauge



Secure clamping
Sliding dies with lever clamping action



Slip-on yoke
Yoke slips over top of bar, then locks into position with slight turn



"IMPERIAL" GRABBER "ROL-AIR"® FLARING TOOL

525-F

GRABBING "ROL-AIR" FLARING TOOL: 3/16" to 5/8" - 5 mm to 16 mm O.D.

525-F-SP

GRABBING "ROL-AIR" FLARING TOOL: 3/16" to 5/8" - 5 mm to 16 mm O.D. with skin packing

- For soft copper, aluminium, brass tubing.
- Unique, self-adjusting, tube holding mechanism permits flaring any size tubing within the range of 3/16" (5 mm) to 5/8" (16 mm). O.D. Innovative, single opening design is more compact and easier to use than conventional multi-opening flaring bars.
- Faceted, hardened steel chrome finished cone rolls out and burnishes perfect 45° flare above the holding mechanism. Original wall thickness is maintained at base of flare. Slip-on self centering yoke permits use in tight quarters.
- Large handle, with better leverage, and precision threads on feed screw making flaring effort less. Satin chrome and black finish add to tool life and smart professional appearance.

FLARING AND SWAGING TOOL

FST-275

FLARING AND SWAGING TOOL:

Complete kit - inch: 1/8", 3/16", 1/4", 5/16", 3/8", 7/16",
1/2", 5/8" and 3/4"

FST-275-M

FLARING AND SWAGING TOOL:

Complete kit - metric: 4 mm, 6 mm, 8 mm, 10 mm,
12 mm, 14 mm, 15 mm, 16 mm, 18 mm and 22 mm

- Flares or swages. Converts quickly.
- Screw-type feed. Ideal close quarters tool.
- **FST-275**: the 2 bars cover **9 inch sizes**.
- **FST-275-M**: the 2 bars cover **10 metric sizes**.
- Swivel type swaging adapters and spreader cone are hardened steel chrome-finished for easy operation.
- Self centering, slip-on forged steel yoke.

SPARE PARTS FOR FST-275

27806

Swaging adapter 3/16", 1/4", 3/8"

27805

Swaging adapter 5/16"

27808

Swaging adapter 1/2"

27810

Swaging adapter 5/8"

27812

Swaging adapter 3/4"

38760

Bar for 1/8", 3/16", 1/4", 5/16", 3/8" and 7/16" O.D.

38770

Bar for 1/2", 5/8" and 3/4" O.D.

7885805

Yoke

8694405

Wing nut

38610

Flaring cone

SPARE PARTS FOR FST-275-M

27806M

Swaging adapter 4 mm, 6 mm, 10 mm

27808M

Swaging adapter 8 mm

27810M

Swaging adapter 12 mm

27812M

Swaging adapter 14 mm

27814M

Swaging adapter 15 mm

27816M

Swaging adapter 16 mm

27818M

Swaging adapter 18 mm

27820M

Swaging adapter 22 mm

38760M

Bar 4 mm, 6 mm, 8 mm, 10 mm, 12 mm, 15 mm and
16 mm

38770M

Bar 14 mm, 18 mm and 22 mm

7885805

Yoke

8694405

Wing nut





375-FS



"IMPERIAL" WIDE RANGE FLARING KIT

375-FS

FLARING TOOL CASE: 1/8", 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", 5/8" and 3/4" O.D.

- Compact kit holds 2 flaring bars one yoke for flaring 9 tube sizes.
- Self-centering forged steel yoke has latest slip-on feature.
- Hard chrome-finished, swivel-type flaring cone reduces effort required.
- Positive clamping action of flaring bars eliminates tube movement. Nickel-chrome finish.

"IMPERIAL" FLARING AND SWAGING TOOL

275-FS

FLARING AND SWAGING TOOL:

Complete kit - inch: 1/8", 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", 5/8" and 3/4"

275-FSM

FLARING AND SWAGING TOOL:

Complete kit - metric: 4 mm, 6 mm, 8 mm, 10 mm, 12 mm, 14 mm, 15 mm, 16 mm, 18 mm and 22 mm

275-FSC

FLARING AND SWAGING TOOL

+ TC-1000 TUBE CUTTER:

Complete kit - inch: 1/8", 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", 5/8" and 3/4" + TC-1000

- Flares or swages. Converts quickly.
- Screw-type feed. Ideal close quarters tool.
- 275-FS: the 2 bars cover **9 inch sizes**.
- 275-FSM: the 2 bars cover **10 metric sizes**.
- Swivel type swaging adapters and spreader cone and hardened steel chrome-finished for easy operation.
- Self centering, slip-on forged steel yoke.



275-FS

275-FSC

DELUXE FLARING TOOL

FT-220

DELUXE FLARING TOOL:

For 3/16" to 5/8" O.D. sizes

- Comfortable grip handles
- Adjustable gripping pressure
- Flares a wide range of various types of metal tubing, such as aluminium, annealed brass or stainless steel.

ACCESSORY

FT-220-B

Separate 5-in-1 double flare bar for 3/16", 1/4", 5/16", 3/8" and 1/2" O.D. (not included with FT-220)

SWAGING PUNCHES

193-S

POUCH with 4 punches: 1/4", 3/8", 1/2" and 5/8"

193-S-SP

POUCH with 4 punches: 1/4", 3/8", 1/2" and 5/8" with skin packing

- Use these tools for making tubing connections without fittings.
- Enlarge end of tube, insert another tube of original O.D. size and solder together like a sweat fitting.

93-S-03

Punch: 3/16"

93-S-04

Punch: 1/4"

93-S-05

Punch: 5/16"

93-S-06

Punch: 3/8"

93-S-08

Punch: 1/2"

93-S-10

Punch: 5/8"

93-S-12

Punch: 3/4"

93-S-14

Punch: 7/8"

SP-94

3-in-1 swaging punch: 1/2", 5/8" and 7/8"

SP-95

All-in-1 swaging punch: 1/4", 5/16", 3/8", 1/2" and 5/8"



93-S-03

193-S

SP-94

SP-95

Tube height gauged by placing tubing even with bevel on swaging punch

Enlarge end of tube, insert another tube, solder like a sweat fitting



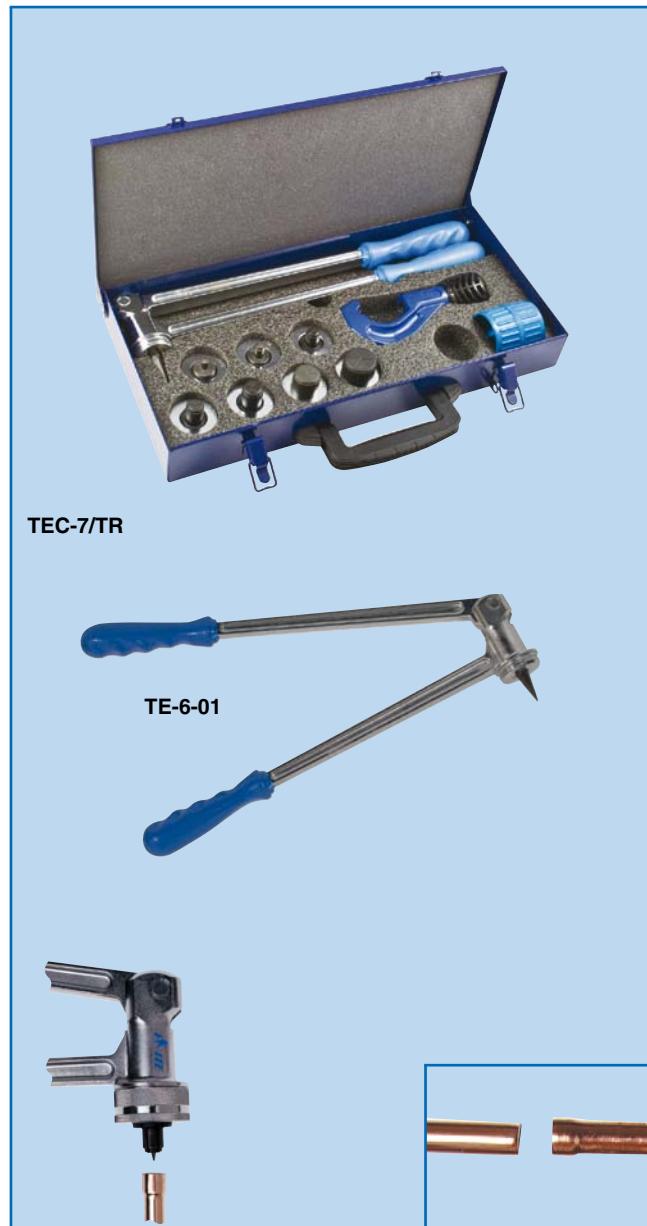
"ITE" TUBE EXPANDERS

TEC-7	COMPLETE KIT in metal case , for inch size tubing. Includes 7 heads: 3/8", 1/2", 5/8", 3/4", 7/8", 1 1/8" + extra 1 3/8"
TEM-6	COMPLETE KIT in metal case , for metric size tubing. Includes 6 heads: 12 mm, 15 mm, 16 mm, 18 mm, 22 mm, 28 mm
TECM-6	COMPLETE KIT in metal case . Includes 6 heads: 3/8", 1/2", 5/8", 3/4", 22 mm, 28 mm
TE-6-01	Expander tool only
TE-6-02	Metal case only
TEC-7/TR	COMPLETE KIT in metal case for inch size tubing. Contains : TEC-7 Tube Expander RIO-208 Reamer TC-0638-R Tube cutter
TEC-8/TR	COMPLETE KIT in metal case for inch size tubing. Contains : TEC-7/TR H-15/8"

- 40% less force required: Because rotation point is out of center all expansions up to 15/8" can be made in one step only.
- Faster operation: Spring loaded push rod always follows eccentric end of lever and never sticks.
- Concentric swage: Faceted cone ensures equal linear expansion of all segments and regular wall thickness.
- Floating head segments: Circular spring ring keeps segments together yet allows for free travel.
- No special tool required for (dis)assembly of heads.
- Rerounds deformed tube ends.

INDIVIDUAL HEADS FOR "ITE" TUBE EXPANDERS

H-3/8	Head only 3/8"	H-08 mm	Head only 8 mm
H-1/2	Head only 1/2"	H-10 mm	Head only 10 mm
H-5/8	Head only 5/8"	H-12 mm	Head only 12 mm
H-3/4	Head only 3/4"	H-15 mm	Head only 15 mm
H-7/8	Head only 7/8"	H-16 mm	Head only 16 mm
H-1	Head only 1"	H-18 mm	Head only 18 mm
H-1 1/8	Head only 1 1/8"	H-20 mm	Head only 20 mm
H-1 3/8	Head only 1 3/8"	H-22 mm	Head only 22 mm
H-15/8	Head only 15/8"	H-28 mm	Head only 28 mm
		H-35 mm	Head only 35 mm
		H-42 mm	Head only 42 mm



XPC-07I	CORDLESS BATTERY OPERATED TUBE EXPANDER Complete kit in plastic case for inch size tubing. Includes 7 heads: 3/8", 1/2", 5/8", 3/4", 7/8", 1 1/8" and 1 3/8"
----------------	---

XPC-06M	CORDLESS BATTERY OPERATED TUBE EXPANDER Complete kit in plastic case for metric size tubing. Includes 6 heads: 12 mm, 15 mm, 16 mm, 18 mm, 22 mm and 28 mm
----------------	---

XPC-T	EXPANDER TOOL ONLY
<ul style="list-style-type: none"> • Fast and easy electric expanding. • Automatic gradual expansion with automatic retraction. • Powerful battery motor 12 V with adjustable torque. • Can be used with all above listed heads. 	

SPECIFICATIONS

- Battery 12 V - 1,8 AH.
- Rapid battery charger included:
input 120 V AC- 240 V AC / 650 W / 50 Hz - 60 Hz
output 12 V DC / 1,2 A
cable length: 200 cm.
- Dimensions: 270 mm x 285 mm x 70 mm (with battery installed).
- Weight: only 3 kg.



XPC-07I



"ITE" WRENCHES

INCH RATCHET WRENCHES

127-RW

RATCHET WRENCH: One end has 3/8" and 5/16" square reversible ratchets, other end has 1/4" and 3/16" square reversible ratchets.

MADE IN USA

Max. torque small end: 57 Nm

Max. torque large end: 75 Nm

127-RWO

OFFSET RATCHET WRENCH: One end has 3/8" and 5/16" square reversible ratchets, other end has 1/4" and 3/16" square reversible ratchets. Both ends with 25° offset.

MADE IN USA

Max. torque small end: 57 Nm

Max. torque large end: 75 Nm

124-RW

RATCHET WRENCH: One end has 1/4" and 3/16" square reversible ratchets, other end has 9/16" and 1/2" hex reversible ratchets.

MADE IN USA

Max. torque small end: 122 Nm

Max. torque large end: 163 Nm

- These 4-sizes-in-1 ratchets are specifically designed for servicing automotive, commercial, and home air conditioners, refrigeration units, and freezers. They have the "finger-tip" reversing feature on both ends.
- The 1/2" and 9/16" hex openings are needed for packing gland fittings, mounting bolts and compressors, clutch bolts, various tube fittings, dust cap nuts, oil check plugs, and other adaptations.
- The reversible 1/4" and 3/16" square openings are used on male service valves, plug fittings, compressor valves and refrigerant charging tanks.

RW-124

RATCHET WRENCH: One end has 1/4" and 3/16" square reversible ratchets, other end has 9/16" and 1/2" hex reversible ratchets.

Max. torque: 108 Nm

RW-127

RATCHET WRENCH: One end has 3/8" and 5/16" square reversible ratchets, other end has 1/4" and 3/16" square reversible ratchets

Max. torque: 49 Nm

METRIC RATCHET WRENCHES

RW-0608/1012 **RATCHET WRENCH:** 6 mm x 8 mm / 10 mm x 12 mm

RW-0910/1112 **RATCHET WRENCH:** 9 mm x 10 mm / 11 mm x 12 mm

RW-1012/1314 **RATCHET WRENCH:** 10 mm x 12 mm / 13 mm x 14 mm

RW-1314/1719 **RATCHET WRENCH:** 13 mm x 14 mm / 17 mm x 19 mm

- Chrome vanadium sand blasted.

INSPECTION SPANNERS

CW10-22 **OPEN INSPECTION SPANNER** length: 230 mm
One side fits 10 mm to 16 mm and 3/8" - 5/8"
Other side fits 17 mm to 22 mm and 11/16" - 7/8"

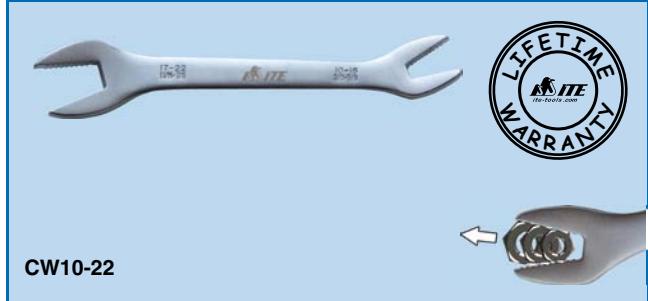
- Chrome vanadium steel and special heat treat.
- All in 1 patented design.
- One piece fits 28 sizes of nuts and bolts (SAE & metric).

CW08-22 **CLOSED INSPECTION SPANNER** length: 251 mm
One side fits 8 mm to 13 mm and 5/16" - 1/2 "
Other side fits 14 mm to 22 mm and 9/16" - 7/8"

- Chrome molybdenum mirror polish.
- All in 1 patented design.
- One piece fits 25 sizes of nuts and bolts (SAE & metric).

CW08-32 **ALMIGHTY WRENCH** length: 284,5 mm
One side fits 8 mm to 22 mm and 5/16" - 7/8"
Other side fits 14 mm to 32 mm and 1/2" - 1 1/4".

- Chrome vanadium mirror polish.
- One piece fits a total of 41 sizes of nuts and bolts (SAE & metric).
- Provides a more secure fit than a standard adjustable wrench.
Grips 4 sides of a fastener, not 2.



INCH/METRIC SPANNERS

IMS-10	INCH/METRIC SPANNER 10 mm and 3/8", L = 123 mm
IMS-11	INCH/METRIC SPANNER 11 mm and 7/16", L = 135 mm
IMS-12	INCH/METRIC SPANNER 12 mm and 15/32", L = 146 mm
IMS-13	INCH/METRIC SPANNER 13 mm and 1/2", L = 158 mm
IMS-14	INCH/METRIC SPANNER 14 mm and 9/16", L = 173 mm
IMS-15	INCH/METRIC SPANNER 15 mm and 19/32", L = 183 mm
IMS-16	INCH/METRIC SPANNER 16 mm and 5/8", L = 195 mm
IMS-17	INCH/METRIC SPANNER 17 mm and 11/16", L = 215 mm
IMS-18	INCH/METRIC SPANNER 18 mm and 23/32", L = 225 mm
IMS-19	INCH/METRIC SPANNER 19 mm and 3/4", L = 242 mm

- Chrome vanadium sand blasted.
- Open and closed side with ITE patented structure.
- To be used to unscrew 75% round off (worn-out) bolts and nuts.

RATCHET WRENCHES OPEN END AND NON-SLIP RING SPANNER

ORS-08	RATCHET WRENCH 08 mm,	L = 150 mm
ORS-10	RATCHET WRENCH 10 mm,	L = 175 mm
ORS-11	RATCHET WRENCH 11 mm,	L = 187 mm
ORS-12	RATCHET WRENCH 12 mm,	L = 199 mm
ORS-13	RATCHET WRENCH 13 mm,	L = 210 mm
ORS-14	RATCHET WRENCH 14 mm,	L = 222 mm
ORS-15	RATCHET WRENCH 15 mm,	L = 233 mm
ORS-16	RATCHET WRENCH 16 mm,	L = 245 mm
ORS-17	RATCHET WRENCH 17 mm,	L = 260 mm
ORS-18	RATCHET WRENCH 18 mm,	L = 271 mm
ORS-19	RATCHET WRENCH 19 mm,	L = 282 mm
ORS-20	RATCHET WRENCH 20 mm,	L = 295 mm
ORS-21	RATCHET WRENCH 21 mm,	L = 308 mm
ORS-22	RATCHET WRENCH 22 mm,	L = 320 mm
ORS-23	RATCHET WRENCH 23 mm,	L = 330 mm
ORS-24	RATCHET WRENCH 24 mm,	L = 340 mm
ORS-26	RATCHET WRENCH 26 mm,	L = 358 mm

- Chrome molybdenum mirror polish.
- Open end with ITE patented structure for fast operation without separating the wrench end from the bolts or nuts. Can also be used to unscrew 50% round off (worn-out) bolts and nuts.
- Non-slip closed end with ITE patented structure to prevent repeated handling on nut and bolt.





ATW-06-0

ADJUSTABLE TORQUE WRENCH WITH OPEN END SPANNER

ATW-06-0 **3/8" DRIVE ADJUSTABLE TORQUE WRENCH**
with open end spanner

- Spanner sizes 17 mm, 22 mm, 24 mm, 26 mm, 27 mm, 29 mm
- 3/8" drive.
- Capacity: **10 Nm to 75 Nm.**

ATW-06/K4 Kit with extra spanners 19 mm, 25 mm, 28 mm & 32 mm.



MICROLOCK ADJUSTABLE & REVERSIBLE TORQUE WRENCH

ATW-2080 **3/8" DRIVE ADJUSTABLE TORQUE WRENCH**

- Push lock right hand/left hand.
- 3/8" drive.
- Capacity: **20 Nm to 110 Nm**
- Accuracy ± 3 % of reading

SOCKETS FOR ATW-2080

SCK-6D08M FEMALE SOCKET: 3/8" fem. sq. x 8 mm hex fem.

SCK-6D10M FEMALE SOCKET: 3/8" fem. sq. x 10 mm hex fem.

SCK-6D12M FEMALE SOCKET: 3/8" fem. sq. x 12 mm hex fem.

ADAPTER FOR ATW-2080

ADP-0604 ADAPTER 3/8" fem. sq. x 1/4" sq. m. drive

ADP-0608 ADAPTER 3/8" fem. sq. x 1/2" sq. m. drive



PRH-4D-24

PRO RATCHET HANDLE

PRH-4D-24 **1/4" DR. PRO RATCHET HANDLE**

- 1/4" drive.
- 150 teeth.
- 2,4°.



HWS-8mm

LONG BALL POINT HEX KEY WRENCH SET

HWS-8 **HEX KEY WRENCH SET INCHES:** 5/64", 3/32", 1/8", 5/32", 3/16", 1/4", 5/16", 3/8"

HWS-8mm **HEX KEY WRENCH SET METRIC:** 2 mm, 2,5 mm, 3 mm, 4 mm, 5 mm, 6 mm, 8 mm, 10 mm

INCH/METRIC SOCKET BIT SET

IMS-4D-37 SOCKET BIT SET (37 pcs)

- Each tool fits both SAE & metric nuts and bolts.
 - **1/4"** drive.
 - Fits **4 mm** to **16 mm** and **5/32"** to **5/8"**.
 - Non-slip design.
 - Meets DIN and ANSI standards.
 - Chrome vanadium steel.
 - Contents: 13 sockets: from 4 mm (**5/32"**) to 16 mm (**5/8"**)
 7 star bits: T10, T15, T20, T25, T27, T30, T40
 3 POZI # 1, 2, 3
 3 slot bits: 4 mm, 5,5 mm, 7 mm width
 4 hex bits: H3, H4, H5, H6
 3 philips bits: PH1, PH2, PH3
 1 pc **1/4"** dr. micro lock ratchet handle - 72 teeth
 1 pc adaptor
 1 pc 3" extension bar
 1 pc universal joint



IMS-4D-37

METRIC SOCKET WRENCH SET

SWM-4D-41 METRIC SOCKET WRENCH SET (41 pcs)

- 1/4" drive.
 - 6PT flank
 - Contents:
 - 10 1/4" dr. sockets: 4 mm, 5 mm, 5,5 mm, 6 mm, 7 mm, 8 mm, 10 mm, 11 mm, 12 mm, 13 mm.
 - 3 1/4" dr. deep sockets: 7 mm, 8 mm, 10 mm.
 - 4 hex socket bits: 3 mm, 4 mm, 5 mm, 6 mm.
 - 6 star socket bits: T10, T15, T20, T25, T30, T40
 - 3 slotted socket bits: 0,8 x 4, 1,0 x 5,5, 1,2 x 7.
 - 3 philips socket bits: PH1, PH2, PH3.
 - 1 pc 1/4" dr. ratchet handle.
 - 2 pcs extension bar 2" & 6", 1 pc flexible extension 6".
 - 1 pc spinner handle.
 - 1 pc adaptor for extension 3/8" dr. (F) x 1/4" dr. (M).
 - 5 pcs hex key wrenches: 1 mm, 1,5 mm, 2 mm, 2,5 mm, 3 mm.



SWM-4D-41

RATCHET SCREWBITS AND SOCKET SET

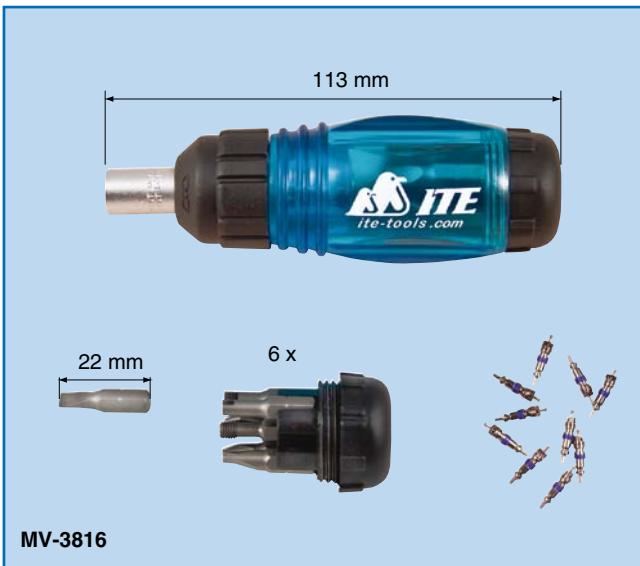
RSS-62 RATCHET SCREWBIT AND SOCKET SET (62 pcs)

CONTENTS

- **CONTENTS**
 - 1 T ratchet handle
 - 1 230 mm flexible shaft bitholder (max torque 18 Nm)
 - 1 1/4" hex x 100 mm shaft bitholder
 - 6 microtip screwdrivers SL 2,4x75, 3,0x75
PH 0x75, 1x75
TX 8x40, 10x75
 - 18 1/4" dr. sockets, Cr-V 5 mm, 6 mm, 7 mm, 8 mm, 9 mm, 10 mm,
11 mm, 12 mm, 13 mm
3/16", 7/32", 1/4", 9/32", 5/16", 11/32", 3/8", 7/16", 1/2"
 - 31 1/4" hex x 25 mm bits
SL 4,0, 6,0, 7,0
PH 1, 2, 3
PZ 1, 2, 3
TH 10, 15, 20, 25, 27, 30, 40
HX 0,9 mm, 1,3 mm, 1,5 mm, 2,0 mm, 2,5 mm, 3,0 mm, 4,0 mm,
5,0 mm, 6,0 mm
HX 3/32", 1/8", 5/32", 3/16", 7/32", 1/4"
 - 1 1/4" dr. x 25 mm adapter
 - 3 plastic bit storage racks



RSS-62

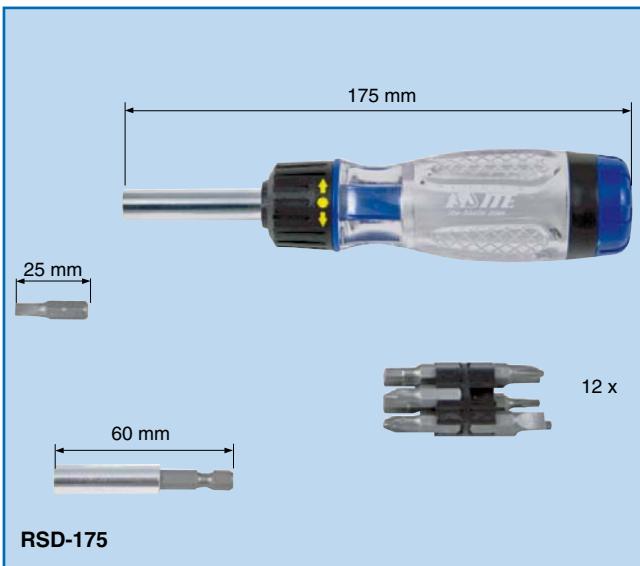


SCREW DRIVERS

RATCHET SCREW DRIVERS

MV-3816 VALVE CORE TOOLS SCREW SET

- Compact, but very robust 7-in-1 tool.
- Large handle to fit in the palm of your hand and to allow application of maximum force.
- Ratchet handle mechanism to turn left or right, or can be fixed manually to use without ratchet.
- 7 different bits are neatly stored in transparent handle.
 - Slotted: 5,0, 6,0
 - Philips: 1, 2
 - Core removing bits: 4,4, 5,0
 - Thread chaser (to clean and repair thread in schrader service valves).
- The cores are not included.



RSD-175 RATCHET SCREW DRIVER

- Large, very robust 12-in-1 tool.
- 125 mm handle to fit in the palm of your hand and to allow application of maximum force.
- Ratchet handle mechanism to turn left or right, or can be fixed to use without ratchet.
- 12 different bits are neatly stored in transparent handle.
 - Slotted: 5,0, 6,0
 - Philips: 1, 2
 - Pozi: 1, 2
 - TX: 10, 15, 20
 - HX: 4,0, 5,0, 6,0
- Magnetic extension of 60 mm stored in handle.



MICROTIP SCREWDRIVER KITS

MSK-08 MICRO SCREWDRIVER KIT (8 pcs)

- Slotted: 2,0 x 75, 2,5 x 75, 3,0 x 75, 3,5 x 75, 4,0 x 75
- Philips: PH00 x 75, PH0 x 75, PH1 x 75

MSSK-26 MICRO SCREWBITS & SOCKET KIT (26 pcs)

- Philips: PH00, PH0
- Slotted: 2,0, 2,5, 3,0, 4,0.
- Pozi: #00, #0.
- Ballpoint: 1,5, 2,0, 2,5.
- Torks: T6, T7, T8, T9, T10.
- Hex: 1,5, 2,0, 2,5.
- Adapter: 1/4" dr. x 4 hex.
- Socket: 1/4" dr. 3,2, 4,0, 5,0, 5,5, 7,0.

PLIERS

LOCKING PINCH-OFF AND PIERCING PLIERS

PT-109 LOCKING PINCH-OFF and PIERCING PLIERS

Line piercing/refrigerant recovery tool pierces, seals and locks on to copper lines in one swift motion.

FEATURES

- Self adjusting. No need to adjust the tool for different sizes of tubing. The patented tension system automatically locks pliers on copper tubing 1/4" to 1/2" (6 mm – 12 mm) OD tubing.
- Replaceable hardened, stainless steel pierce and brass valve assembly.
- 90° elbow brass valve & extension tube eliminates tangling and interference problems.
- Durable: made with high carbon, heat treated, steel jaws.



PT-109

VG-12

ITE LOCKING PIERCING PLIER

Adjustable from 1/4" (6 mm) up to 7/8" (22 mm)
Just pierce any charging tube to immediately evacuate or charge your system. Then use the VG-10, pinch behind the VG-12, remove it and braze the tube. With changeable PIERCING NEEDLE and ready to use 1/4" flare SAE ACCESS VALVE.
Replacement spare needle & gasket for VG-12.

VG-12ING

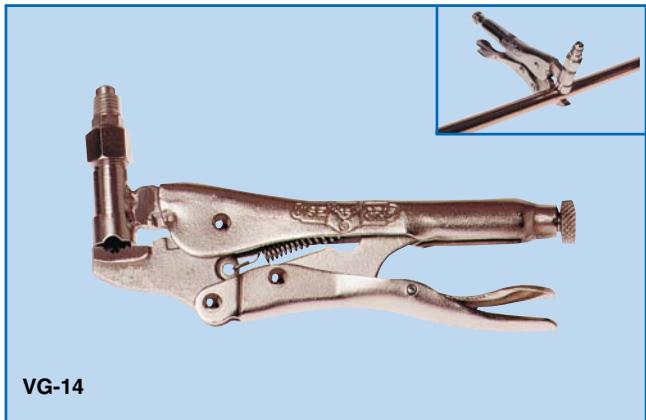


VG-12

VG-14

LOCKING PIERCING PLIER

Adjustable from 3/16" (5 mm) up to 1/4" (6 mm).
Spare gasket for VG-14
Spare needle with teflon ring for VG-14



VG-14

VG-18

LOCKING SHEET METAL TOOL CLAMP: 8" (200 mm).

This tool is a clamp, vice and seamer all in one. Locks onto work to make all kinds of bending, forming and crimping job easier and faster.



VG-18


VG-19

5-BLADE PIPE CRIMPER for longer, shallower crimps. The result is a tighter fitting, more self supporting, leakproof connection. Throat depth: 1 $\frac{5}{8}$ " (41 mm).


VG-10

LOCKING "VICE-GRIP" PINCH-OFF PLIER

To pinch-off tube up to approx. Ø 12 mm (1/2")

PPL-10

LOCKING "ITE" PINCH-OFF PLIER

To pinch-off tube up to approx. Ø 12 mm (1/2")


105-FF

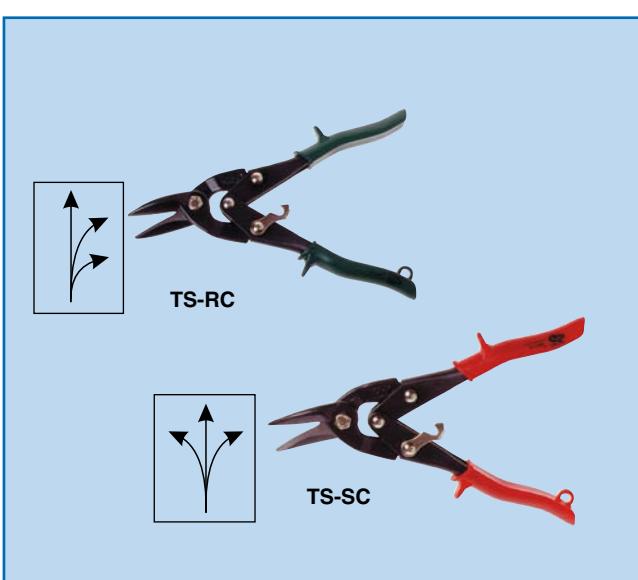
PINCH-OFF TOOL "IMPERIAL" 1/4", 5/16", 3/8" and 1/2" O.D. tubing

For soft copper, aluminium or steel tubing

PT-14285

PINCH-OFF TOOL

- Extra strong construction.
- Up to 3/8" diameter tube.



TIN SNIPS

TS-RC

AVIATION TIN SNIP

Cuts right from tight curves to straight

TS-SC

AVIATION TIN SNIP

Cuts straight (or wide curves left or right in light stock)

FEATURES

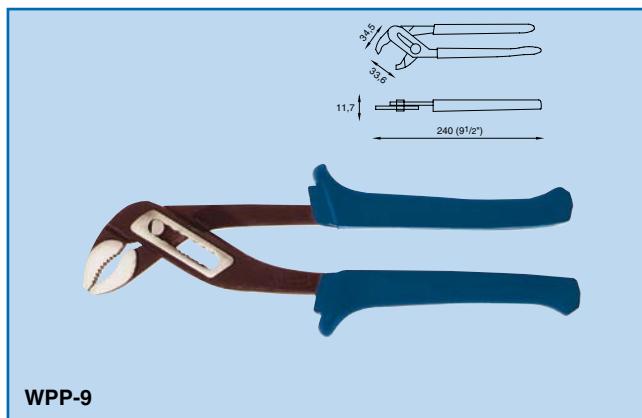
- Drop forged SAE-6150 chrome-vanadium steel blades with serrated edged.
- Hardened HRC56 - 60°.
- Cuts up to 1,2 mm cold rolled steel.
- Each sleeve carded.

WATER PUMP PLIER

WPP-9 WATER PUMP PLIER 9¹/₂" (240 mm)

FEATURES

- Maximum opening: **33,6 mm**.
- Plier made of chrome vanadium.
- Black/polished finish.
- PVC handle.
- **GS** approved.



WPP-9

PIPE WRENCHES

PW-5014 SMALL PIPE WRENCH (14", 350 mm length)
Capacity: 13 mm to 51 mm (1¹/₂" to 2")

PW-5036 LARGE PIPE WRENCH (36", 900 mm length)
Capacity: 38 mm to 102 mm (1¹/₂" to 4")

- Heavy duty aluminium alloy handles.
- Steel, drop forged jaw.
- 2 sizes to cover all dimensions from 14 mm to 141 mm (1/4" to 5").



PW-5014

SNAP RING PLIER

SRP-08 SNAP RING PLIER SET
Combination internal - external snap ring pliers

FEATURES

- Effective range: 10 mm - 50 mm (3/8"-2").
- With 4 pieces convertible tips:
 - 1 piece 180° straight tip with Ø 1,2 mm
 - 1 piece 180° straight tip with Ø 1,5 mm
 - 1 piece 90° angle tip with Ø 1,5 mm
 - 1 piece 45° angle tip with Ø 1,5 mm



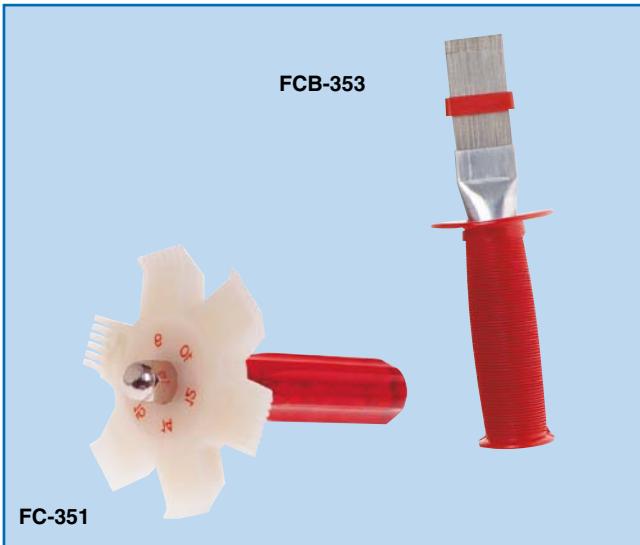
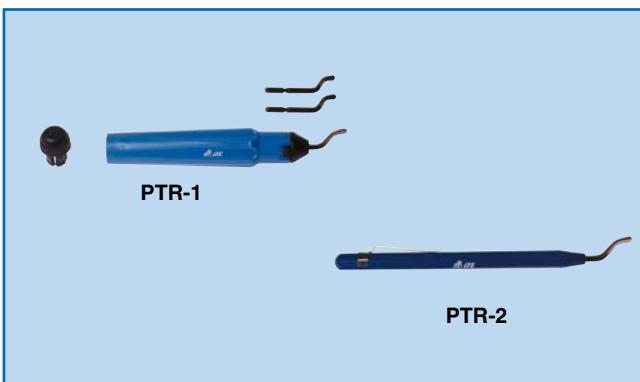
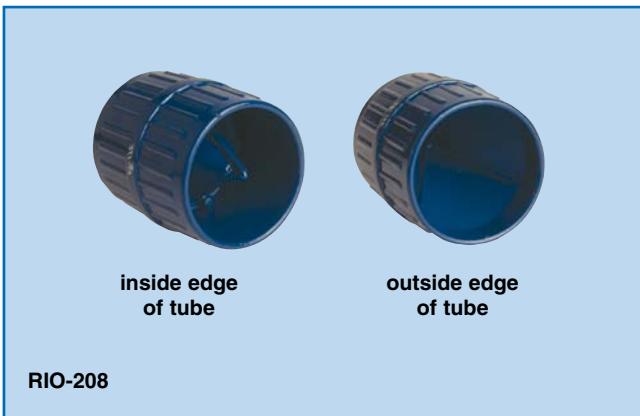
SRP-08

UNIVERSAL PLIERS

VG-16 UNIVERSAL LOCKING WRENCH & WIRE CUTTER: 7" (175 mm).
VG-17 UNIVERSAL LOCKING WRENCH & WIRE CUTTER: 10" (250 mm).



VG-16



CLEANING TOOLS

REAMERS

RIO-208 REAMER 1/8" to 15/8" O.D. (3 mm - 41 mm).

- Reams copper, aluminium and brass tubing.
- Reams both inside and outside edges of tube with 3 hollow ground cutters.
- Reams both clockwise and counter clockwise.
- Fluted body is shaped to fit comfortably in the palm of your hand.
- Tough metal alloy die cast body.
- Hardened steel cutter blades.

PTR-1 HEAVY DUTY REAMER WITH 2 EXTRA BLADES
PTR-1B Spare blade for PTR-1

PTR-2 PEN TYPE REAMER

FIN COMBS

FCB-353 BICYCLE FIN COMB
FC-351 UNIVERSAL FIN COMB to fit all sizes 8"-15"

TUBING BRUSHES

FB-2	TUBING BRUSH: O.D. size 1/4"
FB-3	TUBING BRUSH: O.D. size 3/8"
FB-4	TUBING BRUSH: O.D. size 1/2"
FB-5	TUBING BRUSH: O.D. size 5/8"
FB-6	TUBING BRUSH: O.D. size 3/4"
FB-7	TUBING BRUSH: O.D. size 7/8"
FB-8	TUBING BRUSH: O.D. size 1"
FB-9	TUBING BRUSH: O.D. size 1 1/8"
FB-11	TUBING BRUSH: O.D. size 1 3/8"

- Clean tubes and fittings faster, easier and safer.
- Stainless steel wire brushes have comfortable hand fitting grip.
- Brushes available in standard O.D. refrigeration sizes.

TWO IN ONE BRUSHES

TB-03	TUBING BRUSH: O.D. size 3/8" and 3/4"
TB-06	TUBING BRUSH: O.D. size 1/2" and 3/4"
TB-16	TUBING BRUSH: O.D. size 5/8" and 7/8"

- Makes that job of cleaning tubing and fittings easy. The stainless steel brushes quickly clean both the O.D. of the tubing and the I.D. of the fitting. To make that soldering job easy and dependable.
- Two tubing sizes are on each brush, easy to find in your tool box, and practically indestructable. Replacement brushes are available, giving this tool a long service life.

COIL FIN BRUSH WB-1

WB-1 **BRUSH STROKE:** 75 mm width

- Cleans condenser fins and evaporators. Synthetic whisk brush comes with plastic handle.



FITTING BRUSHES

PFB-06	POWER FITTING BRUSH: 3/8"
PFB-08	POWER FITTING BRUSH: 1/2"
PFB-10	POWER FITTING BRUSH: 5/8"
PFB-12	POWER FITTING BRUSH: 3/4"
PFB-14	POWER FITTING BRUSH: 7/8"
PFB-16	POWER FITTING BRUSH: 1"
PFB-18	POWER FITTING BRUSH: 1 1/8"

- Hex-shank power fitting brushes with stainless steel bristles that give long brush life.
- Ideal for quick cleaning of fittings, tubing, drill holes, as well as deburring soft steel, stainless steel, brass, copper, aluminium, plastic and other materials.
- Brushes have been improved to provide greater strength and longer wear
- Note:* power brushes should always be used in a clockwise direction.



QCCA **QUICK-CHANGE CHUCK ADAPTER**

- Change power brushes and other 1/4" hex-shank tools fast with the quick-change chuck adapter. Inserts in 1/4" and 3/8" drill chucks.





ABRASIVE PRODUCTS

AMS-065 8" x 1 1/2" **MINI-STRIPS**, closed coat, grit 120 AO
AMS-120 8" x 1 1/2" **MINI-STRIPS**, open mesh, grit 180 AO

- Easy-to-display pocket-size packs of 10 abrasive clean-up mini-strips.
- Ideal for small jobs.

AMS-090 **ABRASIVE TAPE** open mesh, 1 1/2" x 4,5 m, grit 180 AO, mesh 24

AMS-100 **ABRASIVE TAPE** open mesh, 1 1/2" x 9 m, grit 180 AO, mesh 24

- Aluminium oxide open nylon mesh for copper tube cleaning.
- Phenolic resin adhesive, which makes it fully waterproof, and rugged aluminium oxide.
- Coated on both sides of the nylon fabric to produce a longlasting sharp cutting product.
- If this material becomes coated with copper, brass or other non-ferrous or plastic residue, simply rinse in water or tap against a hard surface to clean.

AMS-070 **ABRASIVE CLOTH**, 1 1/2" x 9 m, grit 120 AO

- Open coat abrasive cloth designed to clean soft metals.
- Water-resistant.
- The open coating of aluminium oxide resists loading while leaving a uniform, consistent surface-finish for soldering operations.
- Widely used by the air conditioning/refrigeration industry.

AMS-181 **NYLON ABRASIVE PADS** 4" x 6", very fine grit

- Extremely resilient and conformable to use on irregular surfaces.
- Ideal for general purpose applications, including removing rust and oxidation from metals, blending around solder joints, cleaning molds and satin-finish aluminium.
- Completely waterproof.
- Delivered in bag with 5 pads.

"EXPANDO" - THE ADJUSTABLE CONDENSER TUBE CLEANERS

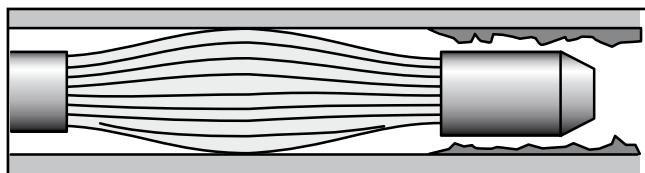
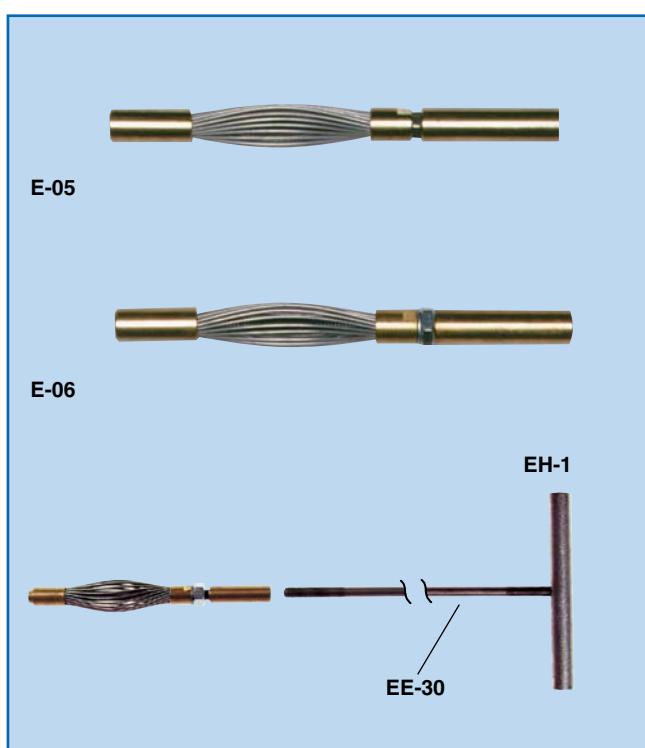
E-05 **EXPANDO** 5/16" to 3/8" I.D. tubes
E-06 **EXPANDO** 3/8" to 1/2" I.D. tubes
E-08 **EXPANDO** 1/2" to 5/8" I.D. tubes
E-10 **EXPANDO** 5/8" to 1" I.D. tubes

EB-06 Blades for E-05 and E-06
EB-08 Blades for E-08
EB-10 Blades for E-10

EC-56 Couplings for E-05 and E-06
EC-810 Couplings for E-08 and E-10

EE-30 Rods-76 cm (30") and connecting "EXPANDO" to handle. (for E-series)
EH-1 Handle (for turning rods) or use your electrical drill. (for E-series)

- The fast, thorough, economical way to remove mineral scale and sludge from inside water-cooled condenser tubes. Saves time-consuming brushing or flushing.
- "EXPANDO" attaches to a threaded rod which fits into an "EXPANDO" handle or your electric drill. With a reaming action, the tough stainless steel blades scrape everywhere inside the tube, providing a free, unrestricted flow.
- Virtually clogproof, this tool may be expanded or reduced in diameter to fit scale deposits (not just the tube).
- Packaged in its own permanent, clear plastic, protective storage container, "EXPANDO" is available in 4 popular sizes to fit every cleanable condenser. **EXPANDOS** are also available for cleaning boiler tubes from 1" I.D. to 2" I.D.
- **Note:** Use **EC-810** couplings for connecting rods.
- Simply attach the "EXPANDO" to a threaded rod which fits into an "EXPANDO" handle or your electric drill, ream out the condenser tube. For extra long tubes, couplings are available so that additional rods may be attached.



CONDENSER AND HEAT EXCHANGER BRUSHES

• Ideal for cleaning mineral deposits from inside metal tubes.
 Especially recommended for use with power tools, although handle for manual use is available.

BRASS

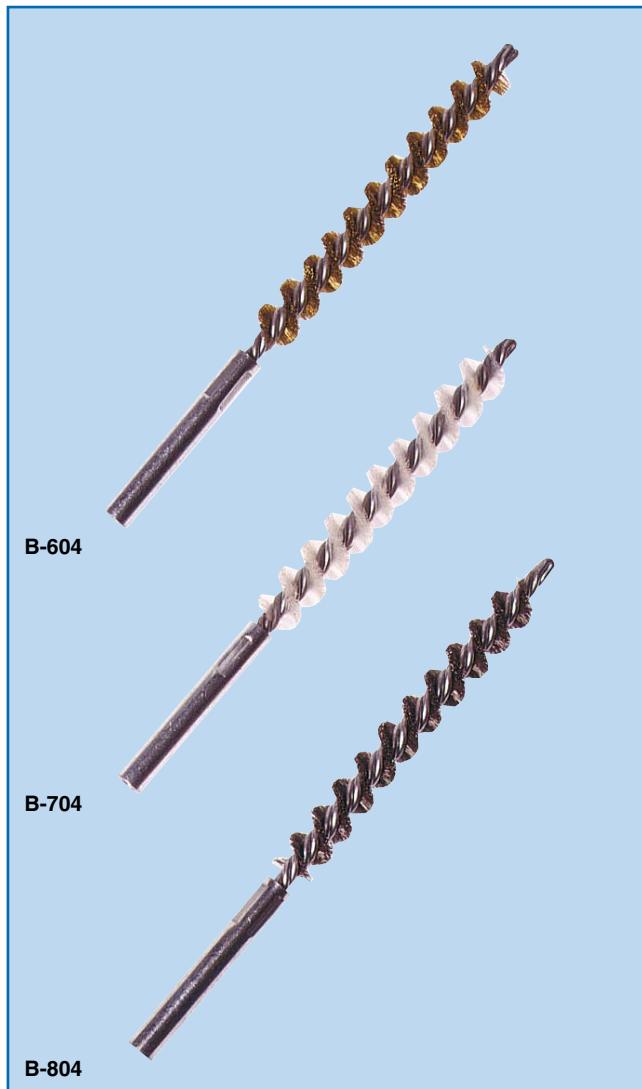
B-602	BRASS BRUSH:	1/4" I.D. tube
B-604	BRASS BRUSH:	3/8" I.D. tube
B-607	BRASS BRUSH:	7/16" I.D. tube
B-610	BRASS BRUSH:	1/2" I.D. tube
B-613	BRASS BRUSH:	9/16" I.D. tube
B-616	BRASS BRUSH:	5/8" I.D. tube
B-619	BRASS BRUSH:	11/16" I.D. tube
B-622	BRASS BRUSH:	3/4" I.D. tube
B-625	BRASS BRUSH:	13/16" I.D. tube
B-628	BRASS BRUSH:	7/8" I.D. tube
B-631	BRASS BRUSH:	15/16" I.D. tube
B-633	BRASS BRUSH:	1" I.D. tube

NYLON

B-702	NYLON BRUSH:	1/4" I.D. tube
B-704	NYLON BRUSH:	3/8" I.D. tube
B-707	NYLON BRUSH:	7/16" I.D. tube
B-710	NYLON BRUSH:	1/2" I.D. tube
B-713	NYLON BRUSH:	9/16" I.D. tube
B-716	NYLON BRUSH:	5/8" I.D. tube
B-719	NYLON BRUSH:	11/16" I.D. tube
B-722	NYLON BRUSH:	3/4" I.D. tube
B-728	NYLON BRUSH:	7/8" I.D. tube
B-731	NYLON BRUSH:	15/16" I.D. tube
B-733	NYLON BRUSH:	1" I.D. tube

STAINLESS

B-804	STAINLESS STEEL BRUSH:	3/8" I.D. tube
B-807	STAINLESS STEEL BRUSH:	7/16" I.D. tube
B-810	STAINLESS STEEL BRUSH:	1/2" I.D. tube
B-813	STAINLESS STEEL BRUSH:	9/16" I.D. tube
B-816	STAINLESS STEEL BRUSH:	5/8" I.D. tube
B-822	STAINLESS STEEL BRUSH:	3/4" I.D. tube
B-828	STAINLESS STEEL BRUSH:	7/8" I.D. tube
B-833	STAINLESS STEEL BRUSH:	1" I.D. tube



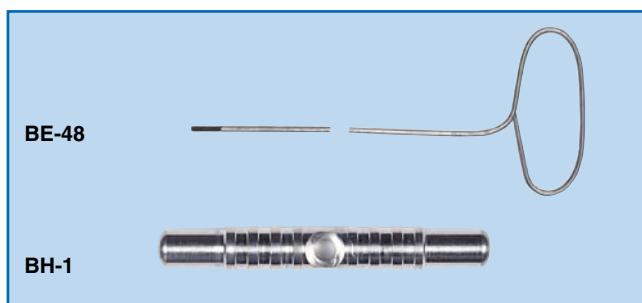
EXTENSION RODS FOR CONDENSER TUBE BRUSHES

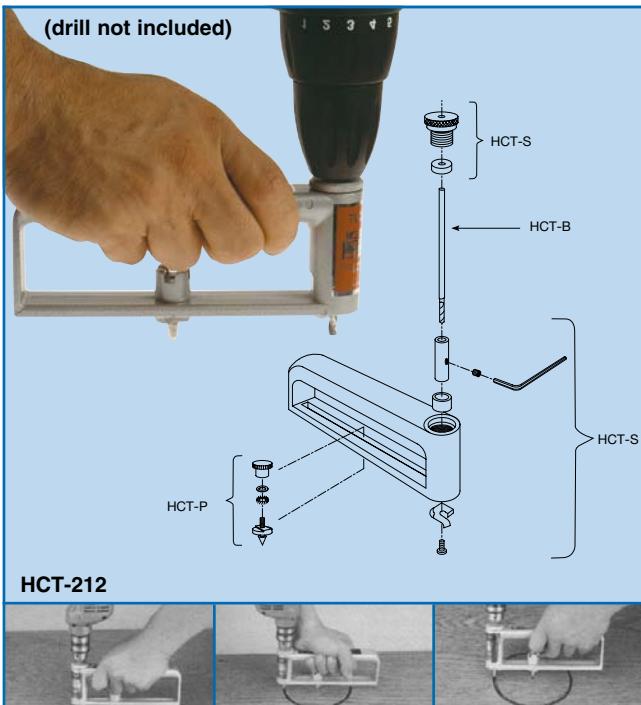
BE-24	24" (61 cm) Aluminium rod with male thread one end and female thread other end, to make an endless length (for B-series).
BE-36	36" (91 cm) Aluminium rod with male thread one end and female thread other end, to make an endless length (for B-series).
BH-1	Handgrip - 4" (10 cm) long threads into rod BE-24 and BE-36
BE-48	48" (122 cm) rod with handle for 1/4" brushes only (B-602 and B-702)

PTCB-340	POWER TUBE CLEANING BRUSH for 1/2" (12 mm) OD tubing
PTCB-350	POWER TUBE CLEANING BRUSH for 5/8" (16 mm) OD tubing
PTCB-360	POWER TUBE CLEANING BRUSH for 3/4" (19 mm) OD tubing
PTCB-370	POWER TUBE CLEANING BRUSH for 7/8" (22 mm) OD tubing
PTCB-380	POWER TUBE CLEANING BRUSH for 1" (25 mm) OD tubing
PTCB-390	POWER TUBE CLEANING BRUSH for 1 1/8" (28 mm) OD tubing

To be used only on power tools (1/4" hex. connection).

NOTE:
 Cordless drill not included.





HOLE CUTTING TOOLS

HCT-212 HOLE CUTTING TOOL

FEATURES

- Designed to cut 5 cm to 30 cm (2" to 12") holes in galvanized sheet metal.
- Uses mill type cutting bit.
- Can be installed in the chuck of any standard electrical drill as small as 1/4".
- Lightweight aluminium frame design.
- Capacities for

aluminium	1,46 mm (0,054")
copper	1,07 mm (0,042")
stainless steel	0,89 mm (0,035")
galvanized sheet metal	1,07 mm (0,042")
- Weight: 454 g.

REPLACEMENT PARTS

HCT-B	Bit (M730-2)
HCT-P	Pivot pin set
HCT-S	Spare parts set



HPN HAND POWER NIBBLER SET for power drill attachment

- Cuts cleanly without distortion or jagged edges.
- Safe and easy to use.
- Cuts sheet material and cladding, rounded tubular sections, corrugated materials etc., in straight lines or curves with a diameter as small as 12 mm (1/2").
- With a pre-drilled 12 mm (1/2") hole, most shapes can be easily cut-out.
- The cutting head adjusts for different directions.
- Punch and die can quickly and easily be replaced.
- Drill clamp, holding the nibbler and the drill for "hands off" operation, will ensure no vibrations, cleaner cutting and longer life of punch and die.
- Clamps can also be used to hold the material to be cut
- Power source: any power drill with speed range between 1500 and 3000 rpm.
- Capacities for:
 - brass, aluminium alloy, plastic, fibre glass: 2,0 mm
 - mild steel: 1,8 mm
 - stainless steel: 1,2 mm
- Complete set includes: body, tool rest, cutter holder, hex. key, plastic handle.

MEASURING TOOLS

CAPILLARY TUBE GAUGE A-10971 (CTG-2)

A-10971 CAPILLARY TUBE GAUGE for gauging ID and OD of capillary fusing.

- Made of surgical stainless steel. Precision engineered.
- Suitable for left or righthanded use. Chrome plated handle.
- 14 I.D. sizes from: 0,026" to 0,090".
- 22 O.D. sizes from: 0,072" to 7/16" (5 mm to 12 mm).



A-10971

SCREW PITCH GAUGES

TG-01 SCREW PITCH GAUGES

- Metric 60°: 0,25, 0,3, 0,35, 0,4, 0,45, 0,5, 0,6, 0,7, 0,75, 0,8, 0,9, 1,0, 1,25, 1,5, 1,75, 2,0, 2,5, 3,0, 3,5, 4,0, 4,5, 5, 5,5, 6.
- Whitworth 55°: 4, 4,5, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 18, 19, 20, 22, 24, 25, 26, 28, 30, 32, 36, 40, 48, 60, 62.



TG-01

DIGITAL CALIPER

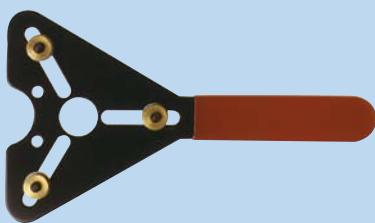
DC-5150 DIGITAL CALIPER

FEATURES

- LCD display 5 digits and "mm", "IN" and "-" signs.
- mm/inch selectable.
- Zero setting at any position within range.
- Slider fixing screw.
- Measuring range: **150 mm x 0,01 mm** (6" x 0,0005").
- Accuracy: **0,03 mm** (0,0015").
- Operating temperature: **0°C to +40°C** (+32°F to +104°F).
- Operating humidity: max 80% RH.
- Serial output for computer interface and printer.
- Power supply: 1,5 V silver oxide battery included (\pm 1 year of continuous use).
- Size: **234 mm x 77 mm x 15 mm** (9 $\frac{1}{5}$ " x 3" x 5 $\frac{9}{16}$ ").
- Weight: **145 g** (0,32 lb).
- Included: instruction manual, case, 1 battery.



DC-5150



GCHS



GSLC



GSPK-P4



GHNBR Serie



SPECIAL AUTOMOTIVE TOOLS

GCHS UNIVERSAL ADJUSTABLE SPANNER WRENCH

- Tool for mounting and dismounting automotive compressor clutches.
- Adjustable three-stud design
- Range: 30 mm to 98 mm diameter.

GSLC GENERAL SPRING LOCKING COUPLING TOOL

- Easily separates spring coupling fittings on fuel lines and air conditioning systems.
- Sizes: 3/8", 1/2", 5/8", 3/4".

GSPK-P4 SPRING LOCKING COUPLING TOOL

- For separating spring lock air conditioning refrigerant pressure lines with spring lock connection.
- Spring-loaded in the closed position to deflect any spray that occurs when the line is disconnected.
- Sizes: 3/8", 1/2", 5/8", 3/4".

GSPK-04 HNBR GASKET & SPRING LOCK KIT

Contents:

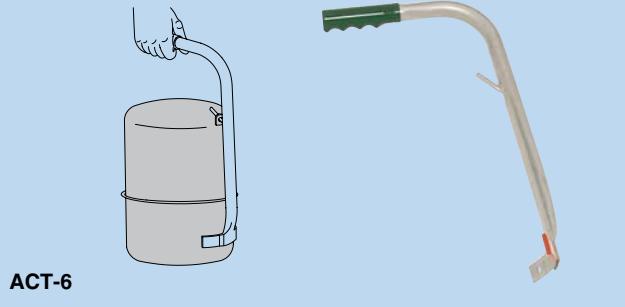
20 pcs GHNBR-06
20 pcs GHNBR-08
20 pcs GHNBR-10
20 pcs GHNBR-12
5 pcs GSPL-06
5 pcs GSPL-08
5 pcs GSPL-10
5 pcs GSPL-12

GHNBR-06	HNBR GASKET	7,6	x	1,9
GHNBR-08	HNBR GASKET	10,8	x	1,8
GHNBR-10	HNBR GASKET	14	x	1,8
GHNBR-12	HNBR GASKET	17	x	1,8

COMPRESSOR TOTE ACT-6

ACT-6 COMPRESSOR TOTE

- Makes light work of a heavy job.
- Electro plated, strong steel construction. Practically indestructible.
- Will handle new high efficiency compressors.
- Pick a compressor from its box. Carry a compressor up a ladder.



SOLDERING TOOLS

AUTO-START PROPANE TORCH

STB-7000 AUTO-START PROPANE TORCH

- The auto-start propane torch features a comfortable 'easy grip' handle made of high impact plastic that provides an ergonomic feel and lasting durability.
- Pressure is regulated with a flame control valve.
- Stainless steel burn tube and 'auto-start' ignition are also featured.



STB-7000

GAS CYLINDER

TX-9 PROPANE CYLINDER
400 g. (14,12 oz)

- Flame temperature in oxygen 2526°C (4579°F)
- Primary combustion heating value 64 Kcal (255 BTU)



TX-9

INSPECTION MIRRORS

FOR ALL ANGLE VIEWING

MIR-1	CIRCULAR TELESCOPING POCKET MIRROR. 32 mm diameter. Overall length 175 mm, extends to 490 mm.
MIR-2	CIRCULAR TELESCOPING MIRROR. 52 mm diameter. Overall length 290 mm, extends to 455 mm.
MIR-3	RECTANGULAR TELESCOPING MIRROR. 50 mm x 90 mm. Overall length 330 mm, extends to 490 mm.
MIR-4	CIRCULAR POCKET MIRROR. 32 mm diameter. Overall length 210 mm.
MIR-5	OVAL TELESCOPING POCKET MIRROR. 25 mm x 50 mm. Overall length 205 mm, extends to 510 mm.

- Original all-angle ball joint mirrors with brushed finish stainless steel mirror backs.
- Fast, accurate visual inspection of hidden areas with an almost limitless number of portions.
- Double ball joint links swivel mirrors for viewing to **360°**. Precision engineered links are manufactured from tempered spring steel to withstand the stresses of constant repositioning. They move freely, and hold required position.

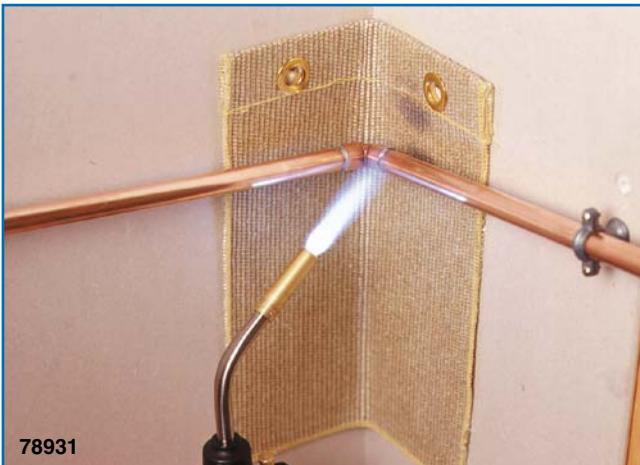
FEATURES

- Replaceable copper backed clearview mirrors.
- Telescoping and pocket models. Non-rotating inner hex rods on telescopic models prevent mirror from swinging out of alignment when in use.

SPARE PARTS

MIR-1R	Replacement head for MIR-1
MIR-2R	Replacement head for MIR-2
MIR-3R	Replacement head for MIR-3
MIR-4R	Replacement head for MIR-4
MIR-5R	Replacement head for MIR-5





SOLDER HEAT SHIELD

78931

SOLDER HEAT SHIELD 24 cm x 28 cm (9" x 11")

- Heat shield made of silicate fibre with a filament diameter of 9 µm
- For protection against liquid slag and welding sparks
- Temperature resistance up to 1000°C (depending on application)
- No noxious or toxic fumes when heated, free of asbestos, flexible and soft
- Basic fabric smooth with a rigid - high temperature coating



WELDING GLOVE

G3F

WELDING GLOVE

- 3 finger glove made of aramid fabric with special insulation for brazing/soldering .
- High effective protection against heat radiation and contact heat for temperatures up to 500 °C.
- Length: 43 cm.



APRON FOR BRASING / SOLDERING

WA-1000

WELDING APRON 1 m x 0,8 m

- Apron for brasing/soldering, made of glass fabrics with aluminium coating.
- Toxicologically safe, 100% asbestos-free.
- Usable up to 180°C contact heat, up to 1000°C radiation heat.
- With Velcro strip fastener.



SOLDERING UNIT

WKL-5

LARGE WELDING KIT with 5 litre (empty) oxygen cylinder and 5 litre propane cylinder, weight: 16 kg

Complete unit with refillable (empty) propane cylinder and oxygen cylinder, propane pressure regulator and oxygen pressure regulator, pressure gauges, check valve, handle with one LP lance, hoses.

TUBING TEST PLUGS "IMPERIAL"

140-F-04	TUBING TEST PLUG:	1/4" ODS
140-F-06	TUBING TEST PLUG:	3/8" ODS
140-F-08	TUBING TEST PLUG:	1/2" ODS
140-F-10	TUBING TEST PLUG:	5/8" ODS
140-F-12	TUBING TEST PLUG:	3/4" ODS
140-F-14	TUBING TEST PLUG:	7/8" ODS
140-F-18	TUBING TEST PLUG:	1 1/8" ODS
140-F-22	TUBING TEST PLUG:	1 3/8" ODS
140-F-26	TUBING TEST PLUG:	1 5/8" ODS

- Temporary shut-off of tubing.
- Holds pressures to 6,89 bar (100 psi).
- Skin packing



TUBE ADAPTERS FOR CHARGING AND TESTING "IMPERIAL"

241-F-03
241-F-04

TUBING ADAPTER: 3/16" ODS
TUBING ADAPTER: 1/4" ODS

- To connect to a hermetic system.
- Holds pressures to 6,89 bar (100 psi).
- Skin packing

AUTOMATIC ACCESS VALVES & FITTINGS



AUTOMATIC ACCESS VALVES & FITTINGS



"ITE" ACCESS VALVES & FITTINGS

FITTING CONNECTIONS RANGE

1/8", 3/16", 1/4", 5/16", 3/8", 1/2", 5/8", 3/4", 7/8".

FFL : Female Flare sae 45°

MFL : Male Flare sae 45°

FPT : Female national Pipe Thread

MPT : Male national Pipe Thread

DESCRIPTION

- These Access Valves are designed to offer convenient, safe and low cost access ports under pressure for each REFRIGERATION and AIR-CONDITIONING system service.
- 1/4" MFL or 5/16" MFL 45° (outlet connection).
- One standard AUTOMATIC CORE (schrader type according US Std with NEOPRENE or TEFLON seat).
NOTE: all solder types are shipped loosely assembled
- One finger tight quick seal CAP (diverse models with or without core-wrench, shapes and gasket).
- One CORE-DEPRESSOR (if needed) perfectly machined.
- The multi-connection access-valves (elbows, tees, crosses, etc...) are machined and allow for two or more access connections in one fitting plus greater flexibility in the positioning of the valve.

PURPOSE

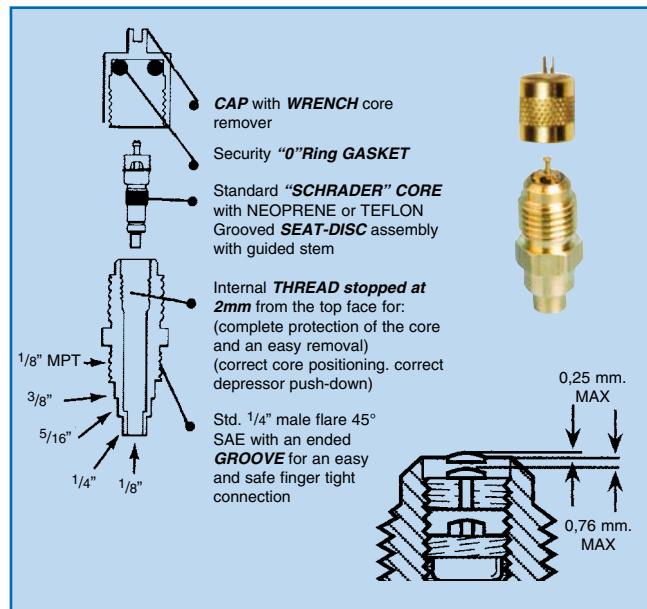
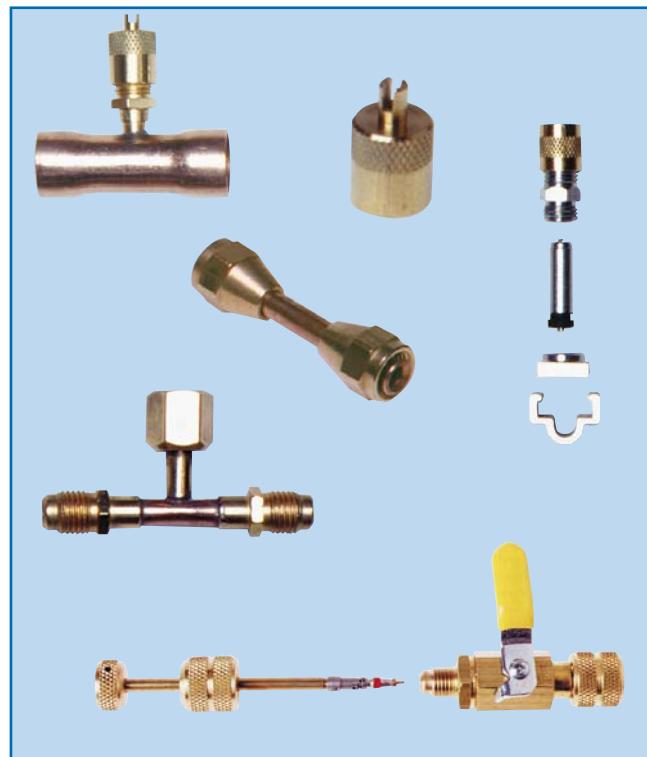
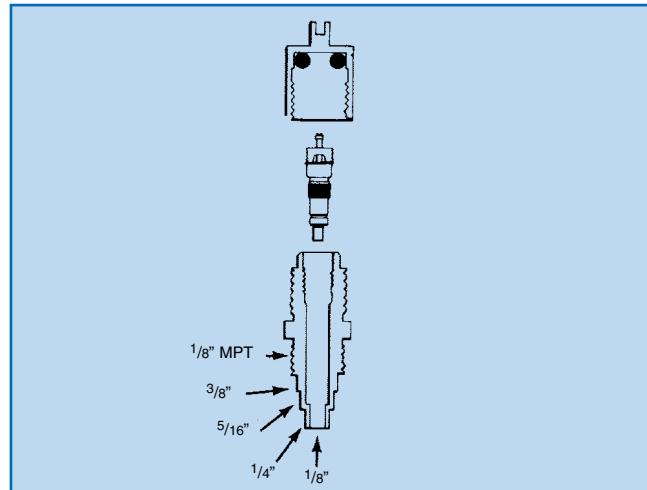
- The high quality and standards of these access-valves are recognised worldwide and used by major contractors and OEM's. By using them on your equipment, you will also contribute:
 - To help solving the ozone-layer problem and eliminate connecting and disconnecting micro-leaks.
 - To build a system with permanent accesses for reclaims, charging, pressure and temperature readings and quick and easy checking, testing and diagnosis.
 - To save and protect your Access-Tools.
- These automatic access valves are used close-coupled with:
 - Manifolds, gauges, service valves, flexible hoses, etc...
 - Vacuum pumps, reclaim or charging units, cylinders...
 - Pressostats, thermostats, TXV's superheat, discharge line, pressostatic pilot line, equalizing line, etc...
- PLEASE NOTE:** do not consider trying to save money by choosing inferior quality access valves. These are high quality but very competitive access valves from "ITE" offering the very best designs and specifications.

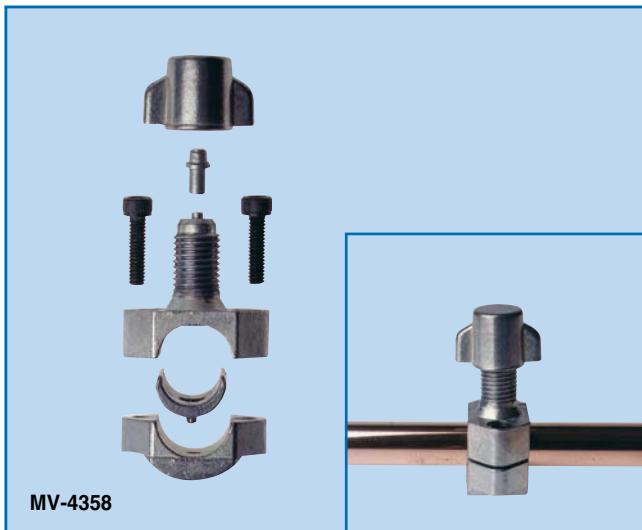
FEATURES

- Strictly in accordance with ARI norms and US standard. This is an assurance of proper sealing of valve and core surfaces.
- PLEASE NOTE: DO NOT TAKE THE RISK OF MISS-CONNECTION, HALF DEPRESSING THE CORE AND MICRO-LEAKS.** So, have:
 - A true 1/4" MFL or 5/16" MFL 45° outlet port with sufficient extended flare thread for complete and safe finger tight.
 - A valve-core (schrader type) strictly normalized to avoid any refrigerant leaks, perfectly screwed in and not too close nor too far from the outlet port face (see cut-a-way).
 - An internal thread (for the core) stopped at least 2 mm from the outlet top port face and a wide enough internal hole to screw in any standard core-depressor. This allows you to completely push down the core and open wide any access valve with no restriction or pressure drop. A core-depressor (when fitted) according to ARI standard is to be finger tight in the right push down position.

REFRIGERANTS

- R22, R502, R134a, R404A, other refrigerants.
- Mineral and synthetic oils (including polyester, etc...).
- Resistant to alcalies and diluted mineral acids.





SCREW ON TYPE PIERCING VALVES

LINE TAP VALVES

MV-4338 LINE TAP for 1/4", 5/16" and 3/8" tube O.D.
MV-4358 LINE TAP for 1/2" and 5/8" tube O.D.

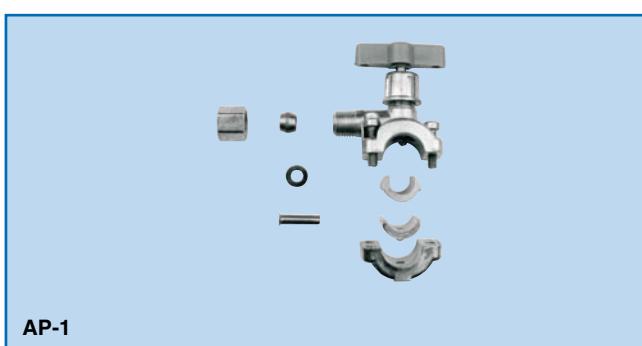
- MWP 31 bar (450 psi).
- Depressor valve for direct charging, hose connection makes it easier to use.
- No need to open and close a valve. The valve automatically closes when you remove the charging hose. The exclusive disappearing piercing needle retracts, so there is no restriction in the line while the system is in normal operation.
- Easy to install; valve is clamped to the line by two socket-head screws. hex wrench provided with each valve. Threading the wing cap on with the depressor pin pierces the line. When the wing cap is removed the valve closes, the line is pierced and ready for connection of a charging hose.
- Fast installation.
- Line piercing is simplified with throw-away depressor pin.
- Highly resilient special compound seals combined with single port design, eliminate leakage problems.
- Three models adjustable from 1/4" to 5/8" O.D. tubing.



LINE TAP VALVES WITH FLOW CONTROL

BTV-1 LINE TAP for 1/4", 5/16" and 3/8" tube O.D.
BTV-2 LINE TAP for 1/2" and 5/8" tube O.D.

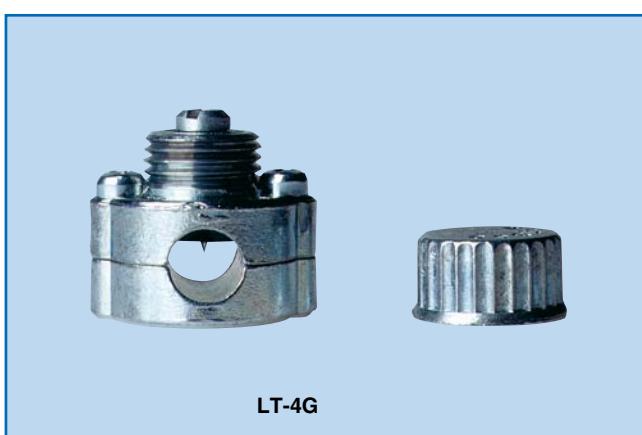
- MWP 31 bar (450 psi).
- Sealing force 20 Nm (180 Inch Lbs) torque tested with 31 bar (450 psi) at 120°C (250°F).
- The standard "CLAMP-ON" valve, clamps to copper tube with three socket head screws and seals to the tube with an "O" ring, imbedded in the body of the valve.
- Hex wrench is included with each valve for tightening clamping screws, turning in piercing needle and opening and closing valve.



LINE TAP VALVES WITH ADJUSTABLE FLOW CONTROL

AP-1 LINE TAP for 3/16", 1/4", 5/16" and 3/8" tube O.D.
AP-2 LINE TAP for 3/8", 1/2" and 5/8" tube O.D.

- **AP-1** and **AP-2** line tap valves with valve handle control for charging, discharging and testing refrigeration and A/C systems.
- Easily attached with three Philips head screws, may be installed under pressure, in any position.
- Easy to grip, celcon **T handle**.
- Highly resilient, special compound seal.



LT-3G	CLAMP-ON	for 3/16" tube O.D.
LT-4G	CLAMP-ON	for 1/4" tube O.D.
LT-5G	CLAMP-ON	for 5/16" tube O.D.
LT-6G	CLAMP-ON	for 3/8" tube O.D.
LT-8G	CLAMP-ON	for 1/2" tube O.D.
LT-10G	CLAMP-ON	for 5/8" tube O.D.
CV-2G	2 Way Flow Control for LT-VALVES	
CV-3G	De luxe Flow Control for LT-VALVES	

- A quick, safe, inexpensive "CLAMP-ON" tapping valve for charging, discharging and testing. Seals at 3 points: Taper of needle, seal, and cap. Highly resilient special compound seal eliminates leakage problems. Line piercing and "FLOW CONTROL" are accomplished by using a **GOLD SEAL SWIVEL CONTROL VALVE**.

LT: "CLAMP-ON" this control valve operates all **gold seal line tap valves**. Connected without wrenches, the control valve swivels to any position and may be removed and reused.

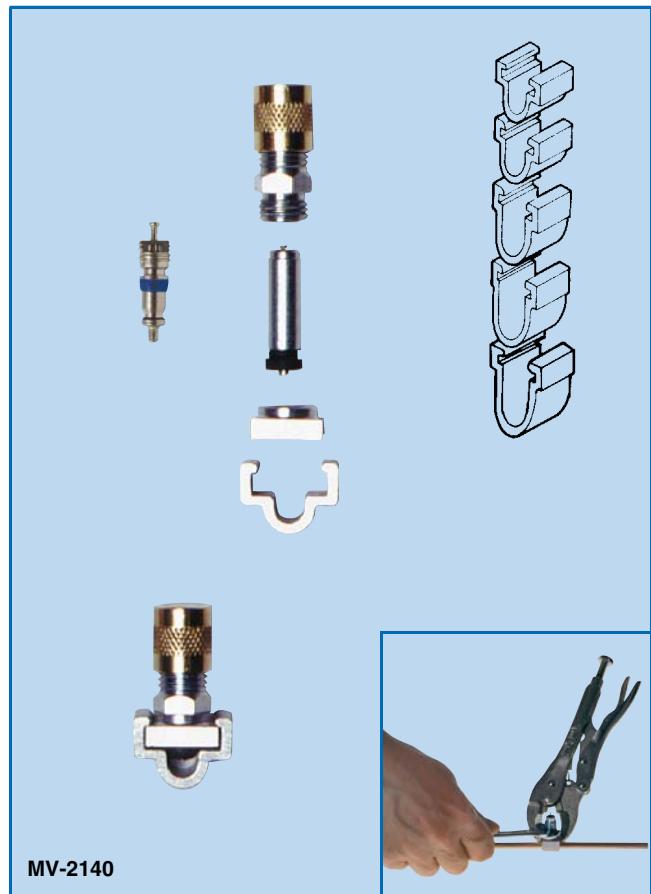
CV-2G: **VALVE:** control valve has a double port for connecting charging hose to one port and gauges to the other. A cap is included to seal one port when both ports are not in use.

CV-3G: **"DE LUXE VALVE"** features a threaded valve stem, eliminating the possibility of pistonning while under pressure. The knurled nut coupled with the hex nut locks stem in place.

"CLAMP-ON" LINE TAPPING "B SERIES" SERVICE VALVES

MV-2140	CLAMP-ON 1/4" MFL (+ core & cap) x for 1/4" tubing.
MV-2160	CLAMP-ON 1/4" MFL (+ core & cap) x for 5/16" tubing.
MV-2380	CLAMP-ON 1/4" MFL (+ core & cap) x for 3/8" tubing.
MV-2120	CLAMP-ON 1/4" MFL (+ core & cap) x for 1/2" tubing.
MV-2580	CLAMP-ON 1/4" MFL (+ core & cap) x for 5/8" tubing.

- A line tap service valve that is easy to use.
- Five individual sizes for special access jobs.
- "VITON" gasket for heat extremes.
- **INSTALLATION INSTRUCTIONS:**
 - 1- Place aluminium channel on line (any position).
Insert aluminium slide into grooves on channel.
 - 2- Grip slide and channel with pliers. Place steel
Pin in steel body and screw into place.
 - 3- Holding grip on channel and slide, then tighten steel housing
(apply proper wrench on Hex pad). Unique wrench torque
action provides permanent clamp (...*BEST PRICE, QUICK,
EASY...*).
 - 4- Continue to tighten steel housing. "NEOPRENE" gasket on pin
gives long-life seal.



SOLDER TYPE PIERCING VALVES

"V-SERIES" SERVICE VALVES SPECIAL "BRAZE-ON" TYPE

MV-3036	V-SERIES VALVE 1/4" MFL (+ core & cap) x for 3/16" tube.
MV-3094	V-SERIES VALVE 1/4" MFL (+ core & cap) x for 1/4" tube.
MV-3098	V-SERIES VALVE 1/4" MFL (+ core & cap) x for 3/8" tube.
MV-3092	V-SERIES VALVE 1/4" MFL (+ core & cap) x for 1/2" tube.
MV-3095	V-SERIES VALVE 1/4" MFL (+ core & cap) x for 5/8" tube.
MV-3034	V-SERIES VALVE 1/4" MFL (+ core & cap) x for 3/4" tube.
MV-3078	V-SERIES VALVE 1/4" MFL (+ core & cap) x for 7/8" tube.
MV-3018	V-SERIES VALVE 1/4" MFL (+ core & cap) x for 11/8" tube.

- Copper saddle valves for special use with MV-3090 (page 128) piercing attachment tool and any core removal tool MV-39.. series (page 127).
- Available for **8 sizes** of copper tubing.
- These ports are similar to the "M-SERIES" fittings (page 112) but are internally threaded to house a valve-core.
- Copper to copper brazing of tubing under pressure.





MV-2814

"BOT" STINGER ADAPTER BRASS TO COPPER VALVES

MV-2814	1/4" MFL (+ core & cap) x for	1/4" tubing.
MV-2816	1/4" MFL (+ core & cap) x for	5/16" tubing.
MV-2838	1/4" MFL (+ core & cap) x for	3/8" tubing.
MV-2812	1/4" MFL (+ core & cap) x for	1/2" tubing.
MV-2834	1/4" MFL (+ core & cap) x for	3/4" tubing.
MV-2878	1/4" MFL (+ core & cap) x for	7/8" tubing.

- Four-way seal between body and saddle:
- 1- Press saddle onto line.
 - 2- Apply flux and braze to line.
 - 3- Allow to cool.
 - 4- Screw body with core into saddle.
 - 5- Evacuate and charge the system. Replace cap.
 - Hex saddle and hex body permit using wrench and counterwrench.

INSTRUCTIONS:

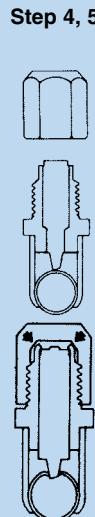
Braze SADDLE (copper/copper) then realize an automatic crimp following steps **1, 2, 3** and **4**.
 Tightening CAP crimps firmly brass edgeover top of the PIN.



MV-5514

MV-5516

MV-5538



"M-SERIES" COPPER TO COPPER "BRAZE-ON" SERVICE VALVES

MV-5514	1/4" MFL (+ core & cap) x for 1/4" tubing.
MV-5516	1/4" MFL (+ core & cap) x for 5/16" tubing.
MV-5538	1/4" MFL (+ core & cap) x for 3/8" tubing.
MV-5512	1/4" MFL (+ core & cap) x for 1/2" tubing.
MV-5558	1/4" MFL (+ core & cap) x for 5/8" tubing.
MV-5534	1/4" MFL (+ core & cap) x for 3/4" tubing.
MV-5578	1/4" MFL (+ core & cap) x for 7/8" tubing.
MV-5518	1/4" MFL (+ core & cap) x for 1 1/8" tubing.

- The "**M SERIES**" are the first and best "BRAZE-ON", self-piercing copper saddle valves.
- **NOTE:** It is widely used and easily installed on a charged line.
- After brazing the saddle portion onto line, the steel pin with valve-core penetrates the line and is locked into place simply by tightening the cap. Available from **1/4"** to **1 1/8"**.

• INSTALLATION INSTRUCTIONS:

- 1- Prepare line and clean tube. Remove cap and pin.
- 2- Flux or solder paste saddle. Press copper saddle onto line firmly (use pliers). Heat and braze it.
- 3- Let cool then insert pin with TEFILON "O" Ring into body.
- 4- Put on cap and tighten it with wrench (use another backwrench on hex pad). As cap is tightened, steel pin penetrates tubing.
- 5- Last turn crimps brass edgeover top of pin for secure forming 1/4" male flare SAE end.
- 6- Remove cap and the valve is ready to use for permanent charging, testing, etc... Replace and tighten the cap or place another cap type with gasket if needed.

QUICK COUPLERS

SERVICE QUICK COUPLERS

16-C	STRAIGHT COUPLER complete 1/4" MFL x 1/4" FFL
17-C	90° ELBOW COUPLER complete 1/4" MFL x 1/4" FFL
18-C	SET couplers including 16-C + 17-C 1/4" MFL x 1/4" FFL
19-C	SET automotive couplers including 18-C + 20-A 1/4" MFL x 1/4" + 3/16" FFL
20-A	ADAPTOR automotive high-side 1/4" MFL x 3/16" FFL

ADVANTAGES:

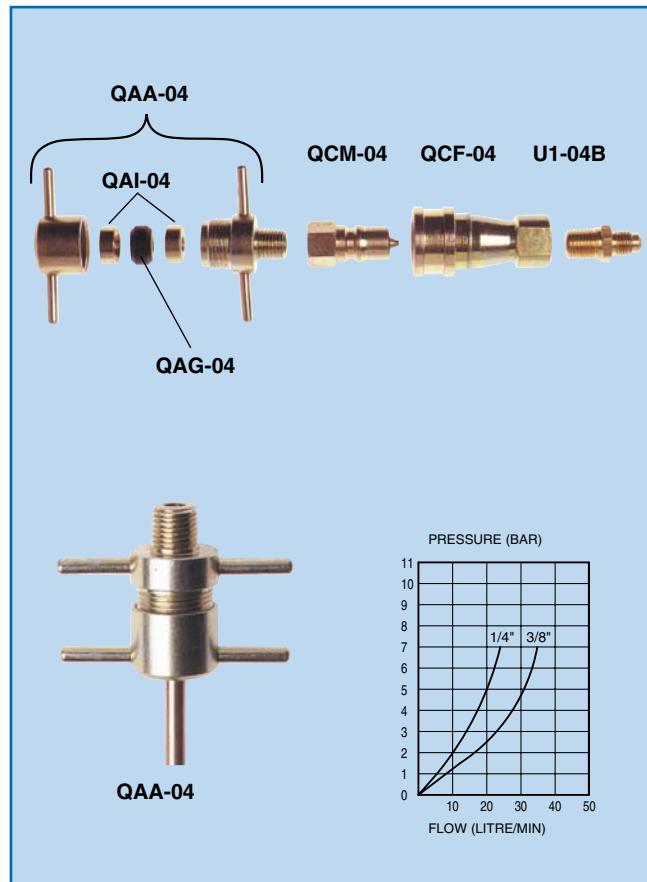
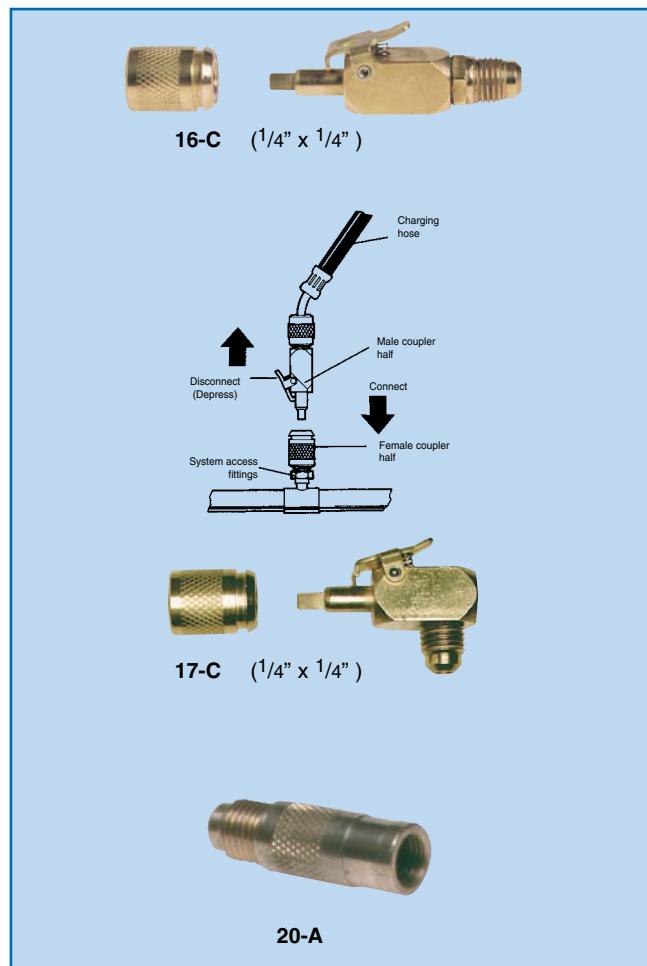
- Automatic full depression of Core Valves without adjustment, regardless of core position. Coupler halves separately connect to Service Port Access Fitting and Hose end. The easy push/pull operation automatically opens or closes system without loss of costly refrigerant.
- Automatic shut-off of hose ends permits discharging of High-side hose pressure into Low-side hose through manifold. Eliminates hazardous discharge of refrigerant and oil from High-side of system when disconnecting hose. Hoses can be stored under slight overpressure, if required, in order to prevent contamination.
- Core Depressors in hose ends not necessary. **Speeds servicing** of systems with hand valves.

KCK-M	KIT of spare parts for couplers 16-C, 17-C, 18-C, 19-C containing: 2 threaded hex sleeves 2 stem assemblies with "O"-ring 2 retaining steel springs 1 tube of Loctite sealant 2 threaded sleeves 10 small lubricate o-rings 5 large o-rings for 3/16" coupler 5 gaskets
KCK-F	REPAIR KIT for couplers 16-C, 17-C, 18-C, 19-C containing: 2 threaded sleeves 10 small lubricate o-rings 5 large o-rings for 3/16" coupler 5 gaskets

QUICK COUPLERS "HANSEN"®

QAA-04	ADAPTOR for 1/4" ODS TUBING 1/4" MPT x quick conn. for 1/4" ODS
QAA-05	ADAPTOR for 5/16" ODS TUBING 1/4" MPT x quick conn. for 5/16" ODS
QAA-06	ADAPTOR for 3/8" ODS TUBING 1/4" MPT x quick conn. for 3/8" ODS
QAI-04	ADAPTOR INSERT 1/4" (6 mm) tube/hose O.D. ADAPTOR INSERT 5/16" (8 mm) tube/hose O.D. ADAPTOR INSERT 3/8" (9,5 mm) tube/hose O.D.
QAG-04	ADAPTOR GASKET 1/4" (6 mm) tube/hose O.D. ADAPTOR GASKET 5/16" (8 mm) tube/hose O.D. ADAPTOR GASKET 3/8" (9,5 mm) tube/hose O.D.

- Working pressure: 265 bar.
 - Temperature: -30°C to +90°C.
- | | |
|---------------|---------------------------------------|
| QCF-04 | COUPLER half female x 1/4" FPT |
| QCF-06 | COUPLER half female x 3/8" FPT |
- | | |
|---------------|-------------------------------------|
| QCM-04 | COUPLER half male x 1/4" FPT |
| QCM-06 | COUPLER half male x 3/8" FPT |





BVS-02 1/8" female NPT x 1/8" female NPT



BVS-04 1/4" male flare x 1/4" female flare



BVS-06 3/8" male flare x 3/8" female flare



BVA-04 1/4" female flare 90° x 1/4" male flare



BVS-1L

BVS-1L-WS-005-1/4 SAE

HOSE COUPLERS WITH ADJUSTABLE FLOW CONTROL

STRAIGHT BALL VALVES

- Colour coded valves
- Safety purging slots in swivel ends

BVS-02B	1/8" FPT	x	1/8" FPT, blue
BVS-02R	1/8" FPT	x	1/8" FPT, red
BVS-02Y	1/8" FPT	x	1/8" FPT, yellow

BVS-04B	1/4" FFL swivel	x	1/4" MFL, blue
BVS-04R	1/4" FFL swivel	x	1/4" MFL, red
BVS-04Y	1/4" FFL swivel	x	1/4" MFL, yellow

BVS-06B	3/8" FFL swivel	x	3/8" MFL, blue
BVS-06R	3/8" FFL swivel	x	3/8" MFL, red
BVS-06Y	3/8" FFL swivel	x	3/8" MFL, yellow

BVS-04-06B	1/4" FFL swivel	x	3/8" MFL, blue
BVS-04-06R	1/4" FFL swivel	x	3/8" MFL, red
BVS-04-06Y	1/4" FFL swivel	x	3/8" MFL, yellow

BVS-06-04B	3/8" FFL swivel	x	1/4" MFL, blue
BVS-06-04R	3/8" FFL swivel	x	1/4" MFL, red
BVS-06-04Y	3/8" FFL swivel	x	1/4" MFL, yellow

BVS-1/2-ACME/B	2 x 1/2-16 ACME, MFL x FFL swivel, blue
BVS-1/2-ACME/R	2 x 1/2-16 ACME, MFL x FFL swivel, red
BVS-1/2-ACME/Y	2 x 1/2-16 ACME, MFL x FFL swivel, yellow

ANGLED (90°) BALL VALVES

- Colour coded valves
- Safety purging slots in swivel ends

BVA-04B	1/4" FFL swivel	x	1/4" MFL, blue
BVA-04R	1/4" FFL swivel	x	1/4" MFL, red
BVA-04Y	1/4" FFL swivel	x	1/4" MFL, yellow

BVA-06B	3/8" FFL swivel	x	3/8" MFL, blue
BVA-06R	3/8" FFL swivel	x	3/8" MFL, red
BVA-06Y	3/8" FFL swivel	x	3/8" MFL, yellow

TAP-A-CAN VALVES

Refrigerant bottle valve fits directly on bottle thread. Colour coded ball valve opens or closes in 1/4 turn.

BVS-1L	Refrigerant bottle valve 7/16" x 1/4" MFL
BVS-1L-WS-005-1/4 SAE	Refrigerant bottle valve for WS-005 1/4" FFL (+ depressor pin) x 1/4" MFL acces valve (+core)
BVS-1L-WS-005-5/16 SAE	Refrigerant bottle valve for WS-005 5/16" FFL (+ depressor pin) x 1/4" MFL acces valve (+core)
BVS-1L-WS-005-7/16 SAE	Refrigerant bottle valve for WS-005 7/16" FFL (+ depressor pin) x 1/4" MFL acces valve (+core)

THUMBSCREW GAS CONTROL ACCESS VALVES FOR HOSES WITH STANDARD CORE DEPRESSOR

MV-5050 1/4" MFL (for hose)
x 1/4" FFL (thumbscrew swivel nut for all access
valves or fittings, with gaskets)
SUPER COMPACT TYPE (gasket page 132).

MV-2060 1/4" MFL (for hose)
x 1/4" FFL (thumbscrew swivel nut for all access
valves or fittings, with gaskets)
PROFESSIONAL TYPE.

MV-2050 3/16" MFL
x 3/16" FFL (thumbscrew swivel nut for all access
valves or fittings, with gaskets)
SPECIAL AUTOMOTIVE AIR CONDITIONING.

MV-2070 1/4" MFL (for hose)
x 1/4" FFL (thumbscrew swivel nut for all access
valves or fittings, with gaskets)
WITH an ideal **check back seat** to hold the gas in
all hoses when disconnected.

- These thumbscrew core depressors are designed to be used on the end of a charging hose.
- When attached to an access fitting, they can depress the core and control the flow of gas. This also means the core can be shut-off before disconnecting, thus avoiding a spit back on your hand or in the atmosphere.
- The seals on each part have broad compatibility with the **USUAL** as well as **NEW refrigerants** and **their lubricants**.



MV-5050



MV-2060



MV-2050



MV-2070

ACCES VALVES 1/4"

- Most of these automatic access fittings offer:
 - A hex mounting pad (for counter-wrench).
 - The classic (outlet) 1/4" **male flare SAE** for service

STEP DOWN SOLDER

MV-1200 1/4" MFL (+ core & cap) x 3/16" IDS
x 1/4" and 5/16" ODS steps.
MV-3346 1/4" MFL (+ core & cap) x 1/4" IDS
x 3/8" and 7/16" ODS steps.
MV-3368 1/4" MFL (+ core & cap) x 3/8" IDS and 1/2" ODS.
MV-8400 1/4" MFL (+ core & cap) x 1/8" IDS
x 3/16", 1/4" and 5/16" ODS steps.
NOTE: The most popular type and the largest
worldwide sales.
MV-4900 1/4" MFL (+ core & cap) x 3/16" IDS
x 1/4" and 3/8" ODS steps.



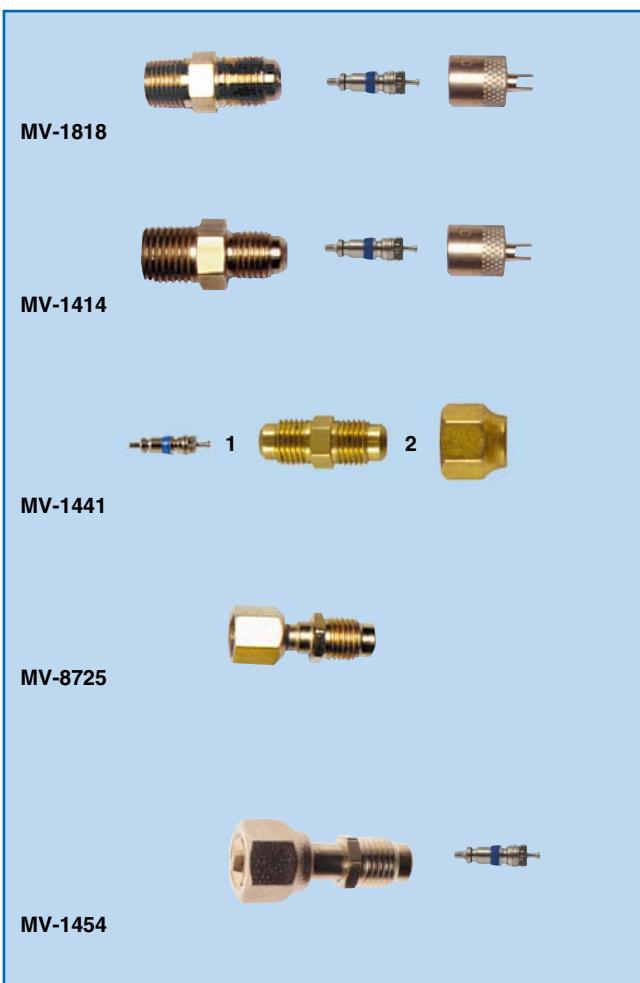
MV-1200



MV-8400

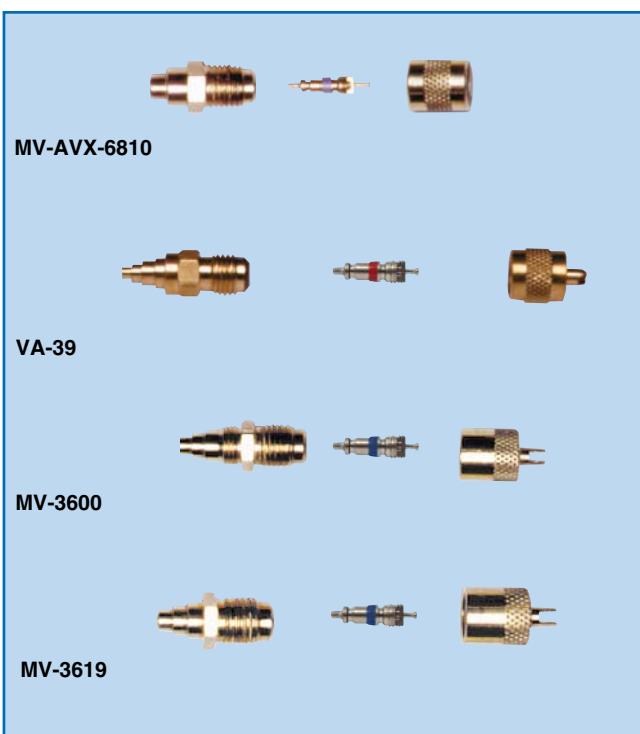


MV-4900



UNION VALVES

MV-1818	1/4" MFL (+ core & cap with core-wrench remover) x 1/8" MPT.
MV-1818C	1/4" MFL (+ core & standard cap) x 1/8" MPT
MV-1414	1/4" MFL (+ core & cap with core-wrench remover) x 1/4" MPT.
MV-1414C	1/4" MFL (+ core & standard cap) x 1/4" MPT
MV-1441	1/4" MFL with inside core (1). x 1/4" MFL with nut for connecting flared tube (2). Central hex pad for back wrench.
MV-8725	1/4" FFL fixed with a gasket. x 1/4" MFL with inside core (hex). TWO hex mounting pads for wrench and back wrench. The valve body is stationary. When threads of existing system fittings are stripped and a new core won't go in, use this. It has a core and NO depressor tip.
MV-1454	1/4" MFL (+ core) x 1/4" FFL (swivel nut + depressor).



SOLDER TYPE LINE VALVES

MV-AVX-6810	1/4" MFL (+ core & cap) x inside 6 mm IDS x 7,8 mm and 9,8 mm ODS steps, length 28 mm.
VA-39	1/4" MFL (+ core & cap with core-wrench remover) x 3/16", 1/4", 5/16", 3/8" and 1/2" ODS steps. Also fits 3/16", 1/4" and 5/16" solder fittings or 1/8" hole may be drilled in larger size tube.
MV-3600	1/4" MFL (+ core & cap with core-wrench remover) x 1/8" IDS x 3/16", 1/4" and 5/16" ODS steps x 1/8" MPT.
MV-3619	1/4" MFL (+ core & cap with core-wrench remover) x 1/8" IDS x 3/16", 1/4" and 5/16" ODS steps.

MV-2243 1/4" extended MFL (+ core & cap) (length 19 mm)
plus large groove between thread and hex pad
x 1/8" IDS
x 3/16", 1/4" and 5/16" ODS steps.



MV-2243

MV-5055 1/4" MFL (+ core & cap) x 5/16" and 7/32" ODS.



MV-5055

MV-4545 1/4" MFL (+ core & cap) x 9/32" and 1/4" ODS.



MV-4545

MV-9160 1/4" extended MFL (+ core & cap) (Length 14 mm)
plus large groove between thread and wide hex
mounting pad (11 mm) x 1/4" ODS.



MV-9160

MV-2500 1/4" MFL (+ core & cap) x 1/4" IDS
x 5/16" ODS external.



MV-2500



MV-AVX-6 Series



MV-8403



MV-8404



MV-8405



MV-9404

SOLDER TYPE ACCESS VALVES 1/4"

STRAIGHT SOLDER WITH TUBE EXTENSION

MV-AVX-6-050 1/4" MFL (+ core & cap) x ODS 6 mm (ext. length 50 mm).

MV-AVX-6-100 1/4" MFL (+ core & cap) x ODS 6 mm (ext. length 100 mm).

ECONOMY LINE SERVICE VALVES

MV-8408 1/4" MFL (+ core & cap)
x 1/8" ODS extended copper tube.

MV-8403 1/4" MFL (+ core & cap)
x 3/16" ODS extended copper tube.

MV-8404 1/4" MFL (+ core & cap)
x 1/4" ODS extended copper tube.

MV-8405 1/4" MFL (+ core & cap)
x 5/16" ODS extended copper tube.

MV-8406 1/4" MFL (+ core & cap)
x 3/8" ODS extended copper tube.

- These service valves are identical to the premium service valves (page 119) but with standard cap

USUAL INSTALLATION INSTRUCTIONS:

- 1- Remove cap and core.
- 2- Insert tubing or body into the corresponding size line or hole and braze into place.
- 3- Replace core, tighten, evacuate and charge the system. replace cap.

ECONOMY LINE SERVICE VALVES WITH STOP

MV-9404 1/4" MFL (+ core & cap)
x 1/4" ODS extended copper tube with stop.
Spare gasket for **MV-9404**.

PREMIUM SERVICE VALVES

MV-3608	1/4" MFL (+ core & cap with core-wrench remover) x 1/8" ODS extended copper tube x 1/8" MPT.
MV-3603	1/4" MFL (+ core & cap with core-wrench remover) x 3/16" ODS extended copper tube x 1/8" MPT.
MV-3604	1/4" MFL (+ core & cap with core-wrench remover) x 1/4" ODS extended copper tube x 1/8" MPT.
MV-3602	1/4" MFL (+ core & cap with core-wrench remover) x 1/4" ODS extended copper tube x 3/16" and 1/8" ODS bushings x 1/8" MPT.

- These valves offer **several O.D.S. "step"** diameters to solder and one more threaded "step" in 1/8" MPT male pipe.
- The hexagonal ring allows to use a tightening counter-wrench and is standard. Also, see other hexagonal spare part counter-rings, page 132.



MV-3603



MV-3602

STANDARD SERVICE VALVES

MV-1010	1/4" MFL (+ core & cap with core-wrench remover) x 1/8" ODS extended copper tube.
MV-1212	1/4" MFL (+ core & cap with core-wrench remover) x 3/16" ODS extended copper tube.
MV-2525	1/4" MFL (+ core & cap with core-wrench remover) x 1/4" ODS extended copper tube.
MV-3605	1/4" MFL (+ core & cap with core-wrench remover) x 5/16" ODS extended copper tube.
MV-3606	1/4" MFL (+ core & cap with core-wrench remover) x 3/8" ODS extended copper tube.

- These valves are identical to the above "**PREMIUM**" (see above specifications) but without 1/8" MPT male pipe threaded step.



MV-1212



MV-3606

CRANKCASE "OIL TAP"

MV-1808	1/4" MFL (+ core & cap) (1) x 1/4" MPT (crankcase side) (2)
----------------	--

- The "**OIL TAP**" is installed on a semi-hermetic compressor for the changing of oil and testing procedures. The internal pressure helps discharging the oil from the crankcase and **ACID TESTS** can be made while the compressor is running. You can prevent "**BURN-OUTS**". In the same way it allows the addition (by vacuum) or removal (by pressure) of oil.
- Also, you can detect hazardous refrigerant pooling in the crankcase before start-up and control the removal using a compound gauge. It can be permanently installed.

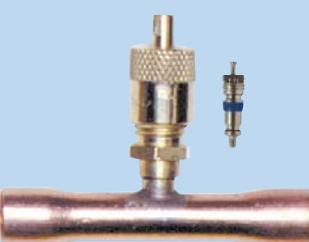


2 1

MV-1808



MV-8414



MV-8438



MV-8412



MV-8434



MV-8420



MV-8490

SOLDER TEE ACCESS VALVES 1/4"

84-TS ACCESS COPPER "TEES"

MV-8414 1/4" MFL (+ core & cap with core-wrench remover)
x 2 times 1/4" ODS copper.

MV-8416 1/4" MFL (+ core & cap with core-wrench remover)
x 2 times 5/16" ODS copper.

MV-8438 1/4" MFL (+ core & cap with core-wrench remover)
x 2 times 3/8" ODS copper.

MV-8412 1/4" MFL (+ core & cap with core-wrench remover)
x 2 times 1/2" ODS copper.

MV-8458 1/4" MFL (+ core & cap with core-wrench remover)
x 2 times 5/8" ODS copper.

MV-8434 1/4" MFL (+ core & cap with core-wrench remover)
x 2 times 3/4" ODS copper.

MV-8478 1/4" MFL (+ core & cap with core-wrench remover)
x 2 times 7/8" ODS copper.

MV-8418 1/4" MFL (+ core & cap with core-wrench remover)
x 2 times 1 1/8" ODS copper.

MV-5421 1/4" MFL (+ core & cap with core-wrench remover)
x 2 times 1/4" IDS
x 2 times 3/8" ODS.

MV-8420 1/4" MFL (+ core & cap with core-wrench remover)
x 1 time 1/4" copper tube end
x 1 time 1/4" ODS copper.

MV-8490 1/4" MFL (+ core & cap with core-wrench remover)
x 3/8" 90° copper elbow (50 mm or 2 1/2" long turn).

- The **84-TS series** offer a full line of copper "TEES" with body brazed on tee which takes in each end 1/4" up to 1 1/8" ODS solder tubing.
- Strong, safe and heavy pattern, "in line" soft and quick copper to copper soldering...
- Usual 1/4" male flare SAE outlet.
- **INSTALLATION INSTRUCTIONS:**
 - 1- Remove cap and valve core.
 - 2- Insert tubing into each end of tee and braze into place.
 - 3- Replace core, tighten, evacuate & charge the system.
 - 4- Replace the cap.

SWIVEL TYPE ACCESS VALVES

ADAPTERS - COUPLERS

MV-2000	1/4" FFL swivel with depressor and rubber seal x 1/4" MFL with hex pad Straight.
MV-2010	1/4" FFL swivel with depressor and rubber seal x 1/4" MFL with hex pad 90° elbow.
QC-E64	90° ADAPTER 1/4" MFL x 3/8" FFL swivel with rubber seal. PLEASE NOTE: without depressor.
MV-2038	1/4" FFL swivel with depressor and rubber seal x 3/8" MFL with hex pad.
MV-2018	1/4" FFL swivel with depressor tip and rubber seal x 1/8" MPT with hex pad.
MV-2014	1/4" FFL swivel with depressor tip and rubber seal x 1/4" MPT with hex pad.
MV-2012	1/4" FFL swivel with depressor tip and rubber seal x 1/2" ACME male <i>AUTOMOTIVE AIR-CONDITIONING SYSTEM...</i>
MV-2028	1/4" MFL x 1/2" ACME female swivel with depressor tip and rubber seal <i>AUTOMOTIVE AIR-CONDITIONING SYSTEM...</i>
MV-2019	1/4" FFL swivel with depressor tip and rubber seal x 1/8" FPT (hex shape).
MV-2041	1/4" FFL with depressor tip and rubber seal x 1/4" FPT (hex shape).
MV-2020	1/4" FFL (hex solid mounting pad) x 1/2" ACME male <i>AUTOMOTIVE AIR-CONDITIONING SYSTEM...</i>

- These parts simply make connections between equipment with unlike threads.
- The *ADAPTERS* made from hex stock brass are for permanent installations.
- The *COUPLERS* start with a 1/4" female flare SAE **swivel** and end with different flare sizes, pipe threads and ACME threads



MV-2000



MV-2010



MV-2038



MV-2018



MV-2012



MV-2028



MV-2019



MV-2020

SWIVEL DEPRESSOR ADAPTERS

- These QUICK SWIVEL ADAPTERS are used for monitoring system pressure anywhere in refrigeration or air-conditioning systems where there is a standard ACCESS VALVE.
- Knurled swivel end (90° or straight) has a standard CORE-DEPRESSOR and rubber seal to mate with all ACCESS VALVES.

QC-S4A	STRAIGHT ADAPTER 1/8" FPT x 1/4" FFL swivel nut
QC-S4B	STRAIGHT ADAPTER 1/4" FPT x 1/4" FFL swivel nut
QC-S4	STRAIGHT ADAPTER 1/4" MFL x 1/4" FFL swivel nut
QC-S46	STRAIGHT ADAPTER 3/8" MFL x 1/4" FFL swivel nut
QC-S64	STRAIGHT ADAPTER 1/4" MFL x 3/8" FFL swivel nut PLEASE NOTE: without depressor



QC-S4A



QC-S4


MV-2035

MV-2090

MV-2037

MV-2098

“SURE SEAL” RETAINING COUPLERS & AUTOMATIC HOSE SELF CLOSING

MV-2035 1/4" FFL with “SURE SEAL”
 x 1/4" MFL Straight.

MV-2090 1/4" FFL with “SURE SEAL”
 x 1/4" MFL 90° elbow.

MV-2037 1/4" FFL with “SURE SEAL”
 x 3/8" MFL.

MV-2098 1/4" FFL with “SURE SEAL”
 x 1/8" FPT.

MV-2094 1/4" FFL with “SURE SEAL”
 x 1/4" FPT.

MV-5171 Kit of replacement parts for all “SURE SEAL”.
 Contains GASKETS, DEPRESSOR and SPRING.

When attached to an access valve or fitting, the “SURE SEAL” retaining coupler automatically opens and depresses the valve core all in one action. The “SURE SEAL” back checks the gas.

- When disconnected, it traps refrigerant in the charging hose.
- Leave it permanently installed at the end of the hose. The seals are compatible with **CFC**, **HCFC**, **HFC** and their lubricants.
- NB: If internal parts need replacing, use parts kit **MV-5171**.

NUT TYPE ACCESS VALVES

ADAPTER FITTINGS & OTHER CONNECTORS

MV-2594 1/4" FFL swivel nut (+ depressor and double flared end)
x 1/4" copper tube 31 mm long

MV-2595 1/4" FFL swivel nut (+ depressor and double flared end) x copper tube 31 mm long for 1/4" OD soldering.

MV-2597 1/4" MFL (free, threaded for core)
x 1/4" FFL swivel nut with depressor, copper tube 31 mm.



MV-2595



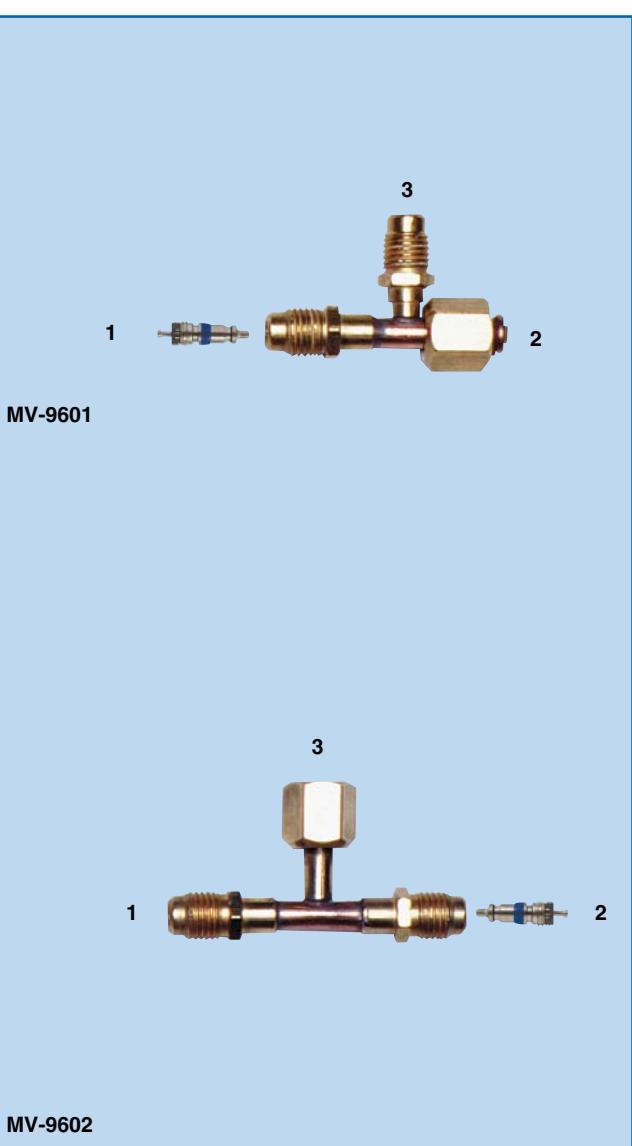
MV-2597

UNIVERSAL TEES CONNECTORS

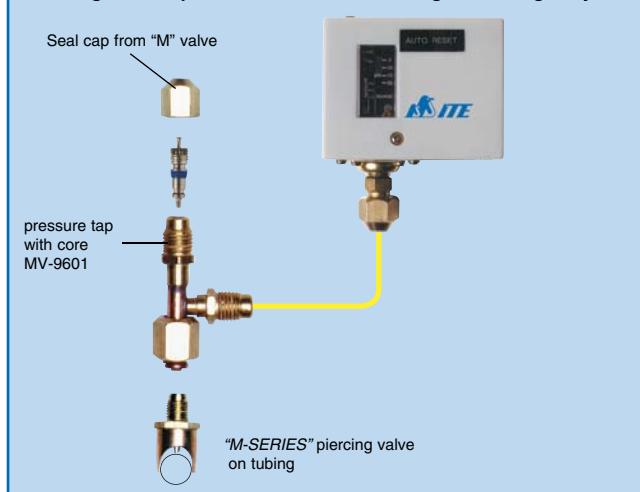
MV-9601 1/4" MFL with core (1)
x 1/4" FFL nut with hex swivel depressor (2)
x 1/4" MFL (free) (3).

MV-9602 1/4" MFL (free) (1)
x 1/4" MFL with core (2)
x 1/4" FFL nut with hex swivel depressor (3).

- These tees contain a core depressor, a Teflon "schrader" **core** and always **TWO** free 1/4" flare ends.
- The core can be **moved** on all 1/4" MFL outlets.
- Can be used for (they have no caps):
 - All connect controls (temp., press., charg.)
 - Checking oil pressure on larger compressors having positive pressure oil pumps. Etc...
 - Checking accuracy of oil pressure gauges (to compare the unit gauge with yours).



* How to use the MV-9601 with an "M-SERIES" (page 112) valve to install high or low pressure switches on a refrigerant charged system




MV-9610

MV-9608

MV-1440

MV-1446

MV-1444

OTHER SPECIAL ACCESS VALVES, TEES & FITTINGS

MV-9610

1/4" FFL (hex swivel nut with core depressor) (1)
x 1/4" FFL (hex nut with neoprene-o-ring) (2)
x 1/4" MFL (+ core & cap) (3).

MV-9608

1/4" FFL (hex swivel nut with core depressor) (1)
x 1/8" FPT (hex nut, no core depressor) (2)
x 1/4" MFL (+ core & cap) (3).

MV-1440

1/4" FFL double with hex swivel nut and depressor (1)
x 1/8" FPT (hex shape) (2).

MV-1446

1/4" FFL (hex swivel nut)
x 1/4" FFL (hex swivel nut).

MV-1444

1/4" MFL (+ core)
x 1/4" MPT
TWO hex mounting pads for wrench and back wrench.

"CAP TUBE" CAPILLARIES

MV-2540	2 times 1/4" FFL swivel hex nuts DOUBLE flared in each hex swivel nut. NO core depressor tip (for equilizing TXV's, etc...). Copper capillary length: 91 cm (36 inch). NOTE: Please, use one US wrench for nuts.
MV-2541	2 times 1/4" FFL swivel hex nuts DOUBLE flared in each hex swivel nut. With 1 core depressor tip.
MV-2542	2 times 1/4" FFL swivel hex nuts DOUBLE flared in each hex swivel nut. With 2 core depressor tips.

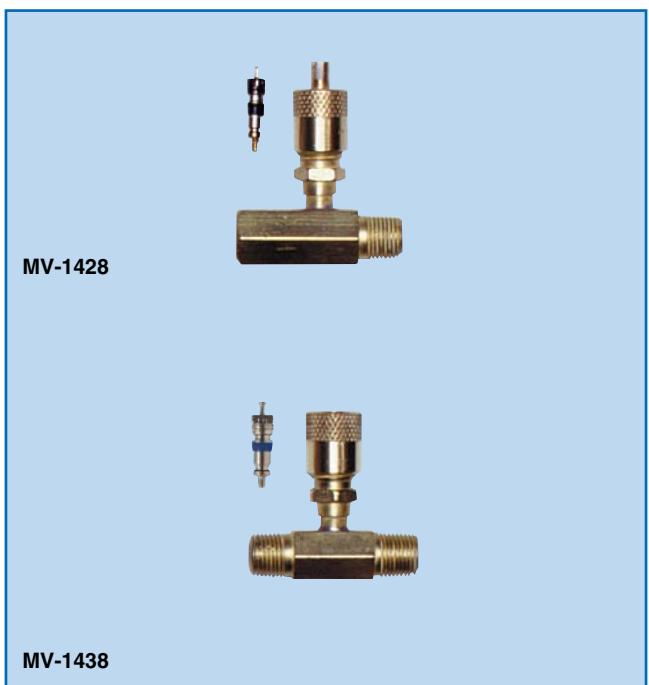


MV-2540

MV-2541

FULL FORGED BRASS ACCESS TEES

MV-1428	1/4" MFL on the branch with core and cap with core-wrench remover x 1/8" MPT x 1/8" FPT in a full stationary hex body.
----------------	--



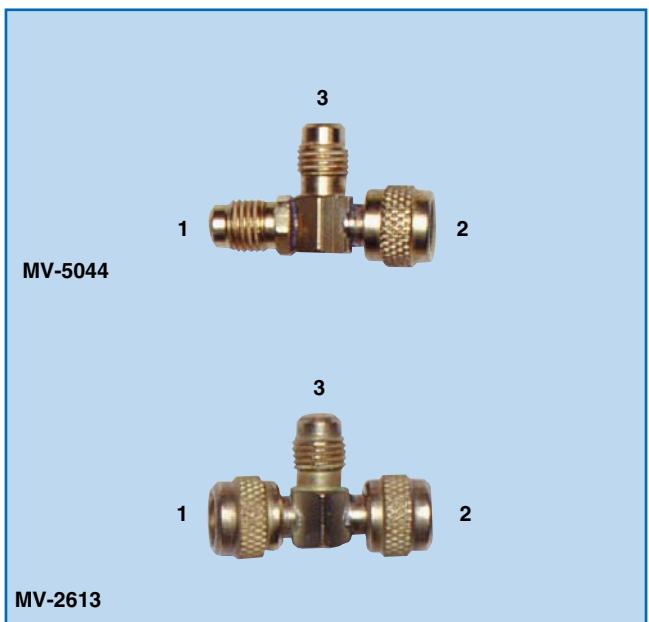
MV-1428



MV-1438



MV-5044	1/4" MFL (free, threaded for core) (1) x 1/4" FFL (swivel thumbscrew WITH seal, without core depressor) (free, threaded for core) (2) x 1/4" MFL (3).
----------------	---

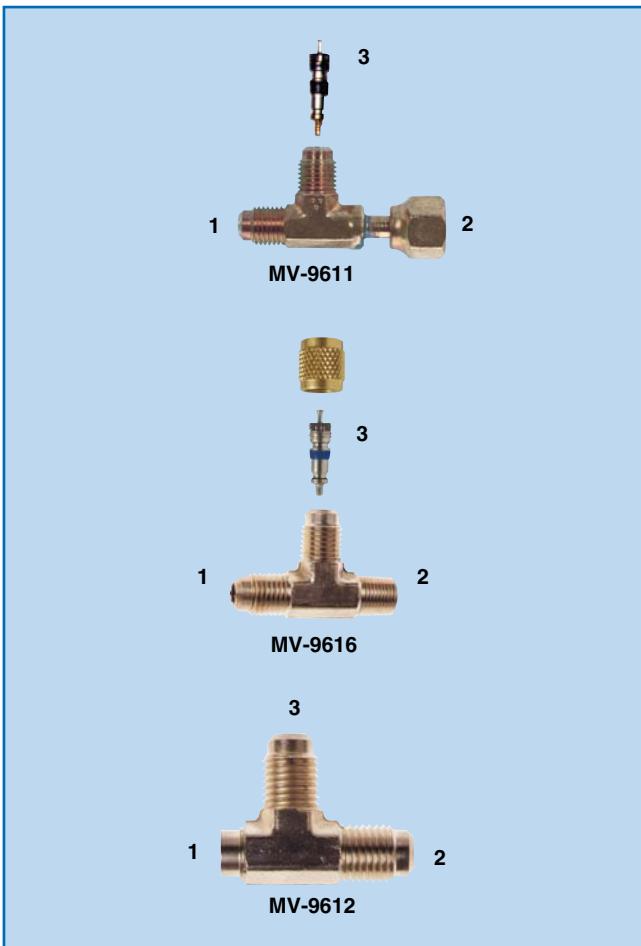


MV-5044



MV-2613





"ITE" HEAVY DUTY FULLY FORGED BRASS TEES FOR OEM's

MV-9611 1: 1/4" MFL (free, threaded for core)
 2: 1/4" FFL (swivel nut + depressor)
 3: 1/4" MFL (+ core)

MV-9628 1: 1/4" MFL (free, threaded for core)
 2: 1/4" FFL (swivel nut, without depressor)
 3: 1/4" MFL (+ core).

MV-9616 1: 1/4" MFL (free, threaded for core)
 2: 1/8" MPT
 3: 1/4" MFL (+ core & cap).

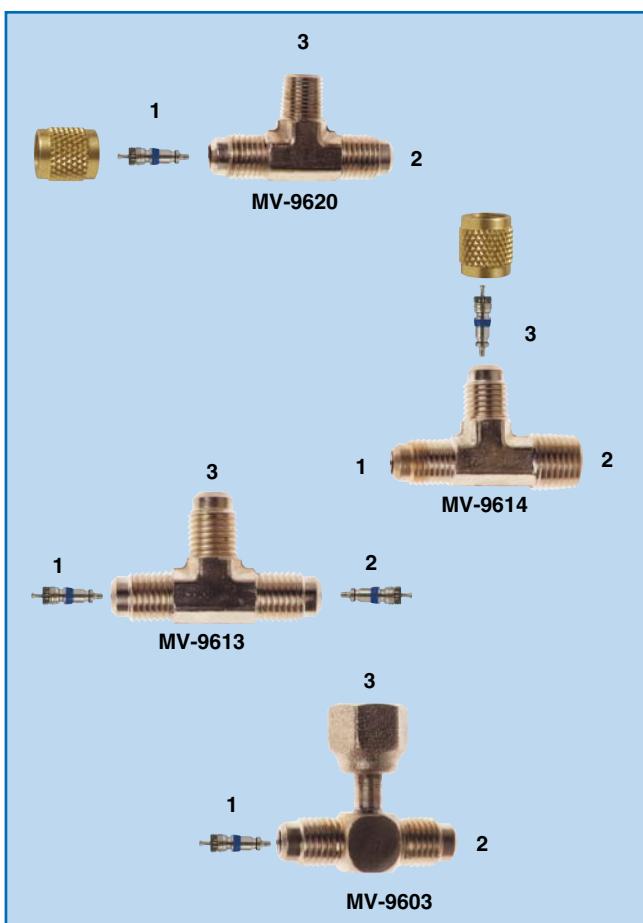
MV-9612 1: 1/4" ODS
 2: 1/4" MFL (free, threaded for core)
 3: 1/4" MFL (free, threaded for core).

MV-9620 1: 1/4" MFL (+ core & cap)
 2: 1/4" MFL (free, threaded for core)
 3: 1/8" MPT.

MV-9614 1: 1/4" MFL (free, threaded for core)
 2: 1/4" MPT
 3: 1/4" MFL (+ core & cap).

MV-9613 1: 1/4" MFL (+ core)
 2: 1/4" MFL (+ core)
 3: 1/4" MFL (free, threaded for core).

MV-9603 1: 1/4" MFL (+ core)
 2: 1/4" MFL (free, threaded for core)
 3: 1/4" FFL (swivel nut + depressor).



CORE REMOVAL TOOLS

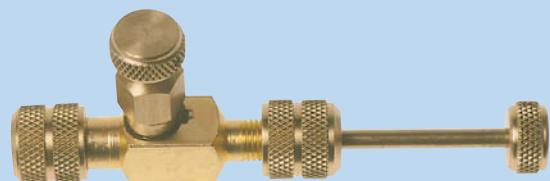
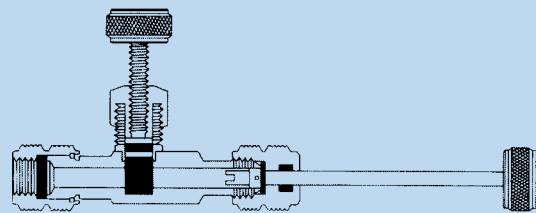
MV-3900	1/4" FFL x 1/4" MFL rear with shut off valve
MV-3910	1/4" FFL x 1/4" MFL rear with shut off valve and 1/4" MFL side port (+ core)
MV-3936	3/16" FFL x 3/16" MFL rear with shut off valve (AUTOMOTIVE)
MV-3920	1/4" FFL x 1/4" MFL rear with ball valve
MV-3930	1/4" FFL x 1/4" MFL rear with ball valve and 1/4" MFL side port (+ core)

SPECIFICATIONS

- These core removal tools are used to remove a valve core from a male flare access fitting, without loss of refrigerant.
- With the valve core out, many operations can be performed, including:
 - Replacing a bad core.
 - Adding or removing refrigerant more efficiently.
 - Measuring system pressure by attaching a gauge.
- MV-3920 and MV-3930 have been improved with an easy finger 1/4 turn ball valve design.
- These patented core removal tools are strictly manufactured in accordance with the ARI norms and US standards.

OPERATING INSTRUCTIONS

1. Attach the tool with the front coupler to a 1/4" male flare fitting, thumb tight.
 2. With the shut-off valve (or ball valve) **completely** open, push extractor rod in and secure the valve core.
 3. Turn extractor rod counter clockwise to unscrew the core.
Caution: grasp extractor rod tightly when unscrewing valve core when higher system pressure is expected.
 4. Slowly allow extractor rod to extend back as far as possible to allow the shut-off valve (or ball valve) to be closed. (System pressure will help.)
 5. Close shut-off valve (or ball valve) completely by turning the knob clockwise.
 6. Remove rear coupler, extractor rod and valve core. With the valve core removed, system can be accessed through the 1/4" male flare rear fitting of the tool (or the side port if available).
 7. To replace a valve core, put new valve core on extractor rod end and attach extractor rod coupler to rear fitting on the tool, thumb tight.
 8. Open shut-off valve (or ball valve) **completely** by turning the knob counter clockwise.
 9. Push extractor rod in and secure valve core in fitting by turning clockwise.
- Note:** when side port is not used, make sure the cap is always installed.



MV-3900



MV-3910



MV-3920



MV-3930



ACCESSORIES AND SPARE PARTS FOR CORE REMOVAL TOOLS

See MV-39.. page 127.

MV-5555 Kit-gaskets for MV-3900 and MV-3910

MV-5560 Kit-side valve for MV-3900 and MV-3910

MV-5577 Kit-valve core grappler & extractor for MV-3900 and MV-3910. Remove a core without loss of refrigerant.



MV-3090 Punches a hole in copper tubing through a "V-SERIES" fitting for the installation of a core without loss of gas (see page 111).



MV-3915 **PICK TOOL** to extract a broken core from a housing without loss of refrigerant.
Has left hand thread...

MV-3916 **THREAD CHASER TOOL** to clean and re-align the internal threads of any access fitting.

MV-3917 **SPARE KIT** containing MV-3915 & MV-3916

"0" RING See diverse "0" RING replacements page 132.



ADJUSTABLE TORQUE WRENCHES FOR ALL "SCHRADER" CORES & MANY OTHER USES

MV-3820 **ADJUSTABLE TORQUE WRENCH** including MV-3825, without MV-3827

MV-3825 **MV-3827** **BIT** designed for use with "schrader" core "PHILLIPS" head driver screw **BIT**

- Used to tighten "schrader" core-valve to the correct torque.
- Recommended torque: **0,0173 m.kg** to **0,035 m.kg** (1 $\frac{1}{2}$ ".lbs to 3" ".lbs).
- **PLEASE NOTE:** overtightening of a valve core can cause damage to the core and loss of refrigerant.
- Rotary torque mechanism prevents over-torquing of core.
- Wrench easily adjusting itself from **0,012 m.kg** to **0,070 m.kg** (1" ".lbs to 6" ".lbs) in 0,05 increments.
- A locking ring prevents accidental alteration of the torque setting.
- Accuracy $\pm 3\%$ at each increment (above accuracy of the National Institute of Standards and Technology Certification).
- To set the wrench: turn black ring to unlock internal mechanism. Adjust torque to required setting. Return black ring to locked position.

CAPS

MV-2250 1/4" flare SAE heavy duty round brass **UNIVERSAL CAP** with handy core-wrench on top and "NEOPRENE" seal.

MV-2245 1/4" flare SAE heavy duty round brass **STANDARD CAP** with "NEOPRENE" seal.

MV-2219 1/2" ACME A/C AUTOMOTIVE heavy duty round brass **CAP** with "NEOPRENE" seal.

MV-2235 1/4" flare SAE heavy duty HEX brass **ECONOMIC CAP** for use with dual "NEOPRENE" seal (included) or for use with metal seal like B2-04 (not included).

MV-2225 1/4" flare SAE heavy duty HEX brass **LIGHT CAP** For use with "**MV-55.. SERIES**" valves or metal seal like B2-04 (not included).

MV-2210 1/4" flare SAE glass-filled "NYLON" **BLACK CAP** with "NEOPRENE" "O" ring seal.

MV-2220 Identical to above MV-2210 but for 1/2" ACME Automotive fittings.

MV-2215 1/4" flare SAE glass-filled "NYLON" **BLUE CAP** with "NEOPRENE" "O" ring seal and "POLYETHYLENE" transparent retention strap.

MV-2216 3/8" flare SAE glass-filled "NYLON" **BLUE CAP** with "NEOPRENE" "O" ring seal and "POLYETHYLENE" transparent retention strap.



MV-2250



MV-2245



MV-2219



MV-2235



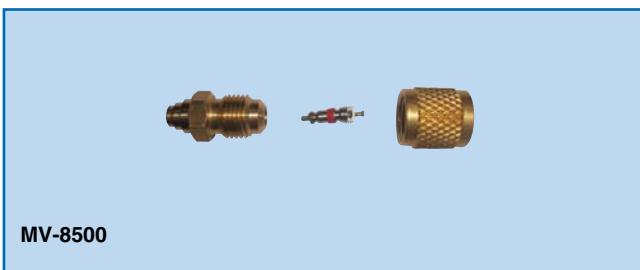
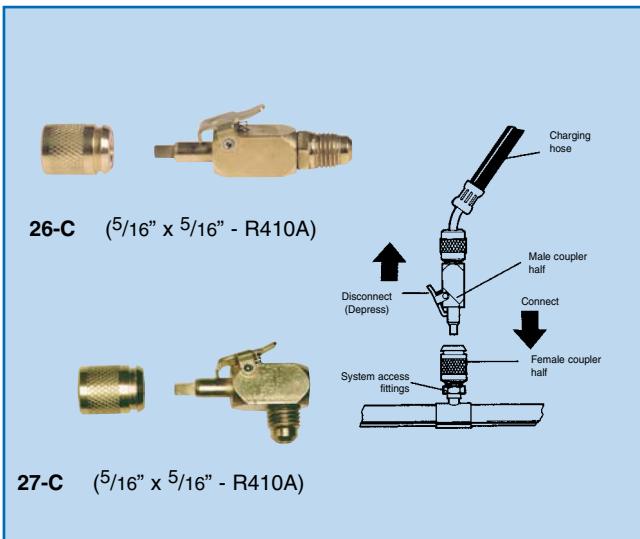
MV-2225



MV-2210



MV-2215



QUICK COUPLERS R410A

SERVICE QUICK COUPLERS

26-C	STRAIGHT COUPLER complete 5/16" MFL x 5/16" FFL
27-C	90° ELBOW COUPLER complete 5/16" MFL x 5/16" FFL

ADVANTAGES:

- Automatic full depression of Core Valves without adjustment, regardless of core position. Coupler halves separately connect to Service Port Access Fitting and Hose end. The easy push/pull operation automatically opens or closes system without loss of costly refrigerant.
- Automatic shut-off of hose ends permits discharging of High-side hose pressure into Low-side hose through manifold. Eliminates hazardous discharge of refrigerant and oil from High-side of system when disconnecting hose. Hoses can be stored under slight overpressure, if required, in order to prevent contamination.
- Core Depressors in hose ends not necessary. **Speeds servicing** of systems with hand valves.

HOSE COUPLERS R410A

STRAIGHT BALL VALVES

- Colour coded valves.
- Safety purging slots in swivel ends.

BVS-05-04B	5/16" FFL swivel	x	1/4" MFL, blue
BVS-05-04R	5/16" FFL swivel	x	1/4" MFL, red
BVS-05-04Y	5/16" FFL swivel	x	1/4" MFL, yellow

ANGLED (90°) BALL VALVES

- Colour coded valves.
- Safety purging slots in swivel ends.

BVA-05-04B	5/16" FFL swivel	x	1/4" MFL, blue
BVA-05-04R	5/16" FFL swivel	x	1/4" MFL, red
BVA-05-04Y	5/16" FFL swivel	x	1/4" MFL, yellow

THUMBSCREW GAS CONTROL ACCESS VALVES FOR HOSES WITH STANDARD CORE DEPRESSOR

MV-5060	1/4" MFL (for hose) x 5/16" FFL (swivel nut for all access valves or fittings) <i>SUPER COMPACT TYPE</i> (gasket page 132).
MV-2080	1/4" MFL (for hose) x 5/16" FFL (swivel nut for all access valves or fittings) <i>PROFESSIONAL TYPE</i> .

- These thumbscrew core depressors are designed to be used on the end of a charging hose.
- When attached to an access fitting, they can depress the core and control the flow of gas. This also means the core can be shut-off before disconnecting, thus avoiding a spit back on your hand or in the atmosphere.
- The seals on each part have broad compatibility with the **USUAL** as well as **NEW refrigerants**.

ACCESS VALVE R410A

SOLDER TYPE LINE VALVE METRIC

MV-8500	5/16" MFL (+ core & cap) x outside 6 mm & 8 mm & 10 mm.
----------------	--

SOLDER TYPE ACCESS VALVE R410A

STRAIGHT SOLDER WITH TUBE EXTENSION

MV-8505-050 5/16" MFL (+ core & cap) x ODS 6 mm, compatible with R410A (ext. length 50 mm).

• USUAL INSTALLATION INSTRUCTIONS:

- 1- Remove cap and core.
- 2- Insert tubing or body into the corresponding size line or hole and braze into place.
- 3- Replace core, tighten, evacuate and charge the system. replace cap.



MV-8505-050

CORE REMOVAL TOOL R410A

MV-3956 5/16" FFL x 5/16" MFL rear with ball valve and 1/4" MFL side port (+ core)

SPECIFICATIONS

- These core removal tools are used to remove a valve core from a male flare access fitting, without loss of refrigerant.
- With the valve core out, many operations can be performed, including:
 - Replacing a bad core.
 - Adding or removing refrigerant more efficiently.
 - Measuring system pressure by attaching a gauge.
- MV-3956 has been improved with an easy finger 1/4 turn ball valve design.
- These patented core removal tools are strictly manufactured in accordance with the ARI norms and US standards.



MV-3956

OPERATING INSTRUCTIONS

1. Attach the tool with the front coupler to a 5/16" male flare fitting, thumb tight.
 2. With the shut-off valve (or ball valve) **completely** open, push extractor rod in and secure the valve core.
 3. Turn extractor rod counter clockwise to unscrew the core.
Caution: grasp extractor rod tightly when unscrewing valve core when higher system pressure is expected.
 4. Slowly allow extractor rod to extend back as far as possible to allow the shut-off valve (or ball valve) to be closed. (System pressure will help.)
 5. Close shut-off valve (or ball valve) completely by turning the knob clockwise.
 6. Remove rear coupler, extractor rod and valve core. With the valve core removed, system can be accessed through the 1/4" male flare rear fitting of the tool (or the side port if available).
 7. To replace a valve core, put new valve core on extractor rod end and attach extractor rod coupler to rear fitting on the tool, thumb tight.
 8. Open shut-off valve (or ball valve) **completely** by turning the knob counter clockwise.
 9. Push extractor rod in and secure valve core in fitting by turning clockwise.
- Note:** when side port is not used, make sure the cap is always installed.

CAP R410A

MV-4910 5/16" flare SAE heavy duty round brass CAP with "NEOPRENE" seal.



MV-4910

QUICK COUPLERS R410A

QCS-5/16x1/4 STRAIGHT ADAPTER for R410A
5/16" FFL swivel with core depressor
x 1/4" MFL.

QCA-5/16x1/4 90° ANGLED ADAPTER for R410A
5/16" FFL swivel with core depressor
x 1/4" MFL.



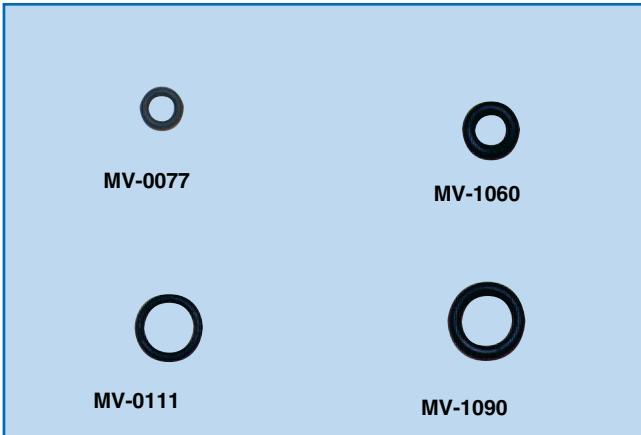
QCS-5/16x1/4



QCA-5/16x1/4

SPARE PARTS

MV-85/G Gasket 5/16" for MV-85.. series
MV-5164 Gasket 5/16" for MV-5060



ACCESS VALVE CORES

CAPS AND SPARE PARTS

MV-4445 Outside gasket: Teflon
Inside gasket: neoprene
Body: nickel-plated brass
Compatible with all *USUAL* and *NEW* refrigerants and their lubricants, including R410A
MWP: **35 bar**
Working temperature: -35°C to +100°C
Torque: 0,3 Nm to 0,35 Nm

MV-4449 Outside & inside gasket: Chloroprene
Body: nickel-plated brass
Compatible with all refrigerants including R410A and R744 (CO₂)
Not compatible with mineral oils (OM)
MWP: **60 bar**
Working temperature: -40°C to +100°C
Torque: 0,4 Nm to 0,5 Nm.

AVC-6 Plastic container with 6 cores and cap with core remover.

MV-3813 **CORE REMOVING TOOL WITH CONTAINER**
(3 cores included)

MV-3814 **CORE REMOVING TOOL FOR SMALL AND BIG VALVES** (cores not included)

MV-3816 **VALVE CORE TOOLS SCREW SET**

- Compact but very robust 7-in-1 tool.
- Large handle to fit in the palm of your hand and to allow application of maximum force.
- Ratchet handle mechanism to turn left or right, or can be fixed to use without ratchet.
- 7 different bits are neatly stored in transparent handle
 - Slotted: 5,0, 6,0
 - Philips: 1, 2
 - Core removing bits: 4,4, 5,0
 - Thread chaser (to clean and repair thread in schrader service valves).

“CHASER” CORE CONTAINER

MV-3800 Contains SIX cores. Height: **89 mm (3 1/2")**
The thumbscrew cap offers **TWO** tools:
One core-wrench on one side (for cores)
One thread-chaser (to clean and re-align the inside core threads).

MV-3688 1/8" pipe thread brass **HEX LOCKNUT**
(For example used with MV-36.. series (page 119).)

MV-5501 “TEFLON” O-ring for M-series valve (page 112).

“O” RING GASKETS

- Heavy and compact “NEOPRENE” and “BUNA” composition.

MV-0077 3,97 mm int. x 7,14 mm ext. (5/32"ID x 9/32"OD)
For thumbscrew of core depressor and MV-39.. series

MV-0099 3,97 mm int. x 8,73 mm thickness (5/32"ID x 11/32"CS)
For Coupler of MV-5050

MV-0101 6,35 mm int. x 9,53 mm ext. x 1,59 mm thickness
(1/4" ID x 3/8" OD x 1/16" CS)

MV-0111 5,56 mm int. x 7,94 mm ext. x 1,59 mm thickness
(7/32" ID x 5/16" OD x 1/16" CS)

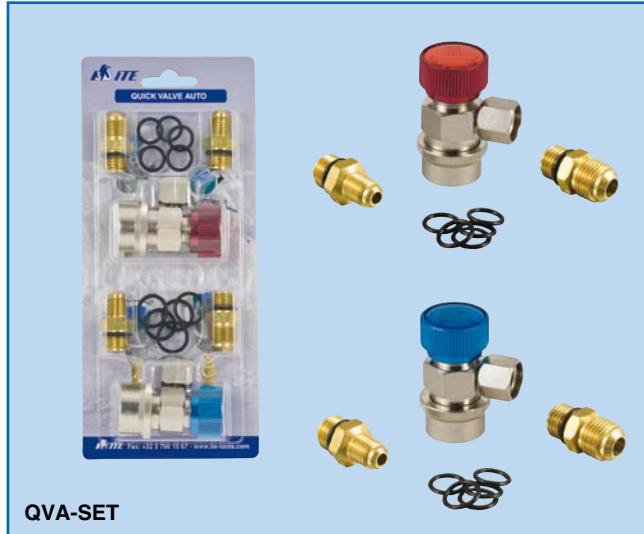
MV-1060 Used in MV-39.. series and core depressor couplers
4,76 mm int. x 9,53 mm ext. x 2,38 mm thickness
(3/16" ID x 3/8" OD x 3/32" CS) for brass “CAP”

MV-1090 7,94 mm int. x 12,7 mm ext. x 2,38 mm thickness
(5/16" ID x 1/2" OD x 3/32" CS)
Used in MV-39.. series and core depressor couplers.

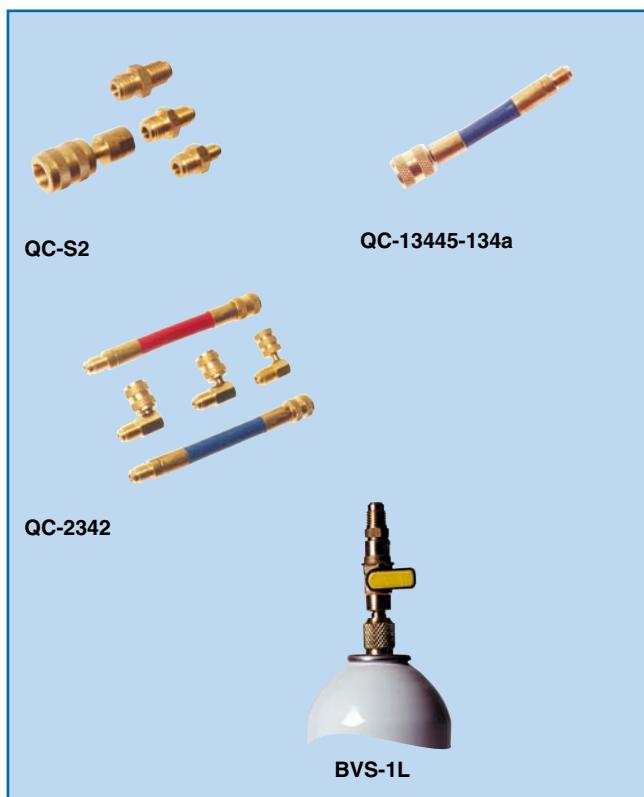
AUTOMOTIVE

"AUTOMOTIVE" QUICK COUPLERS R134a A/C SYSTEM APPLICATIONS

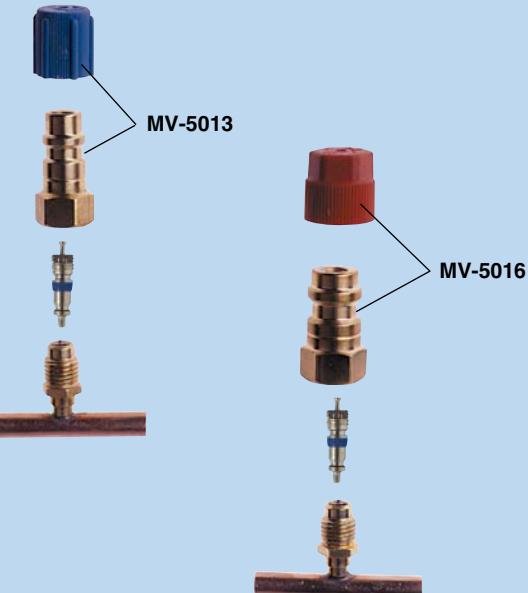
QVA-03	COMPACT HIGH SIDE "AUTOMOTIVE" COUPLER VALVE With 2 adapters: 3/8" MFL x M14 x 1,5 and 1/4" MFL x M14 x 1,5 and spare gaskets.
QVA-05	COMPACT LOW SIDE "AUTOMOTIVE" COUPLER VALVE With 2 adapters: 3/8" MFL x M14 x 1,5 and 1/4" MFL x M14 x 1,5 and spare gaskets.
QVA-103	COMPACT HIGH SIDE "AUTOMOTIVE" COUPLER VALVE with spare gaskets With 1/4" MFL connection.
QVA-105	COMPACT LOW SIDE "AUTOMOTIVE" COUPLER VALVE with spare gaskets With 1/4" MFL connection.
QVA-SET	Set of 2 COUPLER VALVES consisting of QVA-03 (High side) and QVA-05 (Low side).
QVA-SET1	Set of 2 COUPLER VALVES consisting of QVA-103 (High side) and QVA-105 (Low side).
U1-04M14 U1-06M14	Adapter 1/4" x M14 including O-ring.. Adapter 3/8" x M14 including O-ring.
QVA-03/R1234y	COUPLER VALVE HIGH SIDE for R1234y With connection M12 x 1,5
QVA-05/R1234y	COUPLER VALVE HIGH SIDE for R1234y With connection M12 x 1,5.



QC-S2	AUTOMOTIVE ADAPTER KIT for R134a 1/2" female swivel ACME x M14 female With 3 adapters: M14 male x 1/4" MFL M14 male x 1/2" MFL M14 male x 1/8" MFL
QC-S4A-134a	AUTOMOTIVE ADAPTER: 1/2" MFL ACME x 1/4" FFL swivel nut.
QC-13445-134a	AUTOMOTIVE ADAPTER: 1/4" MFL x 1/2" female ACME swivel nut.
QC-2342	A/C TOOL SET 1/4" MFL x 3/16" FFL swivel, straight, short flexible hose 1/4" MFL x 3/16" FFL swivel, elbow 1/4" MFL x 1/8" FFL fixed, straight, short flexible hose 1/4" MFL x 1/8" FFL swivel, elbow 1/4" MFL x 1/4" FFL swivel, elbow.



BVS-1L Refrigerant bottle valves see page 6 & 114.



"HEAVY DUTY FORGED BRASS ACCESS VALVES FOR OEM'S"

- Some **OEM's, CONTRACTORS** and **AUTOMOTIVE COMPANIES** are looking for heavy duty forged brass access valves resisting shocks, severe vibrations and/or excess torque "in the field" service or for their retrofit station service.
- All "**ITE "MICRO VALVE TEES**" have their 1/4" male flare SAE connections threaded to receive a valve core and all standard hoses, depressors, caps and access-tools will fit.

MV-5013	R134a RETROFIT BRASS ADAPTER Straight automotive low side stem (13 mm) with core and blue plastic cap x 1/4" FFL
MV-5016	R134a RETROFIT BRASS ADAPTER Straight automotive high side stem (16 mm) with core and red plastic cap x 1/4" FFL



MV-5036	AUTOMOTIVE BRASS ADAPTER 3/16" FFL (thumbscrew) x 1/4" MFL (with security groove) Contains progressive loose Depressor pin <i>SPECIAL FITTING FOR AUTOMOTIVE A/C.</i>
MV-5014	AUTOMOTIVE BRASS ADAPTER (all uses) 1/4" FFL (thumbscrew) x 1/4" MFL (with security groove) Contains progressive loose Depressor pin <i>SPECIAL FITTING FOR AUTOMOTIVE A/C.</i>



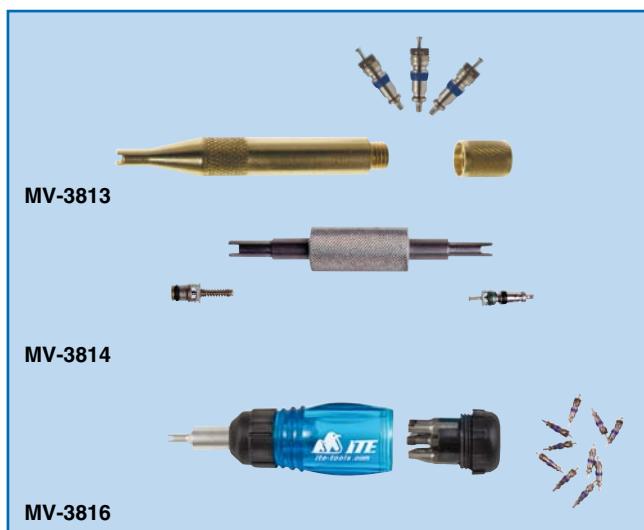
MV-7414	AUTOMOTIVE BRASS ADAPTER 1/2" male ACME (+ core & plastic cap) x 1/4" MPT.
MV-7418	AUTOMOTIVE BRASS ADAPTER 1/2" male ACME (+ core & plastic cap) x 1/8" MPT.

AUTOMOTIVE VALVE CORES

MV-3813	CORE REMOVING TOOL WITH CONTAINER (3 cores included).
MV-3814	CORE REMOVING TOOL FOR SMALL AND BIG VALVES (cores not included).

MV-3816	VALVE CORE TOOLS SCREW SET.
----------------	------------------------------------

- Compact but very robust 7-in-1 tool.
- Large handle to fit in the palm of your hand and to allow application of maximum force.
- Ratchet handle mechanism to turn left or right, or can be fixed to use without ratchet.
- 7 different bits are neatly stored in transparent handle
 - Slotted: 5,0, 6,0
 - Philips: 1, 2
 - Core removing bits: 4,4, 5,0
 - Thread chaser (to clean and repair thread in schrader service valves).



AVC-JRA	NICKEL PLATED JRA VALVE CORE This valve core conforms to the Japan refrigeration & air conditioning industry association charging valves for automotive air conditioners, standard JRA 2009-1991.
----------------	---

AVC-GD	VALVE CORE GASKET NEOPRENE, large flow M8 x 100 Flow: 30 m³/h Temperature range: -40°C to +100°C with peak of +120°C. Use core wrench MV-3816.
---------------	---

AVC-GD/HNBR	VALVE CORE GASKET HNBR, large flow M8 x 100 Flow: 30 m³/h Temperature range: -40°C to +120°C with peak of +150°C Use core wrench MV-3816.
--------------------	--



AUTOMOTIVE HP-BP ACCESS PORTS

- For AVC-JRA, AVC-GD and AVC-GD/HNBR automotive valve core gaskets

AVCI-HP	ACCESS PORT steel
AVCA-HP	ACCESS PORT aluminium
AVCI-BP	ACCESS PORT steel
AVCA-BP	ACCESS PORT aluminium



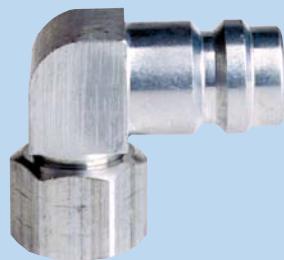
AUTOMOTIVE CAPS

AC-BP	Automotive SAE cap valve 'LP' Static pressure: 0 - 28 bar Temperature range: -40°C to +120°C.
AC-HP	Automotive SAE cap valve 'HP' Static pressure: 0 - 28 bar Temperature range: -40°C to +120°C.





MV-7100



MV-7114

CONVERSION FITTINGS

MV-7100

Conversion fitting straight HP 3/16" FFL.

MV-7102

Conversion fitting straight LP 1/4" FFL.

MV-7114

Conversion fitting 90° HP 3/16" FFL.



AVC-NEO/TEFLON



AVC-NEOPRENE



AVC-HNBR



AUTOMOTIVE VALVE CORE GASKETS

- For use in refrigeration and air conditioning.

AVC-NEO/TEFLON
VALVE CORE GASKET NEOPRENE /

teflon with internal mechanism

 Flow: 6 m³/h.

AVC-NEOPRENE
VALVE CORE GASKET NEOPRENE

 Flow: 12 m³/h

Temperature range: -40°C to +100°C with peak of +120°C.

AVC-HNBR
VALVE CORE GASKET HNBR

 Flow: 12 m³/h

Temperature range: -40°C to +120°C with peak of +150°C

FORGED BRASS & STEEL FITTINGS

“NPT” and “Flare 45° SAE”



FORGED BRASS & STEEL FITTINGS

“NPT” and “Flare 45° SAE”



BRASS FLARE FITTINGS

STANDARD FLARE SAE 45°

FITTING CONNECTIONS RANGE

1/8", 3/16", 1/4", 5/16", 3/8", 1/2", 5/8", 3/4", 7/8",

FFL : Female Flare sae 45°

MFL : Male Flare sae 45°

FPT : Female national Pipe Thread

MPT : Male national Pipe Thread

PURPOSE

- These FLARE SAE 45° fittings are widely used for:

- REFRIGERATION
- AIR CONDITIONING
- MARINE and AIRCRAFT industries
- Flammable liquid and OIL industries

DESCRIPTION

- These economical fittings resist mechanical pullout.
- Can be assembled and disassembled repeatedly.
- Long dryseal pipe thread (*IMPORTANT: strictly in ACCORDANCE with the STANDARDS*) minimize leakage and provide more clearance for tightening flare nuts.
- Grooved shapes, elbows, tees, etc... made from brass forgings to maximize strength and eliminate cracks.

SPECIFICATIONS

- These FLARE SAE 45° fittings may be used with copper, brass, aluminium, steel and plastic tube provided an acceptable flare can be generated with the material.
- Vacuum to pressures of **350 bar** (5000 psi) can be handled dependent upon size, material and conditions.

Using a safety factor the following general rule (excluding plastic tube) is used for copper tubing under **73°C** (163°F):

190 bar (2800 psi)	for tubing up to 1/8"
135 bar (1900 psi)	for tubing up to 3/16"
100 bar (1400 psi)	for tubing up to 1/4"
85 bar (1200 psi)	for tubing up to 5/16"
70 bar (1000 psi)	for tubing up to 3/8"
53 bar (750 psi)	for tubing up to 1/2"
46 bar (650 psi)	for tubing up to 5/8"
39 bar (550 psi)	for tubing up to 3/4"
32 bar (450 psi)	for tubing up to 7/8"

- Temperature ranges:

-54°C to +120°C (-65°C to +250°F)

INSTALLATION & INSTRUCTIONS

- Note that short nuts may be used when vibration is minimal.
- Long nuts are recommended when vibration is a factor.
- Tubing should be double flared in extreme applications to minimize flare thinning on over-tightening (*see our flaring tool 195-FB page 85*).

ASSEMBLY INSTRUCTIONS:

- Cut tube and remove burr (*see our tools section*).
 - Slide nut on tube, threaded end facing end of tube.
 - Flare tube following flaring tool manufacturer instructions to provide 45° SAE flare.
 - Thread nut on to fitting body "handtight".
 - With correct wrench tighten to a solid feel.

ATTENTION:

- Over-tightening and dirt can damage fittings and/or tube causing leaks.
- Lubrication of flare faces and threads is always recommended when practical.





NORMS

- **U.L. Listed**, these FLARE SAE 45° fittings and NPT Pipe Fittings meet functional requirement of:
 - SAE J512, 45° + Flare
 - SAE J513C, ASA and ARI 720-55 (*All flare SAE*)
 - Military std and ASTM ANSI B70-1 (*All flare SAE*)
 - U.S. Std National Pipe Thread (*All "MPT" & "FPT"*)

SAE FLARE THREAD SIZE

Dash Size	Inch Size	Thread	Male Thread O.D. mm	Male Thread O.D. Inches	Female Thread I.D. mm	Female Thread I.D. Inches
02	1/8"	5/16-24	7,9	,31	6,9	,27
03	3/16"	3/8-24	9,6	,38	8,6	,34
04	1/4"	7/16-20	11,2	,44	9,9	,39
05	5/16"	1/2-20	12,7	,50	11,4	,45
06	3/8"	5/8-18	15,7	,62	14,2	,56
08	1/2"	3/4-16	19,0	,75	17,0	,67
10	5/8"	7/8-14	22,3	,88	20,3	,80
12	3/4"	11/16-14	26,9	1,06	25,1	,99
14	7/8"	1 1/4-12	31,7	1,25	29,5	1,16
16	1	1 3/8-12	35,0	1,38	32,5	1,28

TORQUE FOR SAE FLARE FITTINGS

- After handtight any SAE flare fittings, use the correct wrench to tighten it by **2,5 turns** or use the correct wrench as follows:

TUBE DIAM.	RECOMMENDED TORQUE	MAXIMUM TORQUE
1/8"	8,0 Nm (6 ft.lbs)	9,5 Nm (7 ft.lbs)
3/16"	11,0 Nm (8 ft.lbs)	12,2 Nm (9 ft.lbs)
1/4"	12,2 Nm (9 ft.lbs)	13,5 Nm (10 ft.lbs)
5/16"	19,0 Nm (14 ft.lbs)	22,0 Nm (16 ft.lbs)
3/8"	27,0 Nm (20 ft.lbs)	33,7 Nm (25 ft.lbs)
1/2"	40,5 Nm (30 ft.lbs)	47,2 Nm (35 ft.lbs)
5/8"	60,8 Nm (45 ft.lbs)	74,2 Nm (55 ft.lbs)
3/4"	107,0 Nm (79 ft.lbs)	119,0 Nm (88 ft.lbs)
7/8"	147,0 Nm (108 ft.lbs)	154,0 Nm (113 ft.lbs)

COMMON THREADS

Thread UNF	US Spec.	Outside major diameter mm	Core dia. (min size) mm	Pitch nr. per inch	Pitch mm
5/16" - 24 UNF	1/8" SAE	7,938	6,792	24	1,058
3/8" - 24 UNF	3/16" SAE	9,525	8,379	24	1,058
7/16" - 20 UNF	1/4" SAE	11,112	9,738	20	1,270
1/2" - 20 UNF	5/16" SAE	12,700	11,328	20	1,270
5/8" - 18 UNF	3/8" SAE	15,875	14,348	18	1,411
3/4" - 16 UNF	1/2" SAE	19,050	17,330	16	1,588
7/8" - 14 UNF	5/8" SAE	22,225	20,262	14	1,814
1 1/16" - 14 UNF	3/4" SAE	25,400	25,024	14	1,814
1 1/8" - 12 UNF	-	28,575	26,284	12	2,117
1 1/4" - 12 UNF	7/8" SAE	31,750	29,459	12	2,117
1 3/8" - 12 UNF	1" SAE	34,925	32,634	12	2,117
1 1/2" - 12 UNF	-	38,100	35,809	12	2,117



B1

BONNETS, RED COPPER FLARE

(Used with flare NUT to cap and close any flare fittings)

B1-04	For 1/4" flare
B1-06	For 3/8" flare
B1-08	For 1/2" flare
B1-10	For 5/8" flare
B1-12	For 3/4" flare



B2

GASKETS, RED COPPER FLARE

(Put in between brass to brass or to steel or to copper for high sealing)

B2-03	For 3/16" flare
B2-04	For 1/4" flare
B2-05	For 5/16" flare
B2-06	For 3/8" flare
B2-08	For 1/2" flare
B2-10	For 5/8" flare
B2-12	For 3/4" flare



E1

2

90° ELBOWS, MALE FLARE x MALE PIPE

E1-03A	3/16" MFL	x	1/8" MPT
E1-04A	1/4" MFL	x	1/8" MPT
E1-04B	1/4" MFL	x	1/4" MPT
E1-04C	1/4" MFL	x	3/8" MPT
E1-05B	5/16" MFL	x	1/4" MPT
E1-06A	3/8" MFL	x	1/8" MPT
E1-06B	3/8" MFL	x	1/4" MPT
E1-06C	3/8" MFL	x	3/8" MPT
E1-06D	3/8" MFL	x	1/2" MPT
E1-08B	1/2" MFL	x	1/4" MPT
E1-08C	1/2" MFL	x	3/8" MPT
E1-08D	1/2" MFL	x	1/2" MPT
E1-08E	1/2" MFL	x	3/4" MPT
E1-10C	5/8" MFL	x	3/8" MPT
E1-10D	5/8" MFL	x	1/2" MPT
E1-10E	5/8" MFL	x	3/4" MPT
E1-12D	3/4" MFL	x	1/2" MPT
E1-12E	3/4" MFL	x	3/4" MPT



E2



90° ELBOWS, 2 x MALE FLARE

E2-04	1/4" MFL	x	1/4" MFL
E2-06	3/8" MFL	x	3/8" MFL
E2-08	1/2" MFL	x	1/2" MFL
E2-10	5/8" MFL	x	5/8" MFL
E2-12	3/4" MFL	x	3/4" MFL



C1

4

3

2

CROSS, 4 x MALE FLARE

C1-04	1/4" MFL
C1-06	3/8" MFL



E3

2



90° ELBOWS, MALE FLARE x FEMALE PIPE

E3-04A	1/4" MFL	x	1/8" FPT
E3-04B	1/4" MFL	x	1/4" FPT
E3-06A	3/8" MFL	x	1/8" FPT
E3-06B	3/8" MFL	x	1/4" FPT
E3-06C	3/8" MFL	x	3/8" FPT
E3-06D	3/8" MFL	x	1/2" FPT
E3-08C	1/2" MFL	x	3/8" FPT
E3-08D	1/2" MFL	x	1/2" FPT
E3-10D	5/8" MFL	x	1/2" FPT



E4

2

90° ELBOWS, MALE FLARE x FEMALE FLARE
(Shipped with 1 copper gasket on female end)

E4-44	1/4" MFL	x	1/4" FFL
E4-66	3/8" MFL	x	3/8" FFL
E4-88	1/2" MFL	x	1/2" FFL



FPA

FUSIBLE PIPE PLUGS

(CE or U.L. listed upon request, relief opening to the temperat./pressure labeled)

FPA-168	1/8" MPT	for	76°C
FPA-210	1/8" MPT	for	99°C
FPA-283	1/8" MPT	for	139°C
FPB-168	1/4" MPT	for	76°C
FPB-210	1/4" MPT	for	99°C
FPB-283	1/4" MPT	for	139°C
FPC-168	3/8" MPT	for	76°C
FPC-210	3/8" MPT	for	99°C
FPC-283	3/8" MPT	for	139°C

Note: To be used only in small installations, if the working pressure is smaller or equal to 25 bar and if the volume is smaller or equal to 2 litre.



ER2

2

90° ELBOWS, REDUCING 2 x MALE FLARE

ER2-0064	3/8" MFL	x	1/4" MFL
ER2-0084	1/2" MFL	x	1/4" MFL
ER2-0086	1/2" MFL	x	3/8" MFL
ER2-0108	5/8" MFL	x	1/2" MFL



HNS4



ES4

2

90° ELBOWS, MALE FLARE x SWIVEL FEMALE FLARE

ES4-0044	1/4" MFL	x	1/4" swivel FFL
ES4-0066	3/8" MFL	x	3/8" swivel FFL
ES4-0088	1/2" MFL	x	1/2" swivel FFL
ES4-1010	5/8" MFL	x	5/8" swivel FFL
ES4-1212	3/4" MFL	x	3/4" swivel FFL



K1

ADAPTERS, REFRIGERANT DRUM

(Female NPS cylinder x male flare)

(Shipped with 1 fibre gasket for refrigerant cylinder)

K1-08	1/2" FPT	x	1/4" MFL
K1-01	3/4" FPT	x	1/4" MFL
K1-03	3/4" FPT	x	3/8" MFL
K1-05	3/4" FPT	x	1/2" MFL
K1-1/2-BSP	1/4" MFL	x	M21,8
K1-10	Cylinder adapter	1/4 M - 18/150 F	
K1-11	Cylinder adapter	3/8 M - 18/150 F	
K1-12	Cylinder adapter	1/4 M - 21, 7/1, 814 F	
K1-13	Cylinder adapter	3/8 M - 21, 7/1, 814 F	
K1-D	Gasket for K1-8		
K1-E	Gasket for K1-1, K1-3 and K1-5		
K1-12G	Gasket for K1-12		



MV-2245

CAPS, FINGER TIGHT FLARE + GASKET
(With NEOPRENE seal)

MV-2245	1/4" FFL
MV-4910	5/16" FFL
NFT5-6	3/8" FFL



N4

LONG NUTS, FORGED SECURITY
(High vibration resistance)

N4-04	1/4" FFL
N4-05	5/16" FFL
N4-06	3/8" FFL
N4-08	1/2" FFL
N4-10	5/8" FFL
N4-12	3/4" FFL



N5

CAPS, FEMALE FLARE

N5-04	1/4" FFL
N5-05	5/16" FFL
N5-06	3/8" FFL
N5-08	1/2" FFL
N5-10	5/8" FFL
N5-12	3/4" FFL



NRS4

NUTS, FORGED REDUCING FEMALE FLARE
x MM

NRS4-3/8x6mm	6 mm tube	x	3/8" FFL
NRS4-3/8x8mm	8 mm tube	x	3/8" FFL
NRS4-1/2x10mm	10 mm tube	x	1/2" FFL
NRS4-5/8x12mm	12 mm tube	x	5/8" FFL
NRS4-5/8x15mm	15 mm tube	x	5/8" FFL
NRS4-3/4x16mm	16 mm tube	x	3/4" FFL
NRS4-7/8x20mm	20 mm tube	x	7/8" FFL



2

NRS4

NUTS, FORGED REDUCING FEMALE FLARE

NRS4-0043	3/16" tube	x	1/4" FFL
NRS4-0054	1/4" tube	x	5/16" FFL
NRS4-0064	1/4" tube	x	3/8" FFL
NRS4-0065	5/16" tube	x	3/8" FFL
NRS4-0086	3/8" tube	x	1/2" FFL
NRS4-0108	1/2" tube	x	5/8" FFL
NRS4-1210	5/8" tube	x	3/4" FFL



2

NS4

NUTS, SHORT FORGED FEMALE FLARE x
MM

NS4-06mm	6 mm tube	x	1/4" FFL
NS4-10mm	10 mm tube	x	3/8" FFL
NS4-12mm	12 mm tube	x	1/2" FFL
NS4-16mm	16 mm tube	x	5/8" FFL
NS4-18mm	18 mm tube	x	3/4" FFL
NS4-22mm	22 mm tube	x	7/8" FFL



2

NS4

NUTS, SHORT FORGED FEMALE FLARE

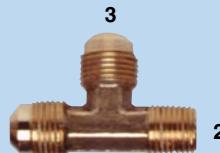
NS4-03	3/16" tube	x	3/16" FFL
NS4-04	1/4" tube	x	1/4" FFL
NS4-05	5/16" tube	x	5/16" FFL
NS4-06	3/8" tube	x	3/8" FFL
NS4-08	1/2" tube	x	1/2" FFL
NS4-10	5/8" tube	x	5/8" FFL
NS4-12	3/4" tube	x	3/4" FFL

P2


PLUGS, MALE FLARE

P2-03	3/16" MFL
P2-04	1/4" MFL
P2-05	5/16" MFL
P2-06	3/8" MFL
P2-08	1/2" MFL
P2-10	5/8" MFL
P2-12	3/4" MFL

T3


TEES, 2 x MALE FLARE x MALE PIPE

T3-04A	1/4" MFL x 1/8" MPT x 1/4" MFL
T3-04B	1/4" MFL x 1/4" MPT x 1/4" MFL
T3-06B	3/8" MFL x 1/4" MPT x 3/8" MFL
T3-08D	1/2" MFL x 1/2" MPT x 1/2" MFL
T3-12E	3/4" MFL x 3/4" MPT x 3/4" MFL

T1


TEES, 2 x MALE FLARE x MALE PIPE

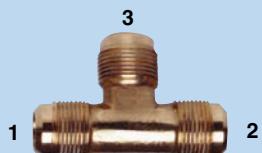
T1-04A	1/4" MFL x 1/4" MFL x 1/8" MPT
T1-04B	1/4" MFL x 1/4" MFL x 1/4" MPT
T1-04C	1/4" MFL x 1/4" MFL x 3/8" MPT
T1-06B	3/8" MFL x 3/8" MFL x 1/4" MPT
T1-06C	3/8" MFL x 3/8" MFL x 3/8" MPT
T1-08C	1/2" MFL x 1/2" MFL x 3/8" MPT
T1-08D	1/2" MFL x 1/2" MFL x 1/2" MPT
T1-10C	5/8" MFL x 5/8" MFL x 3/8" MPT
T1-10D	5/8" MFL x 5/8" MFL x 1/2" MPT

TR2


TEES, REDUCING 3 x MALE FLARE

TR2-00446	1/4" MFL x 1/4" MFL x 3/8" MFL
TR2-00664	3/8" MFL x 3/8" MFL x 1/4" MFL
TR2-00668	3/8" MFL x 3/8" MFL x 1/2" MFL
TR2-00886	1/2" MFL x 1/2" MFL x 3/8" MFL

T2


TEES, 3 x MALE FLARE

T2-04	1/4" MFL
T2-05	5/16" MFL
T2-06	3/8" MFL
T2-08	1/2" MFL
T2-10	5/8" MFL
T2-12	3/4" MFL

T6


TEE, 2 x MALE FLARE x FEMALE FLARE
(Shipped with 1 copper gasket on female end)

T6-4	1/4" MFL x 1/4" MFL x 1/4" FFL
-------------	--------------------------------

U1


ADAPTERS, MALE FLARE x MALE PIPE

U1-03A	3/16" MFL x 1/8" MPT
U1-04A	1/4" MFL x 1/8" MPT
U1-04B	1/4" MFL x 1/4" MPT
U1-04C	1/4" MFL x 3/8" MPT
U1-04D	1/4" MFL x 1/2" MPT
U1-05A	5/16" MFL x 1/8" MPT
U1-05B	5/16" MFL x 1/4" MPT
U1-05C	5/16" MFL x 3/8" MPT
U1-06A	3/8" MFL x 1/8" MPT
U1-06B	3/8" MFL x 1/4" MPT
U1-06C	3/8" MFL x 3/8" MPT
U1-06D	3/8" MFL x 1/2" MPT
U1-06E	3/8" MFL x 3/4" MPT
U1-08A	1/2" MFL x 1/8" MPT
U1-08B	1/2" MFL x 1/4" MPT
U1-08C	1/2" MFL x 3/8" MPT
U1-08D	1/2" MFL x 1/2" MPT
U1-08E	1/2" MFL x 3/4" MPT
U1-10B	5/8" MFL x 1/4" MPT
U1-10C	5/8" MFL x 3/8" MPT
U1-10D	5/8" MFL x 1/2" MPT
U1-10E	5/8" MFL x 3/4" MPT
U1-12D	3/4" MFL x 1/2" MPT
U1-12E	3/4" MFL x 3/4" MPT
U1-06M14	3/8" MFL x M14



U2

STRAIGHT UNIONS, 2 x MALE FLARE

U2-03	3/16" MFL	x	3/16" MFL
U2-04	1/4" MFL	x	1/4" MFL
U2-05	5/16" MFL	x	5/16" MFL
U2-06	3/8" MFL	x	3/8" MFL
U2-08	1/2" MFL	x	1/2" MFL
U2-10	5/8" MFL	x	5/8" MFL
U2-12	3/4" MFL	x	3/4" MFL



U5

ADAPTERS, FEMALE FLARE x MALE PIPE *(Shipped with 1 copper gasket)*

U5-04A	1/8" MPT	x	1/4" FFL
U5-04B	1/4" MPT	x	1/4" FFL
U5-06B	1/4" MPT	x	3/8" FFL
U5-08D	1/2" MPT	x	1/2" FFL



U3

ADAPTERS, MALE FLARE x FEMALE PIPE

U3-04A	1/4" MFL	x	1/8" FPT
U3-04B	1/4" MFL	x	1/4" FPT
U3-04C	1/4" MFL	x	3/8" FPT
U3-05A	5/16" MFL	x	1/8" FPT
U3-05B	5/16" MFL	x	1/4" FPT
U3-06A	3/8" MFL	x	1/8" FPT
U3-06B	3/8" MFL	x	1/4" FPT
U3-06C	3/8" MFL	x	3/8" FPT
U3-06D	3/8" MFL	x	1/2" FPT
U3-08B	1/2" MFL	x	1/4" FPT
U3-08C	1/2" MFL	x	3/8" FPT
U3-08D	1/2" MFL	x	1/2" FPT
U3-10C	5/8" MFL	x	3/8" FPT
U3-10D	5/8" MFL	x	1/2" FPT
U3-10E	5/8" MFL	x	3/4" FPT



U6

STRAIGHT UNIONS, FEMALE FLARE x FEMALE PIPE *(Shipped with 1 copper gasket on Flare end)*

U6-4A	1/8" FPT	x	1/4" FFL
U6-4B	1/4" FPT	x	1/4" FFL



U4

STRAIGHT CONNECTORS, 2 x FEMALE FLARE *(shipped with 2 copper gaskets)*

U4-04	1/4" FFL
U4-06	3/8" FFL
U4-08	1/2" FFL
U4-10	5/8" FFL
U4-12	3/4" FFL



UR2

REDUCING UNIONS, 2 x MALE FLARE

UR2-0043	1/4" MFL	x	3/16" MFL
UR2-0054	5/16" MFL	x	1/4" MFL
UR2-0064	3/8" MFL	x	1/4" MFL
UR2-0065	3/8" MFL	x	5/16" MFL
UR2-0084	1/2" MFL	x	1/4" MFL
UR2-0086	1/2" MFL	x	3/8" MFL
UR2-0104	5/8" MFL	x	1/4" MFL
UR2-0106	5/8" MFL	x	3/8" MFL
UR2-0108	5/8" MFL	x	1/2" MFL
UR2-0128	3/4" MFL	x	1/2" MFL
UR2-1210	3/4" MFL	x	5/8" MFL



UR3

ADAPTERS, FEMALE FLARE x MALE FLARE
(Shipped with 1 copper gasket on female end)

UR3-0045	1/4"	FFL	x	5/16"	MFL
UR3-0046	1/4"	FFL	x	3/8"	MFL
UR3-0048	1/4"	FFL	x	1/2"	MFL
UR3-0064	3/8"	FFL	x	1/4"	MFL
UR3-0065	3/8"	FFL	x	5/16"	MFL
UR3-0068	3/8"	FFL	x	1/2"	MFL
UR3-0084	1/2"	FFL	x	1/4"	MFL
UR3-0086	1/2"	FFL	x	3/8"	MFL
UR3-0810	1/2"	FFL	x	5/8"	MFL
UR3-0106	5/8"	FFL	x	3/8"	MFL
UR3-0108	5/8"	FFL	x	1/2"	MFL
UR3-1012	5/8"	FFL	x	3/4"	MFL
UR3-1210	3/4"	FFL	x	5/8"	MFL



US3

ADAPTERS, MALE FLARE x SOLDER HEX

US3-0044	1/4"	MFL	x	1/4"	ODS
US3-0045	1/4"	MFL	x	5/16"	ODS
US3-0046	1/4"	MFL	x	3/8"	ODS
US3-0064	3/8"	MFL	x	1/4"	ODS
US3-0065	3/8"	MFL	x	5/16"	ODS
US3-0066	3/8"	MFL	x	3/8"	ODS
US3-0068	3/8"	MFL	x	1/2"	ODS
US3-0610	3/8"	MFL	x	5/8"	ODS
US3-0086	1/2"	MFL	x	3/8"	ODS
US3-0088	1/2"	MFL	x	1/2"	ODS
US3-0810	1/2"	MFL	x	5/8"	ODS
US3-0108	5/8"	MFL	x	1/2"	ODS
US3-1010	5/8"	MFL	x	5/8"	ODS
US3-1012	5/8"	MFL	x	3/4"	ODS
US3-1014	5/8"	MFL	x	7/8"	ODS
US3-1212	3/4"	MFL	x	3/4"	ODS
US3-1214	3/4"	MFL	x	7/8"	ODS



US4

SWIVEL CONNECTORS, 2 x FEMALE FLARE

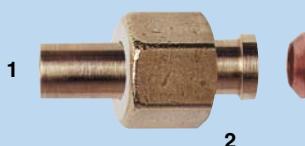
US4-04	1/4"	FFL
US4-06	3/8"	FFL
US4-08	1/2"	FFL
US4-10	5/8"	FFL



US5

SWIVEL FEMALE FLARE CONNECTORS x O.D.S. SOLDER END ADAPTER

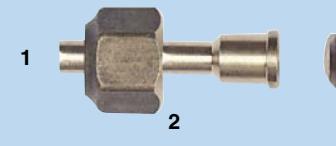
US5-0044	1/4"	ODS	x	1/4"	FFL
US5-0066	3/8"	ODS	x	3/8"	FFL
US5-0088	1/2"	ODS	x	1/2"	FFL
US5-1010	5/8"	ODS	x	5/8"	FFL



USTK

STEK COUPLINGS
(Shipped with 1 copper gasket on flare end) (CE listed)

USTK-04	1/4"	STEK welding	x	1/4"	swivel flare
USTK-06	3/8"	STEK welding	x	3/8"	swivel flare
USTK-08	1/2"	STEK welding	x	1/2"	swivel flare
USTK-10	5/8"	STEK welding	x	5/8"	swivel flare
USTK-12	3/4"	STEK welding	x	3/4"	swivel flare



USTKR-46

STEK COUPLING REDUCER
(Shipped with 1 copper gasket on flare end) (CE listed)

USTKR-46	1/4"	STEK welding	x	3/8"	swivel flare
----------	------	--------------	---	------	--------------



UX1

EXTRA LONG HEX UNIONS, MALE FLARE x MALE PIPE

UX1-4A	1/4"	MFL	x	1/8"	MPT
UX1-4B	1/4"	MFL	x	1/4"	MPT

NPT PIPE FORGED BRASS FITTINGS

"STANDARD NATIONAL PIPE THREAD"

FITTINGS CONNECTIONS ARE:

- Standard **MPT (Male NATIONAL PIPE THREAD)**
- Standard **FPT (Female NATIONAL PIPE THREAD)**
- EXCELLENT PULL OUT, MAKE and BREAK, GOOD VIBRATION RESISTANCE, LOW COST, EASY ASSEMBLY and...
THE LARGEST SELECTION IMMEDIATELY AVAILABLE ON STOCK...

PURPOSE, SPECIFICATION & NORMS:

- See "BRASS FLARED TUBE FITTINGS" section, page 139.



100-B

FORGED 90° ELBOWS, 2 x FEMALE PIPE

100-B-02	1/8" FPT
100-B-04	1/4" FPT
100-B-06	3/8" FPT
100-B-08	1/2" FPT



104-B

HEX 3 PIECES UNIONS, 2 x FEMALE PIPE

104-B-02	1/8" FPT
104-B-04	1/4" FPT



101-B

FORGED TEES, 3 x FEMALE PIPE

101-B-02	1/8" FPT
101-B-04	1/4" FPT
101-B-06	3/8" FPT
101-B-08	1/2" FPT



108-B

FEMALE CAPS, FEMALE PIPE

108-B-02	1/8" FPT
108-B-04	1/4" FPT
108-B-06	3/8" FPT
108-B-08	1/2" FPT



103-B

HEX COUPLINGS, 2 x FEMALE PIPE

103-B-02	1/8" FPT
103-B-04	1/4" FPT
103-B-06	3/8" FPT
103-B-08	1/2" FPT



MALE SQUARE HEAD PLUGS, MALE PIPE

109-B-02	1/8" MPT
109-B-04	1/4" MPT
109-B-06	3/8" MPT
109-B-08	1/2" MPT

110-B 1 2



HEX BUSHINGS, MALE PIPE x FEMALE PIPE

110-B-04x02	1/4" MPT	x	1/8" FPT
110-B-06x02	3/8" MPT	x	1/8" FPT
110-B-06x04	3/8" MPT	x	1/4" FPT
110-B-08x02	1/2" MPT	x	1/8" FPT
110-B-08x04	1/2" MPT	x	1/4" FPT
110-B-08x06	1/2" MPT	x	3/8" FPT
110-B-12x06	3/4" MPT	x	3/8" FPT
110-B-12x08	3/4" MPT	x	1/2" FPT

116-B 1 2



FORGED 90° STREET ELBOWS, MALE PIPE x FEMALE PIPE

116-B-02	1/8" MPT	x	1/8" FPT
116-B-04	1/4" MPT	x	1/4" FPT
116-B-06	3/8" MPT	x	3/8" FPT
116-B-08	1/2" MPT	x	1/2" FPT

111-B



HEX LOCK NUTS, FEMALE PIPE

(Through wall maintaining)

111-B-02	1/8" FPT
111-B-04	1/4" FPT
111-B-06	3/8" FPT
111-B-08	1/2" FPT



SLOTTED PLUGS, MALE PIPE

117-B-02	1/8" MPT
117-B-04	1/4" MPT
117-B-06	3/8" MPT



NIPPLES, 2 x MALE PIPE

112-B-02	1/8" MPT
112-B-04	1/4" MPT
112-B-06	3/8" MPT
112-B-08	1/2" MPT



HEX REDUCING BUSHINGS, 2 x FEMALE PIPE

119-B-04x02	1/4" FPT	x	1/8" FPT
119-B-06x04	3/8" FPT	x	1/4" FPT
119-B-08x06	1/2" FPT	x	3/8" FPT

113-B



LONG NIPPLES, 2 x MALE PIPE

113-B-02x24	Long nipple 1/8" MPT - 38 mm
113-B-04x24	Long nipple 1/4" MPT - 38 mm
113-B-04x32	Long nipple 1/4" MPT - 51 mm
113-B-04x48	Long nipple 1/4" MPT - 76 mm



HEX ADAPTERS, FEMALE PIPE x MALE PIPE

120-B-02x02	1/8" FPT	x	1/8" MPT
120-B-04x02	1/4" FPT	x	1/8" MPT
120-B-04x04	1/4" FPT	x	1/4" MPT
120-B-06x04	3/8" FPT	x	1/4" MPT
120-B-08x06	1/2" FPT	x	3/8" MPT
120-B-08x08	1/2" FPT	x	1/2" MPT

121-B (P3)



HEX HEAD PLUGS, MALE PIPE

121-B-02 (P3-A)	1/8" MPT
121-B-04 (P3-B)	1/4" MPT
121-B-06 (P3-C)	3/8" MPT
121-B-08 (P3-D)	1/2" MPT
121-B-12 (P3-E)	3/4" MPT



TYPE 501

2

90° ELBOWS, FORGED BRASS, ODS SOLDER END x MALE PIPE

802106	1/4" ODS	x	1/4" MPT
802107	1/4" ODS	x	1/8" MPT
802115	3/8" ODS	x	1/4" MPT
802116	3/8" ODS	x	1/8" MPT
802125	1/2" ODS	x	3/8" MPT
802132	5/8" ODS	x	3/8" MPT

122-B (U10)



HEX NIPPLES, 2 x MALE PIPE

122-B-02 (U10-A)	1/8" MPT
122-B-04 (U10-B)	1/4" MPT
122-B-06 (U10-C)	3/8" MPT
122-B-08 (U10-D)	1/2" MPT



TYPE 502

2

90° ELBOWS, FORGED BRASS, ODS SOLDER END x FEMALE PIPE

802206	1/4" ODS	x	1/4" FPT
802207	1/4" ODS	x	1/8" FPT
802214	3/8" ODS	x	3/8" FPT
802216	3/8" ODS	x	1/8" FPT
802225	1/2" ODS	x	3/8" FPT
802226	1/2" ODS	x	1/4" FPT

123-B



REDUCING HEX NIPPLES, 2 x MALE PIPE

123-B-04x02	1/4" MPT	x	1/8" MPT
123-B-06x04	3/8" MPT	x	1/4" MPT



TYPE 602

3



2

TEES, FORGED BRASS, 2 x ODS SOLDER END x FEMALE PIPE

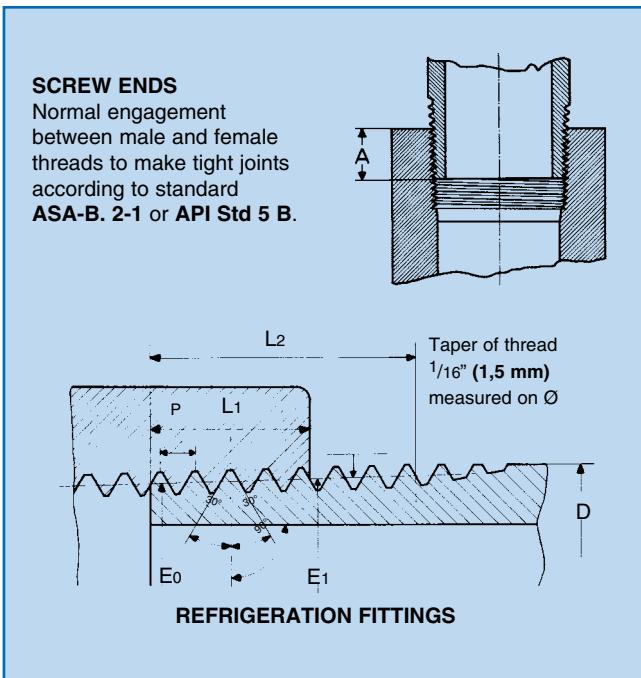
804208	1/4" ODS	x	1/4" ODS	x	1/4" FPT
804209	1/4" ODS	x	1/4" ODS	x	1/8" FPT
804228	3/8" ODS	x	3/8" ODS	x	3/8" FPT
804229	3/8" ODS	x	3/8" ODS	x	1/4" FPT
804230	3/8" ODS	x	3/8" ODS	x	1/8" FPT
804259	1/2" ODS	x	1/2" ODS	x	3/8" FPT
804283	5/8" ODS	x	5/8" ODS	x	1/2" FPT

BULKHEAD ADAPTER, FEMALE PIPE
(Through wall anchor)

129-B-02x24 1/8" FPT - Length: 38 mm

129-B





REFRIGERATION STEEL FITTINGS

"STEEL 3000 & SCHEDULE 80"

DESCRIPTION

- All these "**NPT**" **FORGED STEEL FITTINGS & UNIONS** are suitable for:- **REFRIGERATION**
 - **AIR-CONDITIONING**
 - **MARINE** and **OIL** industries
- Both threads are Male thread (**MPT**) or Female thread (**FPT**) and are designated as follows:
 - "**NPT**": National Pipe Thread according to the US std
 - "**PIPE**": Inexplicit term used sometimes.
(There is no similarity with "GAS" or "BSP" threads)
- Meanwhile, to define these specific "**NPT**" steel threaded fittings and unions, professional terms normally used are:
 - "**MPT**" = NPT male thread
 - "**FPT**" = NPT female thread
 - "**BUTT WELD**" = To be welded (same Ø of the pipe)
 - "**SW**" = welding of socket weld end

SPECIFICATIONS

- Metal/metal thread contact.
- Leak proof under high pressure.
- All these steel fittings are "**PHOSPHATIZED**". This process consists of a chemical treatment to protect steel fittings against corrosion and to increase the safety of the installation against leakage.
- Phosphatized fittings offer mechanical advantages and reduce tightening torque for a leak proof installation (by 20%).
- Also, if these steel fittings must often be disassembled and reassembled, there is no risk of seizing.

NORMS

- Dimensions according to ASME - B16.11 - 1991
 BS3799 - 1974
 NFE29600 - 1987
- Threads in accordance with NFE03-601 / ASME - B1.20.1 – 1983
- Material in accordance with ASTM A 105
 ASTM A 106
 A182 F 304L
 A182 F 316L

WORKING PRESSURE RATING

°C	°F	bar	psi
-29 to 38	-20 to 100	206,9	3000
66	150	203,4	2950
93	200	201,0	2915
121	250	198,3	2875
149	300	196,2	2845
177	350	193,8	2810
204	400	191,4	2775
232	450	187,2	2715
260	500	179,7	2605
288	550	169,7	2460
316	600	159,3	2310
343	650	148,3	2150
371	700	135,2	1960
399	750	122,4	1775
427	800	105,2	1525
454	850	86,2	1250
482	900	63,8	925
510	950	44,1	640
538	1000	24,1	350

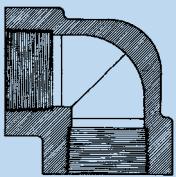
GENERAL PURPOSE

Multi threading uses and easy and safe assembling for:

- Level liquid Indicators (on piping, in line, receivers, etc...).
- Steel or brass relief-valve threadings (inlet, outlet, etc...).
- Level float-switch or level controller assemblies.
- Gauges, manifolds, service valves, expansion valves, etc...
- Water solenoid or pressostatic valves, etc...
- Glycool water pipings and all other refrigeration and air-conditioning systems, etc..

INSTALLATION

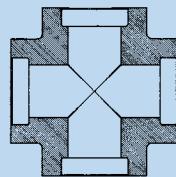
- To prevent crackings of the weld (socket-weld ends), it is safer to withdraw the pipe approximately **1,5 mm** (1/16 inch) away from the bottom of the socket.



CFF-90

90° ELBOWS, 2 x FEMALE PIPE

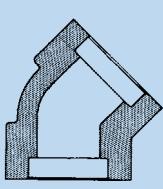
CFF-90-02	1/4" FPT
CFF-90-03	3/8" FPT
CFF-90-04	1/2" FPT
CFF-90-06	3/4" FPT
CFF-90-08	1" FPT
CFF-90-10	1 1/4" FPT
CFF-90-12	1 1/2" FPT
CFF-90-16	2" FPT



CRX

CROSSES, 4 x FEMALE PIPE

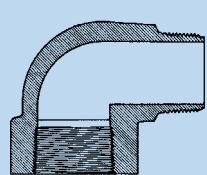
CRX-02	1/4" FPT
CRX-03	3/8" FPT
CRX-04	1/2" FPT
CRX-06	3/4" FPT
CRX-08	1" FPT
CRX-10	1 1/4" FPT
CRX-12	1 1/2" FPT



CFF-45

45° ELBOWS, 2 x FEMALE PIPE

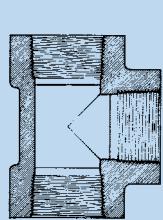
CFF-45-02	1/4" FPT
CFF-45-03	3/8" FPT
CFF-45-04	1/2" FPT
CFF-45-06	3/4" FPT
CFF-45-08	1" FPT
CFF-45-10	1 1/4" FPT



CMF-90

90° ELBOWS, FEMALE PIPE x MALE PIPE

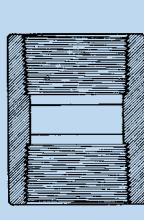
CMF-90-02	1/4" FPT	x	1/4" MPT
CMF-90-03	3/8" FPT	x	3/8" MPT
CMF-90-04	1/2" FPT	x	1/2" MPT
CMF-90-06	3/4" FPT	x	3/4" MPT
CMF-90-08	1" FPT	x	1" MPT
CMF-90-10	1 1/4" FPT	x	1 1/4" MPT



T3F

TEES, 3 x FEMALE PIPE

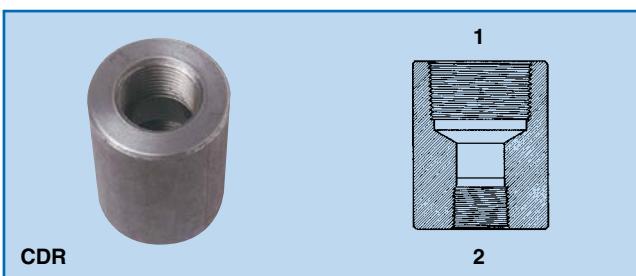
T3F-02	1/4" FPT
T3F-03	3/8" FPT
T3F-04	1/2" FPT
T3F-06	3/4" FPT
T3F-08	1" FPT
T3F-10	1 1/4" FPT
T3F-12	1 1/2" FPT
T3F-16	2" FPT



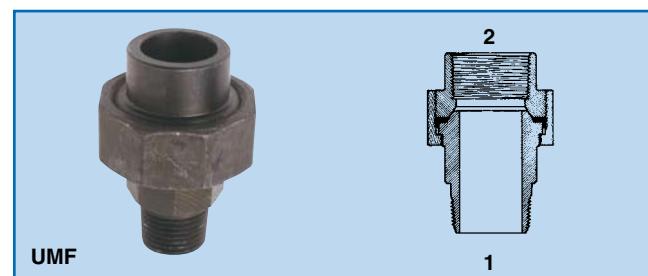
CD

CONNECTORS, 2 x FEMALE PIPE

CD-02	1/4" FPT
CD-03	3/8" FPT
CD-04	1/2" FPT
CD-06	3/4" FPT
CD-08	1" FPT
CD-10	1 1/4" FPT
CD-12	1 1/2" FPT

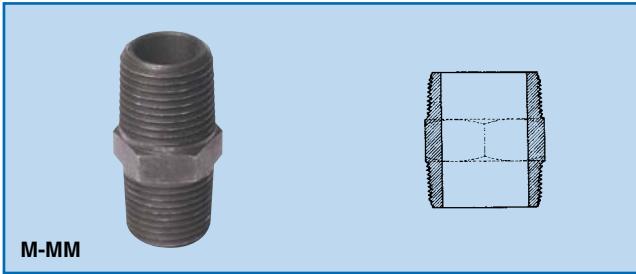

REDUCING COUPLINGS, 2 x FEMALE PIPE

CDR-03-02	3/8" FPT	x	1/4" FPT
CDR-04-03	1/2" FPT	x	3/8" FPT
CDR-06-03	3/4" FPT	x	3/8" FPT
CDR-06-04	3/4" FPT	x	1/2" FPT
CDR-08-06	1" FPT	x	3/4" FPT
CDR-10-08	1 1/4" FPT	x	1" FPT
CDR-12-10	1 1/2" FPT	x	1 1/4" FPT
CDR-16-10	2" FPT	x	1 1/4" FPT
CDR-16-12	2" FPT	x	1 1/2" FPT

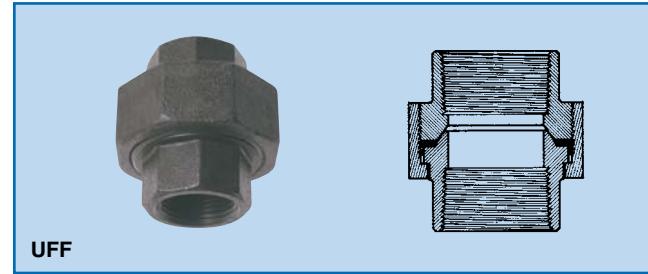

3 PIECES UNIONS, MALE PIPE x SOCKET WELDING

UMF-02	1/4" MPT	x	1/4" SW
UMF-03	3/8" MPT	x	3/8" SW
UMF-04	1/2" MPT	x	1/2" SW
UMF-06	3/4" MPT	x	3/4" SW
UMF-08	1" MPT	x	1" SW
UMF-10	1 1/4" MPT	x	1 1/4" SW
UMF-12	1 1/2" MPT	x	1 1/2" SW
UMF-16	2" MPT	x	2" SW

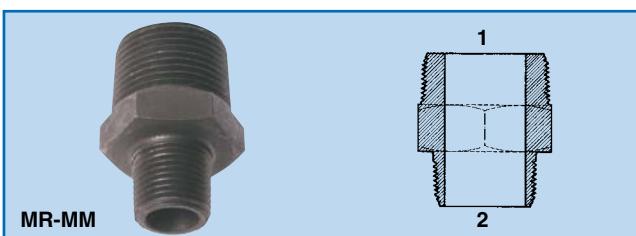
Typical for single or dual relief-valve outlets


HEXAGONAL NIPPLES, 2 x MALE PIPE

M-MM-02	1/4" MPT
M-MM-03	3/8" MPT
M-MM-04	1/2" MPT
M-MM-06	3/4" MPT
M-MM-08	1" MPT
M-MM-10	1 1/4" MPT
M-MM-12	1 1/2" MPT
M-MM-16	2" MPT


3 PIECES UNIONS, 2 x FEMALE PIPE

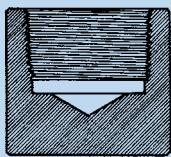
UFF-02	1/4" FPT
UFF-03	3/8" FPT
UFF-04	1/2" FPT
UFF-06	3/4" FPT
UFF-08	1" FPT
UFF-10	1 1/4" FPT
UFF-12	1 1/2" FPT


REDUCING HEXAGONAL NIPPLES, 2 x MALE PIPE

MR-MM-032	3/8" MPT	x	1/4" MPT
MR-MM-042	1/2" MPT	x	1/4" MPT
MR-MM-043	1/2" MPT	x	3/8" MPT
MR-MM-064	3/4" MPT	x	1/2" MPT
MR-MM-082	1" MPT	x	1/4" MPT
MR-MM-084	1" MPT	x	1/2" MPT
MR-MM-086	1" MPT	x	3/4" MPT
MR-MM-106	1 1/4" MPT	x	3/4" MPT
MR-MM-108	1 1/4" MPT	x	1" MPT


BARREL NIPPLES, MALE PIPE x BUTT WELD

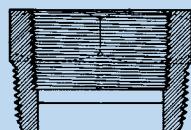
MT-02	1/4" MPT	x	butt weld
MT-03	3/8" MPT	x	butt weld
MT-04	1/2" MPT	x	butt weld
MT-06	3/4" MPT	x	butt weld
MT-08	1" MPT	x	butt weld
MT-10	1 1/4" MPT	x	butt weld
MT-12	1 1/2" MPT	x	butt weld
MT-16	2" MPT	x	butt weld
MT-20	2 1/2" MPT	x	butt weld
MT-24	3" MPT	x	butt weld



BF

CAPS, FEMALE PIPE

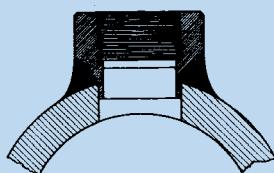
BF-01	1/8" FPT
BF-02	1/4" FPT
BF-03	3/8" FPT
BF-04	1/2" FPT
BF-06	3/4" FPT
BF-08	1" FPT
BF-10	1 1/4" FPT
BF-12	1 1/2" FPT
BF-16	2" FPT
BF-20	2 1/2" FPT
BF-24	3" FPT



RED-MF

HEXAGONAL HEAD BUSHINGS, MALE PIPE x FEMALE PIPE

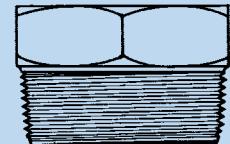
RED-MF-0032	3/8"	MPT	x	1/4" FPT
RED-MF-0042	1/2"	MPT	x	1/4" FPT
RED-MF-0043	1/2"	MPT	x	3/8" FPT
RED-MF-0062	3/4"	MPT	x	1/4" FPT
RED-MF-0064	3/4"	MPT	x	1/2" FPT
RED-MF-0084	1"	MPT	x	1/2" FPT
RED-MF-0086	1"	MPT	x	3/4" FPT
RED-MF-0106	1 1/4"	MPT	x	3/4" FPT
RED-MF-0108	1 1/4"	MPT	x	1" FPT
RED-MF-0128	1 1/2"	MPT	x	1" FPT
RED-MF-1210	1 1/2"	MPT	x	1 1/4" FPT



BS

COUPLETS, FEMALE PIPE x BUTT WELD

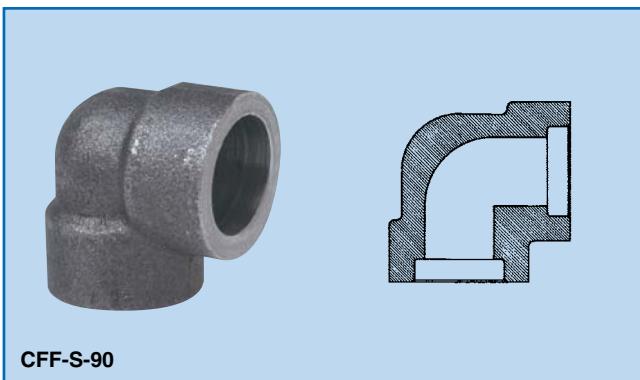
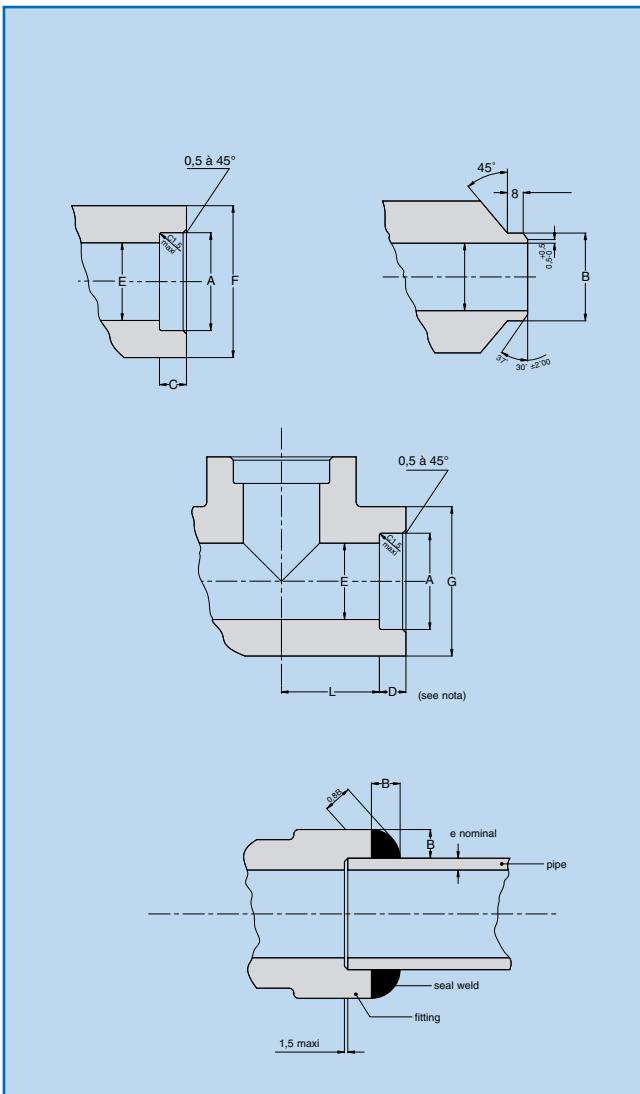
BS-02	1/4"	FPT	x	butt weld
BS-03	3/8"	FPT	x	butt weld
BS-04	1/2"	FPT	x	butt weld
BS-06	3/4"	FPT	x	butt weld
BS-08	1"	FPT	x	butt weld
BS-10	1 1/4"	FPT	x	butt weld
BS-12	1 1/2"	FPT	x	butt weld



BM

HEXAGONAL HEAD PLUGS, MALE PIPE

BM-01	1/8"	MPT
BM-02	1/4"	MPT
BM-03	3/8"	MPT
BM-04	1/2"	MPT
BM-06	3/4"	MPT
BM-08	1"	MPT
BM-10	1 1/4"	MPT
BM-12	1 1/2"	MPT
BM-16	2"	MPT
BM-20	2 1/2"	MPT
BM-24	3"	MPT



90° ELBOWS, 2 x FEMALE SOCKET WELD

CFF-S-90-02	1/4" SW
CFF-S-90-03	3/8" SW
CFF-S-90-04	1/2" SW
CFF-S-90-06	3/4" SW
CFF-S-90-08	1" SW
CFF-S-90-10	1 1/4" SW
CFF-S-90-12	1 1/2" SW
CFF-S-90-16	2" SW
CFF-S-90-20	2 1/2" SW
CFF-S-90-24	3" SW

REFRIGERATION STEEL FITTINGS FOR WELDING

"STEEL 3000 & SCHEDULE 80"

"SOCKET WELD END" FORGED STEEL FITTINGS

DESCRIPTION

- All these steel fittings are identical to the steel fittings shown on the preceding pages but offer "SOCKET WELD END" assemblies only. See "**SW**" definition on page 150.

PURPOSE

- REFRIGERATION
- AIR CONDITIONING
- MARINE and OIL industries
- Free welding steel pipes (*norm NFE 20-001*)
- Tarif 10 steel pipes (*norm NFA 48-005*)
- Low temperature refrigeration pipes
- Water, steam, oil, chemistry and high pressure pipes

NORMS

- See page 150

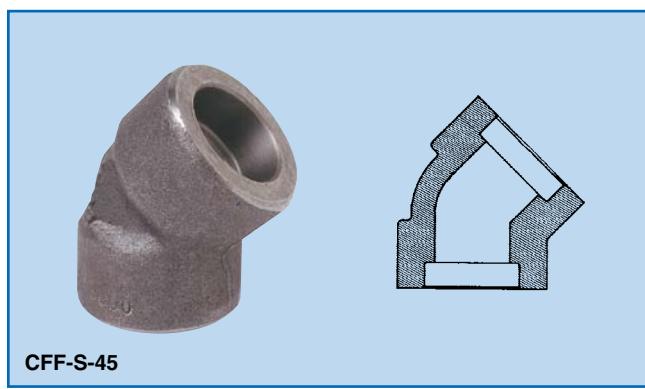
NOTE

e = Nominal pipe thickness.

B mini = 1,09 e (nominal) but never less than **3,2 mm (1/8")**

INSTALLATION

- To prevent crackings of the weld (socket weld ends), it is safer to withdraw the pipe approximately **1,5 mm (1/16")** away from the bottom of the socket.



45° ELBOWS, 2 x FEMALE SOCKET WELD

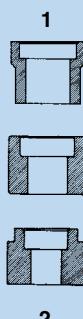
CFF-S-45-02	1/4" SW
CFF-S-45-03	3/8" SW
CFF-S-45-04	1/2" SW
CFF-S-45-06	3/4" SW
CFF-S-45-08	1" SW
CFF-S-45-10	1 1/4" SW
CFF-S-45-12	1 1/2" SW
CFF-S-45-16	2" SW
CFF-S-45-20	2 1/2" SW



T3F-S

TEES, 3 x FEMALE SOCKET WELD

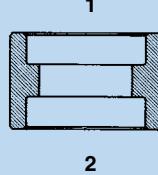
T3F-S-02	1/4" SW
T3F-S-03	3/8" SW
T3F-S-04	1/2" SW
T3F-S-06	3/4" SW
T3F-S-08	1" SW
T3F-S-10	1 1/4" SW
T3F-S-12	1 1/2" SW
T3F-S-16	2" SW
T3F-S-20	2 1/2" SW
T3F-S-24	3" SW



RED-MF-S

REDUCER INSERTS, 2 x FEMALE SOCKET WELD

RED-MF-S-0032	3/8" SW x	1/4" SW
RED-MF-S-0042	1/2" SW x	1/4" SW
RED-MF-S-0043	1/2" SW x	3/8" SW
RED-MF-S-0062	3/4" SW x	1/4" SW
RED-MF-S-0063	3/4" SW x	3/8" SW
RED-MF-S-0064	3/4" SW x	1/2" SW
RED-MF-S-0082	1" SW x	1/4" SW
RED-MF-S-0083	1" SW x	3/8" SW
RED-MF-S-0084	1" SW x	1/2" SW
RED-MF-S-0086	1" SW x	3/4" SW
RED-MF-S-0102	1 1/4" SW x	1/4" SW
RED-MF-S-0103	1 1/4" SW x	3/8" SW
RED-MF-S-0104	1 1/4" SW x	1/2" SW
RED-MF-S-0106	1 1/4" SW x	3/4" SW
RED-MF-S-0108	1 1/4" SW x	1" SW
RED-MF-S-0122	1 1/2" SW x	1/4" SW
RED-MF-S-0123	1 1/2" SW x	3/8" SW
RED-MF-S-0124	1 1/2" SW x	1/2" SW
RED-MF-S-0126	1 1/2" SW x	3/4" SW
RED-MF-S-0128	1 1/2" SW x	1" SW
RED-MF-S-1210	1 1/2" SW x	1 1/4" SW
RED-MF-S-0162	2" SW x	1/4" SW
RED-MF-S-0163	2" SW x	3/8" SW
RED-MF-S-0164	2" SW x	1/2" SW
RED-MF-S-0166	2" SW x	3/4" SW
RED-MF-S-0168	2" SW x	1" SW
RED-MF-S-1612	2" SW x	1 1/2" SW
RED-MF-S-2008	2 1/2" SW x	1" SW
RED-MF-S-2012	2 1/2" SW x	1 1/2" SW
RED-MF-S-2016	2 1/2" SW x	2" SW
RED-MF-S-2412	3" SW x	1 1/2" SW
RED-MF-S-2416	3" SW x	2" SW
RED-MF-S-2420	3" SW x	2 1/2" SW
RED-MF-S-0168	2" SW x	1" SW
RED-MF-S-1610	2" SW x	1 1/4" SW
RED-MF-S-1612	2" SW x	1 1/2" SW
RED-MF-S-2016	2 1/2" SW x	2" SW



REDUCING COUPLINGS, 2 x FEMALE SOCKET WELD

RED-FF-S-0021	1/4" SW x	1/8" SW
RED-FF-S-0032	3/8" SW x	1/4" SW
RED-FF-S-0042	1/2" SW x	1/4" SW
RED-FF-S-0043	1/2" SW x	3/8" SW
RED-FF-S-0062	3/4" SW x	1/4" SW
RED-FF-S-0063	3/4" SW x	3/8" SW
RED-FF-S-0064	3/4" SW x	1/2" SW

RED-FF-S-0082	1" SW x	1/4" SW
RED-FF-S-0083	1" SW x	3/8" SW
RED-FF-S-0084	1" SW x	1/2" SW
RED-FF-S-0086	1" SW x	3/4" SW

RED-FF-S-0102	1 1/4" SW x	1/4" SW
RED-FF-S-0103	1 1/4" SW x	3/8" SW
RED-FF-S-0104	1 1/4" SW x	1/2" SW
RED-FF-S-0106	1 1/4" SW x	3/4" SW
RED-FF-S-0108	1 1/4" SW x	1" SW

RED-FF-S-0122	1 1/2" SW x	1/4" SW
RED-FF-S-0123	1 1/2" SW x	3/8" SW
RED-FF-S-0124	1 1/2" SW x	1/2" SW
RED-FF-S-0126	1 1/2" SW x	3/4" SW
RED-FF-S-0128	1 1/2" SW x	1" SW
RED-FF-S-1210	1 1/2" SW x	1 1/4" SW

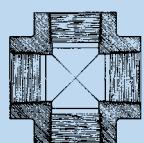
RED-FF-S-0162	2" SW x	1/4" SW
RED-FF-S-0163	2" SW x	3/8" SW
RED-FF-S-0164	2" SW x	1/2" SW
RED-FF-S-0166	2" SW x	3/4" SW
RED-FF-S-0168	2" SW x	1" SW
RED-FF-S-1612	2" SW x	1 1/2" SW

RED-FF-S-2008	2 1/2" SW x	1" SW
RED-FF-S-2012	2 1/2" SW x	1 1/2" SW
RED-FF-S-2016	2 1/2" SW x	2" SW

RED-FF-S-2412	3" SW x	1 1/2" SW
RED-FF-S-2416	3" SW x	2" SW
RED-FF-S-2420	3" SW x	2 1/2" SW



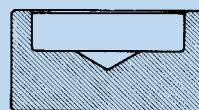
CRX-S

**CROSSES, 4 x FEMALE SOCKET WELD**

CRX-S-02	1/4" SW
CRX-S-03	3/8" SW
CRX-S-04	1/2" SW
CRX-S-06	3/4" SW
CRX-S-08	1" SW
CRX-S-10	1 1/4" SW
CRX-S-12	1 1/2" SW
CRX-S-16	2" SW
CRX-S-20	2 1/2" SW
CRX-S-24	3" SW



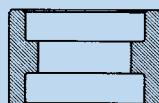
BF-S

**CAPS, FEMALE SOCKET WELD**

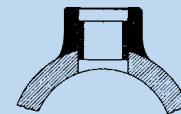
BF-S-02	1/4" SW
BF-S-03	3/8" SW
BF-S-04	1/2" SW
BF-S-06	3/4" SW
BF-S-08	1" SW
BF-S-10	1 1/4" SW
BF-S-12	1 1/2" SW
BF-S-16	2" SW
BF-S-20	2 1/2" SW



MFF-S

**COUPLINGS, 2 x FEMALE SOCKET WELD**

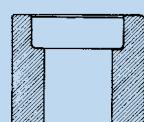
MFF-S-02	1/4" SW
MFF-S-03	3/8" SW
MFF-S-04	1/2" SW
MFF-S-06	3/4" SW
MFF-S-08	1" SW
MFF-S-10	1 1/4" SW
MFF-S-12	1 1/2" SW
MFF-S-16	2" SW
MFF-S-20	2 1/2" SW
MFF-S-24	3" SW
MFF-S-32	4" SW

**COUPLETS, SOCKET WELD x BUTT WELD**

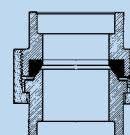
BS-S-02	1/4" SW	x butt weld
BS-S-03	3/8" SW	x butt weld
BS-S-04	1/2" SW	x butt weld
BS-S-06	3/4" SW	x butt weld
BS-S-08	1" SW	x butt weld
BS-S-10	1 1/4" SW	x butt weld
BS-S-12	1 1/2" SW	x butt weld
BS-S-16	2" SW	x butt weld



DMF-S

**HALF COUPLINGS, FEMALE SOCKET WELD**

DMF-S-02	1/4" SW
DMF-S-03	3/8" SW
DMF-S-04	1/2" SW
DMF-S-06	3/4" SW
DMF-S-08	1" SW
DMF-S-10	1 1/4" SW
DMF-S-12	1 1/2" SW
DMF-S-16	2" SW
DMF-S-20	2 1/2" SW
DMF-S-24	3" SW

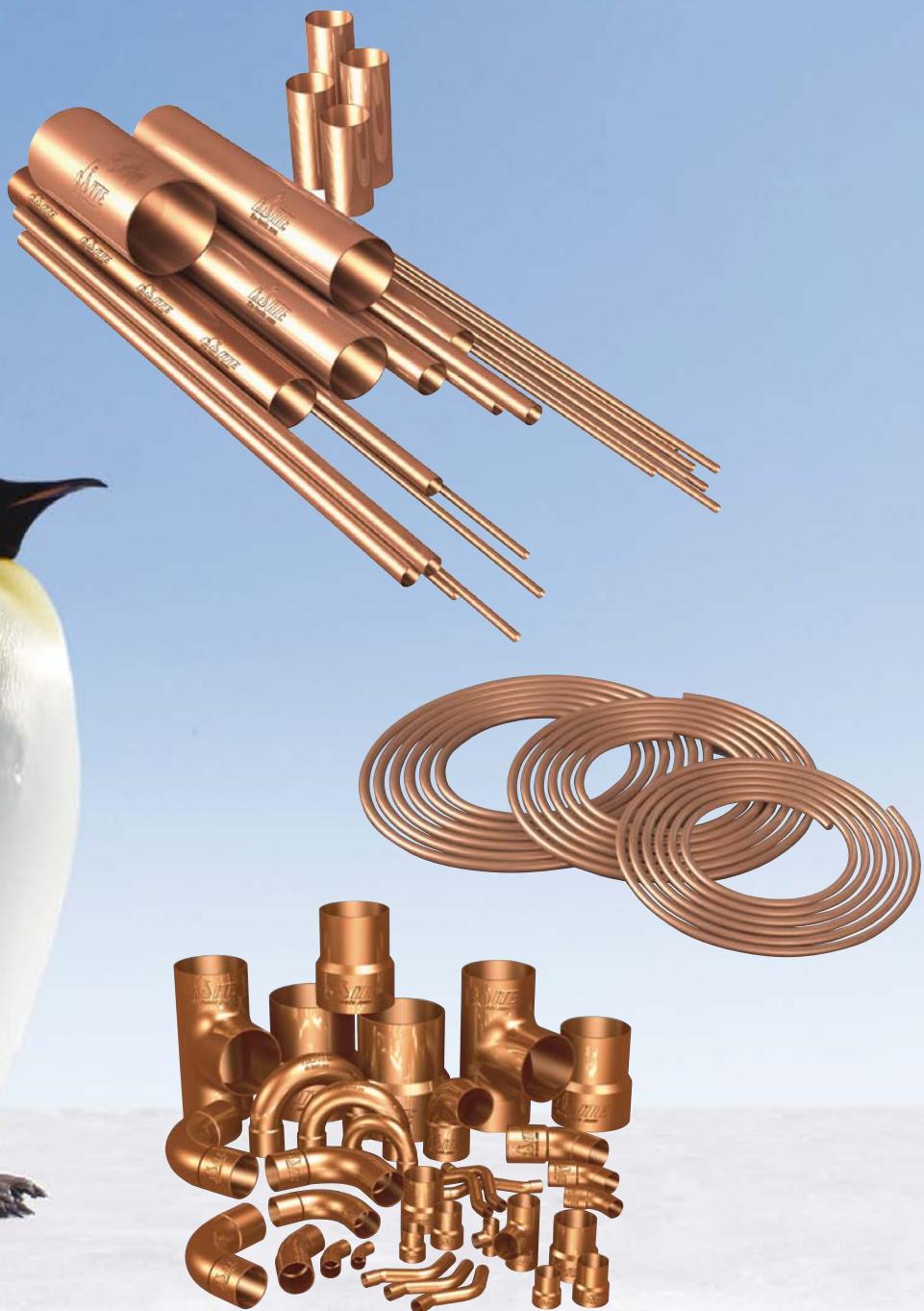
**3 PIECES UNIONS, 2 x FEMALE SOCKET WELD**

UFF-S-02	1/4" SW
UFF-S-03	3/8" SW
UFF-S-04	1/2" SW
UFF-S-06	3/4" SW
UFF-S-08	1" SW
UFF-S-10	1 1/4" SW
UFF-S-12	1 1/2" SW
UFF-S-16	2" SW
UFF-S-20	2 1/2" SW
UFF-S-24	3" SW

COPPER TUBES, COILS & SOLDER FITTINGS (Inch & Metric)



COPPER TUBES, COILS & SOLDER FITTINGS (Inch & Metric)

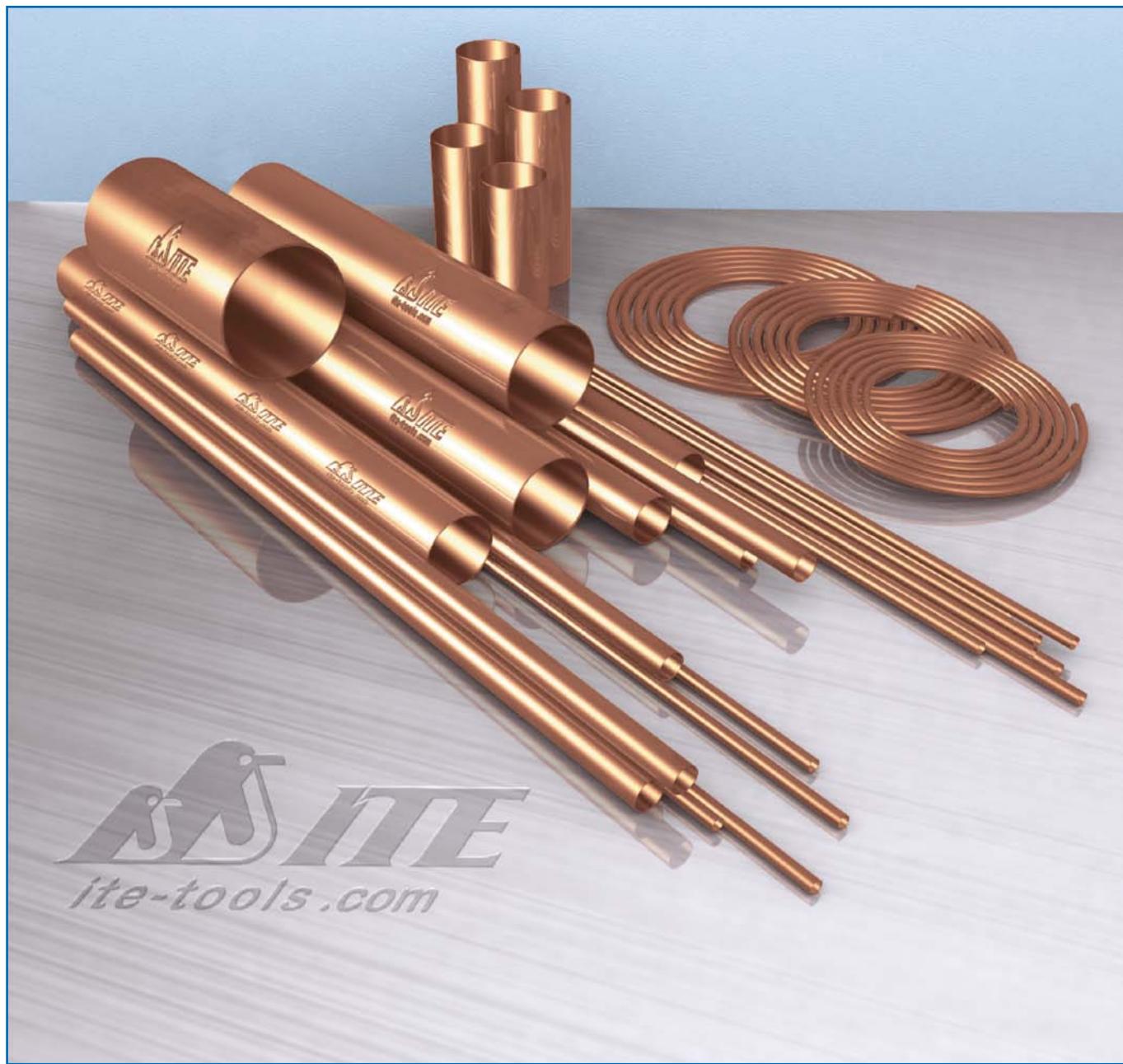


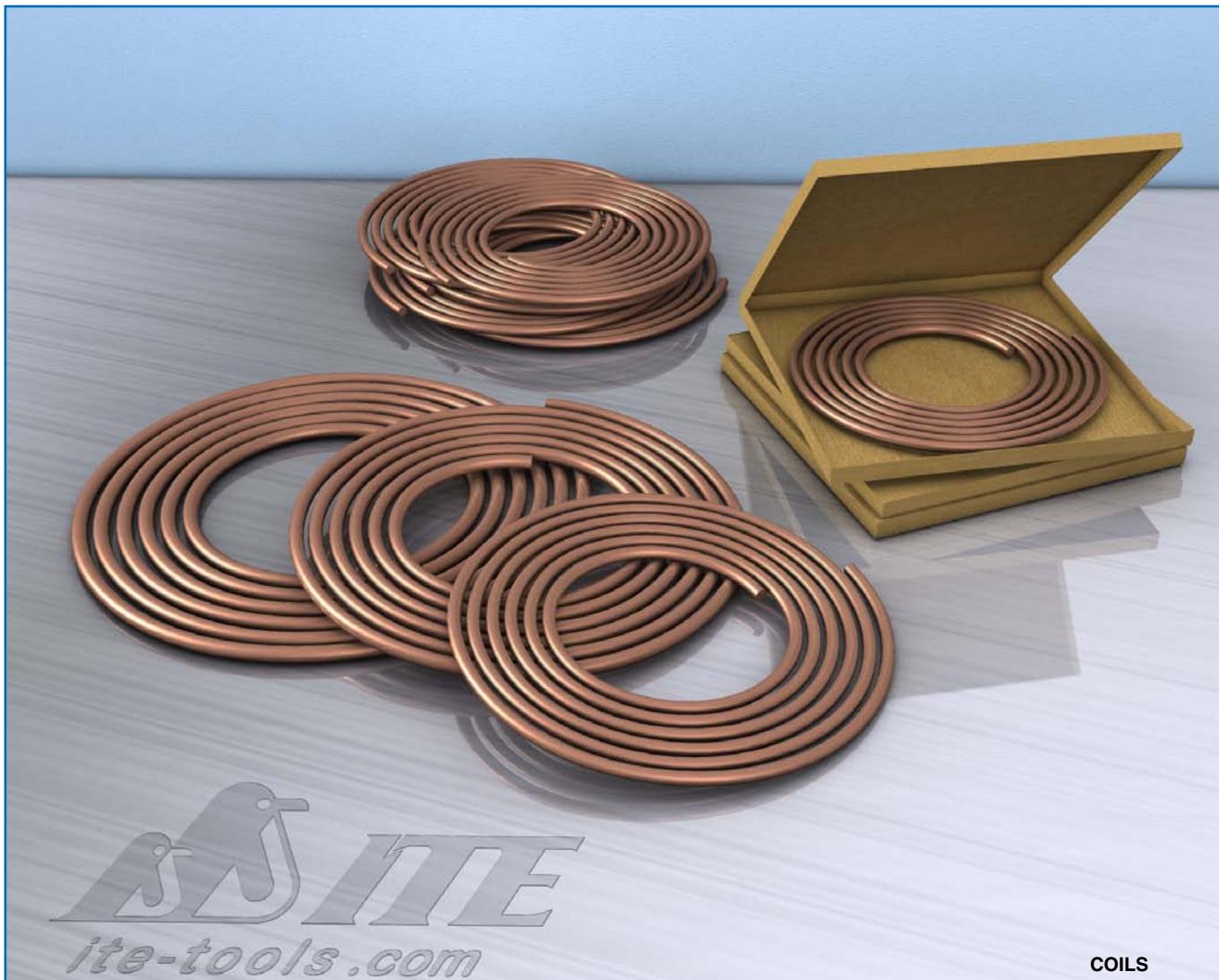
A/C & R TUBING COPPER COILS & COPPER STRAIGHT LENGTHS

DESCRIPTION

- ITE is a **MASTER EUROPEAN STOCKING** company for the main copper tubing manufacturers.
- Our **COPPER COILS & STRAIGHT LENGTHS** are specifically manufactured for the **REFRIGERATION** and **AIRCONDITIONING** industry and according to the norms and standards which are nationally and/or regionally required. (See **SPECIFICATIONS** below).
- These copper tubing are compatible with all **CFC**, **HCFC** and **HFC** and can be bent without heating. They are cleaned, purged and nitrogen pressurized as well as seal capped to be protected against the formation of harmful oxides.
- **ATTENTION:** It is important to check your needs according to your specific job and your country.

Note: According to the PED Directive 97/23/EC all open ended copper tubes and fittings as supplied by ITE will be classified in the SEP (Sound Engineering Practices) category by reference to article 3 paragraph 3 of the PED. A CE mark cannot be applied to these tubes and fittings, because all appropriate manufacturing operations such as bending, connection (soldering) and heat treatment have not been completed, as they will be completed in the field, during installation process, to render them fit for their intended purpose.





1. COPPER COILS (U.S. STANDARD)

ASTM B 280 and ANSI B9.1 (U.S. norms)
 "STREAMLINE" (U.S. & Canadian patented)

PART NUMBER	DIAM.	LENGTH (ft)	WALL (mm)	WEIGHT (kg/m)
INCH ANNEALING COPPER COILS				
D02050	1/8"	50	0,76	0,052
D03050	3/16"	50	0,76	0,086
D04050	1/4"	50	0,76	0,120
D05050	5/16"	50	0,81	0,200
D06050	3/8"	50	0,81	0,268
D08050	1/2"	50	0,81	0,374
D10050	5/8"	50	0,89	0,454
D12050	3/4"	50	0,89	0,456
D14050	7/8"	50	1,14	0,677
D18050	1 1/8"	50	1,21	0,975
D22050	1 3/8"	50	1,40	1,315
D26050	1 5/8"	50	1,52	1,696

2. COPPER COILS (EUR. STANDARD)

Norm EN 12735-1
 Tensile strength = soft R220

PART NUMBER	DIAM.	LENGTH (m)	WALL (mm)	WEIGHT (pc)
INCH ANNEALING COPPER COILS				
CO-04I	1/4"	15	0,08	1,86
CO-04	1/4"	15	1,00	2,25
CO-05I	5/16"	15	0,08	2,40
CO-06	3/8"	15	0,08	2,93
CO-06I	3/8"	15	1,00	3,57
CO-08	1/2"	15	0,08	3,99
CO-08I	1/2"	15	1,00	4,91
CO-10I	5/8"	15	1,00	6,24
CO-12I	3/4"	15	1,00	7,58
CO-14I	7/8"	15	1,00	8,90
METRIC ANNEALING COPPER COILS				
MCO-06	6 mm	35	1,00	4,90
MCO-08	8 mm	25	1,00	4,90
MCO-10	10 mm	25	1,00	6,30
MCO-12	12 mm	25	1,00	7,70
MCO-15	15 mm	25	1,00	9,78
MCO-18	18 mm	25	1,00	11,88
MCO-18	18 mm	25	1,50	17,30
MCO-22	22 mm	25	1,00	14,48



STRAIGHT LENGTHS

3. COPPER STRAIGHT LENGTHS (EUR. STANDARD)

Norm EN 12735-1
 Tensile strength = hard R280

PART NUMBER	DIAM.	LENGTH (m)	WALL (mm)	WEIGHT (pc)
INCH RIGID COPPER STRAIGHT LENGTHS				
TU-04	1/4"	4	1,00	0,60
TU-06	3/8"	4	1,00	0,95
TU-08	1/2"	4	1,00	1,31
TU-10	5/8"	4	1,00	1,66
TU-12	3/4"	4	1,00	2,05
TU-12	3/4"	4	1,25	2,43
TU-14	7/8"	4	1,00	2,41
TU-14	7/8"	4	1,25	2,87
TU-16	1"	4	1,00	2,73
TU-18	1 1/8"	4	1,00	3,08
TU-18	1 1/8"	4	1,25	3,88
TU-22	1 3/8"	4	1,25	4,60
TU-26	1 5/8"	4	1,25	5,68
TU-34	2 1/8"	4	1,25	7,37

PART NUMBER	DIAM.	LENGTH (m)	WALL (mm)	WEIGHT (pc)
METRIC RIGID COPPER STRAIGHT LENGTHS				
MTU-06	6 mm	5	1,00	0,70
MTU-08	8 mm	5	1,00	0,98
MTU-10	10 mm	5	1,00	1,26
MTU-12	12 mm	5	1,00	1,54
MTU-15	15 mm	5	1,00	1,96
MTU-18	18 mm	5	1,00	2,38
MTU-22	22 mm	5	1,00	2,94
MTU-28	28 mm	5	1,00	3,78
MTU-35	35 mm	5	1,50	7,02
MTU-42	42 mm	5	1,50	8,49
MTU-64	64 mm	5	2,00	17,34
MTU-89	89 mm	5	2,00	24,30

Other specifications upon request.



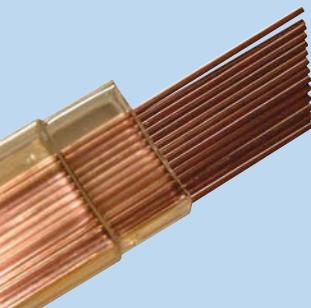
CA-07/20-03



CP105



AG106



A/C & R COPPER CAP. COILS

DESCRIPTION

- Fits ANY domestic and commercial refrigerator or room air conditioner from 1/8 H.P. to 5 H.P.
- Consolidated into a five-pack replacement kit. It's guaranteed to provide uniformity on all applications
- Commercial tolerance: $\pm 0,025$ mm (0,001 of an inch)
- Precision plug drawn, sealed and dehydrated soft copper capillary tubing

PART NUMBER	DIMENSIONS (in mm) (internal) (external)	LENGTHS (metre)
CA-06/24-50	0,6 x 2,4	50
CA-06/30-50	0,6 x 3,0	50
CA-08/24-50	0,8 x 2,4	50
CA-10/30-50	1,0 x 3,0	50
CA-12/24-50	1,2 x 2,4	50
CA-15/30-50	1,5 x 3,0	50
CA-20/30-50	2,0 x 3,0	50
CA-20/40-50	2,0 x 4,0	50
CA-25/40-50	2,5 x 4,0	50
CA-30/40-50	3,0 x 4,0	50
CA-30/50-50	3,0 x 5,0	50

PART NUMBER	DIMENSIONS (in mm) (internal) (external)	LENGTHS (metre)
CA-07/20-03	0,787 (.031") x 2,057 (.081")	3
CA-10/23-036	1,016 (.040") x 2,362 (.093")	3,6
CA-13/23-036	1,321 (.052") x 2,362 (.093")	3,6
CA-16/31-036	1,626 (.064") x 3,175 (.125")	3,6
CA-07/18-03	0,711 (.028") x 1,803 (.071")	3
CA-13/23-30	1,321 (.052") x 2,362 (.093")	30
CA-5PAK	Five pack replacement kit	

(See CAPILLARY TUBING GAUGE, Page 103)

BRAZING ALLOYS & SILVER SOLDER

DESCRIPTION

- These BRAZING ALLOYS are used for joining copper, especially for REFRIGERATION and AIR-CONDITIONING.
- May also be used for joining brass to copper with the use of FLUX (no flux is required when brazing copper to copper).
- With 5% SILVER ALLOY: Lower melting temperature than that of 0%. Addition of silver makes it more manageable.
- With 15% SILVER ALLOY: More silver and less phosphorus gives a low brazing temperature for better control with excellent fill capabilities. The most preferred because its versatility.
- With 30% and 40% SILVER ALLOY: Good strength and ductility. Flows in a sluggish manner making it suitable for loose fittings. For general purpose brazing with a lower silver content making it the most economical cadmium alloys.
- With 45 and 56% SILVER ALLOY: Additional silver content gives this alloy a high degree of versatility and extreme thin flowing. Has a very high tensile strength and is especially suitable for joining dissimilar metals.

1. PLAIN SILVER ALLOY RODS AUTO-FLUX BRAZING

PART NUMBER	ROD Ø	WEIGHT (gram)	MELTING (°C RANGE)	SILVER (%)
CP105	2	500	645 / 825	2
CP104	2	500	645 / 815	5
CP102	2	500	645 / 800	15
AG106	2	250	630 / 730	34
AG104	2	250	640 / 680	45
RB-4240	2	200	600 / 690	30

Certified EN 1044
Cadmium-free

2. BRAZING SCOURING FLUXES

PART NUMBER	DESCRIPTION	WEIGHT (gram)	°C TEMP. (Range)
FLUX-800-D	Powder for 800 & 806	200	500 / 850
FLUX-1802-D	Powder for 1020, 1802 & 4240	200	500 / 780
FLUX-1802-PF	Soft paste	200	500 / 850

SEE ALSO:

- "SOLDERLENE" PASTE FLUX, PAGE 202
- "HEAT SEAL STICK" SOLDER, PAGE 202
- "BLOCK- ITE" HEAT ABSORBER, PAGE 203



FLUX-1802-D



FLUX-1802-PF

FASTENING AND FIXING SOLUTIONS

- These cushion clamp assemblies eliminate metal-to-metal contact when securing copper tubing in AIR-CONDITIONING, REFRIGERATION and WATER installations.
- These cushions resist most fuels, oils, gases, greases, solvents, minerals, acids, etc...
- Simplified installation: Only 1 man and 1 tool needed for assembly.

1. RAPID LIGHTWEIGHT CUSHION CLAMPS

- Steel sheet with M8, M10 nuts
- Width: 20 mm, thickness: 1,2 mm
- Bolt: OD 5 mm, length 25 mm
- Hex Nut: Hex 15 mm, length 15 mm M8/M10
- Temperature range : -50°C to + 110°C

UNLINED

PART. NR.	SIZE	RANGE	PART. NR.	SIZE	RANGE
FSCC-0507	1/4"	05-07 mm	FSCC-4244	1 5/8"	42-44 mm
FSCC-0710	3/8"	07-10 mm	FSCC-5255	2 1/8"	52-55 mm
FSCC-1113	1/2"	11-13 mm	FSCC-5864	2 3/8"	58-64 mm
FSCC-1315	5/8"	13-15 mm	FSCC-6571	2 5/8"	65-71 mm
FSCC-1619	3/4"	16-19 mm	FSCC-7280	3 1/8"	72-80 mm
FSCC-2022	7/8"	20-22 mm	FSCC-8892	3 5/8"	88-92 mm
FSCC-2528	1 1/8"	25-28 mm	FSCC-98107	4 1/8"	98-107 mm
FSCC-3335	1 3/8"	33-35 mm			

RUBBERLINED

PART. NR.	SIZE	RANGE	PART. NR.	SIZE	RANGE
FSCC-0507-R	1/4"	05-07 mm	FSCC-4244-R	1 5/8"	42-44 mm
FSCC-0710-R	3/8"	07-10 mm	FSCC-5255-R	2 1/8"	52-55 mm
FSCC-1113-R	1/2"	11-13 mm	FSCC-5864-R	2 3/8"	58-64 mm
FSCC-1315-R	5/8"	13-15 mm	FSCC-6571-R	2 5/8"	65-71 mm
FSCC-1619-R	3/4"	16-19 mm	FSCC-7280-R	3 1/8"	72-80 mm
FSCC-2022-R	7/8"	20-22 mm	FSCC-8892-R	3 5/8"	88-92 mm
FSCC-2528-R	1 1/8"	25-28 mm	FSCC-98107-R	4 1/8"	98-107 mm
FSCC-3335-R	1 3/8"	33-35 mm			



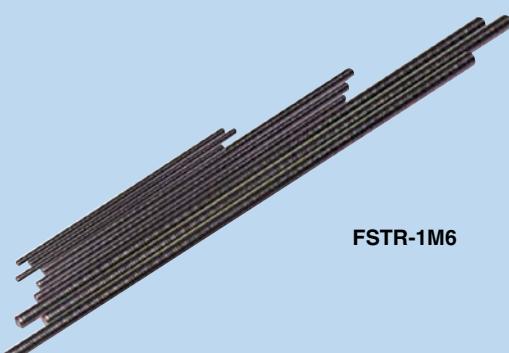


FSCO-3550

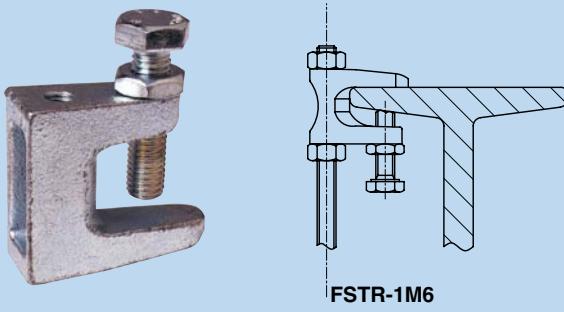
FSNK-30M8



FSN-M8



FSTR-1M6



FSBC-M8

FSTR-1M6

2. CONSOLES

- For wall mounting

FSCO-3550 CONSOLE CA, 35 x 35 mm, length: 500 mm
FSCO-3575 CONSOLE CA, 35 x 35 mm, length: 750 mm

3. PROFILES

- Electro zinc plating

FSP2-3419 PROFILE CK, 34 x 19 mm, length: 2 m
FSP3-3535 PROFILE CK, 35 x 35 mm, length: 3 m

END CAPS

FSEC-3419 END CAP for profile 34 x 19
FSEC-3535 END CAP for profile 35 x 35

4. PROFILE NUT KITS

- Bolt, washer and nut

FSNK-30M8 PROFILE NUT KIT M8 x 30
FSNK-30M10 PROFILE NUT KIT M10 x 30

PROFILE NUT POSITIONER

FSN-M8 M8 PROFILE NUT POSITIONER
FSN-M10 M10 PROFILE NUT POSITIONER

5. THREADED RODS

- Electro zinc

FSTR-1M6 THREADED ROD, M6 x 100, length:1 m
FSTR-1M8 THREADED ROD, M8 x 125, length:1 m

6. BEAM CLAMPS

- Electro zinc plated

FSBC-M6 BEAM CLAMP M6
FSBC-M8 BEAM CLAMP M8

INSULATED COPPER TUBES

FEATURES

- The optimal solution for conditioning systems, for the transportation of refrigerant gases, for multi-purpose machines (hot/cold) based on heat pumps and for uses where there is the need for insulating material with high energy values.
- As regards cold insulation, one of the negative factors is the formation of condensation both on the surface of the insulating material and within.
- Since water is an excellent heat conductor, good insulation material must be capable of ensuring that no flow of steam is created inside. The greater its resistance to steam (m) the longer the insulation will last over time.
- The insulating material, which is guaranteed as being environment-friendly, is made of extruded expanded polyethylene with a certified permeability factor μ 11,000 and an exceptionally resistant external protective film.
- The lower the coefficient of heat conductivity λ of the insulating material, the higher the resistance to transmission of heat, offering a better "insulating" performance.
- Sealed at the ends at a pressure equal to 70 tonnes, which guarantees the perfect internal cleanliness of the copper tube and the complete absence of humidity. This procedure favours the anti-oxidizing effect brought about by the presence of inert gases, nitrogen, present during the annealing phase.
- For double tubes, the 2 pipes can be manually separated without the use of special tools. This speeds up installation, guaranteeing perfect integrity of the insulation material.

SPECIFICATIONS

- Working temperature: from -45°C to +95°C
- Coefficient of heat conductivity λ ISO 8497 - ASTM C 335:
 Mean temp: 0°C W/(m.K): 0,036 kcal/h: 0,0309
 40°C 0,040 0,0344
- Permeability: $\mu \geq 11,000$
- Class 1 fire rating certificate CSE RF 2/75/A
- CSI (CSE RF 3/77)
- Density: 30 kg/m³
- Neutral odour
- Optimal resistance to chemical agents, fungi and parasites
- No toxicity in case of fire
- Insulating material produced without the use of CFC's
- Noise reduction >30 dB of the noise due to the flow or to the contact with metal pipes
- Type of copper: CU-DHP 99,9 UNI 5649-71 ASTM B 280 - tolerances as per UNI 7773

SINGLE TUBES INSULATED

PART NUMBER	Copper pipe ext. dia		Insulating thickness	Covered pipe ext. dia	Weight of naked tube (kg/m)	Max. Working pressure (kg/cm ²)*	Water flow per meter of tube (V lt/m)	Coil length (m)
	inch	mm						
IPS-04	1/4"	6,35 x 0,76	6	18	0,120	158	0,016	25
IPS-05	5/16"	7,93 x 0,81	9	26	0,162	117	0,029	25
IPS-06	3/8"	9,52 x 0,81	9	28	0,199	93	0,046	25
IPS-08	1/2"	12,70 x 0,81	9	31	0,271	66	0,093	25
IPS-10	5/8"	15,88 x 0,89	9	34	0,373	51	0,155	25
IPS-12	3/4"	19,05 x 1,00	13	46	0,539	41	0,233	25
IPS-14	7/8"	22,22 x 1,10	13	49	0,677	35	0,327	25

DOUBLE TUBES INSULATED

PART NUMBER	Copper pipe ext. dia		Insulating thickness	Covered pipe ext. dia	Weight of naked tube (kg/m)	Max. working pressure (kg/cm ²)*	Water flow per meter of tube (V lt/m)	Coil length (m)
	inch	mm						
IPD-0406	1/4" x 3/8"	6,35 x 9,52	6 - 9	18 - 28	0,120 - 0,199	158 - 93	0,016 - 0,046	20
IPD-0408	1/4" x 1/2"	6,35 x 12,70	6 - 9	18 - 31	0,120 - 0,271	158 - 66	0,016 - 0,093	20
IPD-0410	1/4" x 5/8"	6,35 x 15,88	6 - 9	18 - 34	0,120 - 0,373	158 - 51	0,016 - 0,155	20
IPD-0608	3/8" x 1/2"	9,52 x 12,70	9 - 9	28 - 31	0,199 - 0,271	93 - 66	0,046 - 0,093	20
IPD-0610	3/8" x 5/8"	9,52 x 15,88	9 - 9	28 - 34	0,199 - 0,373	93 - 51	0,046 - 0,155	20
IPD-0612	3/8" x 3/4"	9,52 x 19,05	9 - 13	28 - 46	0,199 - 0,539	93 - 41	0,046 - 0,233	20
IPD-0812	1/2" x 3/4"	12,70 x 19,05	9 - 13	31 - 46	0,271 - 0,539	66 - 41	0,093 - 0,233	20

*kg/cm² x 0,981 = bar





DIN, NFT, ISO & ISO 9002
NF, AFNOR & CSTB
Class 1 without CFC

THERMAL PIPE INSULATION CLASS 1

" 5000 PRODUCT WITHOUT CFC"

1. INSULATION SLEEVES

DESCRIPTION

- Recommended for use where "thermal bridging" should be avoided. This is particularly important in refrigeration and chilled water installation where there is a possibility of condensation taking place.
- Odourless, does not alter taste of food.
- Does not contain components with asbestos, CFC free.
- Very good ageing resistance, non perishable.

SPECIFICATIONS

- Density: **45-80 kg/m³**
- Maximum temperature: **+105°C**
- Minimum temperature: **-40°C**
- Thermal conductivity: $\lambda: 0,035 \text{ W/(m.k)}$ at **0°C** (EN 12667)
 $\lambda: 0,039 \text{ W/(m.k)}$ at **40°C** (EN 12667)
- Water vapour diffusion factor: **$\mu > 7000$ (DIN 52615/87)**
- Reaction to fire: **B_L - s3, d0 (EN 13501-1)**
Auto extinguishing, does not generate flaming droplets, does not disperse flame.
- Noise reduction: **reduction of 30 dB (DIN 4109)**

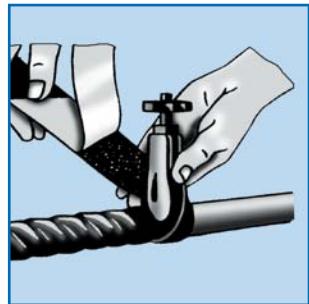
For EXT. Ø COPPER TUBING		For EXT. Ø STEEL TUBING			THICKNESS: 9 mm		THICKNESS: 13 mm		THICKNESS: 19 mm		THICKNESS: 32 mm		
					mm	inch	mm	inch	nom	PART N° x inter Ø	BOX (m)	PART N° x inter Ø	BOX (m)
6	1/4"				TPI9-006	352							
8	5/16"				TPI9-008	300							
10	3/8"	10,2	1/8"	6	TPI9-010	266	TPI13-010	172					
12	1/2"				TPI9-012	234	TPI13-012	162					
14 - 15	5/8"	13,5	1/4"		TPI9-015	192	TPI13-015	136	TPI20-015	78			
18	3/4"	17,2	3/8"	10	TPI9-018	166	TPI13-018	118	TPI20-018	72	TPI32-018	32	
22	7/8"	21,3	1/2"	15	TPI9-022	136	TPI13-022	98	TPI20-022	64	TPI32-022	32	
28	1 1/8"	26,9	3/4"	20	TPI9-028	98	TPI13-028	78	TPI20-028	48	TPI32-028	24	
35	1 3/8"	33,7	1"	25	TPI9-035	76	TPI13-035	58	TPI20-035	36	TPI32-035	22	
42	1 5/8"	42,4	1 1/4"	32	TPI9-042	60	TPI13-042	48	TPI20-042	32	TPI32-042	16	
48 - 50	1 7/8"	48,3	1 1/2"	40	TPI9-048	50	TPI13-048	40	TPI20-048	24	TPI32-048	14	
54	2 1/8"	54,0			TPI9-054	46	TPI13-054	34	TPI20-054	24	TPI32-054	12	
60	2 3/8"	60,3	2"	50	TPI9-060	46	TPI13-060	32	TPI20-060	22	TPI32-060	10	
64	2 1/2"	63,5			TPI9-064	46	TPI13-064	30	TPI20-064	18	TPI32-064	10	
70	2 3/4"	70,0			TPI9-070	40	TPI13-070	26	TPI20-070	18	TPI32-070	8	
76	3"	76,1	2 1/2"	65	TPI9-076	40	TPI13-076	26	TPI20-076	18	TPI32-076	8	
89	3 1/2"	88,9	3"	80	TPI9-089	36	TPI13-089	24	TPI20-089	14	TPI32-089	8	
102	4"	101,6	3 1/2"		TPI9-102	24	TPI13-102	16	TPI20-102	14			
108	4 1/4"	108,0			TPI9-108	24	TPI13-108	20	TPI20-108	12	TPI32-108	8	
114	4 1/2"	114,3	4"	100	TPI9-114	22	TPI13-114	16	TPI20-114	12	TPI32-114	6	
125	5"	125,0					TPI13-125	16	TPI20-125	12	TPI32-125	6	
139	5 1/2"	139,7	5"	125			TPI13-140	14	TPI20-140	12	TPI32-140	6	
159		160,0					TPI13-160	14	TPI20-160	12	TPI32-160	6	

- NOTE:**
- 1 inch = 25,4 mm
 - THICKNESS: **TPI9** = 3/8" or 9 mm, **TPI13** = 1/2" or 13 mm, **TPI20** = 3/4" or 19 mm, **TPI32** = 1 1/4" or 32 mm
 - UNIT LENGTH FOR EACH SLEEVE: 2 m (2 m = 78,75 inch)
 - FOR ORDERING: Mention the PART N° and LENGTH needed (ex.: **TPI20-28 / 32ml**). (use the "m" box packing mentioned in the above table)

2. ACCESSORIES

SELF ADHESIVE INSULATING TAPE (M1)

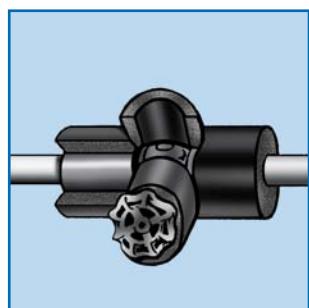
PART NUMBER	LENGTH (m)	LENGTH (ft)	WIDTH (mm)	WIDTH (inch)	THICKNESS (mm)	THICKNESS (inch)
INSUL TAPE	15	49,2	50	2"	3	1/8"



ADHESIVE FOR INSULATING MATERIALS

GL-050	CAN of 0,5 litre delivered with a brush	(0,132 gallon)
GL-250	CAN of 2,50 litre	(0,660 gallon)

- Neoprene rubber and synthetic resin. Density: **0,85**
- Flash point: **+4°C (+39°F)**. Stocking time: 1 year approx.
- Minimum temperature for adhesion: **+5°C (+41°F)**
- Gluing made with 1 litre (0,26 US gallon):
 - For 9 mm sleeves: **180** to **210 m** (590/690 ft)
 - For 13 mm sleeves: **130** to **150 m** (426/490 ft)
 - For 20 mm sleeves: **80** to **110 m** (260/360 ft)
 - For 32 mm sleeves: **50** to **60 m** (160/190 ft)
 - For all sheets: **4** to **5 m²** (43/53 sq.ft.)
- Drying delay: 30 minutes for touching, 12 hours definitive.



INCH COPPER TUBE FITTINGS

"A/C & R SOLDER JOINT HIGH PRESSURE INCH FITTINGS"

SYMBOLS USED FOR FITTING ENDS

- "C"** : Copper cup manufactured to receive copper tube diameter (as an ODS solder connection). The copper tube can be "slipped-in" any "**C**" fitting end. (Female)
- "FTG"** : Fitting ends made to copper tube diameter. This side can be "slipped-in" any "**C**" fitting end. (Male)
- "FPT"** : Female National Pipe Thread (NPT) said **FPT**. ("**N**" had been dropped and replaced by "**F**" for female).
- "MPT"** : Male National Pipe Thread (NPT) said **MPT**. ("**N**" had been dropped and replaced by "**M**" for male).

NOTE

- All solder cups (**C**) and fitting ends (**FTG**) size descriptions are expressed in outside diameter (**OD**) tube size.

Note: According to the PED Directive 97/23/EC all open ended copper tubes and fittings as supplied by ITE will be classified in the SEP (Sound Engineering Practices) category by reference to article 3 paragraph 3 of the PED. A CE mark cannot be applied to these tubes and fittings, because all appropriate manufacturing operations such as bending, connection (soldering) and heat treatment have not been completed, as they will be completed in the field, during installation process, to render them fit for their intended purpose.

NORMS

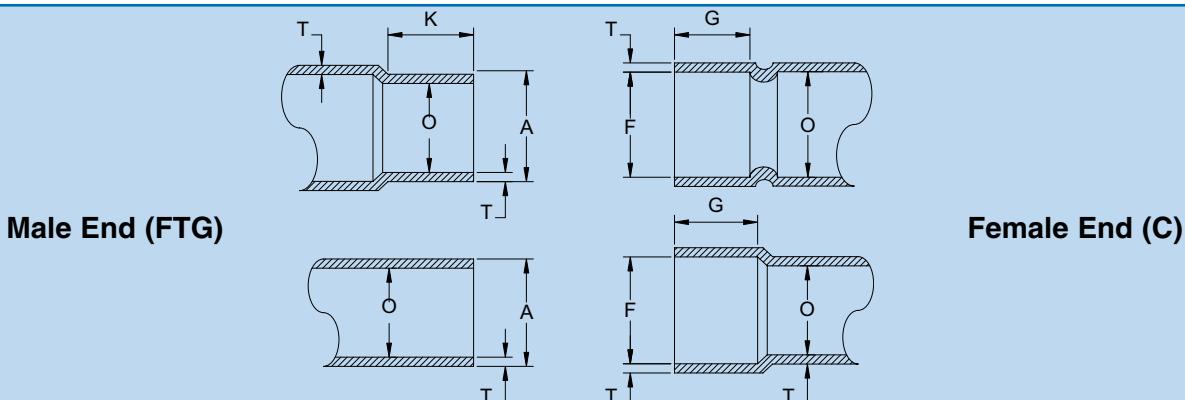
- Real A/C & R COPPER FITTINGS
- Strictly conform to latest ASME / ANSI B 16.22



DIMENSIONS

- Dimensions of products illustrated are for general estimating purposes and based on the latest data.
- Dimensions are subject to revision without immediate notice (codes, manufacturing, market demand, etc)
- Dimensions and tolerances according to ASME B16.22.

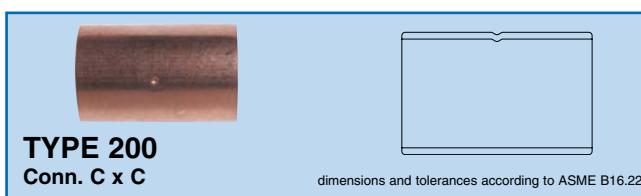
Specifications norm ASME / ANSI B 16.22



Copper size		External end			Internal end			Wall thickness	Inside diameter of fitting	
OD	Nominal	Outside diameter A Min.	A Max.	Length K Min.	Inside diameter F Min.	F Max.	Depth G Min.		O Min.	O Max.
1/4"	1/8"	6,30	6,38	7,90	6,40	6,50	6,40	0,48	4,60	0,50
3/8"	1/4"	9,47	9,55	9,70	9,58	9,68	7,90	0,58	7,60	0,80
1/2"	3/8"	12,62	12,73	11,20	12,75	12,85	9,70	0,66	9,90	1,00
5/8"	1/2"	15,80	15,90	14,20	15,93	16,03	12,70	0,74	13,20	1,30
3/4"	5/8"	18,97	19,08	17,50	19,10	19,20	15,70	0,79	16,00	1,60
7/8"	3/4"	22,15	22,25	20,60	22,28	22,38	19,10	0,84	18,80	1,90
11/8"	1"	28,50	28,63	24,60	28,65	28,75	23,10	1,02	24,90	2,50
13/8"	1 1/4"	34,85	34,98	26,20	35,00	35,10	24,60	1,12	31,20	3,10
15/8"	1 1/2"	41,17	41,33	29,50	41,35	41,48	27,70	1,30	37,30	3,70
21/8"	2"	53,87	54,03	35,80	54,05	54,18	34,00	1,50	49,30	4,90
25/8"	2 1/2"	66,57	66,73	38,90	66,75	66,88	37,30	1,70	61,50	6,10
31/8"	3"	79,27	79,43	43,70	79,45	79,58	42,20	1,91	73,40	7,30
35/8"	3 1/2"	91,97	92,13	50,00	92,15	92,28	48,50	2,18	85,60	8,60
41/8"	4"	104,67	104,83	56,40	104,85	104,98	54,90	2,44	97,50	9,80
51/8"	5"	130,07	130,23	69,10	130,25	130,38	67,60	2,82	119,40	11,90
61/8"	6"	155,47	155,63	81,80	155,65	155,78	78,50	3,15	145,30	14,50
81/8"	8"	206,22	206,43	103,90	206,45	206,58	100,80	4,39	191,80	19,20

NOTE: Drawings and designs of fittings are illustrative only. Dimensions in this table shall govern in all case.
 All sizes in mm.

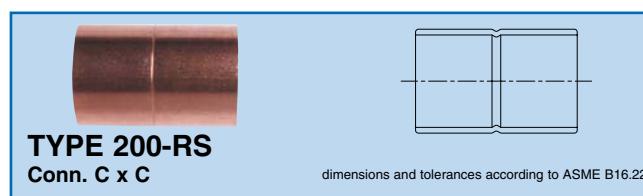
COUPLINGS - STAKED STOP



TYPE 200
Conn. C x C

dimensions and tolerances according to ASME B16.22

COUPLINGS - ROLLED STOP



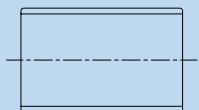
TYPE 200-RS
Conn. C x C

dimensions and tolerances according to ASME B16.22

Cat. No.	Connections
810141	1/4"
810142	5/16"
810143	3/8"
810144	1/2"
810145	5/8"
810157	3/4"
810146	7/8"
810147	1 1/8"
810148	1 3/8"
810149	1 5/8"
810150	2 1/8"
810151	2 5/8"
810152	3 1/8"
810153	3 5/8"
810154	4 1/8"
810155	5 1/8"
810156	6 1/8"
810130	8 1/8"

Cat. No.	Connections
801000	1/8"
801001	3/16"
801003	1/4"
801009	3/8"
801017	1/2"
801022	5/8"
801028	3/4"
801034	7/8"
801040	1"
801047	1 1/8"
801055	1 3/8"
801062	1 1/2"
801063	1 5/8"
801072	2 1/8"
801082	2 5/8"
801092	3 1/8"
801090	3 5/8"
810100	4 1/8"
810107	4 1/8"

COUPLINGS - NO STOP



TYPE 201

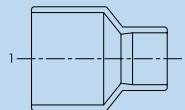
Conn. C x C

dimensions and tolerances according to ASME B16.22

Cat. No.	Connections
801900	1/4"
801901	3/8"
801902	1/2"
801903	5/8"
801904	3/4"
801905	7/8"
801906	1 1/8"
801907	1 3/8"
801908	1 5/8"
801909	2 1/8"
801910	2 5/8"
801911	3 1/8"
801913	4 1/8"

Cat. No.	Connections
801900	1/4"
801901	3/8"
801902	1/2"
801903	5/8"
801904	3/4"
801905	7/8"
801906	1 1/8"
801907	1 3/8"
801908	1 5/8"
801909	2 1/8"
801910	2 5/8"
801911	3 1/8"
801913	4 1/8"

COUPLINGS - REDUCING (CONTINUED)



TYPE 201-R

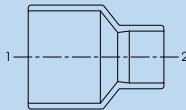
Conn. C x C

dimensions and tolerances according to ASME B16.22

Cat. No.	Connections
----------	-------------

	1	x	2
801064	1 5/8"	x	1 3/8"
801065		x	1 1/8"
801067		x	7/8"
801069		x	5/8"
801073	2 1/8"	x	1 5/8"
801074		x	1 3/8"
801075		x	1 1/8"
801077		x	7/8"
801079		x	5/8"
801083	2 5/8"	x	2 1/8"
801084		x	1 5/8"
801085		x	1 3/8"
801086		x	1 1/8"
801093	3 1/8"	x	2 5/8"
801094		x	2 1/8"
801095		x	1 5/8"
810101	3 5/8"	x	3 1/8"
810108	4 1/8"	x	3 5/8"
810109		x	3 1/8"
810110		x	2 5/8"
810111		x	2 1/8"

COUPLINGS - REDUCING



TYPE 201-R

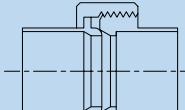
Conn. C x C

dimensions and tolerances according to ASME B16.22

Cat. No.	Connections
----------	-------------

Cat. No.	1	x	2
801004	1/4"	x	3/16"
801005		x	1/8"
801010	3/8"	x	5/16"
801011		x	1/4"
801019	1/2"	x	3/8"
801021		x	1/4"
801023	5/8"	x	1/2"
801025		x	3/8"
801027		x	1/4"
801029	3/4"	x	5/8"
801030		x	1/2"
801031		x	3/8"
801035	7/8"	x	3/4"
801036		x	5/8"
801037		x	1/2"
801038		x	3/8"
801049	1 1/8"	x	7/8"
801050		x	3/4"
801051		x	5/8"
801052		x	1/2"
801056	1 3/8"	x	1 1/8"
801058		x	7/8"
801060		x	5/8"

COUPLINGS - UNIONS



TYPE 202

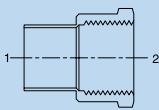
Conn. C x C

dimensions and tolerances according to ASME B16.22

Cat. No.	Connections
----------	-------------

808001	3/8"
808002	1/2"
808003	5/8"
808004	7/8"
808005	1 1/8"
A11205	1 3/8"
A11206	1 5/8"
A11207	2 1/8"
A11216	2 5/8"
A11217	3 1/8"

ADAPTERS



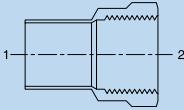
TYPE 203

Conn. C x FPT

dimensions and tolerances according to ASME B16.22

Cat. No.	Connections		
	1	x	2
801204	1/4"	x	1/2"
801205		x	3/8"
801206		x	1/4"
801207		x	1/8"
801214	3/8"	x	3/8"
801215		x	1/4"
801216		x	1/8"
801223	1/2"	x	3/4"
801224		x	1/2"
801225		x	3/8"
801226		x	1/4"
801230	5/8"	x	3/4"
801231		x	1/2"
801232		x	3/8"
801233		x	1/4"
801238	3/4"	x	3/4"
801239		x	1/2"
801245	7/8"	x	1"
801246		x	3/4"
801247		x	1/2"
801261	1 1/8"	x	1 1/4"
801263		x	1"
801264		x	3/4"
801265		x	1/2"
801270	1 3/8"	x	1 1/2"
801271		x	1 1/4"
801272		x	1"
801278	1 5/8"	x	2"
801279		x	1 1/2"
801280		x	1 1/4"
801287	2 1/8"	x	2"
801288		x	1 1/2"
801296	2 5/8"	x	2 1/2"
801297	3 1/8"	x	3"

ADAPTER-FITTINGS



TYPE 203-2

Conn. FTG x FPT

dimensions and tolerances according to ASME B16.22

Cat. No.	Connections		
	1	x	2
801514	3/8"	x	3/8"
801524	1/2"	x	1/2"
801525		x	3/8"
801526		x	1/4"
801531	5/8"	x	1/2"
801532		x	3/8"
801546	7/8"	x	3/4"
801547		x	1/2"
801563	1 1/8"	x	1"
801564		x	3/4"
801571	1 3/8"	x	1 1/4"
801579	1 5/8"	x	1 1/2"
801587	2 1/8"	x	2"
801596	2 5/8"	x	2 1/2"

ADAPTERS



TYPE 204

Conn. C x MPT

dimensions and tolerances according to ASME B16.22

Cat. No.	Connections		
	1	x	2
801105	1/4"	x	3/8"
801106		x	1/4"
801107		x	1/8"
801109	5/16"	x	3/8"
801110		x	1/4"
801113	3/8"	x	1/2"
801114		x	3/8"
801115		x	1/4"
801116		x	1/8"
801123	1/2"	x	3/4"
801124		x	1/2"
801125		x	3/8"
801126		x	1/4"
801129	5/8"	x	1"
801130		x	3/4"
801131		x	1/2"
801132		x	3/8"
801133		x	1/4"
801138	3/4"	x	3/4"
801139		x	1/2"
801145	7/8"	x	1"
801146		x	3/4"
801147		x	1/2"
801161	1 1/8"	x	1 1/2"
801162		x	1 1/4"
801163		x	1"
801164		x	3/4"
801165		x	1/2"
801170	1 3/8"	x	1 1/2"
801171		x	1 1/4"
801172		x	1"
801173		x	3/4"
801178	1 5/8"	x	2"
801179		x	1 1/2"
801180		x	1 1/4"
801181		x	1"
801187	2 1/8"	x	2"
801188		x	1 1/2"
801189		x	1 1/4"
801196	2 5/8"	x	2 1/2"
801197		x	2"
801198		x	1 1/2"
801199	3 1/8"	x	3"
801190	4 1/8"	x	4"

ADAPTER-FITTINGS



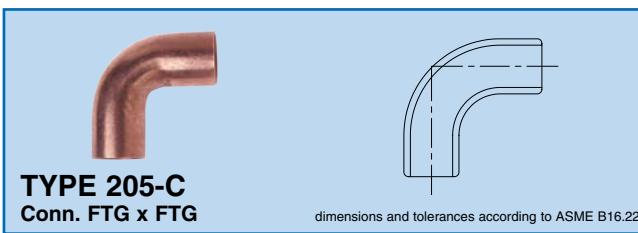
TYPE 204-2

Conn. FTG x MPT

dimensions and tolerances according to ASME B16.22

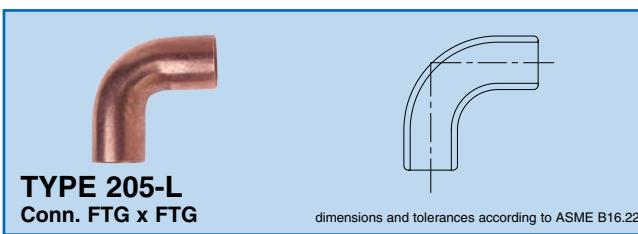
Cat. No.	Connections		
	1	x	2
801414	3/8"	x	3/8"
801425	1/2"	x	3/8"
801431	5/8"	x	1/2"
801432		x	3/8"
801446	7/8"	x	3/4"
801447		x	1/2"
801463	1 1/8"	x	1"
801464		x	3/4"
801471	1 3/8"	x	1 1/4"
801479	1 5/8"	x	1 1/2"
801487	2 1/8"	x	2"
801496	2 5/8"	x	2 1/2"

90° ELBOWS



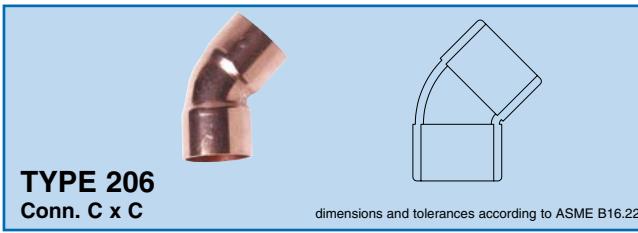
Cat. No.	Connections
802612	3/8"
802621	1/2"
802626	5/8"
802634	7/8"
802644	1 1/8"
802684	1 3/8"
802685	1 5/8"
802686	2 1/8"
802687	2 5/8"
802688	3 1/8"
802689	3 5/8"
802690	4 1/8"

90° ELBOWS - LONG RADIUS



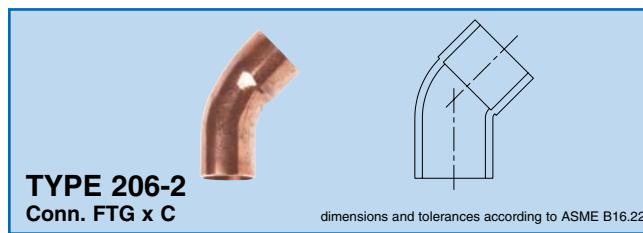
Cat. No.	Connections
802650	1 3/8"
802655	1 5/8"
802659	2 1/8"

45° ELBOWS



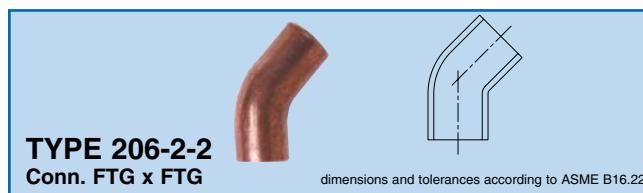
Cat. No.	Connections
803005	1/4"
803012	3/8"
803021	1/2"
803026	5/8"
803030	3/4"
803034	7/8"
803044	1 1/8"
803050	1 3/8"
803055	1 5/8"
803059	2 1/8"
803063	2 5/8"
803067	3 1/8"
803070	3 5/8"
803073	4 1/8"

45° ELBOWS



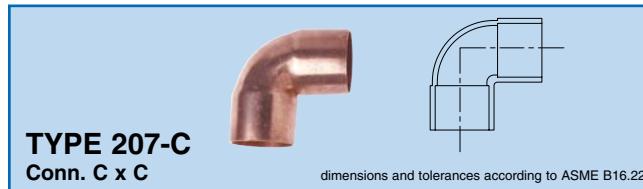
Cat. No.	Connections
803312	3/8"
803321	1/2"
803326	5/8"
803330	3/4"
803334	7/8"
803344	1 1/8"
803350	1 3/8"
803355	1 5/8"
803359	2 1/8"
803363	2 5/8"
803368	3 1/8"
803373	4 1/8"

45° ELBOWS



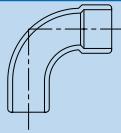
Cat. No.	Connections
803621	1/2"
803626	5/8"
803634	7/8"
803644	1 1/8"

90° ELBOWS



Cat. No.	Connections
802003	1/4"
802009	3/8"
802017	1/2"
801622	5/8"
802028	3/4"
801634	7/8"
802040	1"
801647	1 1/8"
802084	1 3/8"
802085	1 5/8"
802086	2 1/8"
802087	2 5/8"
802088	3 1/8"
802089	3 5/8"
802090	4 1/8"
802097	6 1/8"

90° ELBOWS

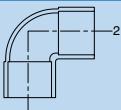


TYPE 207-C2
Conn. FTG x C

dimensions and tolerances according to ASME B16.22

Cat. No.	Connections
802305	1/4"
802312	3/8"
802321	1/2"
802326	5/8"
801652	5/8"
802330	3/4"
802334	7/8"
801654	7/8"
802344	1 1/8"
802384	1 3/8"
802385	1 5/8"
802386	2 1/8"
802387	2 5/8"
802388	3 1/8"
802389	3 5/8"
802390	4 1/8"

90° ELBOWS REDUCING

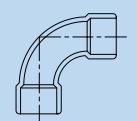


TYPE 207-CR
Conn. C x C

dimensions and tolerances according to ASME B16.22

Cat. No.	Connections	1	x	2
802011	3/8"	x		1/4"
802019	1/2"	x		3/8"
802023	5/8"	x		1/2"
802025		x		3/8"
802029	3/4"	x		5/8"
802030		x		1/2"
802035	7/8"	x		3/4"
802036		x		5/8"
802037		x		1/2"
802049	1 1/8"	x		7/8"
802050		x		3/4"
802051		x		5/8"
802052		x		1/2"
802056	1 3/8"	x		1 1/8"
802077	1 5/8"	x		1 3/8"
802078	2 1/8"	x		1 5/8"

90° ELBOWS - LONG RADIUS

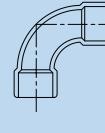


TYPE 207-L
Conn. C x C

dimensions and tolerances according to ASME B16.22

Cat. No.	Connections
802701	3/16"
802715	1/4"
802710	5/16"
802716	3/8"
802717	1/2"
802722	5/8"
802728	3/4"
802734	7/8"
802747	1 1/8"

90° ELBOWS - LONG RADIUS (CONTINUED)

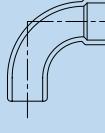


TYPE 207-L
Conn. C x C

dimensions and tolerances according to ASME B16.22

Cat. No.	Connections
802055	1 3/8"
802063	1 5/8"
802072	2 1/8"
802082	2 5/8"
802092	3 1/8"
802093	3 5/8"
802095	4 1/8"

90° ELBOWS - LONG RADIUS

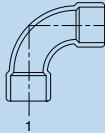


TYPE 207-L2
Conn. FTG x C

dimensions and tolerances according to ASME B16.22

Cat. No.	Connections
802809	3/8"
802817	1/2"
802822	5/8"
802828	3/4"
802834	7/8"
802847	1 1/8"
802350	1 3/8"
802355	1 5/8"
802359	2 1/8"
802363	2 5/8"
802368	3 1/8"
802393	3 5/8"
802395	4 1/8"

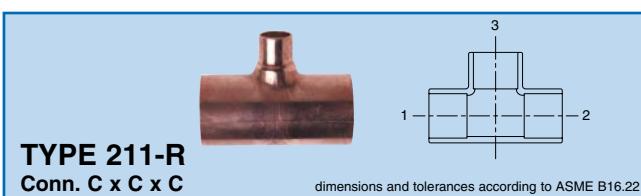
90° ELBOWS - LONG RADIUS REDUCING



TYPE 207-LR
Conn. C x C

dimensions and tolerances according to ASME B16.22

Cat. No.	Connections	1	x	2
802711	3/8"	x		1/4"
802719	1/2"	x		3/8"
802723	5/8"	x		1/2"
802725		x		3/8"
802735	7/8"	x		3/4"
802736		x		5/8"
802749	1 1/8"	x		7/8"
802756	1 3/8"	x		1 1/8"
802058		x		7/8"
802060		x		5/8"
802064	15/8"	x		13/8"
802065		x		1 1/8"
802067		x		7/8"
802073	2 1/8"	x		15/8"
802074		x		13/8"
802075		x		1 1/8"
802083	2 5/8"	x		2 1/8"

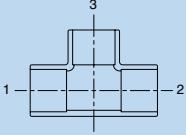
TEES


Cat. No.	Connections				
	1	x	2	x	3
840368	1/4"	x	1/4"	x	3/8"
840308			x	x	3/16"
840334	5/16"	x	5/16"	x	3/8"
804016	3/8"	x	3/8"	x	5/8"
804005	x		x	x	1/2"
840324	x		x	x	1/4"
840330	x		1/4"	x	3/8"
840332	x		x	x	1/4"
804015	1/2"	x	1/2"	x	5/8"
804002	x		x	x	3/8"
840350	x		x	x	1/4"
804003	x		3/8"	x	1/2"
804004	x		x	x	3/8"
840358	x		x	x	1/4"
840363	x		1/4"	x	1/2"
840364	x		x	x	3/8"
840366	x		x	x	1/4"
804067	5/8"	x	5/8"	x	1 1/8"
804047	x		x	x	7/8"
804029	x		x	x	3/4"
804007	x		x	x	1/2"
804008	x		x	x	3/8"
804014	x		x	x	1/4"
804009	x		1/2"	x	5/8"
804010	x		x	x	1/2"
804011	x		x	x	3/8"
804012	x		3/8"	x	5/8"
840367	x		x	x	1/2"
804013	x		x	x	3/8"
804046	3/4"	x	3/4"	x	7/8"
804018	x		x	x	5/8"
804019	x		x	x	1/2"
804020	x		x	x	3/8"
804021	x		5/8"	x	3/4"
804022	x		x	x	5/8"
804023	x		x	x	1/2"
804025	x		1/2"	x	3/4"
804026	x		x	x	5/8"
804027	x		x	x	1/2"
804065	7/8"	x	7/8"	x	1 1/8"
804032	x		x	x	3/4"
804033	x		x	x	5/8"
804034	x		x	x	1/2"
804035	x		x	x	3/8"
804036	x		3/4"	x	7/8"
804037	x		x	x	3/4"

TEES (CONTINUED)

Cat. No.	Connections				
	1	x	2	x	3
804041	7/8"	x	5/8"	x	7/8"
804042		x		x	3/4"
804043		x		x	5/8"
804044		x		x	1/2"
804045		x		x	3/8"
840230		x	1/2"	x	7/8"
840231		x		x	5/8"
840232		x		x	1/2"
840101	1 1/8"	x	1 1/8"	x	1 5/8"
804082	x		x	x	1 3/8"
804049	x		x	x	7/8"
804050	x		x	x	3/4"
804051	x		x	x	5/8"
804052	x		x	x	1/2"
804055	x		7/8"	x	1 1/8"
804056	x		x	x	7/8"
804057	x		x	x	3/4"
804058	x		x	x	5/8"
804059	x		x	x	1/2"
840233	x		3/4"	x	1 1/8"
840234	x		x	x	7/8"
840235	x		x	x	3/4"
840236	x		x	x	5/8"
804061	x		5/8"	x	1 1/8"
804062	x		x	x	7/8"
804063	x		x	x	5/8"
840122	1 3/8"	x	1 3/8"	x	2 1/8"
840100	x		x	x	1 5/8"
804069	x		x	x	1 1/8"
804070	x		x	x	7/8"
804071	x		x	x	5/8"
804072	x		x	x	1/2"
804073	x		1 1/8"	x	1 3/8"
804074	x		x	x	1 1/8"
804075	x		x	x	7/8"
804076	x		x	x	5/8"
804077	x		x	x	1/2"
804078	x		7/8"	x	1 3/8"
804079	x		x	x	1 1/8"
804080	x		x	x	7/8"
804081	x		x	x	5/8"
804083	x		5/8"	x	1 3/8"
840121	1 5/8"	x	1 5/8"	x	2 1/8"
804085	x		x	x	1 3/8"
804086	x		x	x	1 1/8"
804087	x		x	x	7/8"
804088	x		x	x	5/8"
804089	x		x	x	1/2"
804090	x		1 3/8"	x	1 5/8"
804091	x		x	x	1 3/8"
804092	x		x	x	1 1/8"
804093	x		x	x	7/8"
804094	x		x	x	5/8"
804095	x		1 1/8"	x	1 5/8"
804096	x		x	x	1 3/8"
804097	x		x	x	1 1/8"
804098	x		x	x	7/8"
840237	x		x	x	5/8"

TEES (CONTINUED)

	
TYPE 211-R Conn. C x C x C	

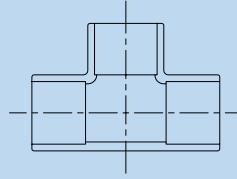
dimensions and tolerances according to ASME B16.22

Cat. No.	Connections				
	1	x	2	x	3
804099	15/8"	x	7/8"	x	15/8"
840239	x		x	13/8"	
840240	x		x	11/8"	
840238	x		x	7/8"	
840243	x		x	5/8"	
840244	x		5/8"	x	15/8"
840153	21/8"	x	21/8"	x	31/8"
840144	x		x	25/8"	
840103	x		x	15/8"	
840104	x		x	13/8"	
840105	x		x	11/8"	
840106	x		x	7/8"	
840107	x		x	5/8"	
840108	x		x	1/2"	
840109	x	15/8"	x	21/8"	
840110	x		x	15/8"	
840111	x		x	13/8"	
840112	x		x	11/8"	
840113	x		x	7/8"	
840114	x		x	5/8"	
840115	x	13/8"	x	21/8"	
840116	x		x	15/8"	
840117	x		x	13/8"	
840118	x		x	11/8"	
840119	x		x	7/8"	
840120	x		x	5/8"	
840245	x	11/8"	x	21/8"	
840247	x		x	11/8"	
840248	x	7/8"	x	21/8"	
840249	x	5/8"	x	21/8"	
840124	25/8"	x	25/8"	x	21/8"
840125	x		x	15/8"	
840126	x		x	13/8"	
840127	x		x	11/8"	
840128	x		x	7/8"	
840129	x		x	5/8"	
840130	x	21/8"	x	25/8"	
840131	x		x	21/8"	
840132	x		x	15/8"	
840133	x		x	13/8"	
840134	x		x	11/8"	
840135	x		x	7/8"	
840136	x		x	5/8"	
840137	x	15/8"	x	25/8"	
840138	x		x	21/8"	
840139	x		x	15/8"	
840140	x		x	13/8"	
840141	x		x	11/8"	
840142	x		x	7/8"	
840143	x		x	5/8"	
840220	x	13/8"	x	25/8"	
840250	x		x	21/8"	

TEES (CONTINUED)

Cat. No.	Connections				
	1	x	2	x	3
840251	25/8"	x	13/8"	x	15/8"
840252	x		x	x	13/8"
840253	x		x	x	11/8"
840254	x		x	x	7/8"
840255	x		x	x	5/8"
840221	25/8"	x	11/8"	x	25/8"
840256	x		x	x	21/8"
840257	x		x	x	15/8"
840258	x		x	x	13/8"
840259	x		x	x	11/8"
840222	x		7/8"	x	25/8"
840151	31/8"	x	31/8"	x	25/8"
840150	x		x	x	21/8"
840149	x		x	x	15/8"
840148	x		x	x	13/8"
840147	x		x	x	11/8"
840146	x		x	x	7/8"
840145	x		x	x	5/8"
840159	x	25/8"	x	31/8"	
840158	x		x	x	25/8"
840157	x		x	x	21/8"
840156	x		x	x	15/8"
840155	x		x	x	13/8"
840154	x		x	x	11/8"
840167	x	21/8"	x	31/8"	
840165	x		x	x	25/8"
840164	x		x	x	21/8"
840163	x		x	x	15/8"
840162	x		x	x	13/8"
840161	x		x	x	11/8"
840174	x	15/8"	x	31/8"	
840181	x	13/8"	x	31/8"	
840178	x	11/8"	x	31/8"	
840179	x	7/8"	x	31/8"	
840198	41/8"	x	41/8"	x	31/8"
840197	x		x	x	25/8"
840196	x		x	x	21/8"
840195	x		x	x	15/8"
840194	x		x	x	13/8"
840193	x		x	x	11/8"
840192	x		x	x	7/8"
840191	x		x	x	5/8"
840208	x	31/8"	x	41/8"	
840206	x		x	x	31/8"
840205	x		x	x	25/8"
840204	x		x	x	21/8"
840212	x	25/8"	x	41/8"	
840216	x	21/8"	x	41/8"	
840215	x	15/8"	x	41/8"	
840214	x	13/8"	x	41/8"	
840213	x	11/8"	x	41/8"	
840503	61/8"	x	61/8"	x	31/8"
840504	x		x	x	25/8"
840505	x		x	x	21/8"

TEES

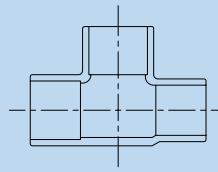


TYPE 211
Conn. C x C x C

dimensions and tolerances according to ASME B16.22

Cat. No.	Connections
840302	3/16"
840306	1/4"
840313	5/16"
804000	3/8"
804001	1/2"
804006	5/8"
804017	3/4"
804031	7/8"
804048	1 1/8"
804068	1 3/8"
804084	1 5/8"
840102	2 1/8"
840123	2 5/8"
840152	3 1/8"
840190	3 5/8"
840200	4 1/8"
840500	6 1/8"

TEES - FITTING

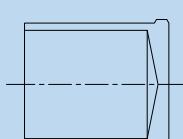


TYPE 211-2
Conn. C x FTG x C

dimensions and tolerances according to ASME B16.22

Cat. No.	Connections
804106	5/8"
804131	7/8"

PLUGS

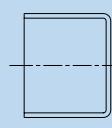


TYPE 216
Conn. FTG

dimensions and tolerances according to ASME B16.22

Cat. No.	Connections
A01402	1/4"
A01422	3/8"
A01392	1/2"
A01504	5/8"
A01529	7/8"
A01556	1 1/8"
A01590	1 3/8"
A01628	1 5/8"

CAPS

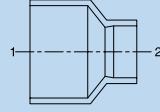


TYPE 217
Conn. C

dimensions and tolerances according to ASME B16.22

Cat. No.	Connections
807002	1/4"
807004	3/8"
807006	1/2"
807007	5/8"
807008	3/4"
807009	7/8"
807011	1 1/8"
807012	1 3/8"
807013	1 5/8"
807014	2 1/8"
807015	2 5/8"
807016	3 1/8"
807017	3 5/8"
807018	4 1/8"

BUSHINGS - EXTENDED

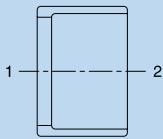


TYPE 218
Conn. FTG x C

dimensions and tolerances according to ASME B16.22

Cat. No.	Connections		
	1	x	2
801302	1/4"	x	1/8"
801306	3/8"	x	1/4"
801312	1/2"	x	3/8"
801314		x	1/4"
801315	5/8"	x	1/2"
801317		x	3/8"
801320	3/4"	x	5/8"
801321		x	1/2"
801322		x	3/8"
801325	7/8"	x	3/4"
801326		x	5/8"
801327		x	1/2"
801337	1 1/8"	x	7/8"
801338		x	3/4"
801339		x	5/8"
801340		x	1/2"
801343	1 3/8"	x	1 1/8"
801345		x	7/8"
801347		x	5/8"
801350	1 5/8"	x	1 3/8"
801351		x	1 1/8"
801353		x	7/8"
801355		x	5/8"
801358	2 1/8"	x	1 5/8"
801359		x	1 3/8"
801360		x	1 1/8"
801362		x	7/8"
801364		x	5/8"
801367	2 5/8"	x	2 1/8"
801368		x	1 5/8"
801369		x	1 3/8"
801370		x	1 1/8"
801376	3 1/8"	x	2 5/8"
801377		x	2 1/8"
801378		x	1 5/8"
801379		x	1 3/8"
801381	3 5/8"	x	3 1/8"
801382		x	2 5/8"
801383		x	2 1/8"
801386	4 1/8"	x	3 5/8"
801387		x	3 1/8"
801388		x	2 5/8"
801389		x	2 1/8"

BUSHINGS - FLUSH



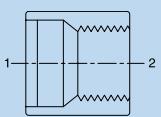
TYPE 219

Conn. FTG x C

dimensions and tolerances according to ASME B16.22

Cat. No.	Connections		
	1	x	2
801706	3/8"	x	1/4"
801712	1/2"	x	3/8"
801714		x	1/4"
801715	5/8"	x	1/2"
801717		x	3/8"
801720	3/4"	x	5/8"
801721		x	1/2"
801722		x	3/8"
801725	7/8"	x	3/4"
801726		x	5/8"
801727		x	1/2"
801737	11/8"	x	7/8"
801738		x	3/4"
801739		x	5/8"
801743	13/8"	x	1 1/8"
801745		x	7/8"
801750	15/8"	x	1 3/8"
801751		x	1 1/8"
801758	21/8"	x	1 5/8"
801759		x	1 3/8"
801767	25/8"	x	2 1/8"

BUSHINGS - FLUSH



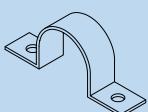
TYPE 219-3

Conn. FTG x FPT

dimensions and tolerances according to ASME B16.22

Cat. No.	Connections		
	1	x	2
A07812	5/8"	x	1/8"
A07813		x	1/4"
A07814	7/8"	x	3/8"
A07815	11/8"	x	1/2"
A07816	13/8"	x	3/4"
A07817	15/8"	x	1"
A07819	21/8"	x	1 1/2"

COPPER TUBE STRAPS - 2 HOLE

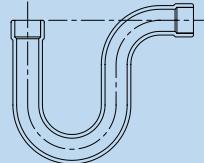


TYPE 220

dimensions and tolerances according to ASME B16.22

Cat. No.	Connections		
	1	x	2
A01203		1/4"	
A01278		3/8"	
A01366		1/2"	
A02529		5/8"	
A01467		3/4"	
A02574		7/8"	
A02614		11/8"	
A02650		13/8"	
A02675		15/8"	
A02708		21/8"	

P-TRAPS - SUCTION LINE



TYPE 223

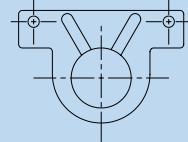
Conn. C x C

dimensions and tolerances according to ASME B16.22

CAT. NO. CONNECTIONS

860999	5/8"
861008	3/4"
861000	7/8"
861001	1 1/8"
861002	1 3/8"
861003	1 5/8"
861009	2 1/8"

HANGERS - HI-EAR



TYPE 224

Conn. C

dimensions and tolerances according to ASME B16.22

CAT. NO. CONNECTIONS

A03167	5/8"
A03168	7/8"
A03171	1 1/8"

COPPER TUBE STRAPS - PERFORATED



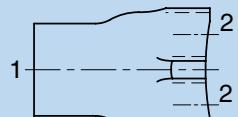
TYPE 225

dimensions and tolerances according to ASME B16.22

CAT. NO. CONNECTIONS

A01211	7,60 m
--------	--------

DISTRIBUTORS



TYPE X010

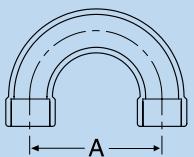
Conn. C x C x C

dimensions and tolerances according to ASME B16.22

CAT. NO. CONNECTIONS

Cat. No.	Connections		
	1	x	2
X01052	3/4"	x	1/2"
X01051	7/8"	x	5/8"
X01050	13/8"	x	7/8"

Other sizes upon request.

RETURN BENDS

TYPE 238
Conn. C x C

dimensions and tolerances according to ASME B16.22

Cat. No.	Connections	Dimensions A (mm)
806025	3/8"	114,3
806020	3/8"	38,1
806048	1/2"	152,4
806045	1/2"	101,6
806041	1/2"	76,2
806036	1/2"	50,8
806032	1/2"	38,1
806069	5/8"	152,4
806060	5/8"	76,2
806058	5/8"	63,5
806056	5/8"	57,2
806053	5/8"	47,6
806051	5/8"	39,7
806084	3/4"	101,6
806074	3/4"	54,0
806077	3/4"	63,5
806095	7/8"	85,7
806092	7/8"	63,5
860110	1 1/8"	76,2
860111	1 1/8"	82,6
860121	1 3/8"	95,3
860131	1 5/8"	114,3
860140	2 1/8"	139,7

METRIC COPPER TUBE FITTINGS

REFRIGERATION QUALITY

SYMBOLS USED FOR FITTING ENDS

- "C"** : Copper cup manufactured to receive copper tube diameter (as an ODS solder connection). The copper tube can be "slipped-in" any "C" fitting end (Female).
"FTG" : Fitting ends made to copper tube diameter. Can be "slipped-in" any "C" fitting end (Male).

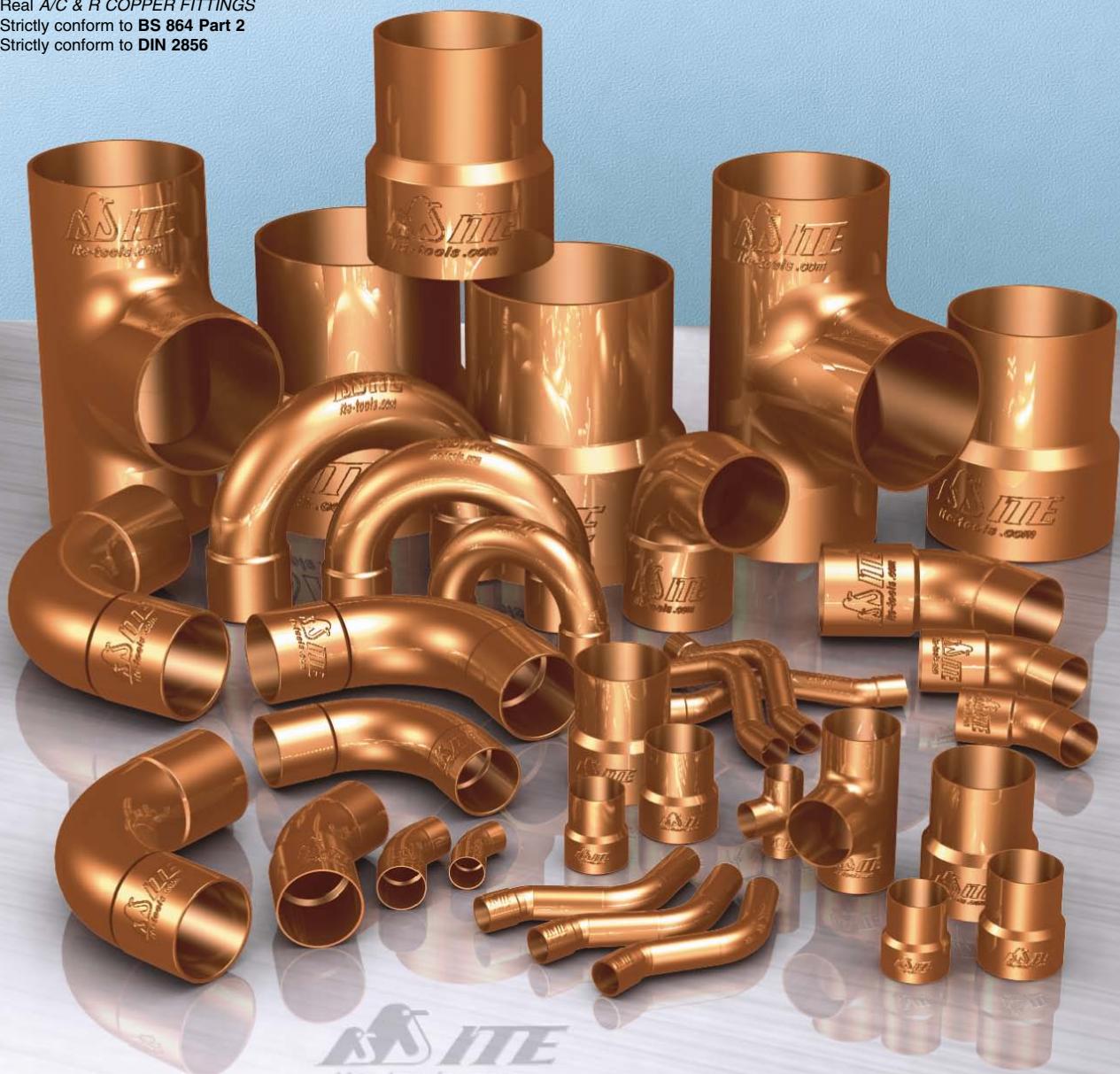
NOTE

- All solder cups (**C**) and fitting ends (**FTG**) size description are expressed in outside diameter (**OD**) tube size.

Note: According to the PED Directive 97/23/EC all open ended copper tubes and fittings as supplied by ITE will be classified in the SEP (Sound Engineering Practices) category by reference to article 3 paragraph 3 of the PED. A CE mark cannot be applied to these tubes and fittings, because all appropriate manufacturing operations such as bending, connection (soldering) and heat treatment have not been completed, as they will be completed in the field, during installation process, to render them fit for their intended purpose.

NORMS

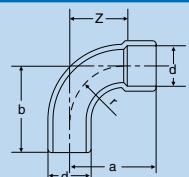
- Real A/C & R COPPER FITTINGS
- Strictly conform to **BS 864 Part 2**
- Strictly conform to **DIN 2856**



DIMENSIONS

- Dimensions of products illustrated are for general estimating purposes and based on the latest data.
- Dimensions are subject to revision without immediate notice (codes, manufacturing, market demand, etc)
- Dimensions and tolerances according to DIN EN 1254-1.
- Material quality is in conformity with EN 10204 and EN 12449 standards.

LONG 90° RADIUS STREET ELBOWS

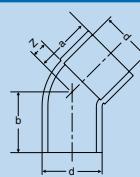


TYPE 5001A

Connections: FTG x C

dimensions and tolerances according to DIN EN 1254-1

45° STREET ELBOWS



TYPE 5040

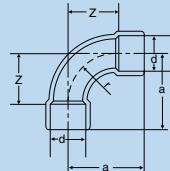
Connections: FTG x C

dimensions and tolerances according to DIN EN 1254-1

Cat. No.	Connections d	± Dimensions (mm)			
		a	b	r	z
5001A-06	06 mm	14	16	7	7
5001A-08	08 mm	18	20	10	10
5001A-10	10 mm	21	23	12	12
5001A-12	12 mm	24	26	15	15
5001A-14	14 mm	30	32	18	18
5001A-15	15 mm	30	32	18	18
5001A-16	16 mm	30	31	17	17
5001A-18	18 mm	36	38	22	22
5001A-22	22 mm	43	45	27	27
5001A-28	28 mm	53	55	34	34
5001A-35	35 mm	67	69	43	43
5001A-42	42 mm	79	81	51	51
5001A-54	54 mm	99	101	65	65
5001A-64	64 mm	112	115	78	78
5001A-67	67 mm	116	119	81	81
5001A-70	70 mm	120	123	85	85
5001A-76	76 mm	127	130	92	92
5001A-80	80 mm	134	137	121	121
5001A-89	89 mm	147	150	108	108
5001A-108	108 mm	179	182	131	131
5001A-133	133 mm	212	217	177	177

Cat. No.	Connections d	± Dimensions (mm)			
		a	b	r	z
5040-06	06 mm	9	11	3	3
5040-08	08 mm	11	13	4	4
5040-10	10 mm	12	14	4	4
5040-12	12 mm	14	16	5	5
5040-14	14 mm	16,5	16,5	5,5	5,5
5040-15	15 mm	17	19	6	6
5040-16	16 mm	18	20	7	7
5040-18	18 mm	20	22	7	7
5040-22	22 mm	25	27	9	9
5040-28	28 mm	29	31	10	10
5040-35	35 mm	37	39	14	14
5040-42	42 mm	42	44	15	15
5040-54	54 mm	52	54	20	20
5040-64	64 mm	62	65	27	27
5040-67	67 mm	65	68	28,5	28,5
5040-76	76 mm	68	71	32	32
5040-80	80 mm	83	85	48	48
5040-89	89 mm	78	81	37,5	37,5
5040-108	108 mm	110	113	60	60
5040-133	133 mm	280	280	235	235

LONG 90° RADIUS ELBOWS

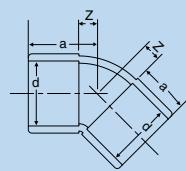


TYPE 5002A

Connections: C x C

dimensions and tolerances according to DIN EN 1254-1

45° ELBOWS



TYPE 5041

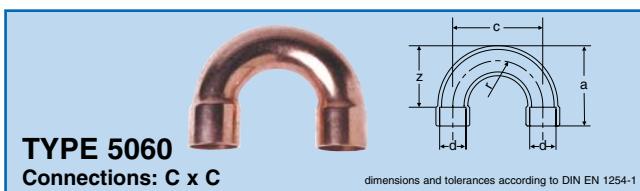
Connections: C x C

dimensions and tolerances according to DIN EN 1254-1

Cat. No.	Connections d	± Dimensions (mm)			
		a	r	z	
5002A-06	06 mm	13	7,2	7,2	
5002A-08	08 mm	16,5	9,6	9,6	
5002A-10	10 mm	20	12	12	
5002A-12	12 mm	23	14,4	14,4	
5002A-14	14 mm	29	18	18	
5002A-15	15 mm	29	18	18	
5002A-16	16 mm	29	18	18	
5002A-18	18 mm	34,5	21,6	21,6	
5002A-22	22 mm	42	26,4	26,4	
5002A-28	28 mm	52	33,6	33,6	
5002A-35	35 mm	65	42	42	
5002A-42	42 mm	77,5	50,4	50,4	
5002A-54	54 mm	97	64,8	64,8	
5002A-64	64 mm	109,5	76,8	76,8	
5002A-67	67 mm	117	84	84	
5002A-70	70 mm	138	105	105	
5002A-76	76 mm	125	91,3	91,3	
5002A-80	80 mm	153	120	120	
5002A-89	89 mm	144,5	106,7	106,7	
5002A-108	108 mm	177	129,6	129,6	
5002A-133	133 mm	212	177	177	
5002A-159	159 mm	262	227	227	

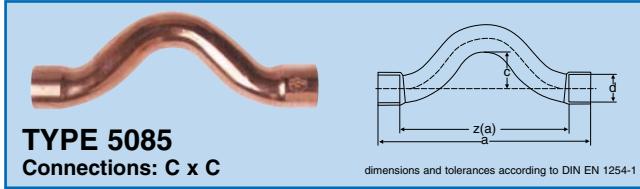
Cat. No.	Connections d	± Dimensions (mm)			
		a	r	z	
5041-06	06 mm	6	9	3	
5041-08	08 mm	8	11	4	
5041-10	10 mm	10	12	4	
5041-12	12 mm	12	14	5	
5041-14	14 mm	14	16,5	5,5	
5041-15	15 mm	15	17	6	
5041-16	16 mm	16	18	7	
5041-18	18 mm	18	20	7	
5041-22	22 mm	22	25	9	
5041-28	28 mm	28	29	10	
5041-35	35 mm	35	37	14	
5041-42	42 mm	42	42	15	
5041-54	54 mm	54	52	20	
5041-64	64 mm	64	62	27	
5041-67	67 mm	67	65	28,5	
5041-76	76 mm	76	68	32	
5041-80	80 mm	80	83	48	
5041-89	89 mm	89	78	37,5	
5041-108	108 mm	108	110	60	
5041-133	133 mm	133	133	235	
5041-159	159 mm	159	159	290	

RETURN BENDS



Cat. No.	Connections	\pm Dimensions (mm)				
		d	a	c	r	z
5060-08	08 mm	20	24	12	12	
5060-12	12 mm	28	36	18	17	
5060-14	14 mm	33,5	45	22,5	22,5	
5060-15	15 mm	34,5	45	22,5	22,5	
5060-16	16 mm	37	48	24	24	
5060-18	18 mm	41	54	27	27	
5060-22	22 mm	48	66	33	31	
5060-28	28 mm	60	84	42	40	
5060-35	35 mm	95	140	70	70	
5060-42	42 mm	112	168	84	83	
5060-54	54 mm	140	216	108	106	

CROSSOVER COUPLINGS



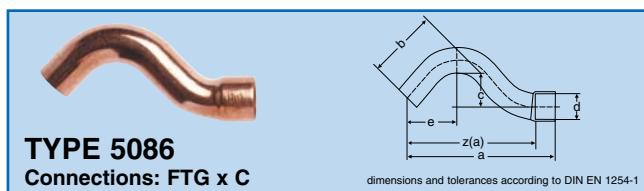
Cat. No.	Connections	\pm Dimensions (mm)		
		d	a	c
5085-12	12 mm	100	20	82
5085-14	14 mm	112	20	90
5085-15	15 mm	113	20	91
5085-16	16 mm	113	20	91
5085-18	18 mm	122	20	96
5085-22	22 mm	145	23	113

90° RADIUS ELBOWS



Cat. No.	Connections	\pm Dimensions (mm)			
		d	a	b	z(a)
5090-06	06 mm	13	13	7,2	7,2
5090-08	08 mm	12,5	12,5	5,5	5,5
5090-10	10 mm	15	15	7	7
5090-12	12 mm	16,5	16,5	7,5	7,5
5090-14	14 mm	19,5	19,5	8,5	8,5
5090-15	15 mm	22	22	11	11
5090-16	16 mm	24	24	13	13
5090-18	18 mm	25,5	25,5	12,5	12,5
5090-22	22 mm	30	30	14	14
5090-28	28 mm	36,5	36,5	17,5	17,5
5090-35	35 mm	46	46	23	23
5090-42	42 mm	55	55	28	28
5090-54	54 mm	70	70	38	38
5090-64	64 mm	83,5	83,5	51	51
5090-76	76 mm	91,5	91,5	58	58
5090-89	89 mm	105	105	67,5	67,5
5090-108	108 mm	127	127	79,5	79,5
5090-15-12	15-12 mm	22	24,5	10	12,5
5090-18-15	18-15 mm	25	25	11	15
5090-22-15	22-15 mm	32	33	15	21
5090-22-18	22-18 mm	32	34	15	20

CROSSOVER STREET COUPLINGS



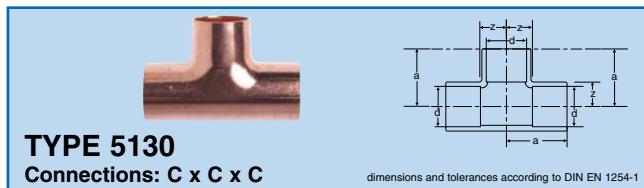
Cat. No.	Connections	\pm Dimensions (mm)				
		d	a	b	c	e
5086-12	12 mm	86	43	20	36	76
5086-14	14 mm	94	46	20	37	83
5086-15	15 mm	93	43	20	36	81
5086-16	16 mm	94	46	20	37	83
5086-18	18 mm	101	47	20	40	88
5086-22	22 mm	122	54	23	49	106

SHORT 90° RADIUS STREET ELBOWS



Cat. No.	Connections	\pm Dimensions (mm)		
		d	a	b
5092-06	06 mm	14	16	7,2
5092-08	08 mm	12,5	15,5	5,5
5092-10	10 mm	19	22	10
5092-12	12 mm	17	20	8
5092-14	14 mm	20,5	23	9,5
5092-15	15 mm	23	25	11
5092-16	16 mm	25	28,5	13
5092-18	18 mm	26,5	27	12,5
5092-22	22 mm	31	33	14
5092-28	28 mm	37,5	39,5	17,5
5092-35	35 mm	47	54	24
5092-42	42 mm	56	66	29
5092-54	54 mm	71	82	39

TEES

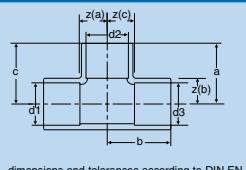


Cat. No.	Connections	\pm Dimensions (mm)		
		d	a	z
5130-06	06 mm	10	4	
5130-08	08 mm	12	5	
5130-10	10 mm	14	6	
5130-12	12 mm	16	7	
5130-14	14 mm	19	8	
5130-15	15 mm	19	8	
5130-16	16 mm	20	9	
5130-18	18 mm	23	10	
5130-22	22 mm	28	12	
5130-28	28 mm	34	15	
5130-35	35 mm	42	19	
5130-42	42 mm	50	23	
5130-54	54 mm	61	29	
5130-64	64 mm	73	40	
5130-67	67 mm	72	38	
5130-76	76 mm	80	46	
5130-89	89 mm	92	54	
5130-108	108 mm	112	64	
5130-133	133 mm	135	85	
5130-159	159 mm	160	100	

REDUCING TEES


TYPE 5130R

Connections: C x C x C

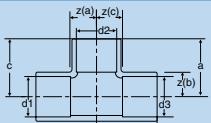


Cat. No.	Connections d1-d2-d3	a	± Dimensions (mm)		
			b	c	z(a) z(b) z(c)
5130R-06-08B-06	06-08-06	13	12	13	7 5 7
5130R-06-10B-06	06-10-06	14	14	14	8 6 8
5130R-08-06B-06	08-06-06	12	11	12	5 5 6
5130R-08-06B-08	08-06-08	12	11	12	5 5 5
5130R-08-10B-08	08-10-08	15	14	15	8 6 8
5130R-10-06B-10	10-06-10	14	12	14	6 6 6
5130R-10-08B-08	10-08-08	14	13	14	6 6 7
5130R-10-08B-10	10-08-10	14	13	14	6 6 6
5130R-10-10B-08	10-10-08	14	14	15	6 6 8
5130R-10-12B-10	10-12-10	16,5	16	16,5	8,5 7 8,5
5130R-10-15B-10	10-15-10	19	18,5	19	11 7,5 11
5130R-12-06B-12	12-06-12	15	14,5	15	6 8,5 6
5130R-12-08B-12	12-08-12	15	14	15	6 7 6
5130R-12-10B-10	12-10-10	15	15	16,5	6 7 8,5
5130R-12-10B-12	12-10-12	15	15	15	6 7 6
5130R-12-12B-10	12-12-10	16	16	17,5	7 7 9
5130R-12-14B-12	12-14-12	19	19	19	10 8 10
5130R-12-15B-12	12-15-12	19,5	19	19,5	10,5 8 10,5
5130R-12-16B-12	12-16-12	20	19,5	20	11 8,5 11
5130R-12-18B-12	12-18-12	23	23	23	14 10 14
5130R-14-10B-14	14-10-14	17	16	17	6 8 6
5130R-14-12B-12	14-12-12	18	17	18	7 8 9
5130R-14-12B-14	14-12-14	18	17	18	7 8 7
5130R-14-14B-12	14-14-12	19	19	20	8 8 10
5130R-14-16B-12	14-16-12	21	19,5	20	10 8,5 11
5130R-14-16B-14	14-16-14	21,5	19,5	21,5	10,5 8,5 10,5
5130R-14-18B-14	14-18-14	23,5	23	23,5	12,5 10 12,5
5130R-14-22B-14	14-22-14	27,5	27	27,5	16,5 11 16,5
5130R-15-06B-15	15-06-15	16	16,5	16	5 10,5 5
5130R-15-08B-15	15-08-15	16	16	16	5 9 5
5130R-15-10B-10	15-10-10	17	16,5	17	6 8,5 9
5130R-15-10B-12	15-10-12	17	16,5	18	6 8,5 9
5130R-15-10B-15	15-10-15	17	17	17	6 9 6
5130R-15-12B-10	15-12-10	18	18	19	7 9 11
5130R-15-12B-12	15-12-12	18	18	18	7 9 9
5130R-15-12B-15	15-12-15	18	18	18	7 9 7
5130R-15-15B-10	15-15-10	19	19	19	8 8 11
5130R-15-15B-12	15-15-12	19	19	19	8 8 10
5130R-15-18B-15	15-18-15	23	23	23	12 10 12
5130R-15-22B-15	15-22-15	27	28	27	16 12 16
5130R-15-28B-15	15-28-15	33	34	33	22 15 22
5130R-16-06B-16	16-06-16	16,5	15,5	16,5	5,5 9,5 5,5
5130R-16-10B-16	16-10-16	17	17	17	6 9 6
5130R-16-12B-12	16-12-12	18	18	18	7 9 9
5130R-16-12B-14	16-12-14	18	18	20,5	7 9 9,5
5130R-16-12B-16	16-12-16	18	18	18	7 9 7
5130R-16-14B-12	16-14-12	19	20	19	8 9 10
5130R-16-14B-14	16-14-14	19	20	20	8 9 9
5130R-16-14B-16	16-14-16	19	20	19	8 9 8
5130R-16-16B-12	16-16-12	20	20	20	9 9 11
5130R-16-16B-14	16-16-14	20	20	21	9 9 10
5130R-16-18B-14	16-18-14	22,5	23	23	11,5 10 12
5130R-16-18B-16	16-18-16	22,5	23	22,5	11,5 10 11,5
5130R-16-22B-16	16-22-16	26,5	28	26,5	15,5 12 15,5
5130R-18-06B-18	18-06-18	20	17	20	7 11 7
5130R-18-10B-18	18-10-18	20,5	18	20,5	7,5 10 7,5
5130R-18-12B-12	18-12-12	20	19	19,5	7 10 10,5
5130R-18-12B-14	18-12-14	20	19	20	7 10 9
5130R-18-12B-15	18-12-15	20	19	20	7 10 9
5130R-18-12B-16	18-12-16	20	19	19,5	7 10 8,5

REDUCING TEES (CONTINUED)

Cat. No.	Connections d1-d2-d3	a	± Dimensions (mm)		
			b	c	z(a) z(b) z(c)
5130R-18-12B-18	18-12-18	21	19	21	8 10 8
5130R-18-14B-12	18-14-12	21	21	20	8 10 11
5130R-18-14B-14	18-14-14	21	21	21	8 10 10
5130R-18-14B-16	18-14-16	21	21	21	8 10 10
5130R-18-14B-18	18-14-18	21	21	21	8 10 8
5130R-18-15B-12	18-15-12	22	21	20	9 10 11
5130R-18-15B-15	18-15-15	22	21	22	9 10 11
5130R-18-15B-18	18-15-18	21	21	22	8 10 8
5130R-18-16B-14	18-16-14	22	21	22	9 10 11
5130R-18-16B-16	18-16-16	22	21	22	9 10 11
5130R-18-16B-18	18-16-18	22	21	22	9 10 9
5130R-18-18B-10	18-18-10	23	23	22	10 10 14
5130R-18-18B-12	18-18-12	23	23	21	10 10 13
5130R-18-18B-14	18-18-14	23	23	23	10 10 12
5130R-18-18B-15	18-18-15	23	23	23	10 10 12
5130R-18-18B-16	18-18-16	23	23	23	10 10 12
5130R-18-22B-15	18-22-15	27,5	28	27	14,5 12 16
5130R-18-22B-18	18-22-18	27,5	28	27,5	14,5 12 14,5
5130R-18-28B-18	18-28-18	33,5	34	33,5	20,5 15 20,5
5130R-22-06B-22	22-06-22	23	21	23	7 15 7
5130R-22-10B-22	22-10-22	23	21	23	7 13 7
5130R-22-12B-12	22-12-12	23	21	21	7 12 12
5130R-22-12B-14	22-12-14	23	21	22	7 12 11
5130R-22-12B-15	22-12-15	23	21	22	7 12 11
5130R-22-12B-22	22-12-22	23	21	23	7 12 7
5130R-22-14B-14	22-14-14	24	23	23	8 12 12
5130R-22-14B-16	22-14-16	24	23	23	8 12 12
5130R-22-14B-18	22-14-18	24	23	24	8 12 11
5130R-22-14B-22	22-14-22	24	23	24	8 12 8
5130R-22-15B-12	22-15-12	25	23	22,5	9 12 13,5
5130R-22-15B-15	22-15-15	25	23	24	9 12 13
5130R-22-15B-18	22-15-18	25	24	25	9 12 12
5130R-22-15B-22	22-15-22	25	23	25	9 12 9
5130R-22-16B-16	22-16-16	25	23	23,5	9 12 12,5
5130R-22-16B-18	22-16-18	25	23	24	9 12 11
5130R-22-16B-22	22-16-22	25	23	25	9 12 9
5130R-22-18B-12	22-18-12	26	25	24	10 12 15
5130R-22-18B-14	22-18-14	26	25	25	10 12 14
5130R-22-18B-15	22-18-15	26	25	25	10 12 14
5130R-22-18B-18	22-18-18	27	25	26	11 12 13
5130R-22-18B-22	22-18-22	27	25	27	11 12 11
5130R-22-22B-14	22-22-14	28	28	27	12 12 16
5130R-22-22B-15	22-22-15	28	28	27	12 12 16
5130R-22-22B-16	22-22-16	28	28	26,5	12 12 15,5
5130R-22-22B-18	22-22-18	28	28	27	12 12 14
5130R-22-28B-15	22-28-15	35	34	33	19 15 22
5130R-22-28B-22	22-28-22	35	34	35	19 15 19
5130R-22-35B-22	22-35-22	43	42	43	27 19 27
5130R-28-10B-28	28-10-28	27	26	27	8 18 8
5130R-28-12B-28	28-12-28	26	24	26	7 15 7
5130R-28-14B-28	28-14-28	27	26	27	8 15 8
5130R-28-15B-15	28-15-15	28	26	26,5	9 15 15,5
5130R-28-15B-18	28-15-18	28	26	27	9 15 14
5130R-28-15B-22	28-15-22	28	26	28,5	9 15 12,5
5130R-28-15B-28	28-15-28	28	26	28	9 15 9
5130R-28-16B-16	28-16-16	28	26	32	9 15 21
5130R-28-16B-28	28-16-28	28	26	28	9 15 9
5130R-28-18B-15	28-18-15	29	28	28	10 15 17
5130R-28-18B-18	28-18-18	29	28	28	10 15 15,5
5130R-28-18B-22	28-18-22	29	28	30	10 15 14
5130R-28-18B-28	28-18-28	29	28	29	10 15 10
5130R-28-18B-30	28-18-30	29	28	29	10 15 10
5130R-28-22B-15	28-22-15	31	31	30	12 15 19
5130R-28-22B-22	28-22-22	31	31	32	12 15 16
5130R-28-22B-28	28-22-28	31	31	31	12 15 12
5130R-28-28B-12	28-28-12	34	34	33	15 15 24
5130R-28-28B-15	28-28-15	34	34	33	15 15 22
5130R-28-28B-16	28-28-16	34	34	34	15 15 23
5130R-28-28B-18	28-28-18	34	34	33,5	15 15 20,5
5130R-28-28B-22	28-28-22	34	34	35	15 15 19
5130R-28-35B-28	28-35-28	43,5	42	43,5	24,5 19 24,5

REDUCING TEES (CONTINUED)



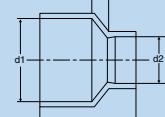
TYPE 5130R

Connections: C x C x C

dimensions and tolerances according to DIN EN 1254-1

Cat. No.	Connections		\pm Dimensions (mm)				
	d1-d2-d3	a	b	c	z(a)	z(b)	z(c)
5130R-35-15B-28	35-15-28	32,5	30	34	9,5	19	15
5130R-35-15B-35	35-15-35	32,5	30	32,5	9,5	19	9,5
5130R-35-18B-28	35-18-28	34	32	35	11	19	16
5130R-35-18B-35	35-18-35	34	32	34	11	19	11
5130R-35-22B-28	35-22-28	36	35	37	13	19	18
5130R-35-22B-35	35-22-35	36	35	36	13	19	13
5130R-35-28B-22	35-28-22	38	38	40	15	19	24
5130R-35-28B-28	35-28-28	38	38	40	15	19	21
5130R-35-28B-35	35-28-35	38	38	38	15	19	15
5130R-35-35B-15	35-35-15	42	41	42	19	18	31
5130R-35-35B-18	35-35-18	42	41	42	19	18	29
5130R-35-35B-22	35-35-22	42	42	42,5	19	19	26,5
5130R-35-35B-28	35-35-28	42	42	42,5	19	19	23,5
5130R-35-42B-35	35-42-35	49,5	50	49,5	26,5	23	26,5
5130R-42-15B-42	42-15-42	36,5	34	36,5	9,5	23	9,5
5130R-42-18B-42	42-18-42	38	36	38	11	23	11
5130R-42-22B-35	42-22-35	40,5	39	40,5	13,5	23	17,5
5130R-42-22B-42	42-22-42	40	39	40	13	23	13
5130R-42-28B-28	42-28-28	42,5	42	43	15,5	23	24
5130R-42-28B-35	42-28-35	42,5	42	44	15,5	23	19
5130R-42-28B-42	42-28-42	43	42	43	16	23	16
5130R-42-35B-28	42-35-28	46	46	46	19	23	27
5130R-42-35B-35	42-35-35	46	46	46,5	19	23	23,5
5130R-42-35B-42	42-35-42	46,5	46	46,5	19,5	23	19,5
5130R-42-42B-22	42-42-22	50	50	49	23	23	33
5130R-42-42B-28	42-42-28	50	50	50	23	23	31
5130R-42-42B-35	42-42-35	50	50	50	23	23	27
5130R-42-54B-42	42-54-42	62	61	62	35	29	35
5130R-54-15B-54	54-15-54	41,5	40	41,5	9,5	29	9,5
5130R-54-18B-54	54-18-54	43	42	43	11	29	11
5130R-54-22B-42	54-22-42	46	45	47	14	29	20
5130R-54-22B-54	54-22-54	45	45	45	13	29	13
5130R-54-28B-42	54-28-42	49	48	49,5	17	29	22,5
5130R-54-28B-54	54-28-54	48	48	48	16	29	16
5130R-54-35B-35	54-35-35	52	52	51	20	29	28
5130R-54-35B-42	54-35-42	51	52	53	19	29	26
5130R-54-35B-54	54-35-54	51,5	52	51,5	19,5	29	19,5
5130R-54-42B-42	54-42-42	55	56	56,5	23	29	29,5
5130R-54-42B-54	54-42-54	55	56	55	23	29	23
5130R-54-54B-42	54-54-42	61	61	62	29	29	35
5130R-64-35B-64	64-35-64	58,5	64	58,5	25,5	40	25,5
5130R-64-42B-64	64-42-64	62	68	62	29	40	29
5130R-64-54B-64	64-54-64	67	70	67	34	37	34
5130R-76-35B-76	76-35-76	59,5	70	59,5	25,5	46	25,5
5130R-76-42B-76	76-42-76	63	74	63	29	46	29
5130R-76-54B-76	76-54-76	69	79	69	35	46	35
5130R-76-64B-76	76-64-76	74	79	74	40	46	40
5130R-89-35B-89	89-35-89	61,5	74,5	61,5	23,5	50,5	23,5
5130R-89-42B-89	89-42-89	68,5	82	68,5	30,5	54	30,5
5130R-89-54B-89	89-54-89	74,5	87	74,5	36,5	54	36,5
5130R-89-64B-89	89-64-89	79,5	87	79,5	41,5	54	41,5
5130R-89-76B-89	89-76-89	85,5	88	85,5	47,5	54	47,5
5130R-108-54B-108	108-54-108	85	97	85	37	64	37
5130R-108-64B-108	108-64-108	90	97	90	42	64	42
5130R-108-76B-108	108-76-108	96	98	96	48	64	48
5130R-108-89B-108	108-89-108	102,5	102,5	102,5	54,5	64	54,5
5130R-133-108B-133	133-108-133	139	142	139	89	94,5	89

REDUCING COUPLINGS



TYPE 5240

Connections: C x C

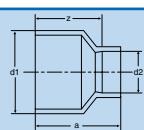
dimensions and tolerances according to DIN EN 1254-1

Cat. No.	Connections		\pm Dimensions (mm)	
	d1-d2	a	Z	
5240-08-06	08-06 mm	15	2	
5240-10-06	10-06 mm	17	3	
5240-10-08	10-08 mm	17	2,5	
5240-12-06	12-06 mm	19	4	
5240-12-08	12-08 mm	19	3	
5240-12-10	12-10 mm	20	3	
5240-14-10	14-10 mm	23	4	
5240-14-12	14-12 mm	22	2,5	
5240-15-08	15-08 mm	23	5	
5240-15-10	15-10 mm	23	4	
5240-15-12	15-12 mm	23	3	
5240-15-14	15-14 mm	24	2,5	
5240-16-10	16-10 mm	24	5	
5240-16-12	16-12 mm	25	4,5	
5240-16-14	16-14 mm	25	3	
5240-16-15	16-15 mm	23	1	
5240-18-10	18-10 mm	26	5	
5240-18-12	18-12 mm	27	5	
5240-18-14	18-14 mm	27	3,5	
5240-18-15	18-15 mm	27	3	
5240-18-16	18-16 mm	27	3	
5240-22-10	22-10 mm	32	8	
5240-22-12	22-12 mm	32	7	
5240-22-14	22-14 mm	33	6	
5240-22-15	22-15 mm	32	5	
5240-22-16	22-16 mm	32	5	
5240-22-18	22-18 mm	31	3	
5240-28-12	28-12 mm	39	11	
5240-28-14	28-14 mm	39	9	
5240-28-15	28-15 mm	39	9	
5240-28-16	28-16 mm	38	8	
5240-28-18	28-18 mm	38	7	
5240-28-22	28-22 mm	39	5	
5240-35-15	35-15 mm	46	12	
5240-35-18	35-18 mm	46	10	
5240-35-22	35-22 mm	47	8,5	
5240-35-28	35-28 mm	47	5	
5240-42-18	42-18 mm	54	14	
5240-42-22	42-22 mm	56	13	
5240-42-28	42-28 mm	56	10	
5240-42-35	42-35 mm	56	6	
5240-54-22	54-22 mm	69	21	
5240-54-28	54-28 mm	69	18	
5240-54-35	54-35 mm	68	13	
5240-54-42	54-42 mm	70	11	
5240-64-35	64-35 mm	75	15	
5240-64-42	64-42 mm	77	13	
5240-64-54	64-54 mm	75	10	
5240-67-54	67-54 mm	85	16	
5240-70-54	70-54 mm	81	11	
5240-70-64	70-64 mm	82	11	
5240-76-54	76-54 mm	81	11	
5240-76-64	76-64 mm	77	11	
5240-76-70	76-70 mm	83	11	
5240-80-54	80-54 mm	81	11	
5240-80-64	80-64 mm	82	11	
5240-80-70	80-70 mm	83	11	
5240-80-76	80-76 mm	83	11	
5240-89-76	89-76 mm	83	12	
5240-108-89	108-89 mm	100	15	
5240-133-76	133-76 mm	110	41	
5240-133-108	133-108 mm	106	23	
5240-159-108	159-108 mm	130	47	
5240-159-133	159-133 mm	119	49	

FITTING-REDUCERS

TYPE 5243

Connections: FTG x C

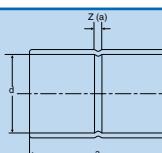

dimensions and tolerances according to DIN EN 1254-1

Cat. No.	Connections d1-d2	\pm Dimensions (mm)	
		a	z
5243-08-06	08-06 mm	16	10
5243-10-06	10-06 mm	18	12
5243-10-08	10-08 mm	17,5	10
5243-12-06	12-06 mm	21	15
5243-12-08	12-08 mm	20	13
5243-12-10	12-10 mm	19,5	11,5
5243-14-10	14-10 mm	22	14
5243-14-12	14-12 mm	22	13
5243-15-08	15-08 mm	24	17
5243-15-10	15-10 mm	24	16
5243-15-12	15-12 mm	24	15
5243-15-14	15-14 mm	25	14
5243-16-10	16-10 mm	25	17
5243-16-12	16-12 mm	25	16
5243-16-14	16-14 mm	26	15
5243-16-15	16-15 mm	25	14
5243-18-10	18-10 mm	27	19
5243-18-12	18-12 mm	27	18
5243-18-14	18-14 mm	29	18
5243-18-15	18-15 mm	29	18
5243-18-16	18-16 mm	28	17
5243-22-10	22-10 mm	33	25
5243-22-12	22-12 mm	33	24
5243-22-14	22-14 mm	34	23
5243-22-15	22-15 mm	34	23
5243-22-16	22-16 mm	33,5	22,5
5243-22-18	22-18 mm	35	22
5243-28-12	28-12 mm	41	32
5243-28-14	28-14 mm	42	31
5243-28-15	28-15 mm	39	28
5243-28-16	28-16 mm	40	29
5243-28-18	28-18 mm	39	26
5243-28-22	28-22 mm	42	26
5243-35-15	35-15 mm	50	38
5243-35-18	35-18 mm	47	34
5243-35-22	35-22 mm	48	32
5243-35-28	35-28 mm	49	30
5243-42-15	42-15 mm	59,5	47,5
5243-42-18	42-18 mm	57	44
5243-42-22	42-22 mm	56	40
5243-42-28	42-28 mm	56	37
5243-42-35	42-35 mm	57	34
5243-54-22	54-22 mm	68	52
5243-54-28	54-28 mm	67	48
5243-54-35	54-35 mm	68	45
5243-54-42	54-42 mm	69	42
5243-64-35	64-35 mm	71	46
5243-64-42	64-42 mm	75	46
5243-64-54	64-54 mm	75	43
5243-67-35	67-35 mm	79	56
5243-67-42	67-42 mm	88	58
5243-67-54	67-54 mm	80	48
5243-70-54	70-54 mm	77	43
5243-70-64	70-64 mm	79	44
5243-76-35	76-35 mm	88	65
5243-76-42	76-42 mm	86	59
5243-76-54	76-54 mm	82	50
5243-76-64	76-64 mm	77	44
5243-76-70	76-70 mm	80	44
5243-80-54	80-54 mm	84	50
5243-80-64	80-64 mm	79	44
5243-80-67	80-67 mm	78,5	42,5
5243-89-76	89-76 mm	84	50
5243-108-54	108-54 mm	116	84
5243-108-64	108-64 mm	110	78
5243-108-76	108-76 mm	120	86
5243-108-89	108-89 mm	100	62
5243-133-76	133-76 mm	122	89
5243-133-89	133-89 mm	108	71
5243-133-108	133-108 mm	105	58
5243-159-108	159-108 mm	159	112
5243-159-133	159-133 mm	160	125

COUPLINGS - ROLLED STOP

TYPE 5270

Connections: C x C

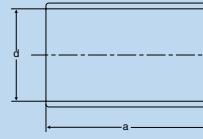

dimensions and tolerances according to DIN EN 1254-1

Cat. No.	Connections d	\pm Dimensions (mm)	
		a	Z (a)
5270-06	06 mm	14	1
5270-08	08 mm	16	1
5270-10	10 mm	18	1
5270-12	12 mm	20	1,5
5270-14	14 mm	24	1,5
5270-15	15 mm	24	1,5
5270-16	16 mm	24	1,5
5270-18	18 mm	28	1,5
5270-22	22 mm	33	1,5
5270-28	28 mm	39	1,5
5270-35	35 mm	48	1,5
5270-42	42 mm	58	2
5270-54	54 mm	68	2
5270-64	64 mm	67	2
5270-67	67 mm	69	2
5270-70	70 mm	67	2
5270-76	76 mm	69	2
5270-80	80 mm	72	2
5270-89	89 mm	77	2
5270-108	108 mm	97	2
5270-133	133 mm	82	12
5270-159	159 mm	82	12

COUPLINGS - NO STOP

TYPE 5270S

Connections: C x C

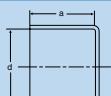

dimensions and tolerances according to DIN EN 1254-1

Cat. No.	Connections d	\pm Dimensions (mm)	
		a	
5270S-12	12 mm	20	
5270S-15	15 mm	24	
5270S-18	18 mm	28	
5270S-22	22 mm	33	
5270S-28	28 mm	38	
5270S-35	35 mm	48,5	
5270S-42	42 mm	58	
5270S-54	54 mm	68	

CAPS

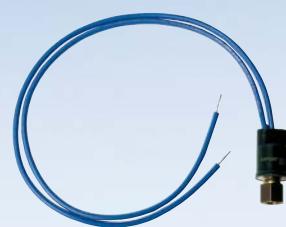
TYPE 5301

Connections: C

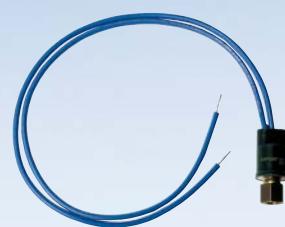

dimensions and tolerances according to DIN EN 1254-1

Cat. No.	Connections d	\pm Dimensions (mm)	
		a	
5301-10	10 mm	9	
5301-12	12 mm	10	
5301-14	14 mm	11	
5301-15	15 mm	12	
5301-16	16 mm	13	
5301-18	18 mm	14	
5301-22	22 mm	17	
5301-28	28 mm	20	
5301-35	35 mm	25	
5301-42	42 mm	29	
5301-54	54 mm	34	
5301-64	64 mm	35	
5301-67	67 mm	35	
5301-76	76 mm	36	
5301-89	89 mm	40	
5301-108	108 mm	50	

REFRIGERATION ACCESSORIES



REFRIGERATION ACCESSORIES



ACCESSORIES

MULTI-FIT MOTORS FOR VENTILATORS

VN--05-13/1056/V2	MULTI-FIT MOTOR FOR VENTILATOR 230 V / 240 V - 50 Hz / 60 Hz - 5 W / 32 W - 0,2 A - 1300 RPM / 1550 RPM - cable length 550 mm.
VN--10-20/1103/V2	MULTI-FIT MOTOR FOR VENTILATOR 230 V / 240 V - 50 Hz / 60 Hz - 10 W / 38 W - 0,23 A - 1300 RPM / 1550 RPM - cable length 540 mm.
VNT--18-30/46/V2	MULTI-FIT MOTOR FOR VENTILATOR 230 V / 240 V - 50 Hz / 60 Hz - 18 W / 73 W - 0,52 A - 1300 RPM / 1550 RPM - cable length 530 mm.
VNT--25-40/25/V2	MULTI-FIT MOTOR FOR VENTILATOR 230 V / 240 V - 50 Hz / 60 Hz - 25 W / 95 W - 0,68 A - 1300 RPM / 1550 RPM - cable length 520 mm.
VNT--34-45/25/V2	MULTI-FIT MOTOR FOR VENTILATOR 230 V / 240 V - 50 Hz / 60 Hz - 34 W / 120 W - 0,87 A - 1300 RPM / 1550 RPM - cable length 510 mm.

DESCRIPTION

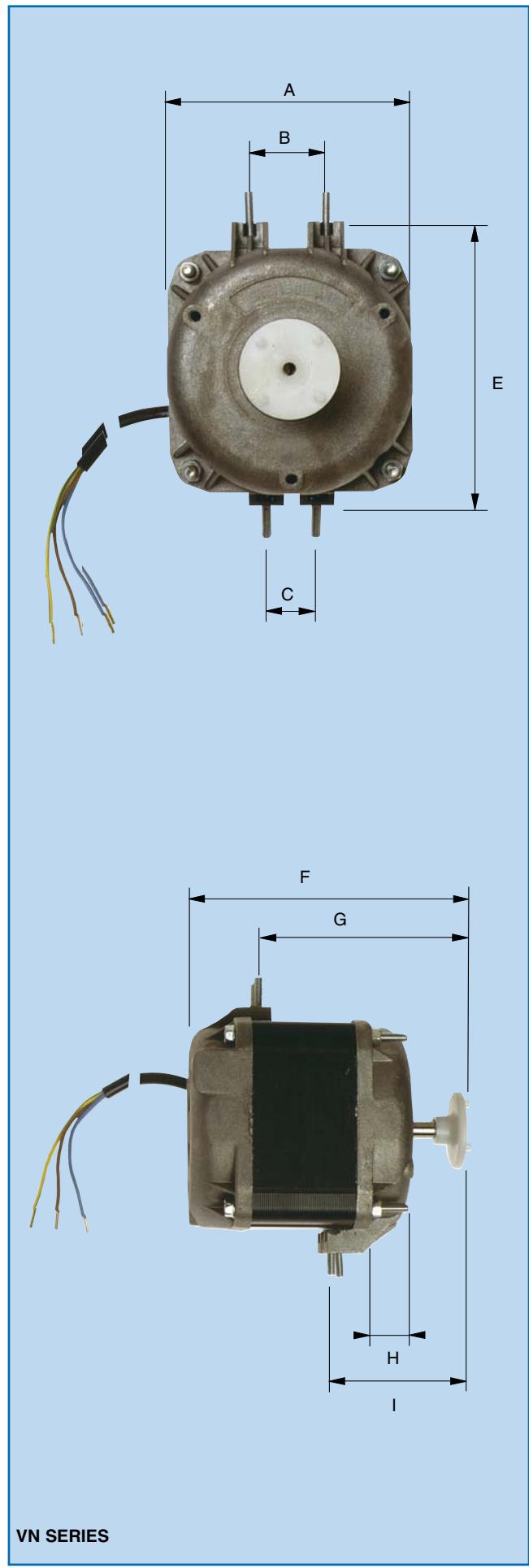
The 'VN'-series motors are shaded pole motors, a particular type of induction motor, coming from the permanent split capacitor (PSC) mode, where the start winding is substituted by a short break coil. The motors are particularly suitable for the refrigeration and ventilation sectors. The high technology used in manufacturing this motor and its particular mechanical structure give the motor robustness, low vibration and substantial efficiency. Especially designed to be coupled with axial fans, these motors are suitable to function in multi horizontal or multi vertical positions with a variety of fixings: rings, guards, stirrup brackets and flanges. All of the motors are supplied with aluminium alloy end-shields and black-painted stack. The shaft is mounted on self-aligning sleeve bearings with a lubrication reserve. The rotor is die-casted with a material which assures maximum electrical conductivity and the manufacturing process assures optimum electrical and mechanical balancing.

TECHNICAL FEATURES

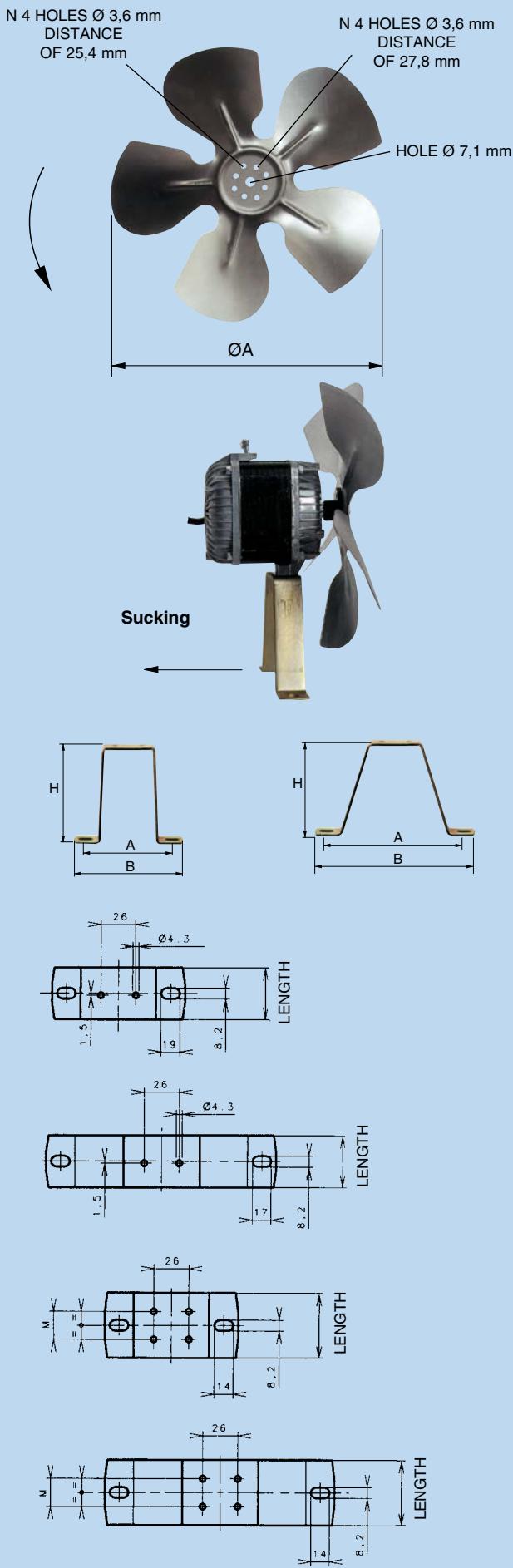
- All motors are CE marked, V.D.E. and U.L. certified.
- Single phase with 4 shaded poles, rated 230 V and 50 Hz / 60 Hz.
- Power range from 5 W to 34 W output - relative to the stack length.
- Normally manufactured with class B materials, while internal protection is classified IP42. All motors are protected by their impedance or with a thermal cut-off in the windings.
- Operating temperature range from -35°C to +40°C.
- Motor is closed with screws
- 5 fixations possible:
 - 3 tapped back holes Ø M4 at 120°, distance 72 mm.
 - 3 tapped front holes Ø M4 at 120°, distance 72 mm.
 - 4 protruding screws Ø M4 on the shaft side for mounting a guard or a ring.
 - Bottom fixing screws, distance 18 mm (2 x M4 bolts) for bracket mounting.
 - Top fixing screws, distance 26 mm (screw + nut + O-ring) for bracket mounting.

Part number	A	B	C	E	F	G	H	I
VN--05-13/1056/V2	84	26	18	99	79	48	10	52
VN--10-20/1103/V2	84	26	18	99	87	49	11	59
VNT--18-30/46/V2	84	26	18	99	92	44	11	64
VNT--25-40/25/V2	84	26	18	99	112	53	10	84
VNT--34-45/25/V2	84	26	18	99	119	55	10	91

All sizes in mm



VN SERIES



ALUMINIUM FANS

DESCRIPTION

- 5 blade aluminium axial.
- Shape and pitch especially created to maximise the aeraulic efficiency.
- 2 main models:
 - Sucking** (air movement from fan to motor)
 - Blowing** (air movement from motor to fan).
- Fixation: 4 holes Ø 3,6 mm, distance 25,4 mm
4 holes Ø 3,6 mm, distance 27,8 mm
Centre hole Ø 7,1 mm.
- Pitch: 28° (other pitch available on request).

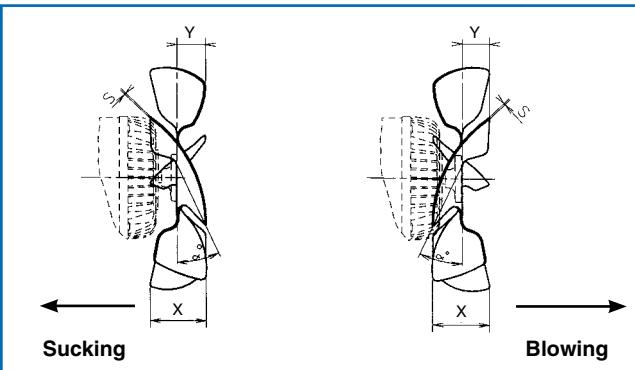
1. ANTI-CLOCKWISE SUCKING FANS (AIR MOVEMENT FROM FAN TO MOTOR)

	X	Y	S
SF-28-154	Aluminium sucking fan, Ø 154 mm	34	17 0,8
SF-28-172	Aluminium sucking fan, Ø 172 mm	35	17 0,8
SF-28-200	Aluminium sucking fan, Ø 200 mm	37	18 0,8
SF-28-230	Aluminium sucking fan, Ø 230 mm	43	24 1
SF-28-254	Aluminium sucking fan, Ø 254 mm	45	24 1
SF-28-300	Aluminium sucking fan, Ø 300 mm	52	28 1,2

2. ANTI-CLOCKWISE BLOWING FANS (AIR MOVEMENT FROM MOTOR TO FAN)

	X	Y	S
BF-28-154	Aluminium blowing fan, Ø 154 mm	34	17 0,8
BF-28-172	Aluminium blowing fan, Ø 172 mm	35	17 0,8
BF-28-200	Aluminium blowing fan, Ø 200 mm	37	18 0,8
BF-28-230	Aluminium blowing fan, Ø 230 mm	43	24 1
BF-28-254	Aluminium blowing fan, Ø 254 mm	44	24 1
BF-28-300	Aluminium blowing fan, Ø 300 mm	57	34 1,2

Measurements in mm - tolerance: X = ± 2 mm, Y = ± 1,5 mm.



FAN BRACKETS

- Made out of zinc-coated steel.

1. STRAIGHT BRACKETS

PART NUMBER	TYPE	DIMENSIONS in mm				
		A	B	LENGTH	H	M
SB-101	1	81	106	24	39	-
SB-103	1	81	106	24	52	-
SB-110	1	81	106	24	72	-
SB-113	1	81	106	24	84	-
SB-007	2	78	100	39	73	21
SB-049	2	78	100	39	84	21
SB-003	2	78	100	39	109	21
SB-002	2	78	100	49	109	31

2. DIVERGING BRACKETS

PART NUMBER	TYPE	DIMENSIONS in mm				
		A	B	LENGTH	H	M
DB-162	1	159	181	24	72	-
DB-157	1	142	164	24	84	-
DB-061	2	110	132	39	90	21
DB-009	2	150	172	49	112	31

FAN PULLER TOOL

MV-3570

COMPLETE CASE

Fan puller KIT containing all sizes

- A PROFESSIONAL TOOL... FAST & EASY...
- A simple method to remove fan from shaft without damage to fan, fan motor or shaft.

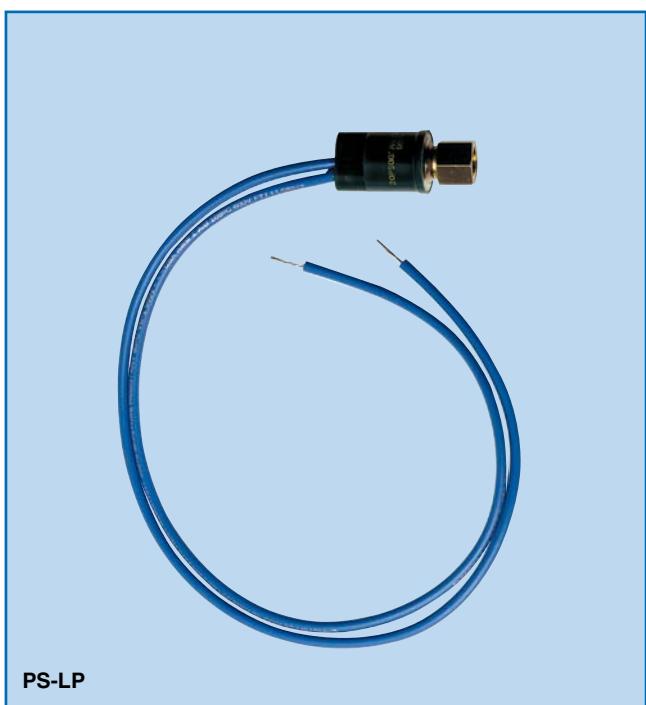


PRESSURE CONTROLS

- UL and CSA recognized easy Installation with the MV-8000 "solder on" valves or any 1/4" access fitting.
- All automatic reset controls have 46 cm (18") wire leads for easy connection and core depressors to open access ports when installed.
- LP models (SPST) open on pressure fall.
- HP models (SPST) open on pressure rise.
- Ambient temperature: -30°C to + 80°C (+20°F to +176°F).
- Maximum sensor temperature: -50°C to + 120°C (-60°F to + 250°F).
- CE approved.
- Prevents compressor damage because of low refrigerant.
- Prevents ice-up or "slugging" the compressor with liquid refrigerant due to low ambient temperatures.
- Prevents the compressor from pumping air and thus, contaminating the system in the event of leaks.

PART NUMBER	OPEN		CLOSE		PROOF PRESSURE*		TOLERANCE	
	bar	psi	bar	psi	bar	psi	± bar	psi
PS-LP05-20	0,35	5	1,4	20	17,5	250	0,35	5
PS-LP10-25	0,7	10	1,75	25	17,5	250	0,35	5
PS-LP25-50	1,75	25	3,5	50	17,5	250	0,35	5
PS-LP25-80	1,75	25	5,6	80	35	500	0,35	5
PS-LP40-80	2,8	40	5,6	80	35	500	0,35	5
PS-HP200-150	14	200	10,5	150	35	500	1	15
PS-HP250-150	17,5	250	10,5	150	35	500	1	15
PS-HP300-200	21	300	14	200	42	600	1	15
PS-HP350-250	24,5	350	17,5	250	42	600	1	15
PS-HP400-300	28	400	21	300	42	600	1	15
PS-HP400-200	28	400	14	200	42	600	1	15
PS-HP450-250	31,5	450	17,5	250	42	600	1	15

* Proof pressure: short term (60 seconds) maximum overpressure.

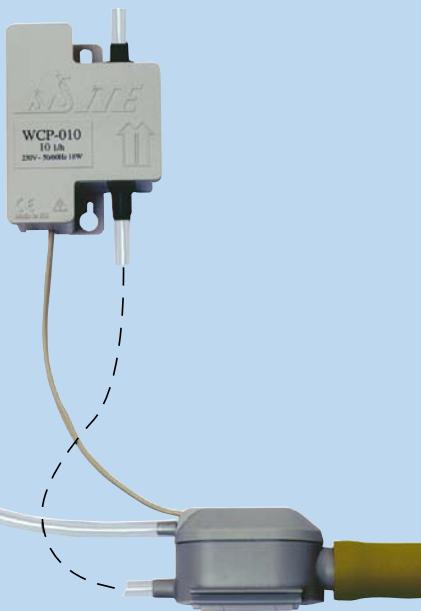


MANUAL RESET PRESSURE CONTROL

- UL and CSA recognized easy Installation with the MV-8000 "solder on" valves or any 1/4" access fitting.
- 46 cm (18") wire leads for easy connection and core depressors to open access ports when installed.
- Proof pressure = 42 bar (600 psi)
- Ambient temperature: -30°C to + 80°C (+20°F to +176°F).
- Maximum sensor temperature: -50°C to + 120°C (-60°F to + 250°F).
- CE approved.

PS-MF-HP-410 Open (cut-out) at 28,3 bar (410 psi)
Tolerance ± 1 bar (15 psi)
Close (cut in) is manual reset





WCP-010



DHC-06x09 mm



DHCR-06x12 mm

CONDENSATE REMOVAL PUMPS for general use

- WCP-010/230V** CONDENSATE PUMP, max capacity 10 l/h, for air-conditioners up to 10 kW
WCP-020/230V CONDENSATE PUMP, max capacity 20 l/h, for air-conditioners up to 20 kW

FEATURES

- Reciprocating piston water-pump and separate detection-module (3 levels) up to 2 m.
- Compact and easy to conceal, suitable for residential and commercial installations.
- Special mounting system permits fast, easy and reliable installation
- Suitable for wall mounting (splits, consoles, fan convectors) or ceiling mounting (ceiling units, double ceilings,...).

SPECIFICATIONS

- 3 detection levels: pump off (11mm ± 2)
pump on (16 mm ± 2)
alarm (19 mm ± 2) with relay.
- Max. suction distance: 2,5 m ± 10%.
- Max. discharge distance: 6 m ± 10% limited to a 2 m height difference.
- 230 V - 50 Hz / 60 Hz - 18 W or 120 V - 60 Hz - 24 VA.
- Alarm relay: NO - NC 8 A / 250 V resistive.
- Thermal overload protection: +90°C with auto-reactivation.
- Dimensions of pump-module: 78 mm x 60 mm x 36 mm (l x d x h).
- Dimensions of detection-module: 80 mm x 38 mm x 36 mm (l x d x h).
- Supplied with DHC-06x09/1M drain hose.
- CE approved.
- For accessories and spare parts, please consult us.

PVC DRAIN HOSES CLEAR

PART NUMBER	Ø int. x Ø ext. (in mm)	Weight (g/m)	Length (in m)
DHC-04x06 mm	4 x 6	20	100
DHC-06x09 mm	6 x 9	44	50
DHC-10x14 mm	10 x 14	94	25
DHC-16x21 mm	16 x 21	185	50
DHC-18x24 mm	18 x 24	252	50
DHC-20x26 mm	20 x 26	270	50

FEATURES

- Flexible single layer PVC hose (non-reinforced).
- Applications include food products, medical labs and various industrial applications.
- In conformity with standard 2007/19/CE
- Food quality approved by IANESCO Lab (Report nr. 1082 of 28/12/1990).
- Temperature range: from -15°C till +60°C.
- For use at low pressures.

PVC DRAIN HOSES REINFORCED

PART NUMBER	Ø int. x Ø ext. (in mm)	Weight (g/m)	Length (in m)	MWP at 23°C (in bar)	Min bend radius (in mm)
DHCR-06x12 mm	6 x 12	110	25	15	55
DHCR-10x16 mm	10 x 16	55	25	15	75
DHCR-12x19 mm	12 x 19	216	25	15	80
DHCR-16x24 mm	16 x 24	319	25	15	110
DHCR-20x28 mm	20 x 28	372	25	15	130
DHCR-25x34 mm	25 x 34	524	25	15	150

FEATURES

- Flexible reinforced PVC hose.
- Keeps its original shape under vacuum (for tubes with a maximum internal diameter of 25 mm).
- In conformity with standard 2007/19/CE
- Suitable for food or drink applications (except for solutions with an alcoholicity of more than 15%).
- Not suitable for hydrocarbons or their derivates.
- Food quality approved by IANESCO Lab (Report nr. 1082 of 28/12/1990).
- Temperature range: from -15°C till +60°C.

PRESSURE SWITCHES

FEATURES

- Used to protect the compressor against excessive low or high pressures.
 - Possibility to start or stop the compressor, fans, etc.
 - SPDT (single pole double throw) switch to provide maximum contact options after installation.
 - Standard accessories include mounting bracket and screws to permanently fix the switches.
 - Factory set switches also available for OEM applications.
 - For use with all CFC, HFC and HCFC refrigerants as well as with air and water (allowable fluid temperature: -45°C to +135°C).
 - Type HPS for universal application.
 - Micro-switch ensures reliable switching.
 - Various contact functions available.
 - **CE, TÜV, GS** approved.



SINGLE TYPE - SPECIFICATIONS

Part Number	Pressure Range (bar)		Differential (bar)		Factory Setting (bar)		Wt (kg)
	Min	Max	Min	Max	Off (On)	On (Off)	
PSBS-02*	-0,5	3	0,35	2	0,5	1,5	
PSBS-04*	-0,5	6	0,6	4	2	3	
PSBS-03*	1	10	1	3	4	6	0,42
PSBS-05*	5	20	3	5	15	12	
PSBS-10*	5	30	3	10	20	15	

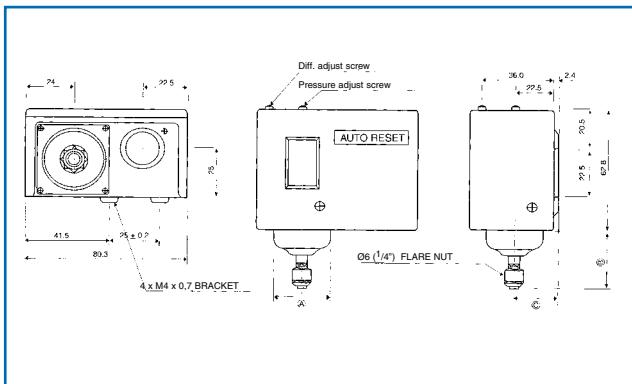
* For manual model, add M to the part number. Example: PSBS-02 (auto) PSBS-02M (manual).

SINGLE TYPE - ELECTRICAL RATING

RATED AMPS (A)	RATED VOLTAGE (V)	
	AC 125V	AC 250V
Non-inductive current	10A	5A
Full load	8,5A	4,5A
Starting	40A	20A

SINGLE TYPE - DIMENSIONS

PART NUMBER	A	B	C
PSBS-02	38,5	38,9	22,4
PSBS-04	34,4	36	22,4
PSBS-03	34,4	36	22,4
PSBS-05	22	32,7	18,5
PSBS-10	22	32,7	18,5

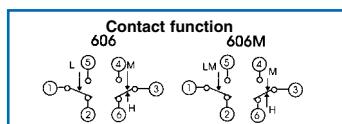


DUAL TYPE - SPECIFICATIONS

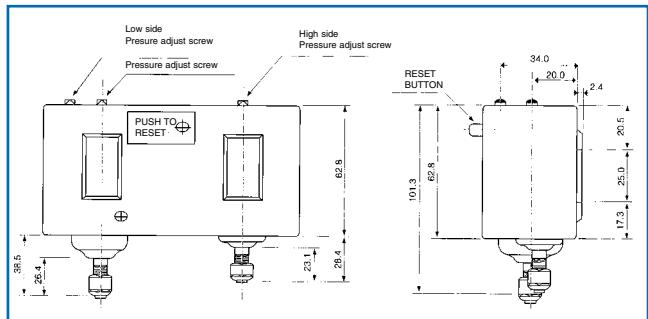
PART NUMBER		PRESSURE RANGE (bar)		DIFFERENTIAL (bar)		FACTORY SETTING (bar)		Wt (kg)
		Min	Max	Min	Max	Off (On)	On (Off)	
PSBD-606	Low side	-0,5	6	0,6	4	2	3	0,61
	High side	8	30	approx. 4 fixed		20	16	
PSBD-606M	Low side	-0,5	6	0,6	4	2	3	0,61
	High side	8	30	manual reset		20	manual reset	

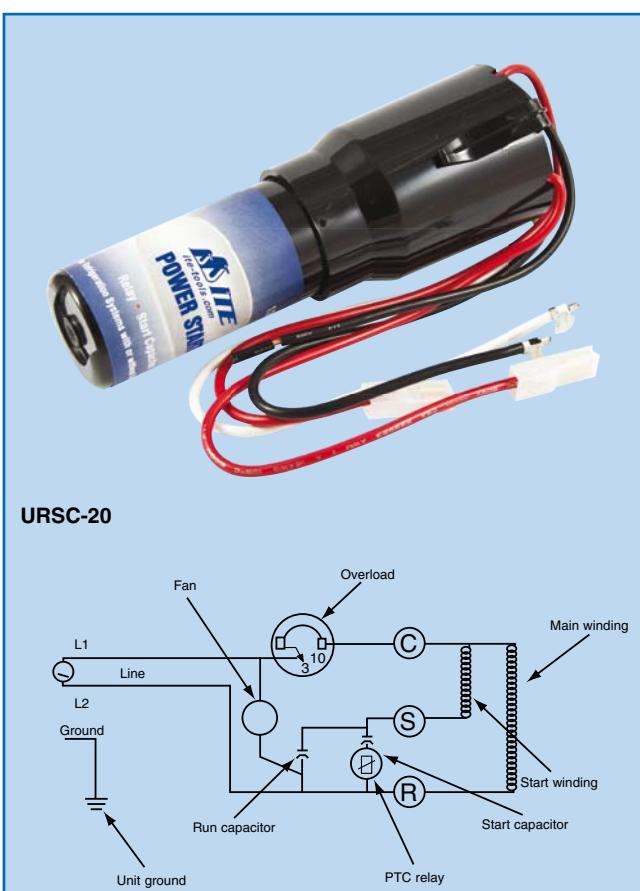
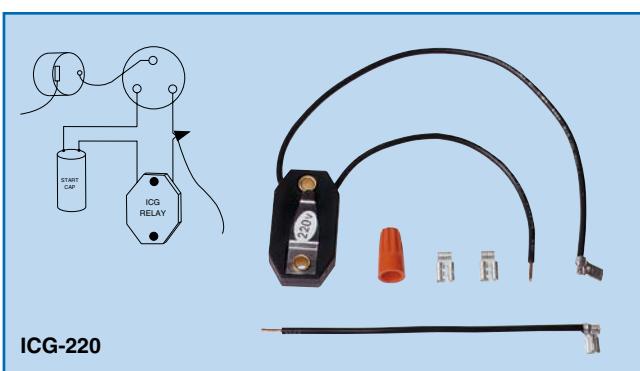
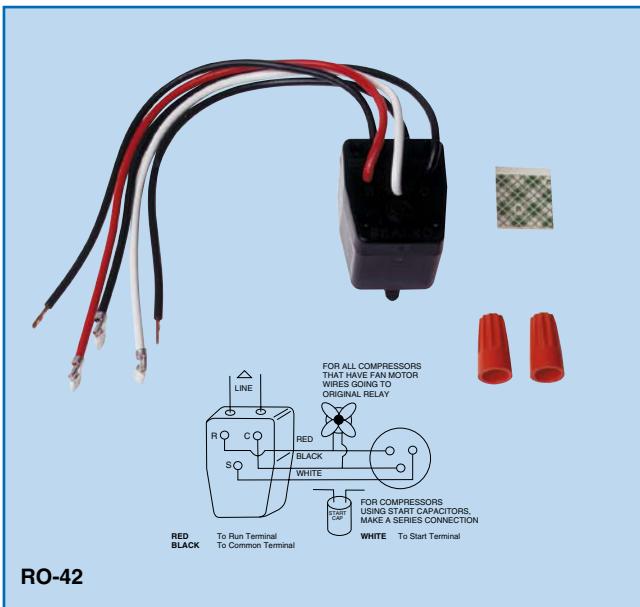
DUAL TYPE - ELECTRICAL RATING

RATED AMPS (A)	RATED VOLTAGE (V)	
	AC 125V	AC 250V
Non-inductive current	10A	5A
Full load	8,5A	4,5A
Starting	40A	20A



DIMENSIONS - DUAL TYPE





SOLID STATE RELAYS OVERLOAD

RO-41	RELAY 120 V, 1/4, 1/3 H.P.
RO-42	RELAY 220 V, 1/4, 1/3 H.P.
RO-62	RELAY 220 V, 1/6, 1/5 H.P.
RO-82	RELAY 220 V, 1/12, 1/10 and 1/8 H.P.

APPLICATION

- Replaces all hermetic refrigerator compressor relay and overload units from 1/12 H.P. through 1/3 H.P., 115 V - 220 V.
- Can be used in conjunction with a start capacitor.

FEATURES

- Relay & overload is now in one combination unit. Pre-wired for fast, simple installation. Attached mounting clip makes installation easy.
- Superior locked rotor protection eliminates start winding over-heating.

RELAYS

ICG-220 Can be mounted on the fence of a compressor with quick "snap-on-bracket" or installed using the fixing holes. 230 V model

PO-230 Replaces all push-on current type relays on compressors with pin type terminals. It is the lowest resistance relay available with the FASTEST COOL DOWN TIME. 230 V model.

FEATURES

- One size for all compressors from 1/12 HP - 1/2 HP.
- Can be used with or without a starting capacitor.
- Easy to install.

HARD START RELAYS + CAPACITORS

URSC-20 230 V AC applications from 1/12 HP to 1/2 HP (2000 BTU - 4000 BTU). Provides added boost for hard start and unbalanced systems. Allows you to connect to systems that have a start capacitor.

No additional wires required
RCO-420 230 V AC - 1/4 HP and 1/3 HP. Completely prewired all-in-one unit replaces all 3 electrical components - relay, overload and start capacitor, on all capillary systems

SBS-1483 115 V AC - 280 V AC applications from 1/2 HP to 10 HP (4000 BTU - 120000 BTU) Increased torque of 1,48 Nm

SBS-1907 115 V AC - 280 V AC applications from 1/2 HP to 10 HP (4000 BTU - 120000 BTU) Increased torque of 1,90 Nm

SBS-2754 115 V AC - 280 V AC applications from 1/2 HP to 10 HP (4000 BTU - 120000 BTU) Increased torque of 2,75 Nm

SBS-3178 115 V AC - 280 V AC applications from 1 1/2 HP to 10 HP (18000 BTU - 120000 BTU) Increased torque of 3,18 Nm

SBS-3672 115 V AC - 280 V AC applications up till 10 HP (120000 BTU) Increased torque of 3,67 Nm

FEATURES

- For all low voltage start problems.
- Easy to install across the run capacitor terminals.
- Various models with different increased torque feature.
- To be used on all residential and commercial single phase RAC units and heat pumps.
- U.L. recognized.

REFRIGERANT CYLINDER HEATER

RCH-10

HEATING BELT

For max temperature of **+60°C (+140°F)**
Power consumption: **230 V / 400 W**

Fastening system with spring allows use on most cylinders with different diameter (e.g. RCYL-12I, FRIOCATCH 14,3I, ... up to the big cylinders)

Dimensions Length: 70 cm
 Width: 8 cm
 Minimum Ø: 23 cm
 Maximum Ø: 32,5 cm



RCH-10/V2

HEATING BELT

For max temperature of **+60°C (+140°F)**
Power consumption: **230 V / 400 W**

Dimensions Length: 70 cm
 Width: 8 cm
 Minimum Ø: 23 cm
 Maximum Ø: 32,5 cm

New unique fastening system with elastics allows use on most cylinders with different diameter

Included elastics: 3 pcs x 5 cm
 3 pcs x 9 cm
 3 pcs x 13 cm



WE CAN SUPPLY APPROVED EMPTY REFRIGERANT BOTTLES READY TO USE. SEE PAGE 40 OR ASK "ITE"

CRANKCASE HEATERS

CH-101

HEATER 240 V / AC 54 W

Girth: 70 cm to 100 cm (27⁷/₁₆" to 39⁵/₈")

CH-102

HEATER 240 V / AC 60 W

Girth: 64 cm to 83 cm (25¹³/₁₆" to 33")

CH-103

HEATER 240 V / AC 45 W

Girth: 63 cm to 81 cm (24¹³/₁₆" to 32")

CH-104

HEATER 240 V / AC 75 W

Girth: 105 cm to 124 cm (41⁹/₁₆" to 48³/₄")

CH-105

HEATER 240 V / AC 50 W

Girth: 79 cm to 99 cm (31¹³/₁₆" to 39")

CH-135

HEATER 240 V / AC 40 W

Girth: 59 cm to 70 cm (23⁷/₁₆" to 27¹/₂")

CH-197

HEATER 240 V / AC 25 W

Girth: 35 cm to 53 cm (13¹³/₁₆" to 21")



FEATURES

- Stainless steel, moisture proof exteriors.
- Low power consumption.
- 30" Silicon rubber insulated leads, rated for 150 °C.
- Fits snugly around the compressor housing.

WIRE TIES

86111

WIRE TIE, 355 mm

Dia 102 mm (4") x 22,7 kg resistance.

86109

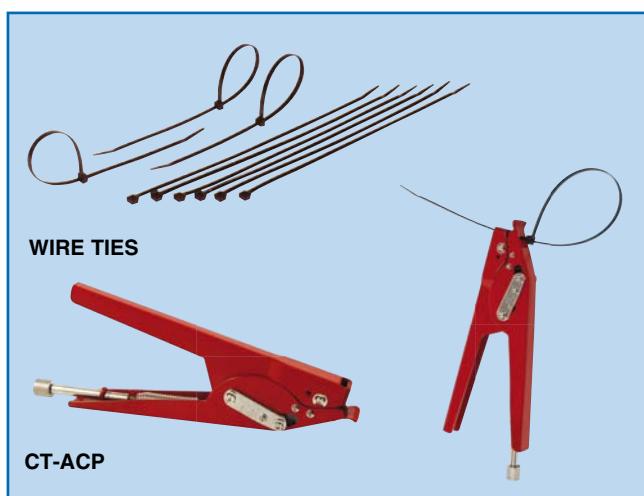
WIRE TIE, 279 mm

Dia 76 mm (3") x 22,7 kg resistance.

CT-ACP

CABLE TIE ADJUSTABLE CUT-OFF PLIER

Tight weight adjustable, auto cut-off, cable tie widths from 4,8 mm to 13 mm.





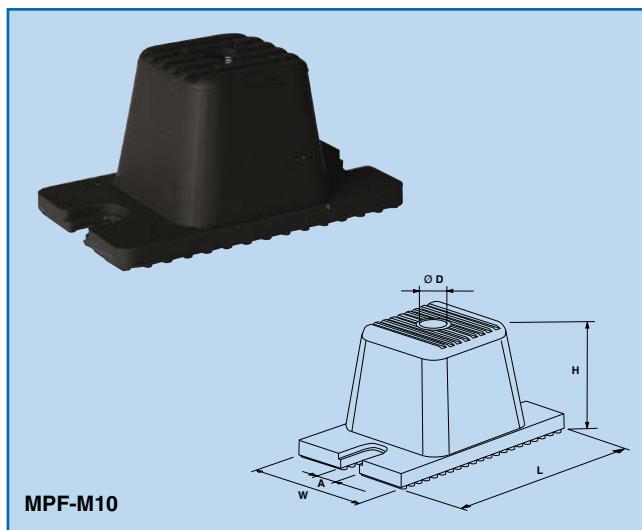
ANTI-VIBRATION MOUNTING PADS

MP-02	Sizes	51 x 51 x 9,5 mm	Rubber
MP-02C	Sizes	51 x 51 x 25 mm	Rubber/Cork
MP-03	Sizes	76 x 76 x 9,5 mm	Rubber
MP-03C	Sizes	76 x 76 x 25 mm	Rubber/Cork
MP-04	Sizes	102 x 102 x 9,5 mm	Rubber
MP-04C	Sizes	102 x 102 x 25 mm	Rubber/Cork
MP-06	Sizes	152 x 152 x 9,5 mm	Rubber
MP-06C	Sizes	152 x 152 x 25 mm	Rubber/Cork
MP-08	Sizes	203 x 203 x 9,5 mm	Rubber
MP-08C	Sizes	203 x 203 x 25 mm	Rubber/Cork
MP-12	Sizes	305 x 305 x 9,5 mm	Rubber
MP-12C	Sizes	305 x 305 x 25 mm	Rubber/Cork
MP-18	Sizes	457 x 457 x 9,5 mm	Rubber
MP-18C	Sizes	457 x 457 x 25 mm	Rubber/Cork

High quality ozone and water resistant elastomeric pads with low density 100% natural cork. Designed to withstand **4,2 kg per square cm**. The neoprene pads are corrugated on both sides and the cork is laminated with corrugated neoprene on both sides. Wherever bolting is to be avoided and minor, non-critical vibration conditions exist (pumps, motors, airconditioning units, generators etc.)

Rubber mounting pads can be used in any condition.

Mounting pads with cork are recommended for acoustic problem applications and can stand outdoor use, rain, ... but not permanent use under water.

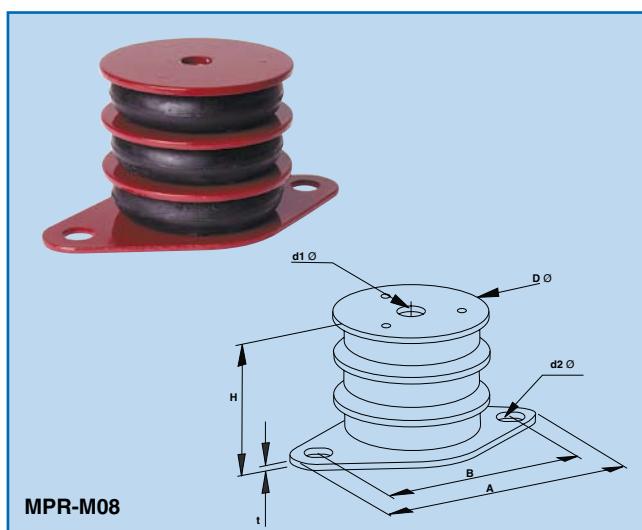


ANTI-VIBRATION MOUNTING FEET

Rugged neoprene stud mounting feet for wide-range load with low natural frequency. Resists oil, ozone and caustic materials. Designed to withstand 5 kg per square cm. Ideal for rugged installations, industrial machinery, generators, blowers, pumps and compressors.

PART NUMBER	DIMENSIONS (mm)					LOAD (kg)	
	L	W	H	ØD	A	Min.	Max.
MPF-M10	95	53	48	M10	10	50	150
MPF-M12	127	77	70	M12	14	100	200
MPF-M16	180	118	70	M16	14	500	1000

The weights mentioned are for 1 mounting foot. If 4 feet are used the weight should be multiplied by 4.



Multiple-layer rugged ring mounting feet for wide-range load with low constant natural frequency. Ideal for transformers, office equipment, measuring instruments, blowers, pumps and compressors, machinery.

PART NUMBER	DIMENSIONS (mm)							LOAD (kg)	
	ØD	H	A	B	d1Ø	d2Ø	t	Min.	Max.
MPR-M08	60	51	105	83	M8	11	2,5	30	80
MPR-M10	80	68	140	110	M10	13	3	60	150
MPR-M12	120	98	210	165	M12	15	3	120	300
MPR-M16	160	126	280	220	M16	19	4,5	280	700

The weights mentioned are for 1 mounting foot. If 4 feet are used the weight should be multiplied by 4.

TIE DOWNS AND STRAPS

RS-09	RUBBER TIE DOWN	Length: 0,25 m
RS-15	RUBBER TIE DOWN	Length: 0,38 m
RS-20	RUBBER TIE DOWN	Length: 0,53 m
RS-31	RUBBER TIE DOWN	Length: 0,79 m

RATCH-IT STRAP

- Unique ratchet action permits tie-down of appliances securely, positively.

FEATURES

- Easy ratchet tensioning.
- Strong end hooks.

INNOVATIVE RATCHET BUCKLE

- Designed with an innovative latch and a fast release cam that reduces sprocket wear. This cadmium-plated steel buckle has a positive lock that eliminates release due to vibration. When closed, the handle locks the latch into the sprocket to prevent inadvertent release.

RUBBER TIE DOWNS

- Quickly ties down ladders, tubing, cylinders or almost anything in just seconds. Features extra heavy steel "S" hooks on each end.
- Designed with extra elasticity for wider variety of uses. Can stretch to double its length without breaking.



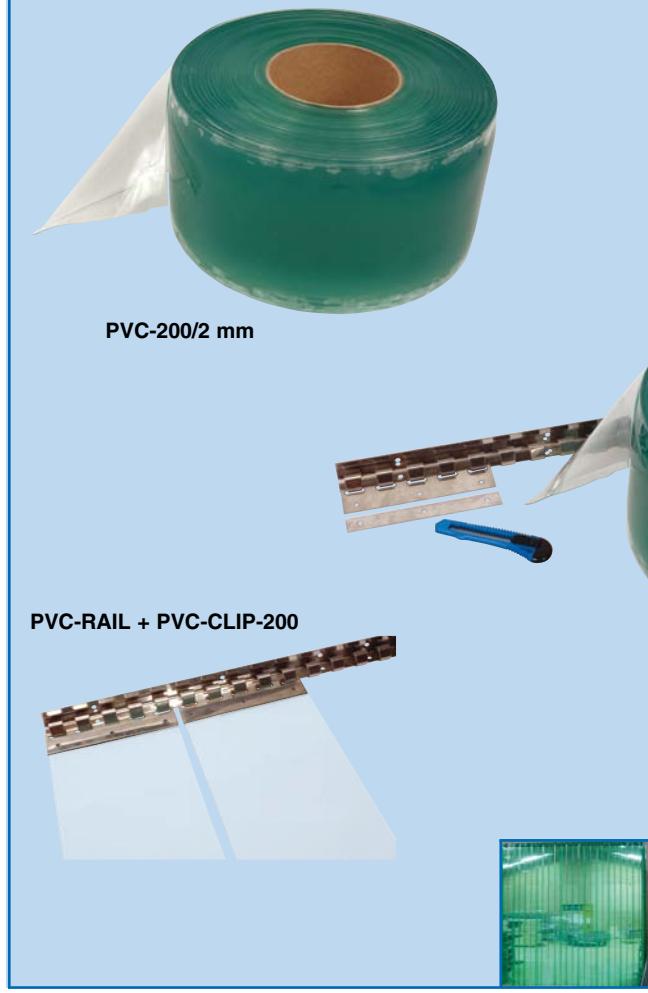
RS Serie

MULTI PURPOSE DOOR STRIPS

PVC-200/2 mm	PVC DOOR STRIP 200 mm wide x 2 mm thick x 50 m long
PVC-300/3 mm	PVC DOOR STRIP 300 mm wide x 3 mm thick x 50 m long
PVC-CLIP-200	PLATE SET for PVC door strip 200 mm long
PVC-CLIP-300	PLATE SET for PVC door strip 300 mm long
PVC-RAIL	HANGING RAIL 1 m long

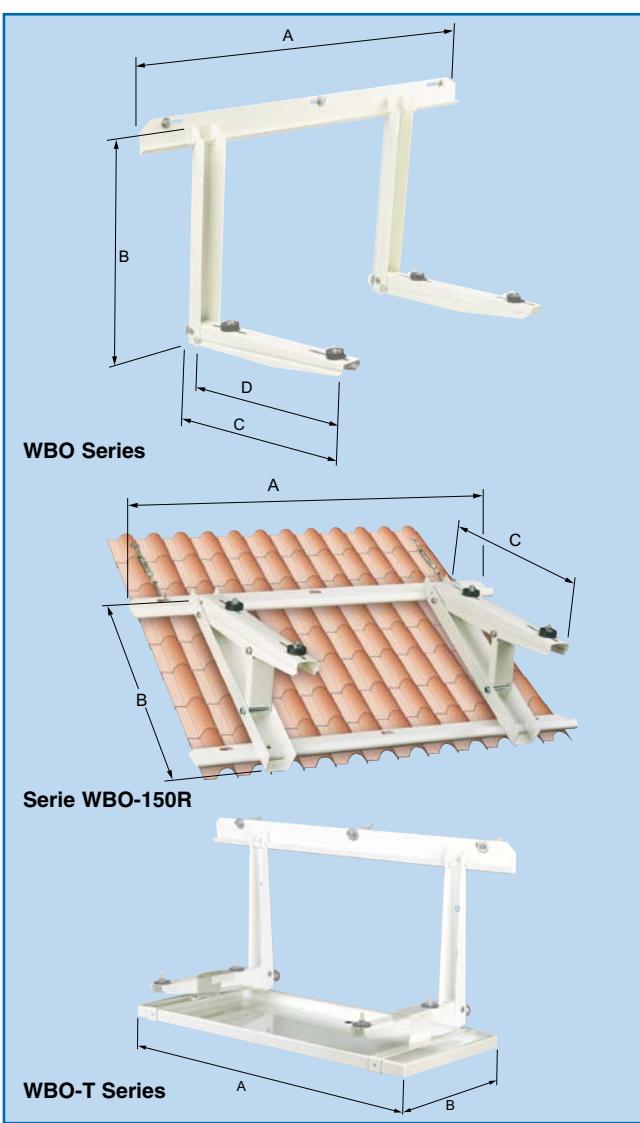
FEATURES

- These door strips are made of flexible transparent PVC and are for example perfect to use as strip curtains to provide insulation and retain heat in buildings or rooms where frequent access is required by pedestrians, fork lift trucks etc.
- Applications include shop and factory partitions, protection of machinery, doorways to cold-rooms etc.
- Transparent crystal green finish.
- Strips are UV resistant and remain flexible at low temperatures.
- Rounded edges ensure no risk of injury or cuts to personnel.
- Temperature: -40°C to +50°C
- Hardness: 65 ShA.
- Tolerances: Thickness: +0 mm / -0,3 mm
 Width: +0 mm / -5 mm
 Length: +1% to +2%
 Weight: ± 5%
- Hanging rails are made from stainless steel profile with preformed suspension hooks to receive the plate sets and are suitable for mounting within or in front of doorways.
- Plate sets are stainless steel clamps which can fit the hanging rail suspension hooks or can be mounted directly. They are the same width as one strip and the strips are mounted with rivets or screws (not included).
- Weight: 0,48 kg/m for PVC-200 and 1,10 kg/m for PVC-300.



PVC-200/2 mm

PVC-RAIL + PVC-CLIP-200



UNIVERSAL BRACKETS

WBO-100	UNIVERSAL BRACKET with cross-bar, Capacity: 100 kg
WBO-100N	UNIVERSAL BRACKET without cross-bar, Capacity: 100 kg
WBO-120	UNIVERSAL BRACKET with cross-bar, Capacity: 120 kg
WBO-120N	UNIVERSAL BRACKET without cross-bar, Capacity: 120 kg
WBO-250	UNIVERSAL BRACKET with cross-bar, Capacity: 250 kg
WBO-150R	SLOPING ROOF BRACKET from 18° to 35°, Capacity: 150 kg
WBO-K10	Mounting accessories for WBO-100 and WBO-100X
WBO-K10N	Mounting accessories for WBO-100N
WBO-K12	Mounting accessories for WBO-120
WBO-K12N	Mounting accessories for WBO-120N
WBO-K15	Mounting accessories for WBO-150 and WBO-150X
WBO-K15R	Mounting accessories for WBO-150R
WBO-K25	Mounting accessories for WBO-250 and WBO-250X

FEATURES

- An elegant and practical fixing system made of pressed sheet stainless steel or pressed sheet varnished steel allowing rapid, easy and safe installation of any weight and dimension air conditioners.
- Allows wall, floor and roof installation for machines up to 250 kg and 55 cm depth.
- All the brackets are equipped with a 90° safety opening, pre-assembled with a stainless steel rivet system and complete with accessories useful for rapid and correct installation.

SPECIFICATIONS

- Stirrups: pressed sheet of 1,5 mm, 1,8 mm or 2,0 mm thick.
- Cross-bars: pressed sheet of 1,8 mm thick.
- Varnishing: RAL 1013 polyester dust for external use.
- Supplied in sets of 2, equipped with wall fixing kit and anti-vibration supports.

PART. NR.	DIMENSIONS (cm)				Material thickness (mm)
	A	B	C	D	
WBO-100	80	40	40	36	1,5
WBO-100N		40	40	36	1,5
WBO-250	80	50	60	55	2,0
WBO-150R	80	50	50		1,8

TAPES

DT-50	LAMINATED POLYCLOTH "DUCT TAPE" for all purposes Temperature stability = 60°C Tensile strength = 6,5 kg / 25 mm 48 mm width x 50 m length.
STT-796	THREAD SEALANT TEFLON TAPE May be used on most thread seal connections (metal or plastic) involving air, water, sewage, chemicals, hydraulic systems and overhead sprinkles systems. Three wraps ensures a leak-free joint. 1/2" (12,7 mm) width x 6,6 m length.
STT-800	COPPER ANTI-SEIZE TEFLON TAPE A clean copper based, high-temperature, anti-seize material for protection from corrosion, seizure, galling, rust carbon fusion, galvanic pitting. The copper acts like ball bearings. This tape maintains its elasticity where temperatures reach as high as 1200°C . Applications: bolts, studs, threaded fittings and couplings, valve shafts, cylinder heads, manifolds and any other connection in a hostile environment. Do not use on oxygen systems. 1/2" (12,7 mm) width x 0,11 mm thickness x 3 m length.
STT-891	STAINLESS STEEL PIPE THREAD SEALING TAPE Prevents stainless steel fittings from galling or seizing during assembly and disassembly. The tape is thicker and denser than most tapes, which also ensures an effective seal up to 800 bar (12,000 psi). Do not use on oxygen systems. Will not harden or crack in the joint, No curing time, Effective within a broad range of temperatures, Non-toxic, Non-flammable, Unlimited shelf life. 1/2" (12,7 mm) width x 6,6 m length.



ATF-30	INSULATION FOAM TAPE This insulation foam tape is a flexible thermal insulation which is fast and easy to install. It reduces heat loss and retards heat gain, condensation or frost. 50 mm width x 3 mm thickness x 9 m length.
ATC-30	INSULATION CORK TAPE Prevents condensation strips, use on cold or hot pipes. 50 mm width x 3 mm thickness x 9 m length.
AG-2	SEALING COMPOUND Seal. gum slugs - 0,9 kg . Non hardening, water resistant, versatile and odorless. This high quality compound has excellent adhesion and may be used to seal and caulk air conditioners, refrigeration cabinets and wherever a sealing or caulking compound is needed. Available in slugs or cords.
AG-100	SEALING COMPOUND Seal. gum cords 4,7 mm width x 30 m length.





REFRACTOMETERS

RFM-20 HAND-REFRACTOMETER FOR OIL

FEATURES

- For measuring the refractive index of oils. Indirectly gives you an idea of the type of oil used in the system.
- Allows you to check for purity and identity by comparison with the refractive index given by oil supplier or by comparison with self tested refractive index, self tested on the original oil.
- Calibratable to ambient temperature.
- With ATC (Automatic Temperature Compensation).
- Scale range: nD 1,435 to 1,520 with a resolution of nD 0,001
- Accuracy: $\pm 0,001$.
- Size: 4 cm x 4 cm x 15 cm.
- Weight: 237 g.
- Supplied with operating instructions, pipette and little screwdriver
- Please check the refractive index of your oil with your supplier.

RFM-60 HAND-REFRACTOMETER FOR GLYCOL

FEATURES

- For measuring antifreeze and battery fluid.
- Calibratable to ambient temperature (using a few drops of distilled water).
- With ATC (Automatic Temperature Compensation).
- Scale range Ethylene glycol: -70°C to 0°C or -90°F to +32°F Propylene glycol: -60°C to 0°C or -70°F to +32°F
- Resolution: 5°C / 5°F.
- Accuracy: $\pm 5^\circ\text{C}$ / 5°F.
- Size: 4 cm x 4 cm x 15,5 cm.
- Weight: 255 g.
- Supplied with operating instructions, pipette and little screwdriver.

ACCESSORIES

- PIPETTE/1** Soft plastic pipette, 3 ml, with gradations of 0,5 ml.
PIPETTE/2 Hard plastic pipette, 3 ml, without gradation.

KIT "TOTALTEST"

TT1-001 Refrigerant MOISTURE/ACID TESTER KIT complete "TOTALTEST"

TT2-001 Replacement TEST TUBES (5 in a package)

WHY?

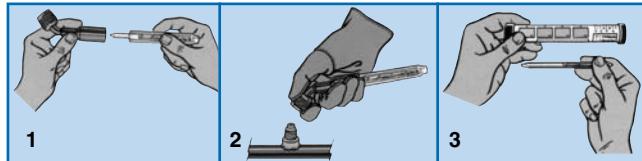
- "TOTALTEST" helps to detect a premature refrigeration or air conditioning system breakdown by: **Indicating when moisture levels may be considered harmful to a system**. The test tube is designed to change colour only when the moisture content in the system approaches a harmful level. **Indicating when there are strong acids which may corrode internal system and compressor parts**, the test tube is designed to change colour only to indicate the presence of harmful acids.

FEATURES "TOTALTEST"

- Works with R12, R22, R500, R502 and R11 vapor.
- The test can be performed with the system operating or shut off.
- Since the refrigerant is tested, there is no oil sample needed.
- The test can be done **within 10 minutes**.

HOW?

- Break off tips of glass test tube and insert in the instrument as explained in the instruction sheet in the kit.
- Attach the instrument to the system's suction side service access connection.
- After TEN minutes, detach the instrument, remove the disposable glass test tube and compare it to the chart on the package. The test tube has **two chemical chambers**. The **smaller chamber** changes colour completely when the **moisture** level in the system becomes harmful. The more red the cristals, the more moisture is present. The **larger chamber** indicates the presence of corrosive **acid**. The chemical will change colour gradually from blue to yellow, beginning at the inner end and extending towards the outer end. The longer the yellow part, the more acid is present.



ACID TEST KITS

ATK-4

OIL ACID TEST KIT

For detecting the presence and formation of acid in air conditioning and refrigeration systems.

FEATURES

- Easy to use.
- For all refrigeration oils.
- 4 complete tests in each kit.
- Simple to understand colour change indicators.
- Accurate results in seconds.
- Very inexpensive.

Note: It has been proven in practice that some ester oils (since they are very hygroscopic) show acid already even if they are unused. If this is the case, we recommend the installation of an extra 3-function filter drier or to add a small quantity of acid neutralizer to the system (ACID-118, see below).



ATK-4

QWIKCHECK 2-SECOND ACID TEST FOR REFRIGERANT

FEATURES

- Results in 2 seconds.
- Simple colour change.
- Throw-away design.
- Simple pass/fail acid test.
- Verify quality of refrigerant.
- Works for all refrigerants.

USES

- Field test operating systems.
- Test refrigerant stability.
- Test recovered/recycled refrigerant.



QWIKCHECK

ACID AND REFRIGERATION NEUTRALISER

ACID-118

BOTTLE: 118 ml (4 oz)

- It chemically neutralizes and prevents acids in air conditioning and refrigeration systems.
- No solids or solid residuals.
- Compatible with all refrigerants and lubricants.
- Works fast, circulates quickly.
- Acid neutraliser will not harm system components, and can prevent system burnout. Ideal for preventive maintenance and repair the cure for acid problems.
- To allow you to charge this liquid into the system, use INJEC, see page 39.



ACID-118



THAW-30



GLD-237



TRAX-40

"THAWZONE" DRYER

THAW-30	PLASTIC BOTTLE: 29,8 ml (1 oz)
THAW-118	PLASTIC BOTTLE: 118 ml (4 oz)
THAW-474	PLASTIC BOTTLE: 474 ml (16 oz)

- Chemical "**DRYER**" for all refrigerants CFC, HCFC, HFC as well as for all systems containing methyl chloride and methylene chloride.
- "**THAWZONE**" frees frozen systems due to moisture in 5 minutes. It prevents refreezing, does not contain any residue, does not contain any dissolved solids or methanol, and works *WITH* or *WITHOUT* solid molecular sieves dryers and ceramic cores.
- Temperature range: **-73°C (-100°F) to +65°C (+150°F)**.

"LOW TEMP" NON HAZARDOUS GAS LEAK DETECTOR

GLD-237	PLASTIC DAUBER BOTTLE: 237 ml (8 oz)
GLD-947	TRIGGER SPRAYER BOTTLE: 947 ml (32 oz)
GLD-3790	ONE GALLON BOTTLE: 3,78 Litre (1 US gallon)

- Does not contain ethylene glycol. It is a non-freezing, viscous fluorescent, bubble-type gas leak detector rated to **-34°C (-30°F)**. Leaks appear as large strong bubbles which cling to the applied surface and are fluorescent under a black light.
- For use on hot and cold piping and equipment containing most gases such as **AIR, NATURAL GAS, all CFC, HCFC, HFC and their OTHER BLENDS, AMMONIA, SO2, etc.**
- Temperature range: **-34°C (-30°F) to +93°C (+200°F)**.

"TRAX" IN THE FIELD LEAK DETECTOR

TRAX-40	SQUEEZE BOTTLE: 38 ml (1 1/3 oz)
TRAX-300	PLASTIC SQUEEZE BOTTLE: 355 ml (12 oz) with extendible spout

- "**TRAX**" is a clear, non-toxic, non residue, bubble type liquid leak detector formulated to produce long lasting bubbles under '*Job-Site*' conditions.
- "**TRAX**" detects leaks as small as 1 micron, evaporates leaving no residue, requires no clean-up, does not pit surfaces and is environmentally safe. (meets military specifications: **MIL 25567 I ABC**).
- Temperature range: **-3°C (+27°F) to +93°C (+200°F)**.

"TRACE 2" LEAK DETECTOR

TRACE2-118	PLASTIC BOTTLE: 118 ml (4 oz)
TRACE2-474	PLASTIC BOTTLE: 0,47 Litre (16 oz)
TRACE2-3790	METAL CAN: 3,78 Litre (1 US gallon)

- It is a red dye, tracer type *INTERNAL LEAK DETECTOR* which pinpoints the exact leak location in refrigeration or hydraulic systems."TRACE 2" is compatible and miscible with all *CFC, HCFC, HFC* and all their lubricants (*POE, PAO, PAG, AB* and *MO*) as well as hydraulic fluids.
- Even through ice and frost, leaks show an intense red stains which remain until removed.
- "TRACE 2" is non volatile and will not sludge or deposit gum. It is soluble in the lubricant and liquid refrigerants and travels with the lubricant. It is the easiest and least expensive way to locate leaks in an operating system.
- Temperature range: **-37°C (-35°F)** to **+204°C (+400°F)**
- Fluorescent with any ultraviolet light source.
- To allow you to charge this liquid into the system, use INJEC, see page 39.



UNIVERSAL A/C FLUORESCENT DYE

UVL-240	UNIVERSAL A/C FLUORESCENT DYE 240 ml (8 oz)
---------	--

- Can be used in any A/C unit.
- 240 ml / 8 oz. bottle (enough for use in approx. 32 systems).
- Permanently remains in the unit, so leaks can be located anytime for repair.
- Works with any high intensity black light.
- Certified to meet SAE-J2297 for R134a and PAG oil lubricants. Compatible with R1234yf refrigerant.
- Bottle with graduated scale for correct dosage in automotive A/C systems. Use 7,5 ml (1/4 oz.) for systems containing up to 1,8 kg (4 lbs.) of refrigerant or 0,5 L (16 oz.) of oil, or 7,5 ml for every 1,8 kg of refrigerant.
- Will not harm equipment, recovery systems, A/C systems or filters.
- To allow you to charge this liquid into the system, use INJEC, see page 39.



SEALING MATERIALS

LEAK-40	TUBE: 39 ml (1 1/3 oz)
LEAK-118	BRUSH TOP PLASTIC JAR: 118 ml (4 oz)
LEAK-474	BRUSH TOP PLASTIC JAR: 474 ml (16 oz)
LEAK-TEFLON-40	TUBE: 39 ml (1 1/3 oz) with Teflon

- The very well known "**LEAK LOCK**" is a soft setting pipe joint compound for sealing threaded joints, flanged joints, gaskets and mating services. It is a resin based brushable paste which remains permanently flexible, adheres to internal surfaces and fills voids. It is excellent for use on metal and plastic materials which are subject to extreme vibrations, temperature range from -129°C (-200°F) to +204°C (+400°F) and from full vacuum up to 689 bar (10.000 psi).
- "**LEAK LOCK**" seals a very wide range of products, natural and manufactured gases, steam, water and air, etc... Use alcohol as a cleaning agent prior to applying.
- "**LEAK LOCK GOLD**" contains Teflon and has been designed for premium sealings in difficult circumstances.





L-41600



L-49050

L-41600

Thread Sealing Compound, SLIC-TITE stik High-performance "PTFE" thread compound in handy stik form.

Temp. range **-46°C (-50°F)** to **+177°C (+350°F)**.

Pressure range **340 bar liquid** to **34 bar gas**.

Contents: 35 gram.

L-49050

Pipe thread sealant. Contains PTFE.

Temp. range **-54°C (-65°F)** to **+204°C (+400°F)**.

Pressure range **690 bar liquid** to **206 bar gas**.

Contents: **50 ml**.



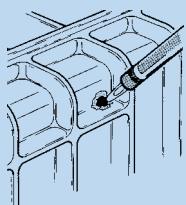
L-11575

L-11575 HEAT-SEAL STICK Contents: **12 ml**

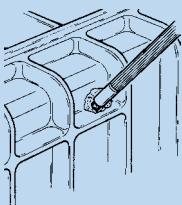
- Stops leaks fast.
- Makes tough, cured, epoxy repairs in as little as 90 seconds.
- Melts and cures in one operation.
- Restores service immediately.
- Effective for all refrigeration systems.
- Withstands pressure to **31 bar** (450 psi).
- Resists temperature to **+175°C. (+350°F)**.
- Works on all metals, ceramics, even glass.
- Seals refrigeration systems using Freon, Ammonia, and SO₂.

DIRECTIONS

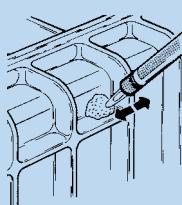
1. Clean area by scraping or filing. Do not use steel wool. Area must be free of surface oil.
2. Apply **2" vacuum (50 mm Hg)** to prevent system oil from interfering with epoxy.
3. Warm area with light flame and keep touching stick to area until Stick just starts to melt. Do not put flame directly on HEAT-SEAL stick. Remove flame each time HEAT-SEAL is touched to heated area.
4. Spread thin coating approximately **0,8 mm (1/32")** over repair area using the end of stick. Add adjacent heat to area if necessary so that stick spreads easily.
5. After application, heat to cure repair area as follows:
 - A. Use Light brush flame and keep stroking flame directly on melted HEAT-SEAL repair for approximately one minute.
CAUTION: Keep flame moving so that it does not char heat seal.
 - B. When properly cured HEAT-SEAL stick has good adhesion and flexibility.
6. Repairs can be sanded and painted.



A. Heat area to approximately **120°C**. Do not apply flame directly to HEAT-SEAL stick.



B. Touch stick to heated area and flow over leak. Build area to approximately **0,8 mm (1/32")** thick and smooth.



C. Cure HEAT-SEAL by brushing flame lightly and directly over repair for approximately one minute.



SOLDER-118

SOLDER FLUXES**SOLDER-118 BRUSH TOP PLASTIC JAR: 118 ml (4 oz)**

- A high quality, paste type, non-acid **SOLDERING FLUX** with industrial strength wetting agents to promote solder flow.
- For use with all low and mid-temperature soft solders, both lead and lead-free, on all metals except aluminium & magnesium.
- Temperature range: **-45°C (-50°F)** to **+120°C (+250°F)**.

- L-36473** Aluminum flux paste and solder kit solders aluminum easily. **For repairing aluminum evaporators and tubing, ducts and gutters. Also solders aluminum to copper. Complete repair kit**
Contents: 28 g flux and 15 g solder 60.



L-36473

HEAT BARRIERS

- L-11513 COOL GEL HEAT BARRIER SPRAY**
Contents: 0,473 litre
L-11509 COOL GEL HEAT BARRIER SPRAY
Contents: 0,947 litre

- Protects seals and seats in ball, dielectric and solenoid valves during soldering, brazing and welding operations.
- No need for component disassembly, saving time and money.
- Gel formula adheres to surface without dripping or running.
- Non-staining formula which leaves no residue and eliminates cleanup.
- Non-corrosive and non-toxic.
- Safe, odorless and harmless to skin.



L-11513

L-11509



BLOCK-ITE Heat protection up to 3000°C (5432°F)

- Contents 1 kg.
- The BLOCK-ITE can be applied by hand on the area to be protected approx. 1 cm thick and 5 cm wide. You can be sure that sensitive materials in the welding area such as rubber plastic or glass will be protected. The heat flow as well as the suction heat inside the materials being worked on will be stopped.
- After initial use of the BLOCK-ITE, remove the white crust, the remainder is reusable, just mix it with water and BLOCK-ITE will be set back to its original condition.
- The tub should remain closed and the clay moist!

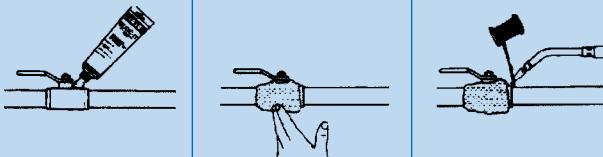


BLOCK-ITE





L-11511



SUPER-947



ICE-125

L-11511 BLOC-IT PASTE 300 ml

- Absorbs surface heat and keeps it from traveling to adjoining surfaces that may be damaged by excessive heat.
- Saves time of disassembly of valves and other components before soldering, brazing or welding.
- Prevents damage to heat sensitive materials such as gaskets, rubber, etc..
- Nontoxic, no asbestos, harmless to skin and odorless
- Reduces the danger of fire and helps prevent burns.
- Protects rubber and plastic seals of ball, solenoid, dielectric, and other valves from heat of soldering and brazing.
- Protects finished surfaces from discoloration from heat.
- Prevents buckling or distortion of light gauge metals during welding operations.
- Protects soldered joints from loosening when soldering nearby.

SUPER FLUSH

SUPER-947 PLASTIC BOTTLE: 947 ml (32 oz)
SUPER-3790 PLASTIC BOTTLE: 3,78 Litre (1 US gallon)

- Safely cleans and chemically stabilizes recovery, recycling and reclaim equipment.
- One treatment cleans and removes gum, soot, moisture, sludge, grease, tar, particulates, debris, organic acids, mineral acids, carbon deposits.
- Biodegradable, environmentally safe, non-flammable.
- Safe and easy to use. Will not harm system components.
- Does not contain halogenated solvents or hazardous ingredients.
- Safe and compatible with all refrigerants and refrigeration oils.
- Super cleaning agent for all A/C & refrigeration mechanical parts.
- Neutralizes and removes acid caused by compressor burnout.
- For short term exposure as during a flush, *SUPER FLUSH* has minimal or no effect on most elastomeric materials.

ICE MAX ICE MACHINE CLEANER

ICE-125 CONTAINER: 125 g (4.4 oz)

- A high performance ice machine cleaner and powerful scale remover in powder form.
- Environmentally friendly, leaves no acidic residue, eliminating the risk of hazardous liquid spills.
- Nickel safe, fast acting, easy to use.
- It contains a high performance corrosion inhibitor. It has an extended shelf life and will not separate or chemically change over time. Nickel safe, fast acting, easy to use.
- Has maximum scale removing power and increases ice machine efficiency.

CLEANING PRODUCTS

CLIMEX 5 LITRE PLASTIC CAN (Concentrated)

FEATURES

- **CLIMEX** effectively foams away stubborn deposit from air-condensers, evaporators, other coils and surfaces.
- Emulsifying and expanding foam pushes contamination out.
- It is easily rinsed away with water.

USES AND INFORMATION

- **CLIMEX** removes oils, burnt-oils, greases and grease-bound dirt, smokes, etc... from any metallic, plastic or paint surfaces.
- **CLIMEX** is ideal for A/C & R coils, pipes and grills as well as machined parts, motor armatures, switches, breakers and is non harmful to most electrical insulation coverings.
- **CLIMEX** is safe and suitable for the **FOOD INDUSTRY**.
- Can be used totally **CONCENTRATED** as delivered or **DILUTED** up to **25%** into pure water and sprayed as a cleaning detergent foam fog (See our **SPRAYERS**).
- Let **CLIMEX** penetrate small spaces, crevices and fin-coils to deep-clean and push all the contaminants out.
- Wait for **10 to 30 minutes**, then rinse with clear water.
- Wear gloves and glasses.

SPECIFICATIONS

- **LIQUID:** Blue, non acid, biodegradable, **ODOR:** sweet detergent
- **DENSITY:** 1,18, **PH:** 13,5 (\pm 0,35), **FLASH POINT:** No.

DETETX 5 LITRE PLASTIC CAN (Concentrated)

FEATURES

- **DETETX** effectively foams away stubborn deposit from air-condensers, evaporators, other coils and surfaces.
- It is also used for heavy machineries, walls, ground-floors or tanks and can be applied with cloth, brush to fixed surfaces. Parts can be immersed into this solvent.
- Emulsifying and expanding foam pushes contamination out.
- It is easily rinsed away with water.

USES AND INFORMATION

- **DETETX** removes oils, burnt-oils, greases and grease-bound dirt, smokes, lints, insects, feathers, leaves etc... from any metallic, plastic or paint surfaces.
- **DETETX** is ideal for A/C & R coils, pipes and grills as well as machined parts, heavy machineries, walls, ground-floors or tanks, motor armatures, etc....
- **DETETX** is usually diluted into **+45°C** (+115°F) warm water
 - **LIGHT CLEANINGS:** Diluted by **5 to 6 gram/litre**.
 - **HEAVY CLEANINGS:** Diluted by **8 to 10 gram/litre**.
- **DETETX** stays efficient if diluted by **60 times** its volume of water.
- **DETETX** penetrates small spaces, crevices and fin-coils to deep-clean and push all the contaminants out.
- Wait for **10 to 30 minutes**, then rinse with clear water.
- Wear gloves and glasses.

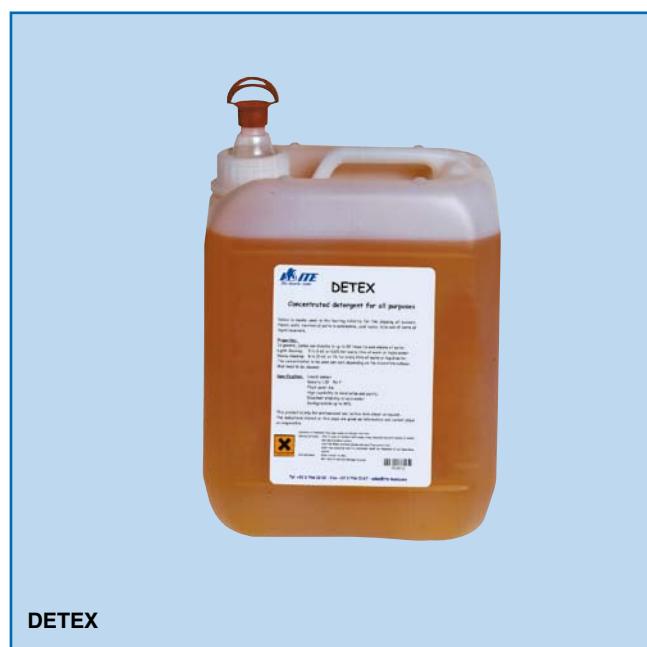
SPECIFICATIONS

- **LIQUID:** Amber, non acid, biodegradable, **ODOR:** Citrus
- **DENSITY:** 1,02, **PH:** 7,0 (\pm 0,2), **FLASH POINT:** No.

BB-9 9 LITRE AUTOMATIC SPRAYER (Graduated)



CLIMEX



DETETX



BB-9



A/C & REFRIGERANT OILS

SUNISO ®

SUNISO-3,5GS-04	PLASTIC BOTTLE of 4 litre
SUNISO-3GS-04	PLASTIC BOTTLE of 4 litre
SUNISO-3GS-20	METAL CAN of 20 litre
SUNISO-4GS-04	PLASTIC BOTTLE of 4 litre
SUNISO-4GS-20	METAL CAN of 20 litre
SUNISO-5G-04	PLASTIC BOTTLE of 4 litre
300-CO1	PLASTIC BOTTLE of 1 litre of SUNISO 3GS

- SUNISO GS oils are premium quality refrigeration compressor lubricants refined from specially selected naphthenic base crude oils.
- Designed for any installation, regardless of compressor or evaporator temperatures, charged with traditional refrigerants.
- They are highly stable, essentially wax free, thus providing excellent low temperature properties (even where evaporator temperatures are below -18°C) and assuring long trouble-free life.

SUNISO-SL22-04	PLASTIC BOTTLE of 4 litre
SUNISO-SL32-04	PLASTIC BOTTLE of 4 litre
SUNISO-SL46-04	PLASTIC BOTTLE of 4 litre
SUNISO-SL68-04	PLASTIC BOTTLE of 4 litre

- SUNISO SL grades are synthetic ester lubricants, formulated using select polyolester base stocks and additives providing outstanding lubrication, stability and corrosion protection.
- Especially designed for use in refrigeration and air conditioning systems charged with new (alternative) refrigerants.
- These lubricants are miscible in alternative refrigerants such as R134a even at extremely low temperatures.

ITE ®

205-P06	SPECIAL MINERAL OIL (600 ml bottle) for vacuum pumps
205-P1	SPECIAL MINERAL OIL (1 litre CAN) for vacuum pumps
205-P4	SPECIAL MINERAL OIL (4 litre CAN) for vacuum pumps
500-P05	SPECIAL ESTER OIL (0,5 litre CAN) for vacuum pumps
500-P1	SPECIAL ESTER OIL (1 litre CAN) for vacuum pumps
500-P4	SPECIAL ESTER OIL (4 litre CAN) for vacuum pumps
300-CO1	MINERAL OIL (1 litre CAN) special for compressors of our "ITE" recovery stations
500-CO1	ESTER OIL (1 Litre CAN) special for compressors of our "ITE" recovery stations and other compressors

MANEUROP ®

160-P2	WHITE MINERAL OIL (2 litre CAN)
160-P5	WHITE MINERAL OIL (5 litre CAN)

L'UNITE HERMETIQUE ® - TECUMSEH ®

2444-RC	MINERAL OIL (2 litre CAN)
ZERIC	ALKYLBENZENE

SYNTHETIC ZEROL ®

ZEROL-150-5L	ALKYLBENZENE (5 litre CAN)
--------------	----------------------------

FLUID CONTROL COMPONENTS



FLUID CONTROL COMPONENTS



BI-DIRECTIONAL REFRIGERATION BALL VALVES

**"ONE OF THE MOST ADVANCED 1/4" TO 3 1/8" ODS
(6 mm to 54 mm) BALL VALVES"**

FEATURES

- Valve can be mounted in either directions of flow.
- Maximum working pressure: 48 bar (700 psi).
- Temperature range: -40°C to +150°C (-40°F to 300°F).
- Full flow design reduces risks for leaks.
- Supplied with access valve port positioned on the brass body.
- Quick valve operation with mechanical stop: 1/4 turn of valve stem will fully open or close the valve. A special replaceable stem ring will ensure positive open and closed position.
- Extended copper ends for easy brazing.
- All valves are individually tested for vacuum and pressure as well as helium leak tested.
- Supplied with pre-drilled threaded holes in brass feet (bracket and 2 screws are included) to allow easy mounting of the valve on a base plate.

INSTALLATION

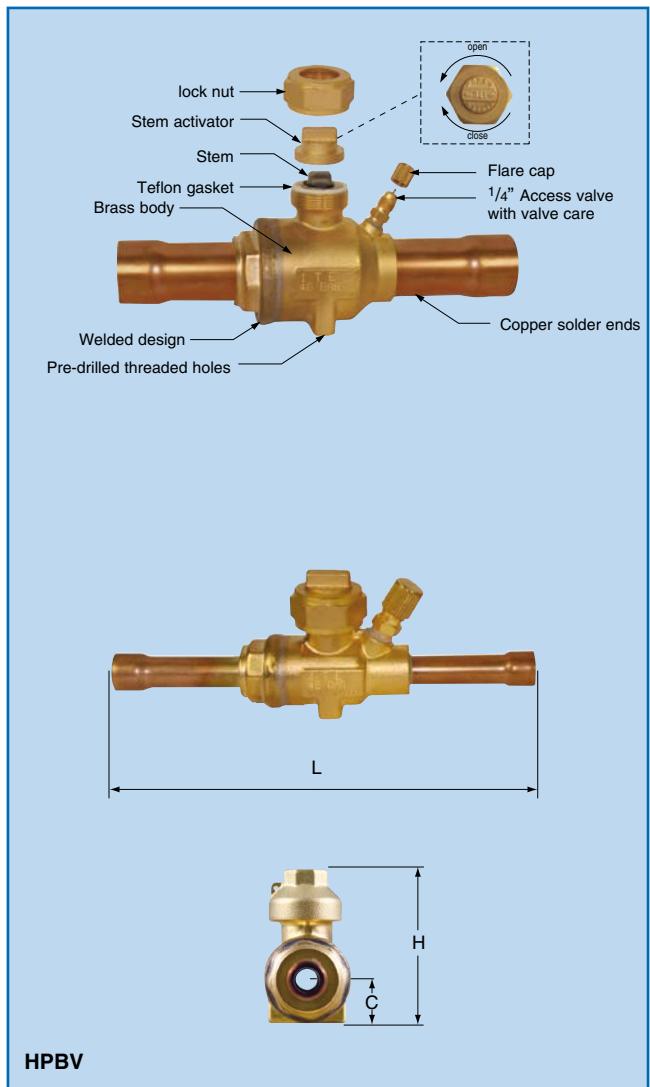
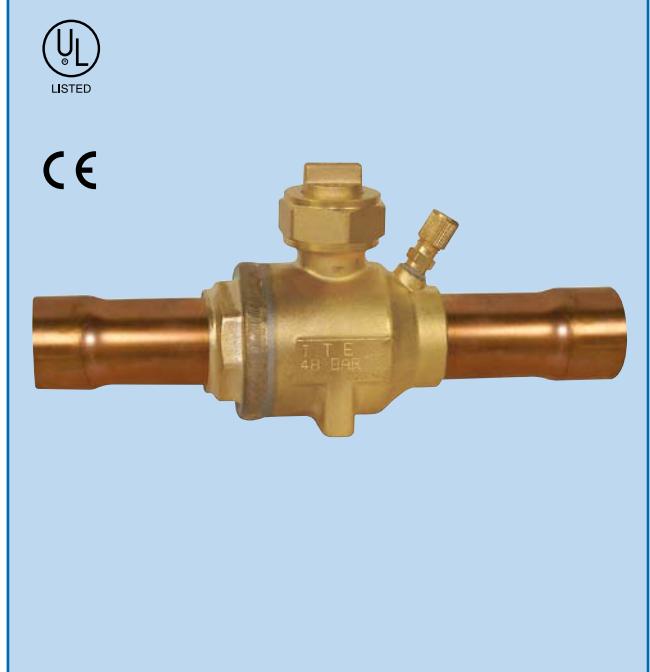
- Installation can be done in any direction horizontally or vertically.
- Extended copper end solder ODS connections for installation without valve dismantling.
- Easy and quick soft solder or silver brazing alloy into the line.
- Bi-directional with facility to surface mount if required.

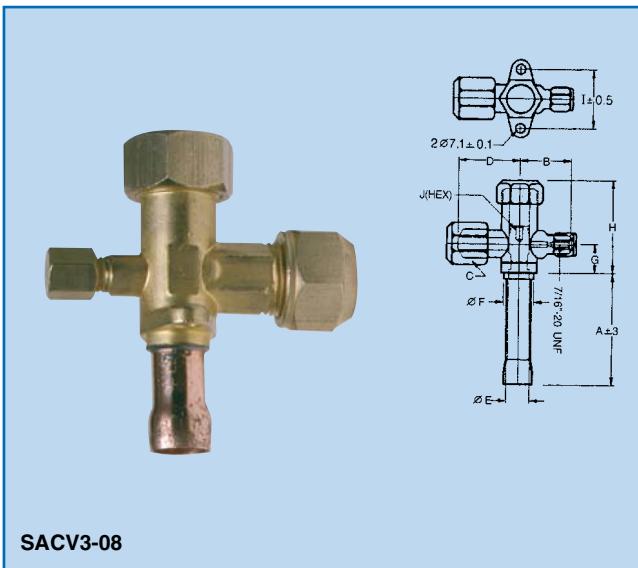
SPECIFICATIONS

- Suitable for all standard CFC, HCFC, HFC refrigerants and oils (including R410A and R744 (CO₂)).

MODEL NUMBER	CON. SIZE INCH	BALL PORT SIZE INCH	DIMENSIONS (mm)			Q (M ³ /h)
			L	H	C	
HPBV-04P	1/4"	1/2"	165	57	16	1,2
HPBV-06P	3/8"	1/2"	165	57	16	3,8
HPBV-08P	1/2"	1/2"	165	57	16	7,8
HPBV-10P	5/8"	1/2"	165	57	16	12
HPBV-12P	3/4"	3/4"	184	71	21	22
HPBV-14P	7/8"	3/4"	184	71	21	28
HPBV-18P	1 1/8"	1"	216	77,7	25,5	43
HPBV-22P	1 3/8"	1 1/4"	235	100	31	74
HPBV-26P	1 5/8"	1 1/2"	254	115	39	125
HPBV-34P	2 1/8"	2"	290	140	47,5	195
HPBV-42P	2 5/8"	2"	290	140	47,5	220
HPBV-50P	3 1/8"	2 1/2"	365	163	60	310

MODEL NUMBER	CON. SIZE METRIC	BALL PORT SIZE METRIC	DIMENSIONS (mm)			Q (M ³ /h)
			L	H	C	
HPBV-06MMP	6 mm	12,70 mm	165	57	16	1,2
HPBV-10MMP	10 mm	12,70 mm	165	57	16	3,8
HPBV-12MMP	12 mm	12,70 mm	165	57	16	7,8
HPBV-16MMP	16 mm	12,70 mm	165	57	16	12
HPBV-19MMP	19 mm	19,05 mm	184	71	21	22
HPBV-22MMP	22 mm	19,05 mm	184	71	21	28
HPBV-28MMP	28 mm	25,40 mm	216	77,7	25,5	43
HPBV-35MMP	35 mm	31,75 mm	235	100	31	74
HPBV-42MMP	42 mm	38,10 mm	254	115	39	125
HPBV-54MMP	54 mm	50,80 mm	290	140	47,5	195





SPECIFICATIONS

- For R12, R22, R502, R134a, R404A, R407C, R507, other blends, etc... and all CFC, HCFC & HFC with their specific lubricants.
- Solid extended copper "ODS" connections for quick, safe and easy brazing.
- U.L. and CSA listed.
- Maximum temperature rating: 135°C (275°F).
- Maximum working pressure: 34,5 bar (500 psi).

PIERCING VALVES SACV SPLIT AIR CONDITIONER VALVES

SACV2-04	2 WAY VALVE: 1/4" solder inlet x 1/4" flare outlet
SACV3-04	3 WAY VALVE: 1/4" solder inlet x 1/4" flare outlet with 1/4" access valve
SACV3-06	3 WAY VALVE: 3/8" solder inlet x 3/8" flare outlet with 1/4" access valve
SACV3-08	3 WAY VALVE: 1/2" solder inlet x 1/2" flare outlet with 1/4" access valve
SACV3-10	3 WAY VALVE: 5/8" solder inlet x 5/8" flare outlet with 1/4" access valve
SACV3-12	3 WAY VALVE: 3/4" solder inlet x 3/4" flare outlet with 1/4" access valve

PART NUMBER	A	B	Ø CON.	D	E	F	G	H	I	J
SACV2-04	60	-	1/4" male SAE	28	6,5	10	17	42	38	4
SACV3-04	60	29	1/4" male SAE	28	6,5	10	17	42	38	4
SACV3-06	60	29	3/8" male SAE	28	9,6	12,7	17	43	38	4
SACV3-08	60	32	1/2" male SAE	33	12,8	15,4	17	52	38	5
SACV3-10	60	33	5/8" male SAE	38,5	16	19	19	58	38	5
SACV3-12	60	34	3/4" male SAE	45	19,2	22	25	68	44	6

PACKLESS SHUT-OFF VALVES 1/4" TO 1 1/8"

"FULL LEAK PROOF FLOATING SEAT DISC VALVES"

PART NUMBER	CONNECTION (TYPE)	COEFF.	COEFF.	COEFF.
		(KV)	(K)	(LE)
PSO-2B	1/4" flare	3,3	1,2	0,3
PSO-3B	3/8" flare	4,6	4,5	1,83
PSO-4B	1/2" flare	8,2	5,4	3,35
PSO-5B	5/8" flare	11,1	6,8	5,48
PSO-2S	1/4" ODS	3,3	1,2	0,3
PSO-3S	3/8" ODS	4,6	4,5	1,83
PSO-4S	1/2" ODS	8,2	5,4	3,35
PSO-5S	5/8" ODS	11,1	6,8	5,48
PSO-7S	7/8" ODS	27,9	4,7	6,10
PSO-9S	1 1/8" ODS	42,8	5,7	10,36

(Kv) FLOW COEFFICIENT:

Kv = litres of water per minute at 15°C through the valve at a pressure drop of 1 bar.

(K) RESISTANCE COEFFICIENT:

K = 2gh/V² where: (g = 9,80 m per second squared)
(h = pressure loss in metre of fluid flow)
(V = fluid velocity in metre per second)

(Le) EQUIVALENT LENGTH OF TUBING:

Le = length in metre of refrigeration tubing to provide a pressure drop equal to the pressure drop through the valve.

FEATURES

- "PSO" series packless SHUT-OFF valves are designed for a complete leak proof service in any air conditioning and refrigeration applications.
- Forged brass body for high rigidity and strength including mounting pad for easy screwed installation (if necessary). Forged brass bonnet for safe, anti-corrosion and hermetic seal diaphragms when valve is operated.
- Stay 100% back-seated and leak proof when wide open.
- Large diameter diaphragms for wide and slide face moving, greater lift as well as low pressure drop (see "FLOW CAPACITY TABLE").
- One phosphor bronze Diaphragm is used for long life. The stainless steel second one is suitable against corrosion.
- Raised seat against metallic burrs and dirt clogging.
- Stainless steel progressive shut-off spring.
- Heat stabilized and floating seat disc (non-rotating and eliminating torsional wear).
- Ergonomic hand wheel for easy grip hand operation.
- Label for quick and easy identification.

PACKED ANGLE SERVICE VALVES

"CHARGING, PURGING, TESTING"

1. BRASS ANGLE VALVES

PART NUMBER	CONNECTIONS	
	BOTTOM (1)	SIDE (2)
PAS-090	1/4" male flare	1/4" male NPT
PAS-771B-US	1/4" male NPT	1/4" female NPT
PAS-22B	1/4" male NPT	1/4" male flare
PAS-23B	1/4" male NPT	3/8" male flare
PAS-32B	3/8" male NPT	1/4" male flare
PAS-33B	3/8" male NPT	3/8" male flare
PAS-768-US	1/2" male NPT	3/8" male flare

2. STEEL ANGLE VALVES

PART NUMBER	CONNECTIONS	
	BOTTOM (1)	SIDE (2)
PAS-761-US	1/4" male NPT	1/4" male flare
PAS-771-US	1/4" male NPT	1/4" female NPT
PAS-771R-US	1/4" male NPT	1/8" female NPT
PAS-773-US	3/8" male NPT	3/8" female NPT

FEATURES

- "PAS" series **PACKED ANGLE SERVICE valves** are designed for servicing, charging, purging, gauges testing any refrigeration and air-conditioning installation.
- Forged brass (except for PAS-44 and PAS-45) or steel body for high rigidity and strength and very low or high pressures and temperatures.
- Plated steel stem and hermetic cap with seal.

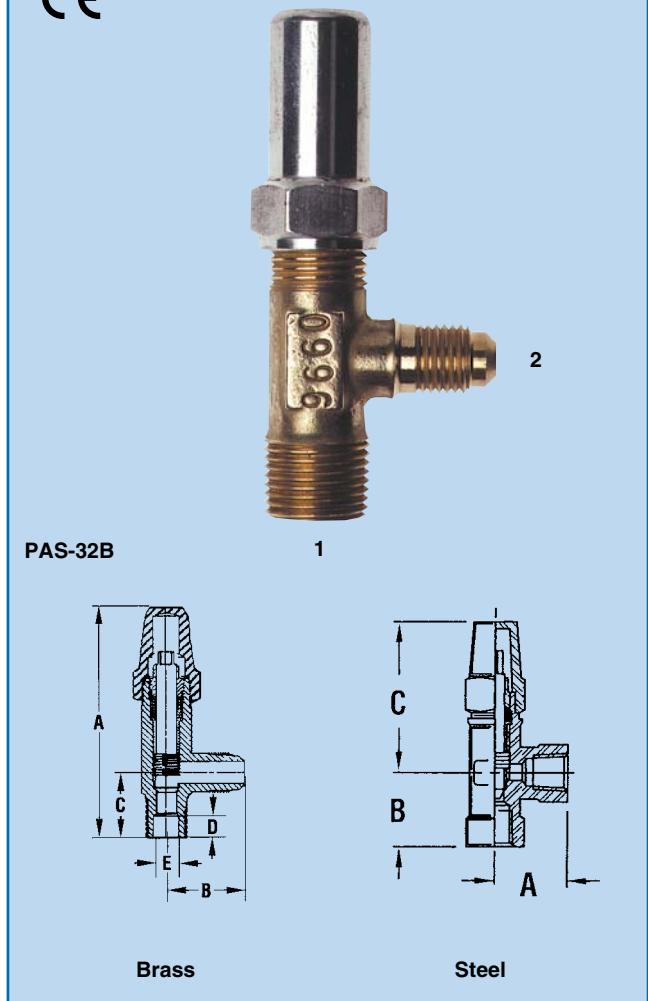
INSTALLATION

- All male flare connections are standard for refrigerant hoses, and female 45° standard flare fittings.
- All male and female NPT connections are standard for gauges (1/8" NPT and 1/4" NPT) and male / female NPT fittings. (**NPT** = National Pipe Thread).
- For any NPT fittings, see hereunder catalogue sections:
 - "**BRASS 45° FLARE/PIPE FITTINGS**" Index 6.
 - "**STEEL FITTINGS**" Index 6.
- Our "**PAS**" angle valves can be installed on receivers, accumulators, compressors, tubing, etc...
- For direct steel tubing installation, use "**BS**" female steel fittings shown on "**STEEL FITTINGS**" Index 6.

SPECIFICATIONS

- For R12, R22, R502, R134a, R404A, R407C, R507, other blends, etc... and all CFC, HCFC & HFC with their specific oil and lubricant.
- For R717 (ammonia) use steel angle valve version.
- **Forged brass valves:**
 - Temperature rating: -40°C to +150°C (-40°F/+300°F)
 - Maximum working pressure: 35 bar (500 psi).
- **Forged steel valves:**
 - Finish: black oxide
 - Temperature rating: -40°C to +150°C (-40°F/+300°F)
 - Maximum working pressure: 70 bar (1000 psi).
- CE approved (PED).

CE



BRASS ANGLE VALVES

PART NUMBER	DIMENSIONS (mm)				
	A	B	C	D	E
PAS-090	89	24	22	9,5	6,4
PAS-771B-US	93	32	27	9,7	9,5
PAS-22B	89	24	22	9,5	6,4
PAS-23B	93	30	27	9,5	8,0
PAS-32B	93	27	27	9,5	9,6
PAS-33B	93	30	27	9,5	9,6
PAS-768-US	100	32	31	9,7	12,7

STEEL ANGLE VALVES

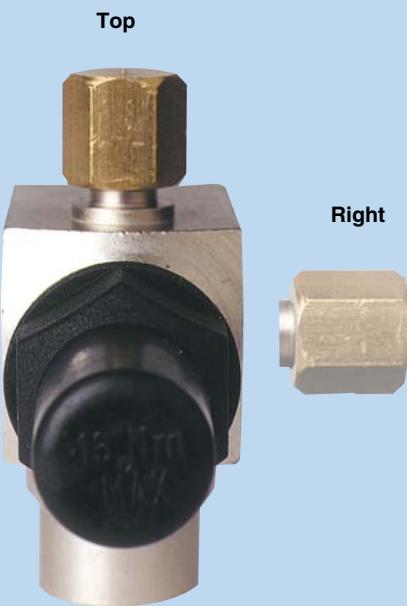
PART NUMBER	DIMENSIONS (mm)		
	A	B	C
PAS-761-US	26,9	26,9	60,5
PAS-771-US	26,9	26,9	60,5
PAS-771R-US	28,0	26,9	60,5
PAS-773-US	38,1	38,1	66,8



V-35040

2

1



Top

Left

Right



INC-100-05



MET-100-06

SMALL ANGLE VALVES

V-35042

1/8" MPT male (1) x 1/4" male flare SAE (2).

V-35040

1/4" ODS solder (1) x 1/4" male flare SAE (2).

BRAZED STEEL ANGLE VALVES

"BACK-SEAT, GAUGE PORT, CAP"

VALVE CONSTRUCTION

- Steel SHUT-OFF VALVES designed, manufactured and tested to be used on hermetic, semi-hermetic and automotive compressors, receivers, condensing units, piping, evaporators and all types of refrigeration, air conditioning systems and OEM's needs.
- Furnace- brazed steel body and copper plated std. finishing.
- 1/4" male flare SAE gauge port with std hex. cap on TOP (right side or left side or NO gauge port on request).
(Custom design, connections, port gauges, etc... on request).
- Steel body shape and sizes offered:
3/4" HEXAGONAL and 7/8", 1 1/8", 1 3/8", 1 5/8" SQUARE.
- Nickel plated STEM and hexagonal standard CAP.
- Steel brazed CONNECTIONS available:
The ODS connection dimensions for brazing copper tube refer to the external diameter of the copper tube.
 - O.D.S. connections for "INCH" copper tubing
(3/8" to 1 5/8").
 - O.D.S. connections for "METRIC" copper tubing
(10 mm to 42 mm).
- For all CFC, HCFC, HFC refrigerants and their specific lubricants.

1. STEEL ANGLE VALVES WITH "ODS" SOLDER CONNECTIONS FOR "INCH" COPPER TUBING

PART NUMBER	END "ODS" CONNECTIONS	BODY SIZE
INC-100-05	3/8" ODS	3/4" HEX
INC-100-08	1/2" ODS	3/4" HEX
INC-200-11	5/8" ODS	7/8" SQUARE
INC-300-14	3/4" ODS	1 1/8" SQUARE
INC-300-17	7/8" ODS	1 1/8" SQUARE
INC-300-22	1 1/8" ODS	1 1/8" SQUARE
INC-400-27	1 3/8" ODS	1 3/8" SQUARE
INC-500-31	1 5/8" ODS	1 5/8" SQUARE

2. STEEL ANGLE VALVES WITH "ODS" SOLDER CONNECTIONS FOR "METRIC" COPPER TUBING

PART NUMBER	END "ODS" CONNECTIONS	BODY SIZE
MET-100-06	10 mm ODS	3/4" HEX
MET-100-07	12 mm ODS	3/4" HEX
MET-200-12	16 mm ODS	7/8" SQUARE
MET-300-13	18 mm ODS	1 1/8" SQUARE
MET-300-16	22 mm ODS	1 1/8" SQUARE
MET-300-21	28 mm ODS	1 1/8" SQUARE
MET-400-28	35 mm ODS	1 3/8" SQUARE
MET-500-32	42 mm ODS	1 5/8" SQUARE

"ROTALOC"® VALVES

"COMPRESSORS, RECEIVERS, ETC..."

1. ANGLE "ROTALOC"® VALVES

VALVE CONSTRUCTION

- Steel SHUT-OFF VALVES designed, manufactured and tested to be used on hermetic, semi-hermetic and automotive compressors, receivers, condensing units, piping, evaporators and all types of commercial refrigeration systems and OEM's needs.
- Furnace- brazed steel body and nickel plated std. finishing.
- Custom design (connections, port gauges, etc...)on quantity request.

DESCRIPTION

BODY SHAPE & SIZES:

- 3/4" HEXAGONAL and 7/8", 1 1/8", 1 3/8", 1 5/8" SQUARE.

SIDE COUPLING "ROTALOC"® CONNECTIONS:

- Hexagonal 3/4"- 16, 1"- 14, 1 1/4"- 12 and 1 3/4"- 12.

END SOLDERING "ODS" CONNECTIONS:

- 1/4", 3/8", 1/2", 5/8", 3/4", 7/8", 1 1/8", 1 3/8" and 1 5/8" ODS.
- 6 mm, 10 mm, 12 mm, 16 mm, 28 mm, 35 mm and 42 mm ODS.

GAUGE PORT:

- 1/4" male Flare SAE connection with cap on "TOP LOCATION".

STEM CAP:

- Hexagonal standard type.

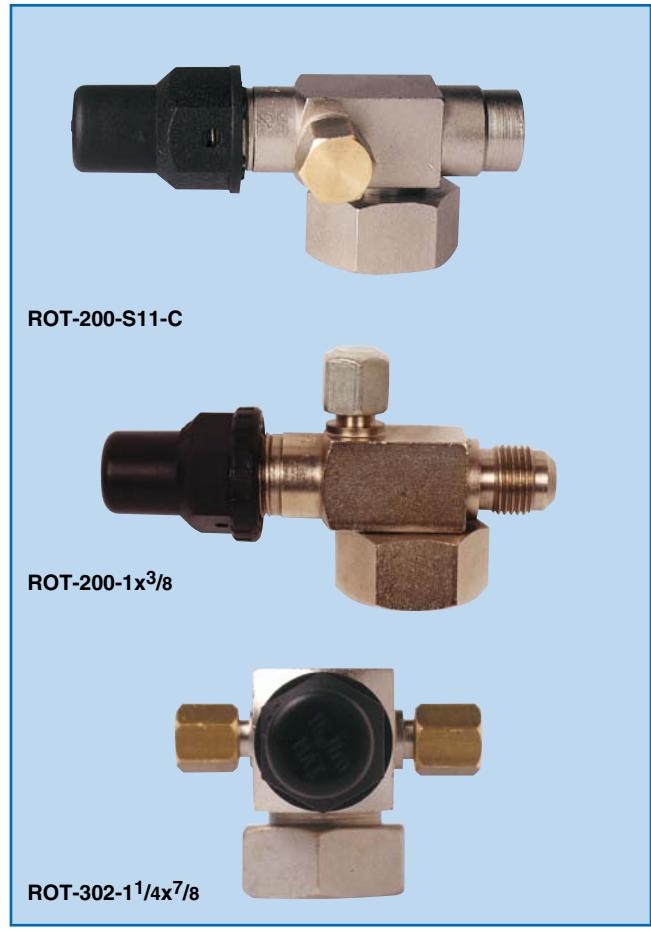
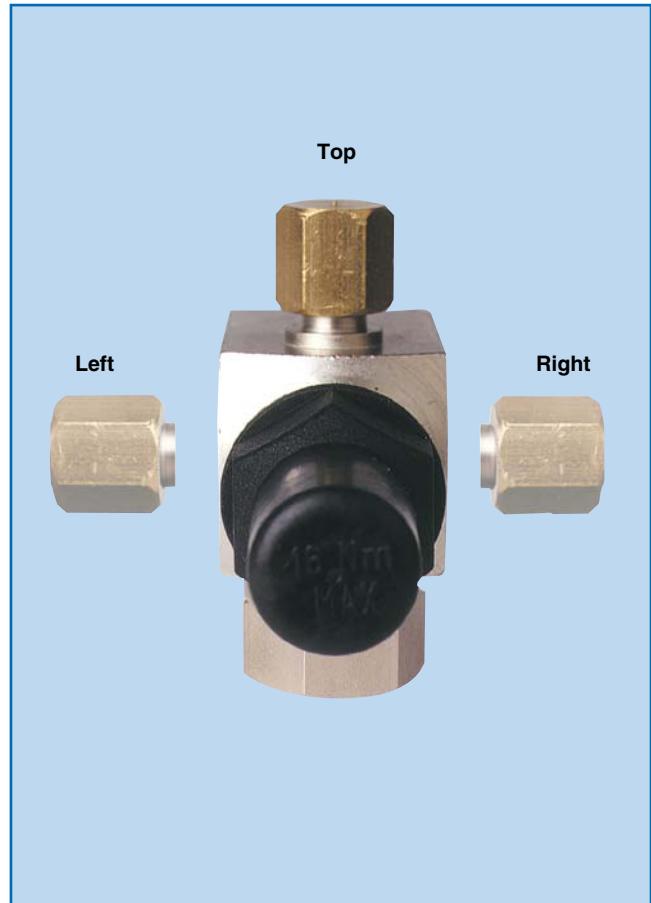
MODELS WITH 1 GAUGE PORT

PART NUMBER	"ROTALOC" CONNECTION	END "ODS" CONNECTION	BODY SIZE
ROT-100-S03-C	3/4"-16	1/4" ODS	
ROT-100-S05-C	3/4"-16	3/8" ODS	3/4"
ROT-200-S08-C	1"-14	1/2" ODS	
ROT-200-S11-C	1"-14	5/8" ODS	7/8"
ROT-200-S14-C	1"-14	3/4" ODS	
ROT-300-S17-C	1 1/4"-12	7/8" ODS	1 1/8"
ROT-300-S22-C	1 1/4"-12	1 1/8" ODS	
ROT-500-S31-C	1 3/4"-12	1 5/8" ODS	1 5/8"
ROT-100-S02-C	3/4"-16	6 mm ODS	
ROT-100-S06-C	3/4"-16	10 mm ODS	3/4"
ROT-200-S07-C	1"-14	12 mm ODS	
ROT-200-S12-C	1"-14	16 mm ODS	7/8"
ROT-300-S21-C	1 1/4"-12	28 mm ODS	1 1/8"
ROT-400-S28-C	1 3/4"-12	35 mm ODS	1 3/8"
ROT-500-S32-C	1 3/4"-12	42 mm ODS	1 5/8"

PART NUMBER	"ROTALOC" CONNECTION	MALE FLARE SAE CONNECTION	BODY SIZE
ROT-200-1x3/8	1"-14	3/8" male flare	3/4"

MODELS WITH 2 GAUGE PORTS (left + right)

PART NUMBER	"ROTALOC" CONNECTION	END "ODS" CONNECTION	BODY SIZE
ROT-202-1x3/8	1"-14	3/8" ODS	3/4"
ROT-202-1x1/2	1"-14	1/2" ODS	3/4"
ROT-222-1x5/8	1"-14	5/8" ODS	7/8"
ROT-222-1 1/4x5/8	1 1/4"-12	5/8" ODS	7/8"
ROT-222-1 1/4x3/4	1 1/4"-12	3/4" ODS	7/8"
ROT-302-1 1/4x3/4	1 1/4"-12	3/4" ODS	1 1/8"
ROT-302-1 1/4x7/8	1 1/4"-12	7/8" ODS	1 1/8"
ROT-302-1 1/4x11/8	1 1/4"-12	11/8" ODS	1 1/8"
ROT-302-1 3/4x7/8	1 3/4"-12	7/8" ODS	1 1/8"
ROT-352-1 3/4x11/8	1 3/4"-12	11/8" ODS	1 3/8"
ROT-352-1 3/4x13/8	1 3/4"-12	13/8" ODS	1 3/8"

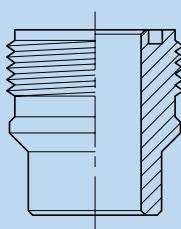




CAP-RT08

GRT-318
ROTALOC Teflon gasket

U-300-S14



U-2300-08

2. "ROTALOC"® GASKETS & CAPS

GRT-143	TEFLON GASKET	3/4"-16
GRT-191	TEFLON GASKET	1"-14
GRT-254	TEFLON GASKET	1 1/4"-12
GRT-318	TEFLON GASKET	1 1/2"-16
GRT-381	TEFLON GASKET	1 3/4"-12
GRT-510	TEFLON GASKET	2 1/4"-12

CAP-RT08	CAP	for 3/4" and 1"
CAP-RT10	CAP	1 1/4"
CAP-RT14	CAP	1 3/4"

DESCRIPTION

- Each "ROTALOC"® thread coupling is equipped with a proper TEFLON rubber seal (one for each 4 thread sizes).
- Also, any male thread "ROTALOC"® end can be temporarily or permanently closed with a suitable female thread cap.

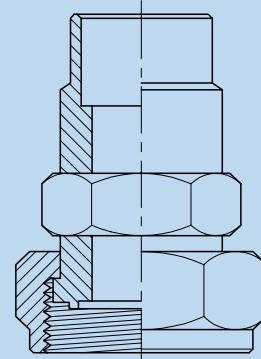
3. MALE "ROTALOC"® FITTINGS

U-200-S08	MALE FITTING	3/4"-16	x	1/2" ODS
U-300-S08	MALE FITTING	1"-14	x	1/2" ODS
U-300-S11	MALE FITTING	1"-14	x	5/8" ODS
U-300-S14	MALE FITTING	1"-14	x	3/4" ODS
U-400-S17	MALE FITTING	1 1/4"-12	x	7/8" ODS
U-500-S22	MALE FITTING	1 3/4"-12	x	1 1/8" ODS
U-500-S27	MALE FITTING	1 3/4"-12	x	1 3/8" ODS
U-200-S07	MALE FITTING	3/4"-16	x	12 mm ODS
U-300-S13	MALE FITTING	1"-14	x	18 mm ODS
U-2300-06	MALE FITTING	3/4"-16	x	12 mm internal, 16 mm external
U-2300-08	MALE FITTING	1"-14	x	16 mm internal, 20 mm external
U-2300-10	MALE FITTING	1 1/4"-12	x	23 mm external
U-2300-14	MALE FITTING	1 3/4"-12	x	27 mm internal, 32 mm external

4. FEMALE "ROTALOC"® STRAIGHT FITTINGS

U-1100-S03	FEM. STRAIGHT FITTING	3/4"-16 x	3/4" ODS
U-1100-S05	FEM. STRAIGHT FITTING	3/4"-16 x	3/8" ODS
U-1200-S08	FEM. STRAIGHT FITTING	1"-14 x	1/2" ODS
U-1300-S14	FEM. STRAIGHT FITTING	1 1/4"-12 x	3/4" ODS
U-1300-S17	FEM. STRAIGHT FITTING	1 1/4"-12 x	7/8" ODS
U-1300-S22	FEM. STRAIGHT FITTING	1 1/4"-12 x	1 1/8" ODS
U-1400-S31	FEM. STRAIGHT FITTING	1 3/4"-12 x	1 5/8" ODS

U-1100-S06	FEM. STRAIGHT FITTING	3/4"-16 x 10 mm ODS
U-1200-S07	FEM. STRAIGHT FITTING	1"-14 x 12 mm ODS
U-1200-S12	FEM. STRAIGHT FITTING	1"-14 x 16 mm ODS
U-1300-S13	FEM. STRAIGHT FITTING	1 1/4"-12 x 18 mm ODS
U-1300-S16	FEM. STRAIGHT FITTING	1 1/4"-12 x 22 mm ODS
U-1300-S21	FEM. STRAIGHT FITTING	1 1/4"-12 x 28 mm ODS
U-1400-S28	FEM. STRAIGHT FITTING	1 3/4"-12 x 35 mm ODS
U-1400-S32	FEM. STRAIGHT FITTING	1 3/4"-12 x 42 mm ODS

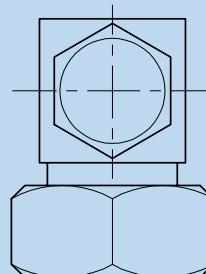


U-1100-S03

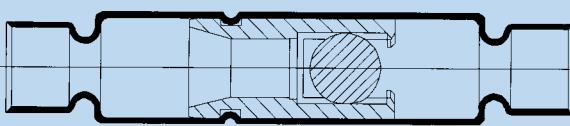
5. FEMALE "ROTALOC"® ANGLE FITTINGS

U-1500-S05	FEM. ANGLE FITTING	3/4"-16 x	3/8" ODS
U-1600-S08	FEM. ANGLE FITTING	1"-14 x	1/2" ODS
U-1600-S11	FEM. ANGLE FITTING	1"-14 x	5/8" ODS
U-1700-S14	FEM. ANGLE FITTING	1 1/4"-12 x	3/4" ODS
U-1700-S17	FEM. ANGLE FITTING	1 1/4"-12 x	7/8" ODS
U-1700-S22	FEM. ANGLE FITTING	1 1/4"-12 x	1 1/8" ODS
U-1800-S31	FEM. ANGLE FITTING	1 3/4"-12 x	1 5/8" ODS

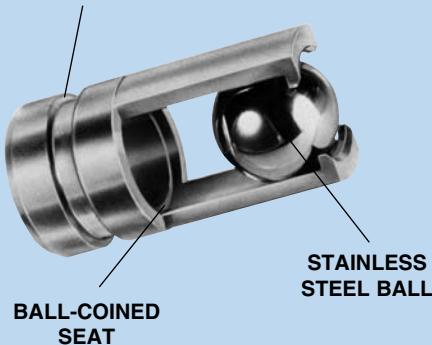
U-1500-S06	FEM. ANGLE FITTING	3/4"-16 x 10 mm ODS
U-1700-S13	FEM. ANGLE FITTING	1 1/4"-12 x 18 mm ODS
U-1700-S16	FEM. ANGLE FITTING	1 1/4"-12 x 22 mm ODS
U-1700-S21	FEM. ANGLE FITTING	1 1/4"-12 x 28 mm ODS
U-1800-S28	FEM. ANGLE FITTING	1 3/4"-12 x 35 mm ODS
U-1800-S32	FEM. ANGLE FITTING	1 3/4"-12 x 42 mm ODS



U-1500-S05



CORROSION-RESISTANT
BRASS CYLINDER



BALL-COINED
SEAT



STAINLESS
STEEL BALL

STAINLESS "BALL" CHECK - VALVES

DESCRIPTION

- The copper spun ball check valve has a metal to metal seating (stainless steel ball to brass seat under 65° touching angle).
- Dirt and foreign material are pushed away of the seat. The ball coins its own seat which allows for slight difference in ball diameter.
- The straight through flow around the ball yields high flow capacities for small body diameter valve bodies.
- These check valves are a one piece body constructed of copper tubing which eliminates leaks.

PURPOSES

- The all metal design allows easier welding and installation of the check valve.
- Compact. *"in line"* installation.
- Ideal for refrigeration and heat pump applications.
- Quick and easy ODS copper to copper soldering.

HORIZONTAL INSTALLATION:

- No pressure drop and floating ball.
- If possible, the outlet must be at 30° above horizontal.

VERTICAL INSTALLATION (with the outlet pointed up):

- Normally close position (ball down on the seat and we need pressure drop for opening).
- This is the best installation.

VERTICAL INSTALLATION (with the outlet pointed down):

- Normally open position (**attention:** down ball out of the seat and pressure drop needed for closing).

SPECIFICATIONS

- Corrosion-resistant (stainless steel, brass and copper).
- Suitable for all CFC, HCFC, HFC and their specific lubricant.
- Leak rate: **750 cc/min.** (dry fluid).
- Full flow. No pressure drop to open (see above).
- U.L. listed** (SA-8571) and **CSA listed** (LR-87950).
- Working pressure: **35 bar** (500 psi).

STANDARD "BALL" CHECK VALVES

CAPACITIES SHOWN IN kW (1kW = 860 kcal/h = 0,284 US TON of Refrigeration)

PART NUMBER	ODS CONNECTIONS	BODY Ø (mm)	LENGTH (mm)	SEAT Ø (mm)	FLOW (in kW/h under 0,14 bar or 2 psi)		
					R12	R22	R502
BCV-4-4	1/4" ODS	12,7	96	6,35	13,4	17,6	11,6
BCV-4-6	3/8" ODS	12,7	96	6,35	13,4	17,6	11,6
BCV-05	1/2" ODS	15,9	96	7,95	23,9	31,6	21,1
BCV-07	5/8" ODS	22,2	115	11,90	45,0	59,8	39,7
BCV-09	7/8" ODS	28,6	115	17,50	92,5	123,0	82,6
BCV-11	1 1/8" ODS	34,9	127	20,70	243,0	323,0	217,0

NOTE: capacities rated at -30°C (86°F) liquid temperature and -15°C (5°F) evaporating temperature.

“MT” & “MTS” MAGNI CHECK-VALVES

“NORMALLY CLOSED MAGNET DISC”

DESCRIPTION & SPECIFICATIONS

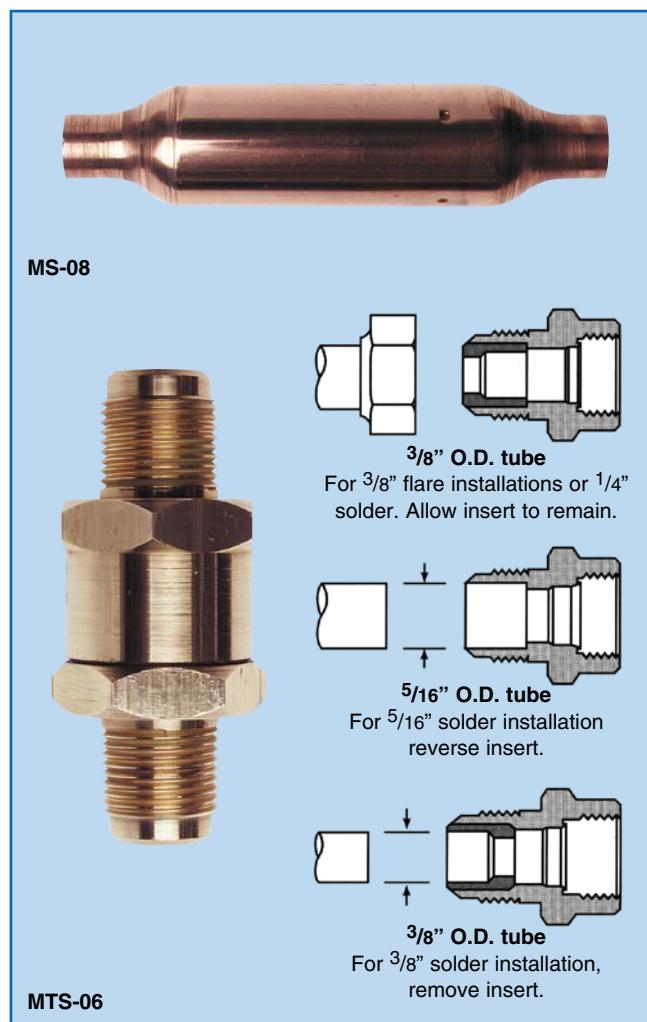
- These magnet seat disc CHECK-VALVES stay **NORMALLY CLOSED** due to their **magnet seat disc** (even when $\Delta p = 0$) and need a low pressure drop to open (see “MT” or “MTS” tables).
- The “MT” spun CHECK-VALVE has an inlet micronic built-in stainless steel strainer (**30 mesh**).
- Suitable for all **CFC**, **HCFC**, **HFC** and their specific lubricant.
- **U.L. listed** (SA-4468) and **CSA listed** (LR-96509-1).

GENERAL INSTALLATION

- All these “**MAGNI**” Check-Valves offer an “**in line**” installation.
- Take care during soldering operation to prevent overheating the disc (use wet rag or heat absorbing paste).
- Can be installed in any position.
- The “MT” spun offers copper **ODS** end connections.
- The “MTS” brass offers **Male Flare SAE** as well as diverse **ODS** solder connections by using included ODS inserts.

TYPICAL APPLICATIONS

- **COMPRESSOR DISCHARGE LINES:**
Prevents any condensating back-flow from condenser to compressor during the “off” cycle.
Prevents flow from an operating compressor to one that is idle.
- **LIQUID LINES:**
Prevents back-flow through the unused expansion valve on heat pump systems or other reversing units.
Prevents back-up into the low pressure liquid line of a recirculating system during a defrost period. Etc...



1. “MT” SPUN “MAGNI” CHECK-VALVES WITH BUILT-IN STRAINER AND “ODS COPPER” CONNECTIONS

PART NUMBER	COPPER END CONNECTIONS (O.D.S.)	BODY LENGTH (mm)	BODY DIAMETER (mm)	OPENING PRESSURE (bar)	MAXIMUM WORKING PRESSURE (bar)
MS-04	1/4" ODS	102	22	0,0040	55
MS-06	3/8" ODS	102	22	0,0040	55
MS-08	1/2" ODS	127	29	0,0095	44
MS-10	5/8" ODS	127	29	0,0095	44
MS-12	3/4" ODS	178	41	0,0240	38
MS-14	7/8" ODS	178	41	0,0240	38
MS-18	1 1/8" ODS	213	54	0,0300	28
MS-22	1 3/8" ODS	238	67	0,0450	30
MS-26	1 5/8" ODS	267	79	0,0620	29
MS-34	2 1/8" ODS	305	92	0,1030	28

2. “MTS” BRASS “MAGNI” CHECK-VALVES WITH NO STRAINER AND “Male Flare SAE” or “ODS” CONNECTIONS

PART NUMBER	MIXED INLET CONNECTIONS OFFERED	MIXED OUTLET CONNECTIONS OFFERED	OPENING PRESSURE	
			(bar)	(psi)
MTS-04	1/4" Flare SAE or 1/4" ODS or 3/16" ODS or 1/8" ODS		0,028	0,4
MTS-06	3/8" Flare SAE or 3/8" ODS or 5/16" ODS or 1/4" ODS		0,028	0,4

CE



Will not trap oil

Protects the compressor



"STD", "HX" & "HP" SUCTION ACCUMULATORS

"THE COMPLETE OEM'S TESTED LINE FOR AN EXACT SELECTION"

WHY A SUCTION LINE ACCUMULATOR ?

- Air conditioning, heat pumps, truck refrigeration and many other std. or remote unit systems require intermittent operation of the compressor. The suction line may trap and hold quantities of liquid which are suddenly dumped into the compressor as it starts up. This is frequently the cause of broken valves or pistons, broken or bent connecting rods, blown gaskets and bearing washout.
- The correct installation of our *SUCTION ACCUMULATORS* in the suction line and just before the compressor, eliminates damage.
- Liquid is temporarily held in the *SUCTION ACCUMULATOR* and metered back to the compressor along with any trapped oil.

WHAT ARE THE MOST IMPORTANT FEATURES ?

- Exclusive (patented) **inlet deflector** for improved performance. deflector permits full tangential entry of fluid (not the copies).
- **O.D.S.** connections are "*INLET*" and "*OUTLET*" marked.
- All these *SUCTION ACCUMULATORS* have safety fusible plug installed (according to **U.L.**, **cU.L.** and **CSA** requirements).
- Full controlled hydrogen copper brazing and cleaning process.

HOW TO SELECT A SUCTION ACCUMULATOR ?

- Follow carefully our "*CAPACITY & SELECTION TABLE*". **maximum capacities** shown are based on a pressure drop through the *ACCUMULATOR* equivalent to **0,3°C** (**0,5°F**). **minimum capacities** shown are based on a full oil metered return through our *SUCTION ACCUMULATORS*.
- It is not necessary to select the same "*INLET*" and "*OUTLET*" **O.D.S.** connection as the compressor suction line size. It is more important to select the *SUCTION ACCUMULATOR* based on following criteria:
FIRST: Within the **PRESSURE DROP** limit of the table
SECOND: Within the **MAX CAPACITY** shown on the table for full oil metered return capacity
THIRD: For the total amount of **CHARGE** to be held
- Normally, the *SUCTION ACCUMULATOR* should not be sized for less than **50%** of the total system capacity.

HOW TO USE THE "*CAPACITY & SELECTION TABLE*" ?

- On the pages 221 and 222 you'll find the "*CAPACITY & SELECTION TABLE*" you must use. Please note:
 - **PART NUMBERS:** The 3 types are shown (Standard, HX and HP types)
 - **DIMENSIONS** (diameter & length): Shown in cm.
 $1 \text{ cm} = 0,3937 \text{ inch}$
 - **MAXIMUM REFRIGERANT HOLDING CAPACITY:** Shown in kg of holding refrigerant.
 $1 \text{ kg} = 2,2 \text{ lbs}$
 - **SUCTION INLET & OUTLET O.D.S.:** For brazing copper tubing of the suction line entering the connections of the three *ACCUMULATOR* types. (standard, HX and HP).
 - **LIQUID INLET O.D.S.:** Here you will find the liquid line connections for the "*HX*" models
 - **EVAPORATING TEMPERATURE:** Shown in °C
 To transform °C into °F: $(^{\circ}\text{C} \times 1,8) + 32$
 - **RECOMMENDED kW OF REFRIGERANT:** Capacities shown in kW of refrigeration
 $1 \text{ kW} = 0,284 \text{ US TON} (= 860 \text{ Kcal/h})$
 - In the heat pump system, the suction accumulator must be installed between the compressor and the reversing valve.

1. "STANDARD" SUCTION ACCUMULATORS

"THE MOST COMPLETE OEM'S TESTED LINE"

3816	SUCTION ACCUMULATOR vertical	1/2" ODS
3817	SUCTION ACCUMULATOR vertical	1/2" ODS
3701	SUCTION ACCUMULATOR vertical	5/8" ODS
3702	SUCTION ACCUMULATOR vertical	5/8" ODS
3703	SUCTION ACCUMULATOR vertical	3/4" ODS
3738	SUCTION ACCUMULATOR vertical	7/8" ODS
3670	SUCTION ACCUMULATOR vertical	7/8" ODS
3700	SUCTION ACCUMULATOR vertical	11/8" ODS
3832	SUCTION ACCUMULATOR vertical	11/8" ODS
3706	SUCTION ACCUMULATOR vertical	13/8" ODS
3837	SUCTION ACCUMULATOR vertical	13/8" ODS
3704	SUCTION ACCUMULATOR vertical	15/8" ODS
3826	SUCTION ACCUMULATOR horizontal	7/8" ODS
3831	SUCTION ACCUMULATOR horizontal	11/8" ODS
3836	SUCTION ACCUMULATOR horizontal	13/8" ODS
3810	SUCTION ACCUMULATOR horizontal	15/8" ODS
3838	SUCTION ACCUMULATOR horizontal	21/8" ODS
3839	SUCTION ACCUMULATOR horizontal	21/8" ODS
3639	SUCTION ACCUMULATOR vertical	21/8" ODS
3641	SUCTION ACCUMULATOR vertical	25/8" ODS
3640	SUCTION ACCUMULATOR vertical	31/8" ODS
3841	SUCTION ACCUMULATOR horizontal	25/8" ODS
3840	SUCTION ACCUMULATOR horizontal	31/8" ODS

DESCRIPTION

- CE approved (PED).
- This is the most complete OEM's tested line.
- **When:**
 Starting your system. Running the system at a reduced capacity in winter, the oil separator is not very efficient so an intermittent poor oil separation occurs, the TXV or solenoid valves fails, you start again the cooling process after a defrost cycle, etc.... *Liquid* or *Oil* can be pushed out of the evaporator into the suction line and damage the compressor if there is *NO* suction accumulator.
- As soon as any amount of *Liquid* or *Oil* has been trapped into the "STANDARD" SUCTION ACCUMULATOR, it will be immediately re-evaporated (with no delay) even if the system is not running at full capacity.
- This is due to a special and perfectly safe patented expansion metering device.

CAPACITY AND SELECTION TABLE

- See "CAPACITY & SELECTION TABLE" on pages 221 and 222..

CE



3816



3836



3839

CE



HX-3836

CE



HP-3700

2. "HEAT EXCHANGER" LIQUID X SUCTION ACCUMULATORS

"MONEY SAVING, HIGH EFFICIENCY"

DESCRIPTION

- Development of the "HEAT EXCHANGER" SUCTION LINE ACCUMULATORS as a refrigeration component has resulted in new and practical design and possibilities in your system.
- Issued from the "STANDARD" ones and available on stock.
- The "HEAT EXCHANGER" and "SUCTION ACCUMULATOR" combinations bear the same PART NUMBER as the "STANDARD" ones except that the prefix "HX" has been added to indicate the presence of the heat exchanger coil as well as the additional two O.D.S. connections (inlet and outlet) for the liquid line.
- All "HEAT EXCHANGER" SUCTION ACCUMULATORS are complete with a safety leak proof fusible plug installed and complying with U.L., cU.L. and CSA requirements. (Except those built to ASME code).
- CE approved (PED).

DATA'S

- Same as the "STANDARD" SUCTION ACCUMULATORS shown on the previous page.

CAPACITY AND SELECTION TABLE

- Use the "CAPACITY & SELECTION TABLE" shown on pages 221 and 222.

		Suction	Liquid
HX-3702	vertical	5/8"	3/8"
HX-3703	vertical	3/4"	3/8"
HX-3738	vertical	7/8"	1/2"
HX-3700	vertical	1 1/8"	5/8"
HX-3706	vertical	1 3/8"	5/8"
HX-3704	vertical	1 5/8"	3/4"
HX-3639	vertical	2 1/8"	7/8"
HX-3640	vertical	3 1/8"	1 3/8"
HX-3641	vertical	2 5/8"	1 3/8"
HX-3836	horizontal	1 3/8"	5/8"
HX-3810	horizontal	1 5/8"	3/4"
HX-3839	horizontal	2 1/8"	7/8"
HX-3841	horizontal	2 5/8"	1 3/8"
HX-3840	horizontal	3 1/8"	1 3/8"

3. "HEAT PUMP" SPECIAL SUCTION ACCUMULATORS

"THE UNIQUE & TRUE OEM'S DESIGN FOR HEAT PUMP UNITS"

DESCRIPTION

- From our "STANDARD" SUCTION ACCUMULATOR range, modifications have been made on 7 models for HEAT PUMP applications.
- The INLET DEFLECTOR TUBE BAFFLE, smaller METERING ORIFICE and PROTECTIVE SCREEN have been especially designed for such an application and have proven to be a value. In addition, "HEAT PUMP" SUCTION ACCUMULATORS are designed for LESS PRESSURE DROP.
- As for others, these OEM's "HEAT PUMP" ACCUMULATORS are now offered as catalogued items and available on stock.
- All of them are complete with a safety fusible plug installed to comply with U.L., cU.L. and CSA requirements.
- CE approved (PED).

CAPACITY AND SELECTION TABLE"

- Use the "CAPACITY & SELECTION TABLE" shown on pages 221 and 222.

PART NUMBER	CONNECT. (ODS)
HP-3701	5/8"
HP-3702	5/8"
HP-3703	3/4"
HP-3738	7/8"

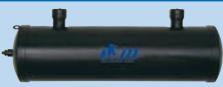
PART NUMBER	CONNECT. (ODS)
HP-3700	1 1/8"
HP-3706	1 3/8"
HP-3704	1 5/8"

CAPACITY AND SELECTION TABLE

WHO SAYS "EQUIVALENTS"...? CAN ACCUMULATORS BE COMPARED OR CROSS-REFERENCED BY NIPPLE SIZE AND EXT. DIMENSIONS ONLY?
 "SORRY, NOT AT ALL..." INTERNAL DESIGN CAN BE OF EVEN GREATER IMPORTANCE...
 DON'T TAKE A CHANCE... BE PROFESSIONAL AND ONLY USE AN "**ORIGINAL SUCTION ACCUMULATOR**" OF OURS.

PART NUMBER			VERT OR HORIZ	DIA (cm)	# LENGTH (cm)	MAXIMUM REFRIGERANT HOLDING CAPACITY (kg)								SUCTION O.D.S. CONNECT (for All)	LIQUID O.D.S. CONNECT "HX" only	
STD	HX	HP				R12	R22	R134a	R401A	R401B	R402A	R402B	R404A	R502		
3680			V	7,6	20,65	0,8	0,7	0,7	0,7	0,7	0,7	0,7	0,6	0,7		
3816			V	10,2	16,51	1,1	1,0	1,0	1,0	1,0	1,0	1,0	0,9	1,0		
3817			V	10,2	26,67	2,1	1,9	1,9	1,9	1,9	1,8	1,8	1,7	2,0		
3815			H	7,6	20,02	0,8	0,7	0,7	0,7	0,7	0,7	0,7	0,6	0,7		
3673			H	7,6	27,64	1,1	1,0	1,0	1,0	1,0	1,0	1,0	0,9	1,0		
3684			V	7,6	19,53	0,8	0,7	0,7	0,7	0,7	0,7	0,7	0,6	0,7		
3701	HX-3701	HP-3701	V	10,2	16,84	1,1	1,0	1,0	1,0	1,0	1,0	1,0	0,9	1,0		
3685			V	7,6	30,48	1,4	1,2	1,2	1,2	1,2	1,2	1,2	1,1	1,3		
3702	HX-3702	HP-3702	V	10,2	27,00	2,0	1,9	1,9	1,9	1,9	1,8	1,8	1,6	1,9		
3820			H	7,6	20,02	0,5	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4		
3821			H	7,6	29,54	1,2	1,1	1,1	1,1	1,1	1,0	1,0	1,0	1,1		
3703	HX-3703	HP-3703	V	10,2	27,00	2,0	1,8	1,9	1,9	1,9	1,8	1,8	1,7	1,9		
3670			V	10,2	27,94	2,0	1,8	1,8	1,8	1,8	1,8	1,8	1,6	1,9		
3738	HX-3738	HP-3738	V	12,7	33,02	3,9	3,6	3,6	3,6	3,6	3,4	3,4	3,1	3,6		
3827			V	15,2	33,02	5,5	5,0	5,1	5,0	5,0	4,9	4,9	4,4	5,1		
3825			H	15,2	25,40	4,8	4,4	4,4	4,4	4,4	4,2	4,2	3,8	4,4		
3826			H	15,2	34,29	6,6	5,9	6,0	6,0	6,0	5,8	5,8	5,3	6,1		
3832			V	15,2	27,94	4,2	3,9	3,9	3,9	3,9	3,7	3,7	3,4	3,9		
3700	HX-3700	HP-3700	V	15,2	38,10	6,4	5,9	5,9	5,9	5,9	5,7	5,7	5,2	6,0		
3830			H	15,2	34,29	7,4	6,7	6,8	6,7	6,7	6,5	6,5	5,9	6,8		
3831			H	15,2	41,91	8,9	8,1	8,2	8,1	8,1	7,8	7,8	7,1	8,3		
3837			V	15,2	34,29	5,3	4,8	4,9	4,8	4,8	4,6	4,6	4,2	4,9		
3706	HX-3706	HP-3706	V	15,2	51,43	8,8	7,9	8,1	8,0	8,0	7,7	7,7	7,0	8,1		
3743			V	15,2	62,87	11,2	10,3	10,4	10,3	10,3	9,9	9,9	9,0	10,4		
3835			H	15,2	34,29	7,4	6,7	6,8	6,7	6,7	6,5	6,5	5,9	6,8		
3836	HX-3836		H	15,2	57,15	8,5	7,8	7,8	7,8	7,8	7,5	7,5	6,8	7,9		
3698			V	15,2	43,51	7,1	6,4	6,5	6,5	6,5	6,3	6,3	5,7	6,6		
3704	HX-3704	HP-3704	V	15,2	62,86	11,2	10,3	10,4	10,3	10,3	9,9	9,9	9,0	10,4		
3809			H	15,2	45,72	6,4	5,8	5,9	5,8	5,8	5,6	5,6	5,1	5,9		
3810	HX-3810		H	15,2	76,20	10,7	9,7	9,8	9,7	9,7	9,4	9,4	8,5	9,9		
3639	HX-3639		V	21,9	50,80	15,4	14,0	14,2	14,1	14,1	13,6	13,6	12,3	14,3		
3838			H	15,2	91,44	15,4	14,0	14,2	14,1	14,1	13,6	13,6	12,3	14,3		
3839	HX-3839		H	20,3	121,92	20,6	18,7	18,7	18,8	18,8	18,1	18,2	16,5	19,1		
3641	HX-3641		V	27,3	50,80	25,3	23,0	23,3	23,0	23,0	22,3	22,3	20,3	23,5		
3841	HX-3841		H	21,9	60,96	22,3	20,2	20,5	20,3	20,3	19,6	19,6	17,8	20,6		
3640	HX-3640		V	27,3	66,04	36,2	32,9	33,0	33,0	31,8	31,8	31,9	29,0	33,6		
3840	HX-3840		H	27,3	60,96	35,2	31,9	32,3	32,0	32,0	30,9	31,0	28,1	32,6		
3873	HX-3873		H	27,3	121,92	74,7	67,8	68,7	68,0	68,0	65,6	65,9	59,7	69,2		
3874	HX-3874		H	27,3	152,40	94,4	85,8	86,9	86,0	86,0	83,0	83,3	75,5	87,6		

- "HX" PREFIX MEANS "HEAT EXCHANGER" SUCTION ACCUMULATOR TYPE.
- "HP" PREFIX MEANS "HEAT PUMP" SUCTION ACCUMULATOR MODEL.
- SUCTION ACCUMULATORS OF 6" DIAMETER OR SMALLER ARE **U.L. Listed** (SA-2400) and **CSA** (66605) HYDROGEN COPPER BRAZED.
- SUCTION ACCUMULATORS LARGER THAN 6" DIAMETER ARE MADE TO **ASME Code**.



PART NUMBER			EVAP TEMP	RECOMMENDED KW OF REFRIGERATION																	
				R12		R22		R134a		R401A		R401B		R402A		R402B		R404A		R502	
STD	HX	HP		MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
3680			+4,4°C	1,8	0,4	3,2	0,6	1,6	0,4	1,9	0,4	2,0	0,5	3,1	0,5	3,0	0,5	2,8	0,5	2,8	0,5
3816			-6,7°C	1,2	0,3	2,2	0,5	1,1	0,3	1,3	0,4	1,4	0,4	2,2	0,4	2,1	0,4	2,0	0,4	2,0	0,4
3817			-18°C	0,8	0,3	1,6	0,4	0,7	0,3	0,8	0,3	0,9	0,3	1,5	0,3	1,4	0,3	1,4	0,3	1,4	0,3
3815			-29°C	0,5	0,2	1,1	0,3	0,5	0,2	0,6	0,2	0,6	0,2	0,9	0,2	0,9	0,2	0,9	0,2	0,9	0,2
3673			-40°C	0,3	0,1	0,6	0,2	0,3	0,1	0,4	0,1	0,4	0,2	0,5	0,2	0,5	0,2	0,5	0,2	0,5	0,2
3684			+4,4°C	3,5	0,5	7,0	0,6	3,2	0,5	3,9	0,5	4,0	0,5	6,0	0,6	5,7	0,6	5,4	0,5	5,4	0,5
3701	HX-3701	HP-3701	-6,7°C	2,1	0,4	4,4	0,6	1,9	0,4	2,3	0,4	2,4	0,5	0,4	0,5	3,7	0,5	3,5	0,4	3,5	0,4
3685			-18°C	1,4	0,4	3,0	0,5	1,3	0,4	1,5	0,4	1,6	0,4	2,7	0,4	2,6	0,4	2,4	0,4	2,5	0,4
3702	HX-3702	HP-3702	-29°C	0,9	0,3	1,9	0,4	0,8	0,3	0,9	0,3	1,0	0,3	1,8	0,3	1,7	0,3	1,6	0,3	1,6	0,3
3820			-40°C	0,5	0,2	1,2	0,3	0,5	0,2	0,6	0,2	0,6	0,2	1,0	0,3	0,9	0,2	0,9	0,2	0,9	0,2
3821																					
			+4,4°C	6,3	0,5	10,5	0,8	5,7	0,5	7,0	0,6	7,3	0,6	10,8	0,8	10,3	0,8	9,8	0,8	9,8	0,8
			-6,7°C	4,0	0,4	7,4	0,6	3,6	0,4	4,4	0,5	4,6	0,5	7,7	0,7	7,4	0,6	7,0	0,6	7,0	0,6
3703	HX-3703	HP-3703	-18°C	2,5	0,4	5,3	0,6	2,2	0,4	2,7	0,4	2,8	0,5	5,4	0,6	5,2	0,6	4,9	0,6	4,9	0,6
			-29°C	1,7	0,3	3,9	0,5	1,5	0,3	1,9	0,4	1,9	0,4	3,1	0,5	3,0	0,5	2,8	0,5	2,8	0,5
			-40°C	1,0	0,2	2,1	0,4	0,9	0,2	1,1	0,2	1,1	0,2	1,9	0,4	1,8	0,4	1,8	0,4	1,8	0,4
3670			+4,4°C	8,8	1,3	14,1	1,9	7,9	1,2	9,7	1,4	10,1	1,4	15,5	2,0	14,8	2,0	14,1	1,9	14,1	1,9
3738	HX-3738	HP-3738	-6,7°C	6,3	1,1	10,5	1,6	5,7	1,1	7,0	1,2	7,3	1,3	11,6	1,7	11,1	1,7	10,5	1,6	10,5	1,6
3827			-18°C	3,5	0,9	8,1	1,4	3,1	0,9	3,9	1,0	4,0	1,1	7,7	1,5	7,4	1,4	7,0	1,4	7,0	1,4
3825			-29°C	2,5	0,7	5,3	1,2	2,2	0,7	2,7	0,8	2,8	0,8	5,0	1,3	4,8	1,2	4,6	1,2	4,6	1,2
3826			-40°C	1,4	0,6	3,2	0,9	1,3	0,6	1,5	0,7	1,6	0,7	2,7	1,1	2,6	1,0	2,5	0,9	2,5	0,9
3832			+4,4°C	17,6	1,8	31,6	2,7	15,3	1,7	19,3	1,9	20,2	2,0	34,8	3,0	33,2	2,8	31,6	2,7	31,6	2,7
3700	HX-3700	HP-3700	-6,7°C	113,2	1,5	21,8	2,3	10,1	1,5	12,4	1,7	12,9	1,8	23,2	2,5	22,1	2,4	21,1	2,3	21,1	2,3
3830			-18°C	7,4	1,3	15,1	2,0	6,4	1,3	8,1	1,4	8,5	1,5	15,5	2,2	14,8	2,1	14,1	2,0	14,1	2,0
3831			-29°C	4,9	1,1	9,8	1,7	4,3	1,0	5,4	1,2	5,7	1,2	9,7	1,8	9,2	1,7	8,8	1,7	8,8	1,7
			-40°C	3,2	0,6	6,3	1,3	2,7	0,5	3,5	0,6	3,6	0,6	5,4	1,5	5,2	1,4	4,9	1,3	4,9	1,3
3837			+4,4°C	28,1	4,9	59,8	7,0	25,3	4,7	30,9	5,4	32,3	5,7	58,0	7,7	55,2	7,4	52,7	7,0	52,7	7,0
3706	HX-3706	HP-3706	-6,7°C	21,1	4,2	38,7	6,7	19,0	4,1	23,2	4,6	24,3	4,9	38,7	7,3	36,9	7,0	35,1	6,7	35,1	6,7
3743			-18°C	13,4	3,5	27,0	5,6	12,0	3,4	14,7	3,9	15,4	4,0	27,1	6,2	25,8	5,9	24,6	5,6	24,6	5,6
3835			-29°C	8,4	3,2	17,6	4,6	7,6	3,1	9,3	3,3	9,7	3,6	17,4	5,0	16,6	4,8	15,8	4,6	15,8	4,6
3836	HX-3836		-40°C	4,9	2,5	10,5	3,9	4,4	2,4	5,4	2,7	5,7	2,8	9,7	4,3	9,2	4,0	8,8	3,9	8,8	3,9
3698			+4,4°C	45,7	4,9	98,4	7,0	41,1	4,7	50,3	5,4	52,4	5,7	96,7	7,7	92,1	7,4	87,9	7,0	87,9	7,0
3704	HX-3704	HP-3704	-6,7°C	31,6	4,2	66,8	6,7	28,5	4,1	34,8	4,7	36,2	4,9	69,6	7,3	66,5	7,0	63,3	6,7	63,3	6,7
3809			-18°C	21,1	3,5	45,7	5,6	19,0	3,4	23,2	3,9	24,3	4,0	46,4	6,2	44,3	5,9	42,2	5,6	42,2	5,6
3810	HX-3810		-29°C	14,1	3,2	28,1	4,6	12,7	3,1	15,5	3,5	16,2	3,6	27,1	5,0	25,8	4,8	24,6	4,6	24,6	4,6
			-40°C	7,0	2,5	17,6	3,9	6,3	2,4	7,7	2,7	8,1	2,8	15,5	4,3	14,8	4,0	14,1	3,9	14,1	3,9
			+4,4°C	112,5	13,0	207,4	20,4	101,3	12,6	123,8	14,3	129,4	14,9	212,7	22,4	202,9	21,4	193,4	20,4	193,4	20,4
3639	HX-3639		-6,7°C	73,8	11,3	144,2	18,3	66,5	10,9	81,2	12,3	84,7	12,9	150,8	20,1	143,8	19,2	137,1	18,3	137,1	18,3
3838			-18°C	49,2	9,1	94,9	15,1	44,3	8,8	54,1	10,1	56,6	10,5	100,6	16,6	96,0	15,9	91,4	15,1	91,4	15,1
3839	HX-3839		-29°C	28,1	7,4	63,3	13,0	25,3	7,1	30,9	8,1	32,3	8,5	61,9	14,3	59,1	13,6	56,3	13,0	56,3	13,0
			-40°C	17,6	6,0	42,2	9,5	15,8	5,8	19,3	6,6	20,2	6,9	38,7	10,4	37,0	10,0	35,2	9,5	35,2	9,5
			+4,4°C	175,8	20,7	316,4	33,4	158,2	20,0	193,4	22,8	202,2	23,9	328,7	36,6	313,6	35,1	298,9	33,4	298,9	33,4
3641	HX-3641		-6,7°C	116,0	18,3	218,0	29,5	104,4	17,7	127,6	20,1	133,3	21,0	232,1	32,5	221,5	31,0	211,0	29,5	211,0	29,5
3841	HX-3841		-18°C	77,4	14,8	147,7	24,6	69,6	14,3	85,1	16,2	89,0	17,1	154,7	27,1	147,7	25,8	140,6	24,6	140,6	24,6
			-29°C	45,7	12,0	98,4	21,1	41,1	11,5	50,3	13,1	52,4	13,7	96,7	23,2	92,1	22,2	87,9	21,1	87,9	21,1
			-40°C	28,1	9,8	63,2	14,8	25,3	9,5	30,9	10,8	32,3	11,3	58,0	16,2	55,2	15,5	52,7	14,8	52,7	14,8
			+4,4°C	246,1	35,2	457,1	52,7	221,5	34,0	270,7	38,7	283,0	40,4	483,5	58,0	461,3	55,2	439,5	52,7	439,5	52,7
3640	HX-3640		-6,7°C	189,9	30,6	316,4	45,7	170,9	29,5	208,9	33,6	218,3	35,2	348,1	50,3	332,2	47,8	316,4	45,7	316,4	45,7
3840	HX-3840		-18°C	130,1	23,9	211,0	38,7	117,1	23,1	143,1	26,3	149,4	27,5	232,1	42,5	221,5	40,4	211,0	38,7	211,0	38,7
3873	HX-3873		-29°C	80,9	21,4	140,6	32,7	72,8	20,7	89,0	23,6	92,8	24,6	154,7	35,9	147,7	34,3	140,6	32,7	140,6	32,7
3874	HX-3874		-40°C	45,7	16,9	98,4	26,4	41,1	16,3	50,3	18,6	52,4	19,4	96,7	17,4	92,1	16,6	87,9	15,8	87,9	15,8

- “MAXIMUM RECOMMENDED CAPACITY” (kW of refrigeration) IS BASED ON PRESSURE DROP THROUGH SECTION ACCUMULATOR EQUIVALENT TOP 0,3°C (0,5°F).
- “MINIMUM RECOMMENDED CAPACITY” (kW of refrigeration) IS BASED ON FULL METERING OIL RETURN THROUGH ACCUMULATOR.

SPECIFIC MUFFLERS

"NOT A MUFFLER FOR ALL WORK BUT A SELECTED ONE FOR YOUR NEED"

1. "M" DISCHARGE MUFFLERS

DESCRIPTION

- Some systems are noisy due to vibration and pulsation of gas through the discharge line. To smooth out pulsations and reduce vibrations and noise, **ITE** offers the industry's most complete line of "**M**" series **DISCHARGE MUFFLERS**.
- All mufflers may be mounted horizontally or vertically as long as instructions are followed (minimize "oil trap" risks).
- All mufflers are of hydrogen copper brazed steel construction insuring maximum strength and complete cleanliness.
- **M-60** through **M-110** mufflers are of hydrogen copper brazed steel and shielded arc welded construction.
- Complete and ready to use with **+183°C** (+362°F) safety fusible plug installed on **M-30** through **M-110** models.
- "IN" (inlet), "OUT" (outlet) and "TOP" marking for installation.
- CE approved (PED).
- All mufflers are designed to eliminate pulsation in compressor discharge line running to remote condensers.
- All mufflers have internal baffles designed for minimum pressure drop. These baffles change the velocity of the discharge gas. This results in a dampening effect on high frequency sound waves in the gasses on high speed compressors. This also irons out the pulsating waves in low speed compressors.

PART NUMBER	CONNEX. (O.D.S.)	NOMINAL (U.S. TONS)	CAPACITY (kW)	EXT. DIAM.	OVERALL LENGTH
				(mm)	(inch)
M-02	3/8"	2	7	2"	190 7 ⁷ / ₁₆ "
M-03	1/2"	3	10,5	3"	190 7 ⁷ / ₁₆ "
M-05	5/8"	4	17,5	2"	190 7 ⁷ / ₁₆ "
M-10	7/8"	7,5 to 10	26 to 35	3"	230 9"
M-15	11/8"	10 to 15	35 to 52	3"	240 9 ¹ / ₄ "
M-20	13/8"	15 to 25	52 to 87	3"	350 13 ³ / ₄ "
M-30	15/8"	25 to 50	87 to 174	4"	410 16"
M-60	21/8"	50 to 75	174 to 261	6"	670 26 ¹ / ₂ "
M-80	25/8"	75 to 100	261 to 349	6"	710 28"
M-110	31/8"	100 to 125	349 to 436	6"	920 36"

NOTE: For the installation, respect "IN", "OUT" and "TOP" when marking.

2. "AM" ADJUSTABLE MUFFLERS

DESCRIPTION

- This original **ADJUSTABLE DISCHARGE MUFFLER** development permits "**TUNING**" the muffler to the system. For the first time, it is possible to change muffler characteristics without installing a different muffler or even breaking into the system.
- The "**AM**" series **ADJUSTABLE MUFFLER** may be adjusted without loosing charge and while the system is running. It is provided with a stem which may be turned to "**TUNE**" the muffler to the system.
- Two identical systems do not always sound the same. One may be noisy while the other is quiet. The **ADJUSTABLE MUFFLER** that **ITE nv** offers provides a variable range of characteristics so that, the performance with a particular system can be attained.
- All **ADJUSTABLE MUFFLERS** are ready to use with their safety fusible plug installed (**+183°C**).
- CE approved (PED).

PART NUMBER	CONNEX. (O.D.S.)	NOMINAL (U.S. TONS)	CAPACITY (kW)	EXT. DIAM.	OVERALL LENGTH
				(mm)	(inch)
AM-05	5/8"	2 to 5	7 to 17	4"	250 10"
AM-10	7/8"	5 to 10	17 to 35	4"	280 11"
AM-25	11/8"	10 to 25	35 to 87	4"	360 14 ¹ / ₄ "

CE



M-60

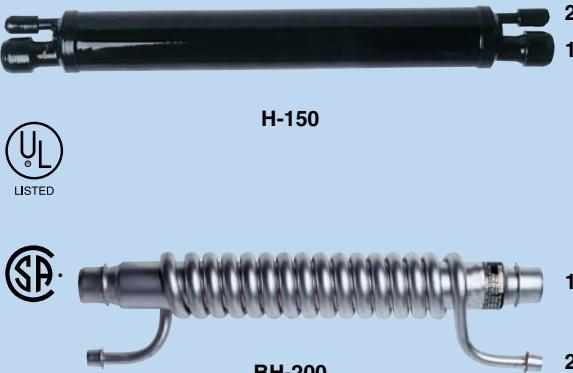
CE



AM-05



DM-1677



1. "BLUE" HEAT EXCHANGERS

PART NUMBER	CONNECTIONS suction (1) x liquid (2)	H.P.	OVERALL LENGTH (mm)	OVERALL LENGTH (inch)	SHELL DIAM.
BH-33	3/8" ODS x 1/4" ODS	1/3	200	8"	22 mm
BH-50	1/2" ODS x 1/4" ODS	1/2	280	11"	22 mm
BH-100	5/8" ODS x 3/8" ODS	1	380	15"	22 mm
BH-150	7/8" ODS x 3/8" ODS	1,5	280	11"	35 mm
BH-200	7/8" ODS x 3/8" ODS	2	330	13"	35 mm
BH-300	1 1/8" ODS x 1/2" ODS	3	380	15"	35 mm
BH-500	1 1/8" ODS x 1/2" ODS	5	380	15"	51 mm
BH-750	1 5/8" ODS x 5/8" ODS	7,5	380	15"	51 mm
BH-1000	1 5/8" ODS x 5/8" ODS	10	460	18"	51 mm

3. "DM" SUCTION MUFFLERS

DM-1677	MUFFLER 7/8" IDS x 7/8" ODS, 16 to 18 Kw
DM-1678	MUFFLER 1 1/8" IDS x 1 1/8" ODS, 21 to 35 Kw
DM-1679	MUFFLER 1 3/8" IDS x 1 3/8" ODS, 26 to 44 Kw
DM-1676	MUFFLER 1 1/8" IDS x 1 3/8" ODS, 26 to 35 Kw

DESCRIPTION

- As **ITE** is always "**MARKET**" and "**SERVICE**" oriented, we offer a line of **SUCTION MUFFLERS**.
- These "**DM**" series **SUCTION MUFFLERS** smooth out suction pulsations resulting in reduced system noise when installed at the compressor on the suction side.
- They are of hydrogen copper brazed steel construction for maximum strength and complete cleanliness with copper nipples (one **I.D.S.** male connection at the inlet and one **O.D.S.** female connection at the outlet) for easy installation in the "line" or in the "field".
- All are **U.L., cUL.** and **CSA listed**.
- Length: **156 mm (6 1/8")**.

HEAT EXCHANGERS

**"SUCTION COOLED APPLICATIONS"
& **SUBCOOLING HEAT TRANSFERS"****

DESCRIPTION

- "**BLUE RIBBON**" and "**DE LUXE**" **HEAT EXCHANGERS** are particularly suited for suction cooled compressor applications. They are of all copper construction and incorporate a special expansion process providing positive contact between tube and body (plus an efficient helicoidal counter flow).
- Fittings are sized for your standard units from **1/4** through **10 hp** eliminating the need for adapter fittings.
- "**BH**" series "**BLUE RIBBON**" offer quality and high efficiency at low competitive prices. All are **U.L. listed**.

2. "DE LUXE" HEAT EXCHANGERS

PART NUMBER	CONNECTIONS suction (1) x liquid (2)	H.P.	OVERALL LENGTH (mm)	OVERALL LENGTH (inch)	SHELL DIAM.
H-75	5/8" ODS x 1/4" ODS	3/4	310	12 1/8"	51 mm
H-100	5/8" ODS x 3/8" ODS	1	330	13 1/8"	51 mm
H-150	7/8" ODS x 3/8" ODS	1,5	440	17 3/8"	51 mm
H-200	7/8" ODS x 3/8" ODS	2	340	13 1/4"	77 mm
H-300	1 1/8" ODS x 3/8" ODS	3	390	15 1/4"	77 mm
H-750	1 5/8" ODS x 5/8" ODS	7,5	400	15 5/8"	130 mm

SPUN COPPER SERVICE DRIERS

"100% MOLECULAR SIEVE BEADS"

DESCRIPTION

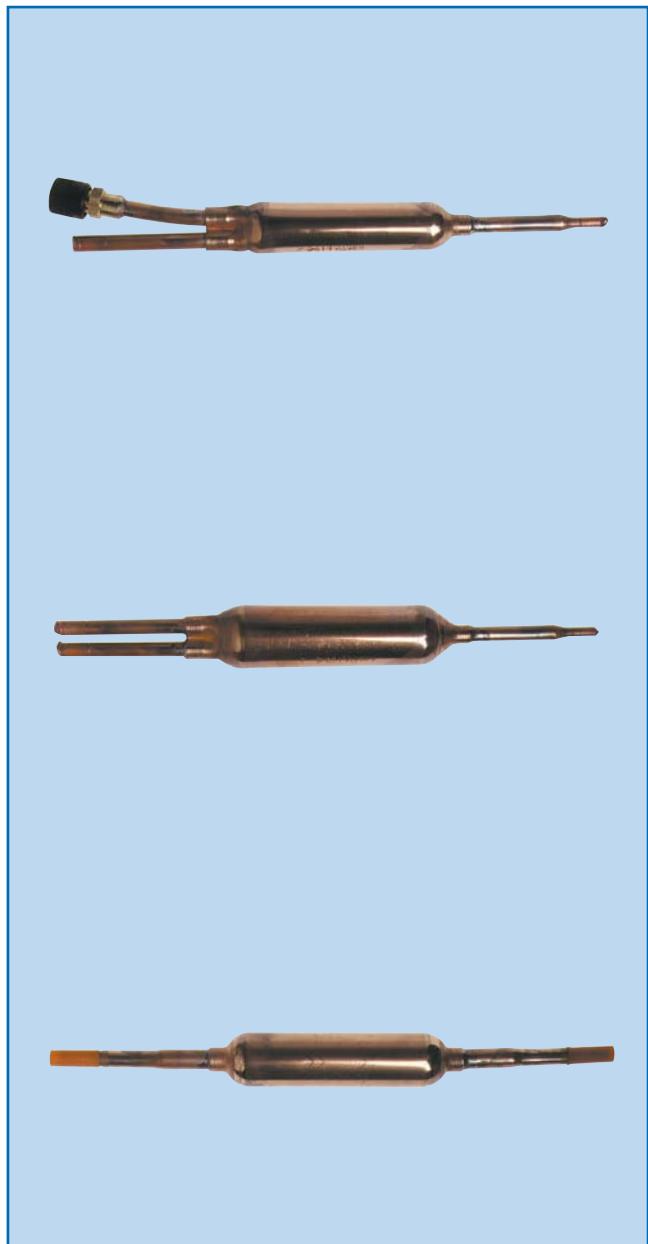
- All copper construction for corrosion resistance.
- OEM's standard tested and 100% molecular sieve beads.
- **IMPORTANT:** Make the difference... This is a real OEM's service drier with heavy duty **SCREEN (104 micron)** for maximum contaminant pick-up and full **SAFETY**.
- Available in a variety of inlet and outlet sizes.
- Tubes easily cut, swaged, flared or bend on the job.
- Grooved ends permit easy break-off to activate drier.

INSTALLATION

- Being professional and when installing a drier, position it vertically with the flow in a downward direction. If installed horizontally, angle the outlet end downward (this allows our outlet **SCREEN** to fully filter contaminants and insure a better secure liquid seal at the inlet).
- Use our capacity tables below (for each drier) to determine adequate drier capacity. This guideline will allow you to obtain a correct drier selection and make your specific system unit **COMPLETELY FREE** of moisture and freeze-up accident.

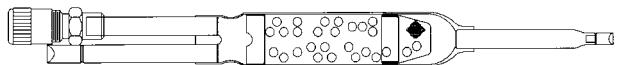
SPECIFICATIONS

- Suitable for all **CFC, HCFC, HFC** and their specific lubricant.
- **U.L. listed** (SA-8570) and **CSA listed** (LR-87950).
- We can also offer assistance for your specific OEM's requirements and quantity needs.
- Working pressure: **35 bar** (500 psi).

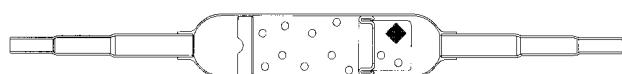


1. "CHARGE-0-VALVE" DRIERS

- Refrigeration capacities shown in kW (1kW = 0,284 US TON of refrigeration).
- Water absorption shown in drop (1 gram of water = 1 cm³ (cubic centimetre) = 20 drops of water).
- For evacuating and charging refrigeration systems not originally equipped with high side access valve.



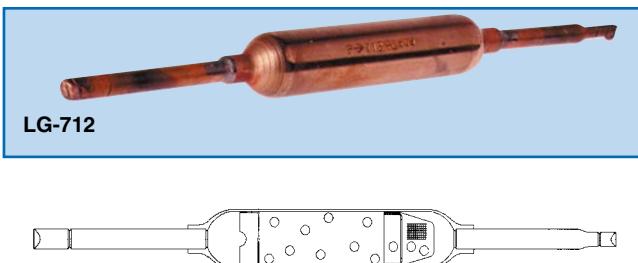
PART NUMBER	INLET TUBE (inch)	OUTLET TUBE CAPPILLARY (inch)	Ø (mm)	LENGTH (mm)	Drier content XH-9	CAPACITY (in drops of water)						REFRIGERATION CAPACITY (kW)	
						R12		R22		R134a		R12 & R134a	R22
						24°C	52°C	24°C	52°C	24°C	52°C		
SPUN-619	1/4"OD x 3/16"ID	,089/.092	19,1	226	10 g.	37,2	35,2	34,0	32,4	32,0	30,0	1,17	1,76
SPUN-621	5/16"OD x 1/4"ID	,127/,130	25,4	228	20 g.	74,4	70,4	68,0	64,8	64,0	60,0	3,52	7,03



2. "MOISTURE MAGNET" DRIERS

- Refrigeration capacities shown in kW (1kW = 0,284 US TON of refrigeration).
- Water absorption shown in drop (1 gram of water = 1 cm³ (cubic centimetre) = 20 drops of water).
- Special for refrigerators, freezers, small commercial units and air conditioners.
- IMPORTANT NOTE:** The MMS-80 is non directional (can be installed in either direction).

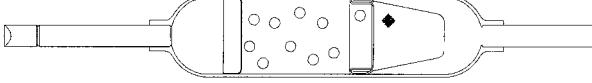
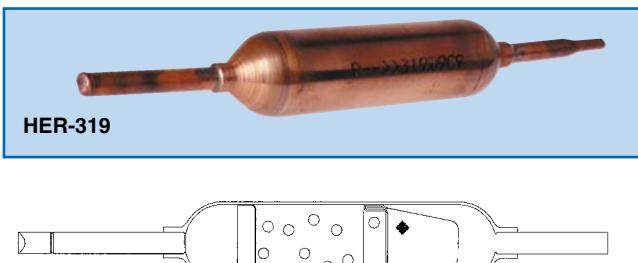
PART NUMBER	INLET TUBE (inch)	OUTLET TUBE (inch)	Ø (mm)	LENGTH (mm)	Drier content XH-9	CAPACITY (in drops of water)						REFRIGERATION CAPACITY (kW)	
						R12		R22		R134a			
						24°C	52°C	24°C	52°C	24°C	52°C	R12 & R134a	R22
MMS-80	1/4"OD x 3/16"ID 1/4"OD x 3/16"ID	1/4"OD x 3/16"ID 1/4"OD x 3/16"ID	19,1	188	10 g.	37,2	35,2	34,0	32,4	32,0	30,0	1,17	1,76
MMS-200	5/16"OD x 1/4"ID 3/8"OD x 5/16"ID	5/16"OD x 1/4"ID 3/8"OD x 5/16"ID	25,4	267	20 g.	74,4	70,4	68,0	64,8	64,0	60,0	2,63	3,52



3. "LITTLE GIANT" DRIER

- Refrigeration capacities shown in kW (1kW = 0,284 US TON of refrigeration).
- Water absorption shown in drop (1 gram of water = 1 cm³ (cubic centimetre) = 20 drops of water).
- General purpose drier for field service work with a capillary size tube outlet.

PART NUMBER	INLET TUBE (inch)	OUTLET TUBE CAPILLARY (inch)	Ø (mm)	LENGTH (mm)	Drier content XH-9	CAPACITY (in drops of water)						REFRIGERATION CAPACITY (kW)	
						R12		R22		R134a			
						24°C	52°C	24°C	52°C	24°C	52°C	R12 & R134a	R22
LG-712	1/4"OD x 3/16"ID	,089 x ,092	19,1	216	10 g.	37,2	35,2	34,0	32,4	32,0	30,0	1,17	1,76



4. "HERCULES" DRIER

- Refrigeration capacities shown in kW (1kW = 0,284 US TON of refrigeration).
- Water absorption shown in drop (1 gram of water = 1 cm³ (cubic centimetre) = 20 drops of water).
- Used for air conditioners, large freezers and food cases (39 cm² (6 sq. inch) dual SCREEN).

PART NUMBER	INLET TUBE (inch)	OUTLET TUBE (inch)	Ø (mm)	LENGTH (mm)	Drier content XH-9	CAPACITY (in drops of water)						REFRIGERATION CAPACITY (kW)	
						R12		R22		R134a			
						24°C	52°C	24°C	52°C	24°C	52°C	R12 & R134a	R22
HER-319	5/16"OD	,127 x ,130	30,2	247,7	30 g.	111,6	105,6	102,0	97,2	96,0	91,0	3,52	7,04

LIQUID FILTER - DRIERS

"THE ORIGINAL 3 CLASSIC FUNCTIONS"

FEATURES

- The **US series** is a revolutionary design that uses a combination of a solid core, **XH-9** beaded Molecular Sieve desiccant or similar and activated aluminium. This gives a very high mechanical strength unit to provide an outstanding filtering capability, high moisture absorption and high organic and inorganic acid removal.

SPECIFICATIONS

- For **R12, R22, R502, R134a, R404A, R407C, R410A, R507**, etc... and all **CFC, HCFC & HFC** with their specific lubricants.
- System filtration down to **5 microns**.
- Nickel plated "**SAE flare**" and solid copper "**ODS**" fittings.
- Steel shell and corrosion resistant paint. Shock resistant.
- CE** approved (PED).
- Safe working pressure: **46 bar** (660 psi).
- Minimum burst pressure: **175 bar** (2500 psi).

SELECTION TABLE 1: FLOW CAPACITY

PART NUMBER	CONNECTION	Length (mm)	Body Ø	FILTER SURFACE (cm ²)	FLOW CAPACITY at 0,07 bar PRESSURE DROP (in kW)			
					R134a	R22 R407C	R410A	R404A R507
US-032	1/4" Flare SAE	112	41,0	66,0	6,7	7,4	7,0	4,9
US-032-S	1/4" O.D.S.	97			8,1	8,8	8,4	6,0
US-033-S	3/8" O.D.S.	102			10,5	11,6	11,2	7,7
US-052	1/4" Flare SAE	122	64,0	104,0	7,0	7,7	7,4	4,9
US-052-S	1/4" O.D.S.				10,2	10,9	10,9	7,4
US-053	3/8" Flare SAE	130			13,0	14,0	13,7	9,5
US-053-S	3/8" O.D.S.	113			15,8	17,2	16,8	11,6
US-082	1/4" Flare SAE	143	64,0	144,0	7,0	7,7	7,4	4,9
US-082-S	1/4" O.D.S.	120			10,9	11,9	11,6	7,7
US-083	3/8" Flare SAE	155			15,1	16,5	16,1	10,9
US-083-S	3/8" O.D.S.	134			14,7	16,1	15,8	10,5
US-084	1/2" Flare SAE	156			23,5	25,6	24,9	17,2
US-084-S	1/2" O.D.S.				24,5	26,6	25,9	17,9
US-162	1/4" Flare SAE	167	64,0	206,0	7,0	7,7	7,4	4,9
US-163	3/8" Flare SAE	175			15,4	16,8	16,5	11,2
US-163-S	3/8" O.D.S.	158			17,2	18,6	18,2	12,6
US-164	1/2" Flare SAE	181			29,1	31,5	30,8	21,0
US-164-S	1/2" O.D.S.	159			30,1	32,6	31,9	21,7
US-165	5/8" Flare SAE	192			41,3	44,8	43,8	30,1
US-165-S	5/8" O.D.S.	166	76,0	364,0	45,9	49,7	48,7	33,3
US-303	3/8" Flare SAE	243			16,5	17,9	17,5	11,9
US-304	1/2" Flare SAE	249			30,1	32,6	31,9	21,7
US-304-S	1/2" O.D.S.	227			30,8	33,3	32,9	22,4
US-305	5/8" Flare SAE	260			48,3	52,5	51,5	35,0
US-305-S	5/8" O.D.S.	234			50,8	55,0	53,9	36,8
US-307-S	7/8" O.D.S.	249	89,0	446,0	60,9	66,2	64,8	44,1
US-414	1/2" Flare SAE	253			34,3	37,1	36,4	24,9
US-415	5/8" Flare SAE	264			54,6	59,2	58,1	39,6
US-415-S	5/8" O.D.S.	238			57,8	62,7	61,3	42,0
US-417-S	7/8" O.D.S.	253			71,1	77,0	76,0	51,5
US-419-S	1 1/8" O.D.S.	253			88,2	95,6	93,8	64,1

REMARKS:

- All ratings in accordance with AHRI standard 710.
- Capacities shown in kW (1 kW = 860 Fg/h = 0,284 US TON of refrigeration).
- Liquid refrigerant temperature = 30°C (86°F).
- Saturated Vapour Temperature = -15°C (5°F).
- 1 cm² = 0,155 square Inch.

CE



US-164


SELECTION TABLE 2: WATER AND ACID ABSORPTION CAPACITY

PART NUMBER	CONNECTION	Length (mm)	Body Ø	FILTER SURFACE (cm²)	Water capacity in grams of water										Acid absorption capacity in gr.	
					R22		R134a		R404A		R410A		R407C			
					24°C (75°F)	52°C (125°F)	24°C (75°F)	52°C (125°F)	24°C (75°F)	52°C (125°F)	24°C (75°F)	52°C (125°F)	24°C (75°F)	52°C (125°F)		
US-032	1/4" Flare SAE	112														
US-032-S	1/4" O.D.S.	97	41,0	66,0	2,8	2,7	2,7	2,5	2,9	2,8	1,9	1,5	2,3	1,9	0,3	
US-033-S	3/8" O.D.S.	102														
US-052	1/4" Flare SAE	122														
US-052-S	1/4" O.D.S.															
US-053	3/8" Flare SAE	130	64,0	104,0	7,5	7,0	7,0	6,6	7,7	7,5	4,9	3,9	6,0	4,9	0,8	
US-053-S	3/8" O.D.S.	113														
US-082	1/4" Flare SAE	143														
US-082-S	1/4" O.D.S.	120														
US-083	3/8" Flare SAE	155	64,0	144,0	10,3	9,7	9,7	9,1	10,6	10,3	6,8	5,3	8,2	6,8	1,1	
US-083-S	3/8" O.D.S.	134														
US-084	1/2" Flare SAE	156														
US-084-S	1/2" O.D.S.															
US-162	1/4" Flare SAE	167														
US-163	3/8" Flare SAE	175														
US-163-S	3/8" O.D.S.	158	64,0	206,0	14,9	14,1	14,1	13,2	15,3	14,9	9,9	7,7	12,0	9,9	1,6	
US-164	1/2" Flare SAE	181														
US-164-S	1/2" O.D.S.	159														
US-165	5/8" Flare SAE	192														
US-165-S	5/8" O.D.S.	166														
US-303	3/8" Flare SAE	243														
US-304	1/2" Flare SAE	249														
US-304-S	1/2" O.D.S.	227	76,0	364,0	8,5	8,3	8,3	8,1	8,6	8,5	7,3	6,8	7,8	7,3	13,8	
US-305	5/8" Flare SAE	260														
US-305-S	5/8" O.D.S.	234														
US-307-S	7/8" O.D.S.	249														
US-414	1/2" Flare SAE	253														
US-415	5/8" Flare SAE	264														
US-415-S	5/8" O.D.S.	238	89,0	446,0	13,1	12,8	12,8	12,5	13,2	13,1	11,2	10,4	12,0	11,2	21,2	
US-417-S	7/8" O.D.S.	253														
US-419-S	1 1/8" O.D.S.	253														

REMARKS:

- Water capacities are based on EPD (Equilibrium Point Dryness) of : 50 ppm R134a, R404A, R410A & R407C and 60 ppm R22.
- 1 cc = 1 gram = 20 drops of water.
- 1 cm² = 0,155 square Inch.

REVERSIBLE "HEAT-PUMP" FILTER-DRIERS

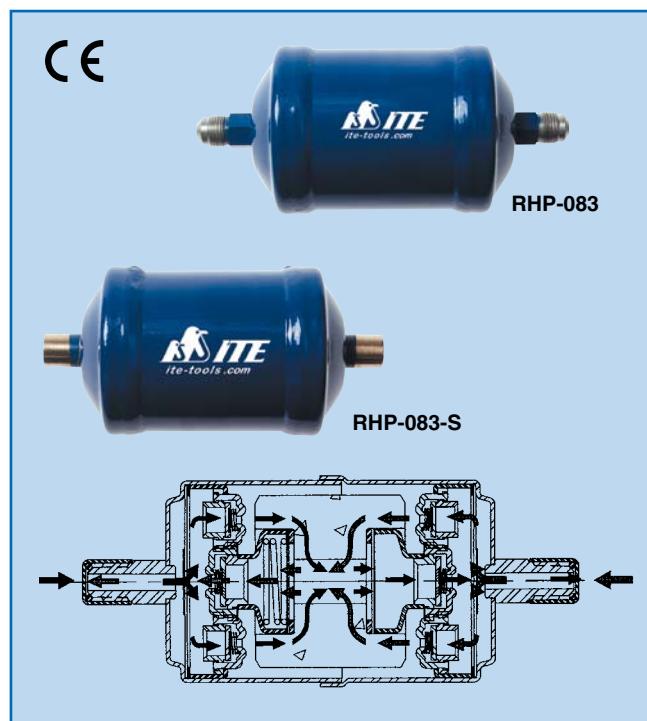
"THE BI-DIRECTIONAL FLOW SOLID CORE"

FEATURES

- For use in HEAT PUMP or REVERSIBLE cycle applications, **RPH HEAT PUMP DRIERS series** are designed to function in both directions of flow in the reversing liquid line.
- Proven nylon internal CHECK-VALVE filtering in both ways.
- Solid block desiccant core with high organic and inorganic ACID REMOVAL (activated alumina) and High MOISTURE REMOVAL (molecular sieve).
- The addition of activated charcoal to the desiccant core allows for the REMOVAL of WAX that may occur at low temperatures, giving protection to your expansion device.

SPECIFICATIONS

- For R12, R22, R502, R134a, R404A, R407C, R410A, R507, etc... and all CFC, HCFC & HFC with their specific lubricants.
- Nickel plated "SAE flare" and solid copper "ODS" fittings.
- Steel shell and corrosion resistant paint. Shock resistant.
- System filtration down to **10 microns**.
- CE** approved (PED).
- Safe working pressure: **46 bar** (660 psi).
- Minimum burst pressure: **175 bar** (2500 psi).

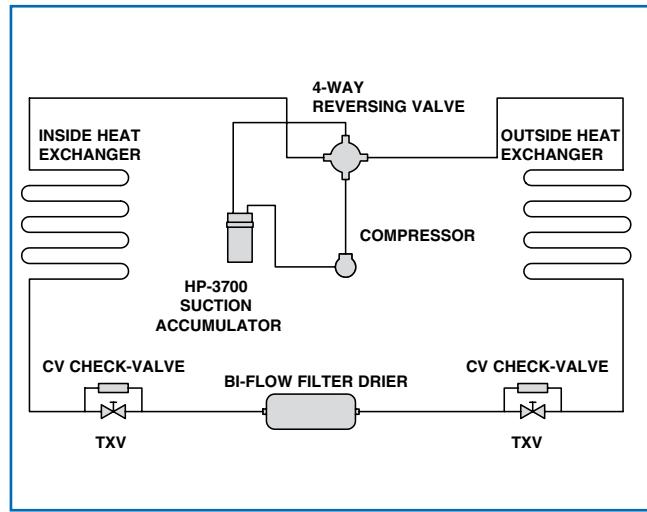


LIQUID SELECTION - CAPACITY TABLE - ORDERING.

PART NUMBER	CONNECTION	Flow capacity at 0,07 bar pressure drop (in kW)					Water capacity in grams of water									
		R22		R134a		R404A		R22		R134a		R404A		R407C		
		24°C (75°F)	52°C (125°F)	24°C (75°F)	52°C (125°F)	24°C (75°F)	52°C (125°F)	24°C (75°F)	52°C (125°F)	24°C (75°F)	52°C (125°F)	24°C (75°F)	52°C (125°F)	24°C (75°F)	52°C (125°F)	
RHP-082S	1/4" O.D.S.	4,90	4,55	4,90	2,80	4,55	3,5	3,2	3,8	3,5	4,0	3,7	2,8	2,1	2,2	1,5
RHP-083	3/8" Flare SAE	11,20	10,15	11,55	6,65	10,15										
RHP-083-S	3/8" O.D.S.	13,65	12,25	14,00	8,05	12,25										
RHP-084	1/2" Flare SAE	16,80	15,05	17,15	10,15	15,05										
RHP-084-S	1/2" O.D.S.	17,50	15,75	17,85	10,50	15,75										
RHP-163	3/8" Flare SAE	12,95	11,55	13,30	7,70	11,55	5,2	4,7	5,6	5,1	5,8	5,5	4,1	3,1	3,2	2,2
RHP-163-S	3/8" O.D.S.	14,70	13,30	15,05	8,75	13,30										
RHP-164	1/2" Flare SAE	20,30	18,20	20,65	12,25	18,20										
RHP-164-S	1/2" O.D.S.	24,50	22,05	24,85	14,70	22,05										
RHP-165	5/8" Flare SAE	31,50	28,35	32,20	18,90	28,35										
RHP-165-S	5/8" O.D.S.	35,00	31,50	35,70	21,00	31,50										

REMARKS

- Capacities shown in kW (1 kW = 860 Fg/h = 0,284 US TON of refrigeration).
- 1 cc = 1 gram = 20 drops of water.
- 1 cm² = 0,155 square Inch.
- All ratings in accordance with AHRI standard 710.
- Water capacities are based on EPD (Equilibrium Point Dryness) of: 50 ppm R134a, R404A, R410A & R407C and 60 ppm R22.
- Liquid refrigerant temperature = 30°C (86 °F).
- Saturated Vapour Temperature = -15°C (5 °F).
- RPH REVERSIBLE HEAT PUMP DRIERS** may be installed in any position.
- In case of "BURN OUT" compressor (heat pump unit), do the following:
 - Remove all existing filters and driers.
 - Test a sample of oil from the compressor (see "**acid test kits**" procedure), page 199.
 - Clean the system if necessary and change the oil charge.
 - Install a new **RHP reversible heat pump drier**.
 - Install an **SSL suction filter-drier** in addition to the liquid line drier.
 - Check again compressor oil and the moisture indicator during the week after.





SSL-084S

PART NUMBER		CONN. DIAM.	DESICCANT VOLUME (cm³)	DIMENSIONS (in mm)		
FLARE	O.D.S.			Ø	FLARE	O.D.S.
SSL-083		3/8"	131		155	
SSL-084	SSL-084-S	1/2"	131	64	161	139
SSL-165	SSL-165-S	5/8"	262		191	166
	SSL-166-S	3/4"	262			177
	SSL-307-S	7/8"	492	76	249	
	SSL-419-S	1 1/8"	672	89	252	
	SSL-4811-S	1 3/8"	787		266	
	SSL-4813-S	1 5/8"	787	114	265	

NOTE: To obtain cubic Inch, divide cm³ by **16,38** coefficient divisor
EXAMPLE: 131 cm³ / **16,38** = 8 cubic inch.

SUCTION LINE FILTER-DRIERS

"LOW PRESSURE DROP SOLID CORE"

SUCTION LINE FILTERS FOR USE AFTER A "COMPRESSOR BURNOUT"

FEATURES

- **SSL series suction line filter-driers** are designed to clean up refrigerant systems to prevent, or be used after, a **compressor burnout**.
- It removes solid **contaminants**, harmful **organic** and **inorganic acids** as well as providing **dirt filtering** after motor burn out replacements. Also, it will collect and hold any dirt and sludge that is in the suction line and the Evaporator at start up. Ideal in remote system installation with long refrigerant lines. Any "professional field built-up" system needs this kind of protection.
- The **SSL series** are equipped with an access valve on **each end** for true and accurate pressure drop readings across the drier.
- An inlet deflector spreads the gas flow even across the molded core to provide full filtration capacity and to prevent core's erosion.

INSTALLATION

- **SSL series suction line filter-driers** may be installed in any position in the suction line, as close to the compressor as possible and ahead of the suction accumulator if any.
- In low temperature applications, **SSL** driers should be installed in a vertical position (flow in a downward direction) to prevent oil accumulation.

SPECIFICATIONS

- For R12, R22, R502, R134a, R404A, R407C, R410A, R507, etc... and all CFC, HCFC & HFC with their specific lubricants.
- **Important:** Capacities rated in accordance with **ARI std 730-86**.
- Nickel plated "**SAE flare**" and solid copper "**ODS**" fittings.
- Dual Access Valves for true and accurate pressure drop readings.
- Steel shell and corrosion resistant paint. Shock resistant.
- **CE** approved (PED).
- System filtration down to **10 microns**.
- Maximum temperature rating: **107°C** (225°F).
- Safe working pressure: **43 bar** (620 psi).
- Minimum burst pressure: **175 bar** (2500 psi).

SUCTION LINE CAPACITY SELECTION AFTER A "COMPRESSOR BURNOUT".

CAPACITIES SHOWN IN kW (1 kW = 860 Fg/h = 0,284 US TON of refrigeration).

REFRIGERANTS		R12				R22				R404A / R507				R134a				
EVAPORATING TEMPERATURE (°C)		-30°	-18°	-7°	+5°	-30°	-18°	-7°	+5°	-30°	-18°	-7°	+5°	-30°	-18°	-7°	+5°	
PRESSURE DROP in bar (psi)		0,04	0,07	0,10	0,14	0,07	0,10	0,14	0,21	0,07	0,10	0,14	0,21	0,04	0,07	0,10	0,14	
PART NUMBER		CONN. DIAM.	(0,5)	(1,0)	(1,5)	(2,0)	(1,0)	(1,5)	(2,0)	(3,0)	(1,0)	(1,5)	(2,0)	(3,0)	(0,5)	(1,0)	(1,5)	(2,0)
FLARE	O.D.S.																	
SSL-083		3/8"	0,7	1,1	2,1	2,4	1,1	1,4	2,1	3,2	0,9	1,6	2,4	4,1	0,3	0,7	1,4	2,1
SSL-084	SSL-084-S	1/2"	1,5	2,4	3,9	4,9	2,2	3,6	5,1	8,8	2,2	3,7	3,9	8,2	1,0	2,2	3,5	5,3
SSL-165	SSL-165-S	5/8"	1,7	2,8	4,6	6,5	3,5	5,2	7,7	11	3,6	5,0	7,0	12	1,5	3,1	5,0	7,5
	SSL-166-S	3/4"	2,6	5,2	7,0	10	5,2	8,7	12	17	3,7	5,3	9,1	14	2,1	3,8	6,3	9,1
	SSL-307-S	7/8"	2,8	4,9	7,7	12	6,0	9,1	14	21	5,5	8,6	12	20	2,8	5,6	8,8	13
	SSL-419-S	1 1/8"	2,8	4,2	13	16	8,4	13	19	30	7,6	12	18	28	4,2	7,7	12	19
	SSL-4811-S	1 3/8"	4,9	9,8	15	23	12	18	27	42	10,7	17	26	40	5,6	10	18	26
	SSL-4813-S	1 5/8"	6,0	10	16	26	13	20	30	46	11,6	19	28	44	6,3	12	19	30

REMARKS: • The above recommended capacities fairly reflect field replacement or installation.

- Lab conditions would give approximate double values.
- Rating in accordance with **ARI standard 730-86**.
- Above corresponding evaporating temperatures: (-30°C = -20°F) (-18°C = 0°F) (-7°C = +20°F) (+5°C = +40°F).
- Above corresponding press. drop: (0,04 bar = 0,5 psi) (0,07 bar = 1 psi) (0,10 bar = 1,5 psi) (0,14 bar = 2 psi) (0,21 bar = 3 psi).

COMPACT SUCTION LINE FILTER-DRIERS

"LOW PRESSURE DROP SOLID CORE"

FEATURES

- The **CSL series suction line filter-driers** are designed to clean up your refrigerant system to prevent, or be used after, a compressor burnout.
- It removes solid contaminants and harmful organic and inorganic acids as well as providing a full dirt filtering and motor burnout applications. Ideal in remote system installation with long refrigerant lines. Any field built-up system needs this kind of protection.
- The **CSL series** are equipped with an access valve on each end for accurate pressure drop readings across the drier.
- An inlet deflector spreads the refrigerant flow evenly across the molded core to provide full filtration capacity and to prevent erosion of the core. It is compact and ideal for limited room installation. Placed between the reversing valve (heat pump unit) and the compressor, it is also ideal to protect the reversible system.

INSTALLATION

- The **CSL series suction line filter-driers** may be installed in any position in the suction line, as close to the compressor as possible and ahead of the suction line accumulator if any.
- In low temperature applications, the **CSL** drier should be installed in a vertical position with the flow in a downward direction to prevent oil accumulation.

SPECIFICATIONS

- For R12, R22, R502, R134a, R404A, R407C, R410A, R507, etc... and all CFC, HCFC & HFC with their specific lubricants.
- Solid copper "ODS" fittings.
- Shock resistant steel shell and corrosion resistant paint.
- Dual access valve for pressure drop reading.
- CE** approved (PED).
- System filtration down to **10 microns**.
- Maximum temperature rating: **107°C** (225°F).
- Safe working pressure: **35 bar** (500 psi).
- Minimum burst pressure: **175 bar** (2500 psi).

SUCTION LINE SELECTION - CAPACITY TABLE - ORDERING.

CAPACITIES SHOWN IN kW (1 kW = 860 Fg/h = 0,284 US TON of refrigeration).

REFRIGERANTS		R12				R22				R502			
EVAPORATING TEMPERATURE (°C)		-30°	-18°	-7°	+5°	-30°	-18°	-7°	+5°	-40°	-30°	-18°	-7°
PART NUMBER O.D.S. CONNECTIONS	CONN. DIAM.	0,04 (0,5)	0,07 (1,0)	0,10 (1,5)	0,14 (2,0)	0,07 (1,0)	0,10 (1,5)	0,14 (2,0)	0,21 (3,0)	0,04 (0,5)	0,07 (1,0)	0,10 (1,5)	0,14 (2,0)
CSL-144-S	1/2"	0,70	1,41	2,46	3,86	2,11	3,16	4,57	7,03	0,70	1,41	2,46	3,52
CSL-145-S	5/8"	1,76	2,46	4,57	7,03	3,62	5,63	8,44	12,7	1,41	2,81	4,57	6,58
CSL-146-S	3/4"	2,11	3,52	6,83	9,49	4,92	7,74	11,3	17,8	2,11	3,87	5,98	9,14
CSL-147-S	7/8"	2,46	4,21	7,03	10,8	5,87	8,08	12,0	18,3	2,11	3,87	6,68	9,85
CSL-149-S	1 1/8"	2,81	5,63	9,14	13,7	7,03	10,9	16,2	24,6	2,81	5,87	8,79	13,0

REFRIGERANTS		R134a				R407C				R404A & R507			
EVAPORATING TEMPERATURE (°C)		-30°	-18°	-7°	+5°	-30°	-18°	-7°	+5°	-40°	-30°	-18°	-7°
PART NUMBER O.D.S. CONNECTIONS	CONN. DIAM.	0,04 (0,5)	0,07 (1,0)	0,10 (1,5)	0,14 (2,0)	0,07 (1,0)	0,10 (1,5)	0,14 (2,0)	0,21 (3,0)	0,04 (0,5)	0,07 (1,0)	0,10 (1,5)	0,14 (2,0)
CSL-144-S	1/2"	1,05	1,76	3,16	4,57	1,76	2,81	4,23	6,68	0,70	1,05	1,76	2,81
CSL-145-S	5/8"	1,76	3,16	5,87	8,09	3,16	4,92	7,74	12,0	1,05	2,46	3,87	5,98
CSL-146-S	3/4"	2,46	4,57	7,38	10,9	4,21	7,03	10,6	16,5	1,76	3,16	5,87	8,09
CSL-147-S	7/8"	2,46	4,92	7,74	11,6	4,57	7,38	10,9	17,8	1,76	3,16	5,87	8,09
CSL-149-S	1 1/8"	3,52	6,33	10,6	15,8	5,98	9,85	14,8	23,2	2,46	4,57	7,03	10,9

REMARKS: • The above recommended capacities reflect field replacement or installation.

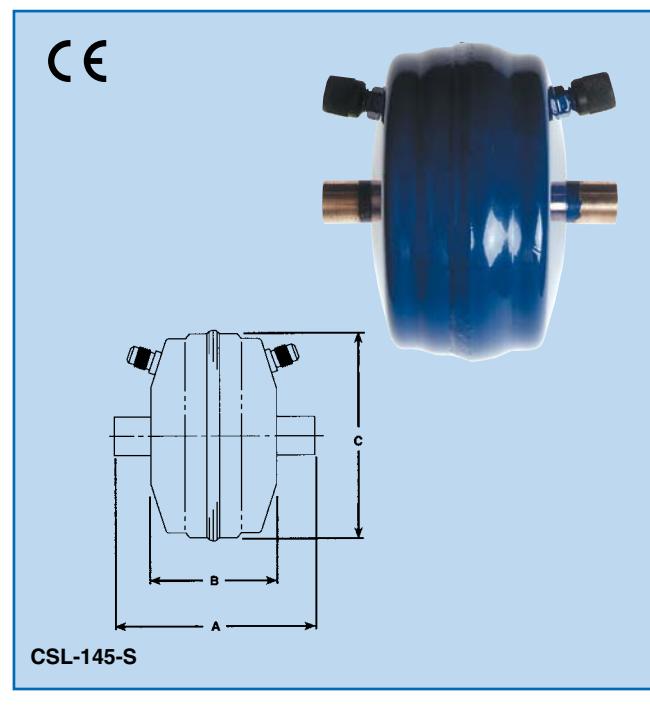
Lab conditions would give approximatively double values.

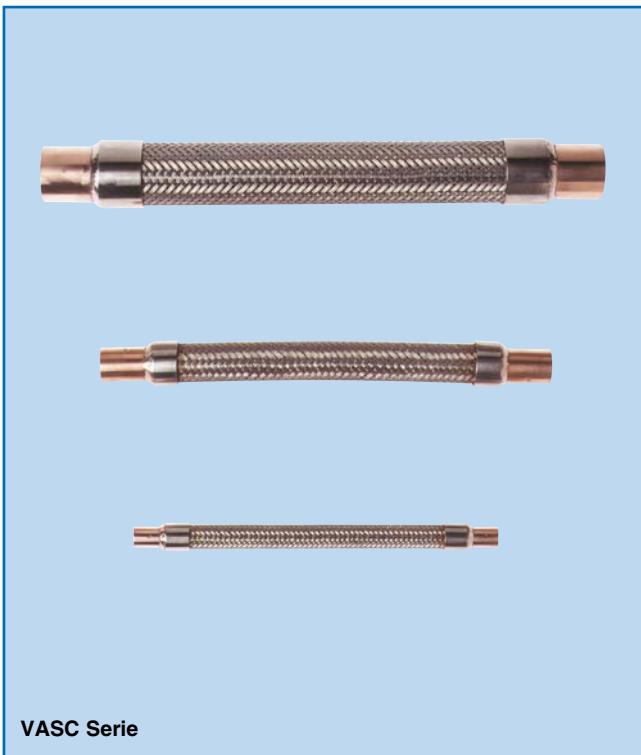
• Rating in accordance with **ARI standard 730-86**.

• Above corresponding evaporating temperatures: (-40°C = -40°F) (-30°C = -20°F) (-18°C = 0°F) (-7°C = +20°F) (+5°C = +40°F).

• Above corresponding press. drop: (0,04 bar = 0,5 psi) (0,07 bar = 1 psi) (0,10 bar = 1,5 psi) (0,14 bar = 2 psi) (0,21 bar = 3 psi).

• Also: 1 cm² = 0,155 square inch).





VIBRATION SHOCK MOUNT ABSORBERS

INSIDE CORRUGATED TUBE
STAINLESS STEEL type SUS 304.

WIRE BRAID
STAINLESS STEEL type SUS 304.

FERRULE
STAINLESS STEEL type SUS 304.

CONNECTIONS

- VASC series: copper connections
- VAS series: Stainless steel connections

REFRIGERANTS

- All blended and CFC, HCFC, HFC and their lubricants.

TESTS

- PED 97/23/EC

ATTENTION

- A vibration absorber *IS NOT* a hose or a flexible compensator.
- Do not bend it before installation or at any time. Install it "*in line*". It does not eliminate any kind of unchecked vibrations but can damp residual vibrations uncontrolled first.

WHY A VIBRATION ABSORBER ?

Vibration absorbers are designed for installation in the suction and discharge line of air conditioning & refrigeration systems to dampen the transmission of compressor-induced vibration (if not properly or totally eliminated first), through system piping.

WHERE AND HOW IT SHOULD BE INSTALLED ?

The vibration absorber functions best when installed as close to the compressor as possible, and perpendicular to the major vibration direction as shown in illustration (horizontal and/or vertical motion). Two units could be eventually necessary.

DO NOT FORGET CORRECT ANCHOR INSTALLATION:

For optimum vibration absorption and safety, the refrigeration line should be anchored at the end of the unit furthest from the vibration source (see drawing).

Care should be taken to allow sufficient space avoiding static compression and/or tension after soldering.

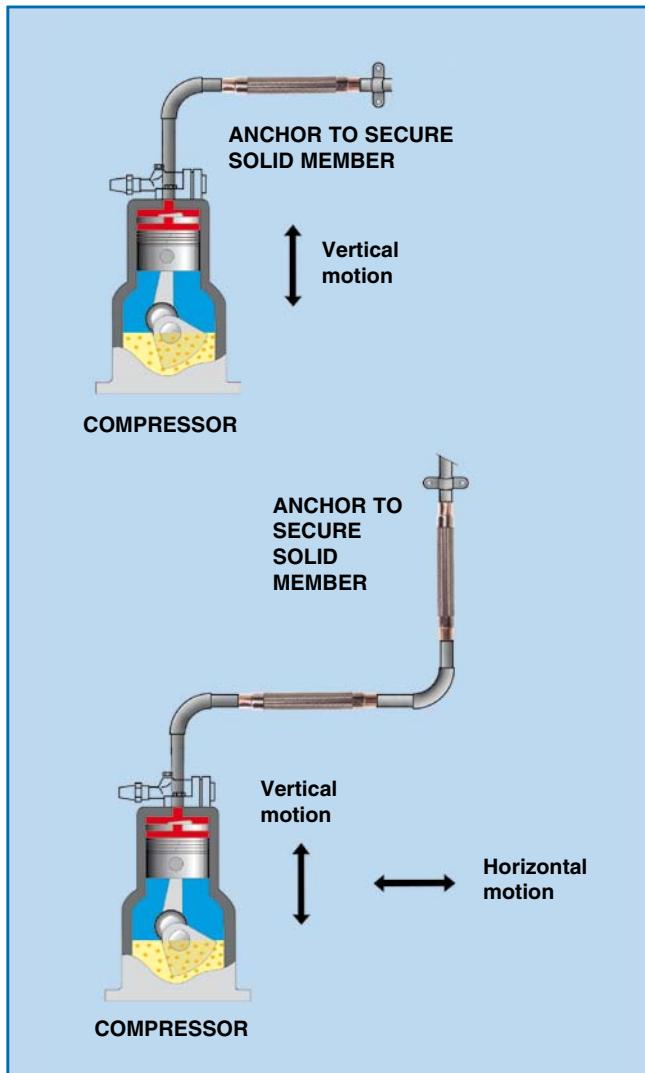
"IN LINE INSTALLATION":

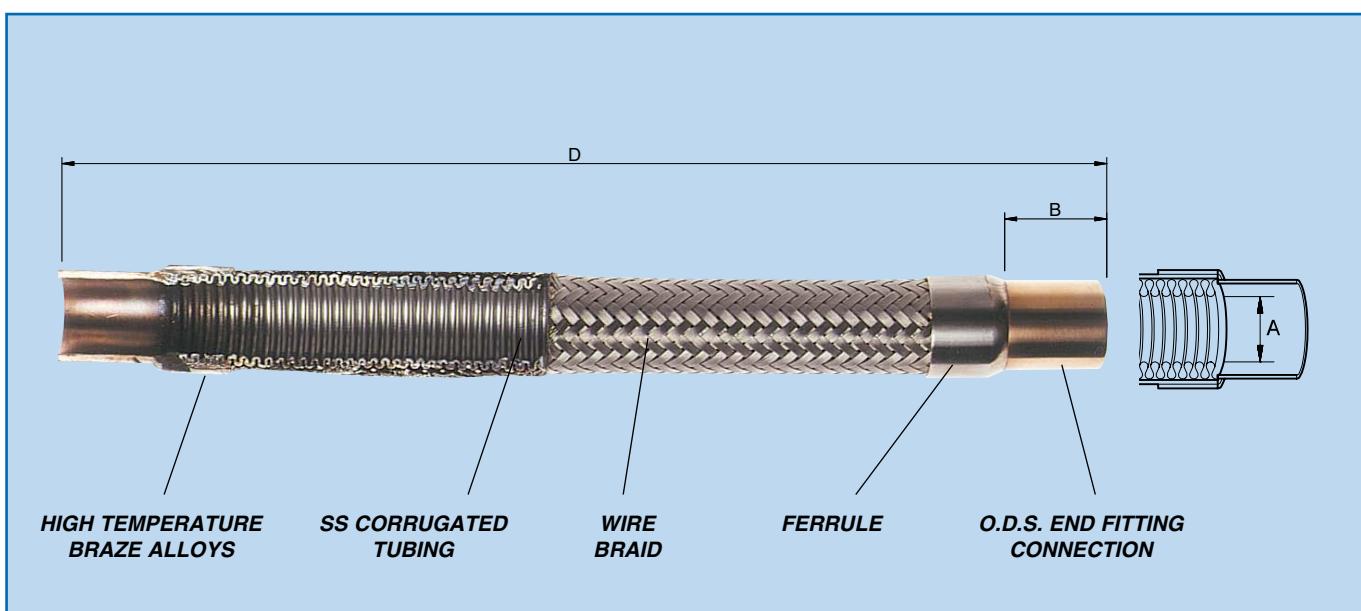
Unit should be installed in a straight line as **they are not intended to compensate for offset piping!**

NOTE: The torch soldering flame should always be directed away from the ferrules of the vibration absorber.

SPECIFICATIONS

- Vibration absorbers are manufactured of deep pitch corrugated tubing (see next page drawing) for vibration absorption covered by high tensile wire braid for superior strength. Tubing and braid are reinforced by ferrules at each end and are proof connected to female copper ODS fitting connections by high temperature electric oven braze alloys. The units are designed for making sweat, quick and easy connections to refrigerant piping.
- Operating temperature: -40°C to +120°C.





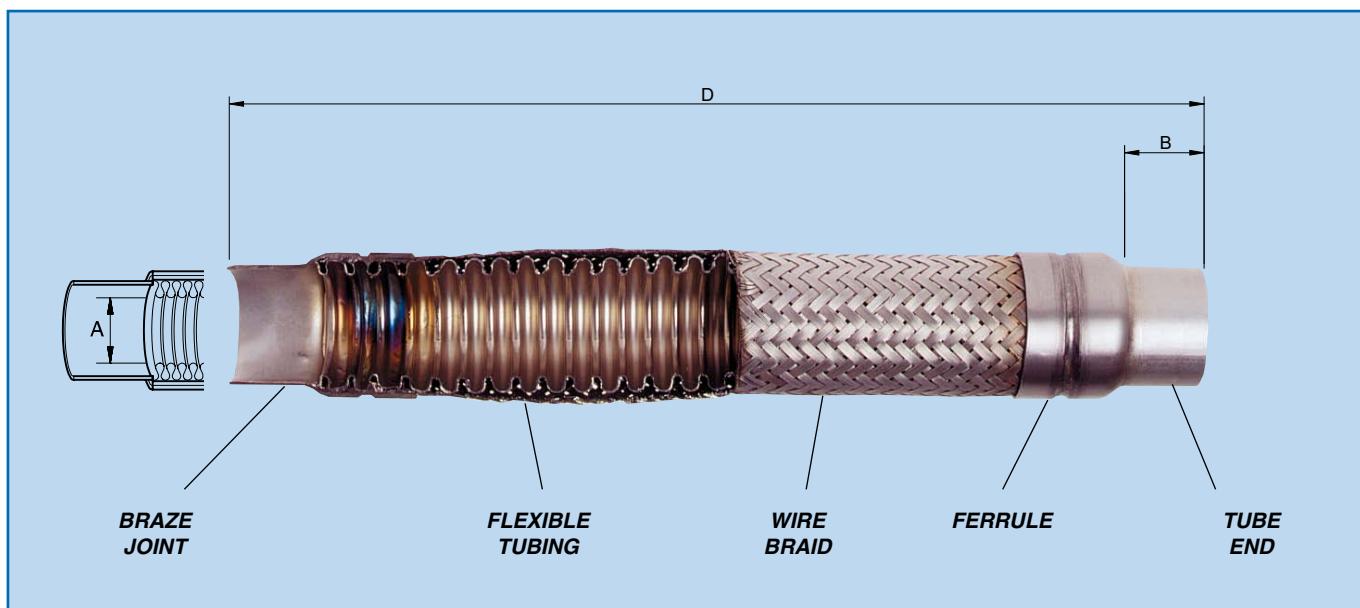
1. COPPER ENDS VERSION

PART NUMBER	END O.D.S. CONNECT (inch)	DIMENSIONS (mm)			Maximum working pressure (bar)
		A	B	D	
VASC-01	1/4"	6,70	15,90	177,80	45
VASC-02	1/4"	6,70	15,85	190,50	45
VASC-03	3/8"	9,60	15,87	209,60	45
VASC-04	1/2"	12,80	19,05	228,60	45
VASC-05	5/8"	16,20	22,22	247,60	45
VASC-06	3/4"	19,20	28,58	254,00	45
VASC-07	3/4"	19,20	28,57	285,70	45
VASC-08	7/8"	22,50	30,17	292,10	45
VASC-09	1 1/8"	28,80	33,35	330,20	41
VASC-10	1 3/8"	35,30	36,50	374,60	38
VASC-11	1 5/8"	41,70	47,63	431,80	35
VASC-82	2 1/8"	54,50	60,33	508,00	28
VASC-83	2 5/8"	67,00	76,20	609,60	24
VASC-84	3 1/8"	79,60	88,90	685,80	22
VASC-85	3 5/8"	92,50	101,60	685,80	13
VASC-86	4 1/8"	104,90	114,30	838,20	13

NOTE: 1 bar = 14,5 psi

PART NUMBER	END O.D.S. CONNECT (mm)	DIMENSIONS (mm)			Maximum working pressure (bar)
		A	B	D	
VASC-10 mm	10	10,20	16,00	210,00	45
VASC-12 mm	12	12,20	19,00	229,00	45
VASC-16 mm	16	16,20	22,50	248,00	45
VASC-18 mm	18	18,30	28,50	286,00	45
VASC-22 mm	22	22,50	30,00	292,00	45
VASC-28 mm	28	28,30	33,00	330,00	41
VASC-35 mm	35	35,30	36,50	375,00	38
VASC-42 mm	42	42,50	47,50	432,00	35
VASC-54 mm	54	54,50	60,50	508,00	28

NOTE: 1 bar = 14,5 psi.



2. COMPLETE "ITE" STAINLESS STEEL VERSION

PART NUMBER	END O.D.S. CONNECT (inch)	DIMENSIONS (mm)			Maximum working pressure (bar)
		A	B	D	
VAS-01	1/4"	6,70	15,90	177,80	45
VAS-03	3/8"	9,60	15,87	209,60	45
VAS-04	1/2"	12,80	19,05	228,60	45
VAS-05	5/8"	16,20	22,22	247,60	45
VAS-06	3/4"	19,20	28,58	254,00	45
VAS-08	7/8"	22,50	30,17	292,10	45
VAS-09	1 1/8"	28,80	33,35	330,20	41
VAS-10	1 3/8"	35,30	36,50	374,60	38
VAS-11	1 5/8"	41,70	47,63	431,80	35
VAS-82	2 1/8"	54,50	60,33	508,00	28
VAS-83	2 5/8"	67,00	76,20	609,60	24
VAS-84	3 1/8"	79,60	88,90	685,80	22
VAS-86	4 1/8"	104,90	114,30	838,20	13

NOTE: 1 bar = 14,5 psi

PART NUMBER	END O.D.S. CONNECT (mm)	DIMENSIONS (mm)			Maximum working pressure (bar)
		A	B	D	
VAS-10 mm	10	10,20	16,00	210,00	45
VAS-12 mm	12	12,20	19,00	229,00	45
VAS-16 mm	16	16,20	22,50	248,00	45
VAS-18 mm	18	18,30	28,50	286,00	45
VAS-22 mm	22	22,50	30,00	292,00	45
VAS-28 mm	28	28,30	33,00	330,00	41
VAS-35 mm	35	35,30	36,50	375,00	38
VAS-42 mm	42	42,50	47,50	432,00	35
VAS-54 mm	54	54,50	60,50	508,00	28

NOTE: 1 bar = 14,5 psi.

LIQUID or SUCTION 3 FUNCTION SHELLS

"UNIVERSAL FILTER-DRIER SHELLS"

DESCRIPTION

- For **R12, R22, R502, R134a, R404A, R407C, R410A, R507** and other blends with their specific oil and lubricant.
- For **R717 (NH₃ ammonia)**: steel connections only.
- These drier shells offer a complete protection and receive all our cores as well as other existing cores in the market.
- **Steel corrosion resistant finish** for shells.
- **3 function cores** not furnished with shells (see page 237).
- **Copper fittings or steel fittings** connections on demand.
- Also, drier shells can be supplied nickel plated finished (20 pieces minimum) to replace brass shell applications (supermarkets, breweries, chemical plants, etc...).
- All our shells (or others) can be fitted in minutes with the unique **QUICK-CAP COVER**. See below.
- Std. flange cover is made with allied aluminium and bolted with steel bolts (std liquid line).

LIQUID or SUCTION LINE SELECTION & INSTALLATION

- **For LIQUID LINE:** Shells may be installed in any position.
 Best if installed as close as possible to any expansion device.
 Best if installed upstream solenoid valves (for protection) and moisture indicator (for permanent readings of cores efficiency).
- **For SUCTION LINE:** Best if installed as close as possible to the compressor but upstream of the accumulator, if any.
- **For FAST CORE REPLACEMENT:** allow a minimum of 10" (25 cm) free space above the flange cover so that you can easily remove it and retract the filter core. You can mount on the cover all kind of different hand valves, service valves or access valves by using the predrilled 1/4" NPT threaded connection (is actually plugged).

SPECIFICATIONS

- Our drier shells receive type **824, 848** and **810** cores (24, 48 and 100 cubic inch cores, see page 237).
- **CE** approved (PED).
- Maximum working pressure,
 between -10 °C and + 65°C: 34,5 bar (500 psi)
 between -45 °C and - 10°C: 25,9 bar (375 psi)
- Burst pressure: **175 bar** (2500 psi).
- Maximum temperature rating: **135°C** (275°F).

CE



US-487

KIT	SPARE PART DESIGNATION KITS
BLT-024	SET of 8 std. bolts for 3" shells
BLT-048	SET of 8 std. bolts for 4 ³ / ₄ " shells
BLT-100	SET of 8 std. bolts for 6" shells
SBLT-024	SET of 8 stainless steel bolts for 3" shells
SBLT-048	SET of 8 stainless steel bolts for 4 ³ / ₄ " shells
SBLT-100	SET of 8 stainless steel bolts for 6" shells
GSK-024	Heavy duty gasket only for 3" shell cover
GSK-048	Heavy duty gasket only for 4 ³ / ₄ " shell cover
GSK-100	Heavy duty gasket only for 6" shell cover
COV-024	Molded aluminum cover for 3" shells
COV-048	Molded aluminum cover for 4 ³ / ₄ " shells
COV-100	Molded aluminum cover for 6" shells
INT-024	Internal part KIT for US-245 through US-249
INT-300	Internal part KIT for US-30013 through US-30021
INT-400	Internal part KIT for US-40017 through US-40025



US-487

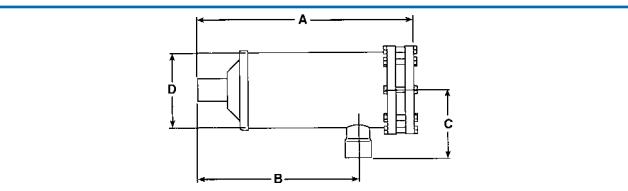


TABLE 1: CAPACITY LIQUID LINE SELECTION & ORDERING.
 CAPACITIES SHOWN IN kW (1 kW = 860 Fg/h = 0,284 US TON of refrigeration).

PART NUMBER	CONNECT. O.D.S. (SW:STEEL)	RECOMMENDED CAPACITY (kW)		FLOW CAPACITY (kW)		QTY	CORES (REF. & DATA)			DIMENSIONS (cm)			
		R404A R507	R22 R134a	R404A R507	R22 R134a		PART NR. 24,48,100 cubic inch	VOLUME cm³ (cu. in)	SURFACE cm² (sq. in)	A	B	C	D
US-485	5/8"	33	50	57	80	1	US-848-C	786 (48)	413 (64)	23	16	8	12
US-487	7/8"	33	50	124	170	1	US-848-CC	786 (48)	413 (64)	24	16	9	12
US-489	1 1/8"	48	55	190	260	1		786 (48)	413 (64)	24	16	9	12
US-9613	1 5/8"	100	140	337	455	2		1571 (96)	826 (128)	38	30	10	12
US-14413	1 5/8"	166	210	347	475	3	US-848-F	2357 (144)	1239 (192)	53	45	10	12
US-30021	2 5/8"	333	430	651	885	3	US-810-CM	4910 (300)	1897 (294)	72	63	16	16
US-40017	2 1/8"	451	580	523	710	4		6457 (400)	2529 (392)	86	77	13	16
US-40021	2 5/8"	451	580	651	885	4	US-810-F	6457 (400)	2529 (392)	89	79	16	16
US-9610-SW	1 1/4" SW	100	140	266	360	2	Steel Connection Shells (For steel tubings) See DATA above			39	30	10	12
US-14412-SW	1 1/2" SW	166	210	342	470	3				53	43	10	12
US-19216-SW	2" SW	247	310	380	520	4				65	57	11	12
US-40016-SW	2" SW	451	580	684	800	4				88	76	12	16

NOTE: • RECOMMENDED CAPACITIES are based on field replacement or installation for maximum drying efficiency. Lab conditions would give approx double values. Ratings in accordance with **ARI standard 730-86**.
 • Our flow capacities are based on **0,14 bar** (2 psi) pressure drop through the shell (cores are attending to be clogged and should be replaced above such a value).
IMPORTANT: The surface filtration of our corrugated "C" and "CM" are increased by **50%** regarding the above table values and have less pressure drop.
 • See our core DATA's page 237 in connection with page 238 for field efficient readings and analysis maintenance.

TABLE 2: CAPACITY SUCTION LINE SELECTION.
 CAPACITIES SHOWN IN kW (1 kW = 860 Fg/h = 0,284 US TON of refrigeration).

EVAPOR. TEMP.	MAXIMUM CAPACITY RATING IN kW													
	-40°C		-30°C			-18°C			-7°C			+5°C		
REFRIGERANTS	22/134a	404A	22	134a	404A	22	134a	404A	22	134a	404A	22	134a	404A
ODS CONNECTION TO BE TAKEN	PRESSURE DROP in bar and (psi)													
	0,04 (0,5)	0,04 (0,5)	0,07 (1)	0,07 (1)	0,07 (1)	0,10 (1,5)	0,10 (1,5)	0,10 (1,5)	0,14 (2)	0,14 (2)	0,14 (2)	0,21 (3)	0,21 (3)	0,21 (3)
5/8"	2,1	1,6	3,8	3,8	2,9	5,9	5,9	4,9	8,7	8,7	6,7	11	11	8,1
7/8"	4,9	3,6	8,7	8,7	6,6	13	13	10,5	18	18	13,3	28	28	24
1 1/8"	7,3	5,6	13	13	9,5	20	20	16,1	24	24	19,0	44	44	36
1 3/8"	10	7,6	18	18	13,3	28	28	22,8	41	41	31,4	61	61	50
1 5/8"	9,4	9,5	24	24	18,1	37	37	30,4	53	53	39,9	78	78	65
2 1/8"	18	13,3	33	33	24,7	50	50	40,9	77	77	53	107	107	88
2 5/8"	28	21	52	52	39	79	79	65	121	121	86	168	168	139
US-9610-SW	7,3	5,6	13	13	9,5	20	20	16,1	24	24	19,0	44	44	36
US-14412-SW	10	7,6	18	18	13,3	28	28	22,8	41	41	31,4	61	61	50
US-19216-SW	9,4	9,5	24	24	18,1	37	37	30,4	53	53	39,9	78	78	65
US-40016-SW	18	13,3	33	33	24,7	50	50	40,9	77	77	53	107	107	88

INTERCHANGEABLE AND REPLACEABLE ACTIVATED CORES

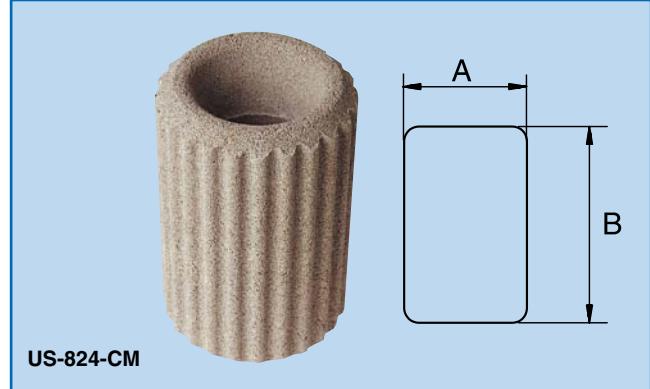
"THE TRUE AND ORIGINAL RANGE"

SPECIFICATIONS

- These cores are carefully molded using selected desiccants for **HIGH MOISTURE** absorption and **ACIDS** and **WAX** removal.
- Bonded for very high mechanical strength and **MICRONIC FILTRATION** capability.
- Fully activated in high temperature oven and hermetically sealed in leak proof container including an universal **KIT** of **REPLACEMENT GASKETS** for our shells as well as other existing shells.
- Our **CORRUGATED** type cores offer +55% of surface filtration and are slow glogged than other existing types.
- These replaceable cores are **INTERCHANGEABLE** with all types existing in the market.

REFRIGERANTS

- R12, R22, R502, R134a, R404A, R407C, R507 and other blends and their specific lubricants.
- R717 (NH₃ ammonia) with US-824-CM, 848-CM and 810-CM.



DIMENSIONAL DATA OF CORES

MODEL	DIMENSIONS (mm) A B
All "US-824-CM"	61 146
All "US-848-C", "CC", "CF" and "F"	93 131
All "US-810-CM", "CF" and "F"	122 156

1. THREE TYPES: "24", "48" and "100" cubic inch

24 CUBIC INCH CORES:
US-824-CM (standard) All are for our 3" diameter shells (all US-24 shells). All are for other 3" diameter standard existing shells
48 CUBIC INCH CORES:
US-848-C, US-848-CC, US-848-CF and US-848-F (standard) All are for our 4 ³ / ₄ " diameter shells (all US-48, US-96, US-144 and US-192 shells). All are for other 4 ³ / ₄ " diameter standard existing shells.
100 CUBIC INCH CORES:
US-810-CM, US-810-CF and US-810-F (standard) All are for our 6" diameter shells (all US-300 and 400 shells) All are for other 6" diameter standard existing shells.



2. FIVE MODELS: "C", "CM", "CC", "CF", "F"

STANDARD	HIGH CAPACITY	CHARCOAL	NYLON	MICRONIC FELT
				
US-848-C Standard core for micronic filtration of 10 micron at pressure Differential of 0,14 bar (2 psi).	US-824-CM US-810-CM Same as standard US-848-C cores however with a high water retention.	US-848-CC Same as high water retention "CM" however with additional activated charcoal to remove wax.	US-848-CF US-810-CF Micronic filtration equal or less than 5 micron at pressure differential of 0,035 bar.	US-848-F US-810-F Reduced pressure drop for permanent suction micronic filtration No water absorption No acids removal.

3. SPECIFIC PURPOSE AND ORDERING

"824" and **"848"** models are packed **12** in a carton.

"810" model is packed **4** in a carton.

US-848-C:	Standard original core used for general clean up in all <i>LIQUID</i> or <i>SUCTION</i> line applications. CORRUGATED surface and high mechanical strength for MICRONIC FILTRATION (10μ minimum) under LOW PRESSURE DROP (0,14 bar maximum). Ideal for best expansion device protection. Remove <i>SLUDGE</i> , <i>VARNISHES</i> , <i>MOISTURE</i> and <i>ACIDS</i> .
------------------	---

US-824-CM: US-810-CM	Standard high capacity core similar to and used as the above "C" model but with a <i>HIGH DRYING CAPACITY</i> . Ideal for perfect clean up at starting or where high moisture is suspected (system being exposed to the atmosphere, ruptured condenser, low side exchanger and other tubing).
---------------------------------	--



US-848-CC:	Standard high activated charcoal core combines all above "CM" specifications with a <i>HIGH ACTIVATED CHARCOAL blend for HIGHWAX and VARNISH removal</i> . Ideal for use (liquid and / or suction lines) after a motor burnout.
-------------------	--

US-848-CF: US-810-CF	Standard micronic filtration nylon core Used in the suction line with Micronic Suction Filter Shells, see page 239, with the <i>LOWEST</i> possible <i>PRESSURE DROP</i> (down to 0,035 bar according data's and where drying and acid removal are not required anymore). Nylon core filters down to 5μ and should always be used after the system has been cleaned using drier cores shown above.
---------------------------------	--

US-848-F: US-810-F	Standard micronic filtration felt core. Used permanently in the suction line with the <i>LOWEST</i> possible <i>PRESSURE DROP</i> (down to 0,035 bar according data's and where drying and acid removal are not required anymore). Felt core filters down to 10μ and should always be used after the system has been cleaned using drier cores shown above.
-------------------------------	---

4. MOISTURE DATA & SELECTION TABLE

PART NUMBER	DESCRIPTION	Water capacity in grams of water										Acid absorption capacity in g	
		R134a		R22		R404A		R410A		R407C			
		24°C (75°F)	52°C (125°F)	24°C (75°F)	52°C (125°F)	24°C (75°F)	52°C (125°F)	24°C (75°F)	52°C (125°F)	24°C (75°F)	52°C (125°F)		
US-824-CM	HIGH CAPACITY	15,55	10,9	15,55	10,9	-	-	-	-	-	-	-	
US-848-C	STANDARD	7,53	7,53	7,53	7,53	7,53	7,53	7,53	7,53	7,53	7,53	17,43	
US-848-CC	ACT. CHARCOAL	9,96	9,77	9,77	9,57	10,06	9,96	8,77	8,28	9,27	8,77	20,58	
US-848-CF	NYLON	<i>MICRONIC FILTRATION ONLY</i>											
US-848-F	SUCTION FELT	<i>MICRONIC FILTRATION ONLY</i>											
US-810-CM	HIGH CAPACITY	27,95	27,26	27,26	26,58	28,29	27,95	23,84	22,13	25,55	23,84	17,43	
US-810-CF	NYLON	<i>MICRONIC FILTRATION ONLY</i>											
US-810-F	SUCTION FELT	<i>MICRONIC FILTRATION ONLY</i>											

REMARKS:

- Water capacities are based on EPD (Equilibrium Point Dryness) of : 50 ppm R134a, R404A, R410A & R407C and 60 ppm R22.
- 1 cc = 1 gram = 20 drops of water.

MICRONIC SUCTION FILTER SHELLS

"THE BEST & CHEAPEST CORE SHELL TO PROTECT COMPRESSORS"

SPECIFIC PURPOSE

- Compact shell (only one core from $1\frac{3}{8}$ " up to $3\frac{1}{8}$ " ODS connections) providing a permanent **VERY HIGH MICRONIC FILTRATION** (down to **5 microns**) under a **VERY LOW PRESSURE DROP** (down to **0,035 bar** or **0,5 psi**).
- Keeps oil and refrigerant permanently clean.
- Prevents all foreign burrs, dirt and sludge to damage the highly machined & polished internal working part of the compressor.

DESIGN FEATURES

- Steel shell and cover. Copper fitting connections.
- Full flow filter with a corrugated filter core area at low P.D.
- Expanded metal cylinder offers a rugged unit for speed flow.
- Access valve ($1/4$ " male flare SAE) with "schrader" core and cap for easy & accurate pressure drop readings.

INSTALLATION

- Can be installed in any position. It is **BI-DIRECTIONAL**.
- The shell receives the specific replaceable "CF" micronic filter core. With the help of the RK-kit, it gives the benefit to temporarily receive all other standard **ceramic core models** shown page 237.
- This **TEMPORARY CLEAN UP METHOD** (say between 2 to 4 hours long) gives you a temporary drier shell to obtain a moisture and acid removal at start up, High drying action after any incidental opening, breaking or leaking pipes.
Regeneration and safety after any "burnout", etc...).
- **NOTE:** In this case (with **ceramic core** and **KIT "RK"**) the side connection has to be used as the inlet.

1. TO ORDER SHELLS & CORES

SHELL PART NUMBER	O.D.S. CONNECT	MICRONIC FILTER CORE	KIT FOR CERAMIC CORE	DIMENSIONS (cm)			BODY SHELL Ø
				A	B	C	
US-83713	$1\frac{5}{8}$ "	US-824-CF	24-RK	28,0	21,3	8,8	8 cm (3")
US-85713	$1\frac{5}{8}$ "	US-848-CF	48-RK	24,3	16,5	10,0	12 cm (4 $\frac{3}{4}$ ')
US-85721	$2\frac{5}{8}$ "	US-848-CF	48-RK	26,4	16,7	14,5	
US-86725	$3\frac{1}{8}$ "	US-810-CF	10-RK	42,7	30,5	16,7	16 cm (6")

- The **3 references** you need:
 - One suction replaceable core shell.
 - One permanent "CF" filtering core.
 - One temporary "RK" Kit for using other ceramic cores.



SPECIFICATIONS:

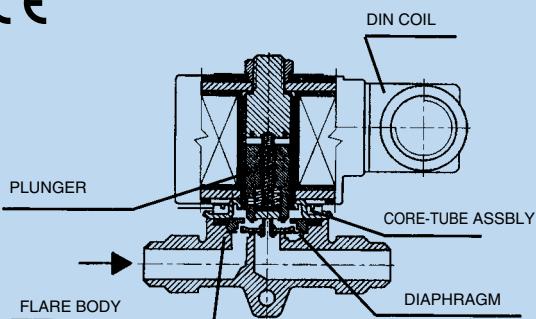
- For **R12, R22, R502, R134a, R404A, R407C, R410A, R507** and other blends with their specific lubricants.
- Maximum working pressure,
between -10°C and +65°C: 34,5 bar (500 psi)
between -45°C and -10°C: 25,9 bar (375 psi)
- **CE** approved (PED).
- Bursting pressure: **175 bar** (2500 psi).

2. CAPACITY TABLE SELECTION (For "CF" filter core use).

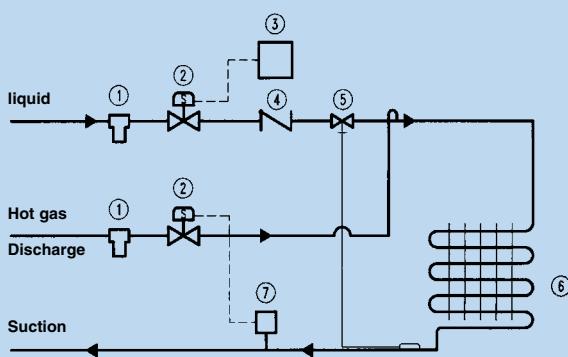
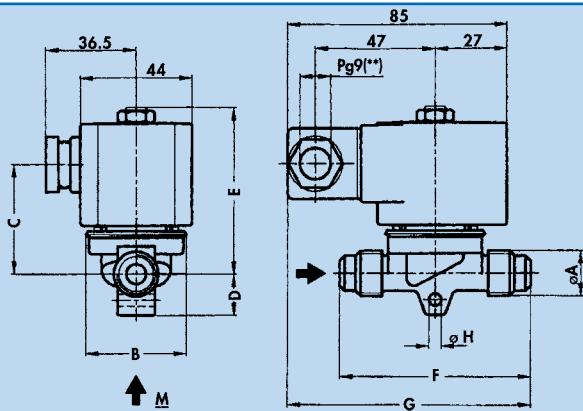
Capacities given in kW/h (1 kW/h = 860 Fg/h = 0,284 US tons).

EVAPORATING TEMPERATURE		-40°C (-40°F)		-30°C (-20°F)		-18°C (0°F)		-7°C (20°F)		+5°C (40°F)			
REFRIGERANTS		R134a	R22	R134a	R22	R404A	R134a	R22	R404A	R134a	R22	R404A	
SHELL PART NUMBER	CONN. DIAM.	PRESSURE DROP in bar and (psi)											
		0,04 (0,5)	0,04 (0,5)	0,04 (0,5)	0,07 (1)	0,07 (1)	0,07 (1)	0,1 (1,5)	0,1 (1,5)	0,1 (1,5)	0,14 (2)	0,14 (2)	0,21 (3)
US-83713	$1\frac{5}{8}$ "	11	11	26	26	18	42	42	29	62	62	44	95
US-85713	$1\frac{5}{8}$ "	15	15	36	36	25	56	56	40	83	83	59	127
US-85721	$2\frac{5}{8}$ "	27	27	65	65	45	104	104	73	153	153	108	234
US-86725	$3\frac{1}{8}$ "	42	42	104	104	71	164	164	115	242	242	171	369
													68
													91
													168
													234
													127
													369
													267

CE



2041-BT Series



SOLENOID VALVES

"LIQUID, SUCTION AND DISCHARGE"

1. 2041 SERIES "flare SAE" & "ODS"

DESCRIPTION

- Forged brass body. "teflon" seat and diaphragm.
- Capsulated coils DIN 43650 connection and IP65 protection.
- Luminous DIN connector (you can see "ON"/"OFF" valve) on request.
- Flare "SAE" connections or "ODS" brazing ends (ODS copper tube extension does not require the valve to be disassembled).
- Minimum pressure differential for opening: 0,07 bar (1 psi) and 0,00 bar (0 psi) for 1/4" type.
- Maximum opening pressure differential:
21 bar (300 psi) for alternating currents
10 bar for direct currents.
- Working temperature range: -40°C to +115°C (-40°F to 230°F).
- Maximum working pressure: 35 bar.
- CE approved (PED).

Part numbers including 230 V / 50 Hz coil

NOTE: See all coils on page 242.

PART NUMBER	CONNECTIONS (flare or ODS)	"KV" COEFFICIENT	REPAIR KIT number
2041-BT-2	1/4" male flare	0,16	K41-T1
2041-BT-3	3/8" male flare	1,20	K041-T1
2041-BT-4	1/2" male flare	1,40	K041-T1
2041-BT-5	5/8" male flare	2,50	K41-T3
2041-BT-2S2	1/4" ODS	0,16	K41-T1
2041-BT-3S3	3/8" ODS	1,20	K041-T1
2041-BT-4S4	1/2" ODS	1,40	K041-T1
2041-BT-4S5	5/8" ODS	1,40	K041-BT1
2041-BT-5S5	5/8" ODS	2,50	K41-T3
2041-BT-5S6	3/4" ODS	2,70	K41-T3
2041-BT-5S7	7/8" ODS	2,70	K41-T3

DIMENSIONS

PART NUMBER	CONNECTIONS (flare or ODS)	DIMENSIONS (mm)							
		A	B	C	D	E	F	G	H
2041-BT-2	1/4" male flare	-	30	53	8	64	59	87	-
2041-BT-3	3/8" male flare	-	41	67	18	65	77	96	-
2041-BT-4	1/2" male flare	-	41	67	18	65	77	96	-
2041-BT-5	5/8" male flare	-	55	98	19	76	102	109	7
2041-BT-2S2	1/4" ODS	7	30	53	8	65	115	116	-
2041-BT-3S3	3/8" ODS	10	41	67	18	65	150	133	5
2041-BT-4S4	1/2" ODS	13	41	67	18	65	150	133	5
2041-BT-4S5	5/8" ODS	16	41	67	18	65	150	133	5
2041-BT-5S5	5/8" ODS	16	55	98	19	76	170	143	7
2041-BT-5S6	3/4" ODS	19	55	98	19	76	170	143	7
2041-BT-5S7	7/8" ODS	24	55	98	19	76	170	143	7

TYPICAL APPLICATION
(AT chamber regulation w / relative humidity control)

- 1: Strainer
- 2: Solenoid valve
- 3: Thermostat
- 4: Check-valve
- 5: Thermostatic exp. vlv.
- 6: Evaporator
- 7: Pressure switch (other)

2. 1342 SERIES "ODS" MODELS

DESCRIPTION

- Forged brass body. "brass" piston and "teflon" seat.
- Capsulated coils DIN 43650 connection and IP65 protection.
- Luminous DIN connector (you can see "ON"/"OFF" valve) on request.
- "ODS" brazing connections (ODS copper tube extension).
- Minimum pressure differential for opening: 0,20 bar (3 psi).
- Maximum opening pressure differential:
21 bar (245 psi) for alternative currents
13 bar for direct currents.
- Working temperature range: -40°C to +115°C (-40°F to 230°F).
- Maximum working pressure: 35 bar.

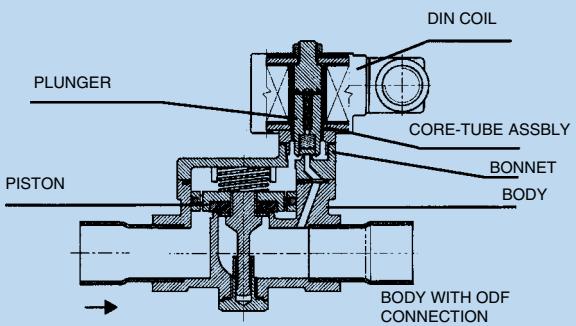
ORDERING OPTIONS

- MO: To be added to the solenoid valve reference when you need a valve with a **MANUAL OPENING STEM**.
- NO: To be added to the solenoid valve reference when you need **NORMALLY OPEN VALVE**.
- CE approved (PED).

Part numbers including 230 V / 50 Hz coil

NOTE: See all coils on page 242.

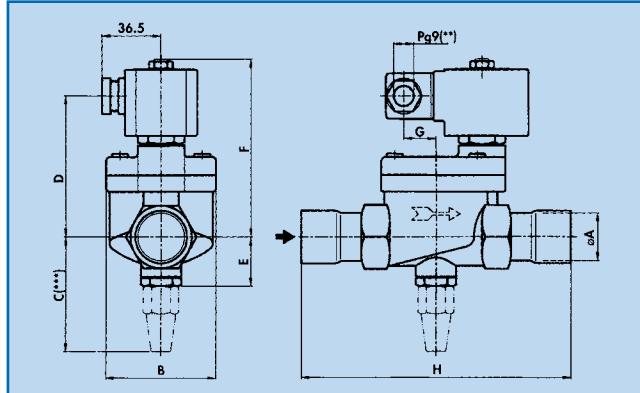
PART NUMBER	CONNECTIONS	"KV" COEFFICIENT	REPAIR KIT number
1342-BT-06S06	3/4" ODS		
1342-BT-06S07	7/8" ODS		
1342-BT-06S09	1 1/8" ODS	5,0	K42-T1-S
1342-BT-08S09	1 1/8" ODS		
1342-BT-08S11	1 3/8" ODS	11	K42-T2-S



1342-BT Series

DIMENSIONS

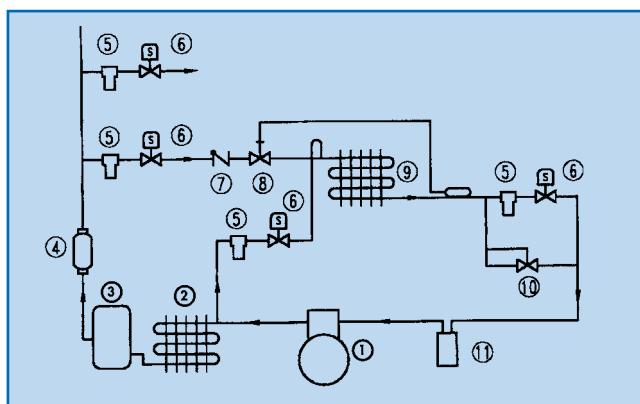
PART NUMBER	CONNECTIONS	DIMENSIONS (mm)							
		A	B	C	D	E	F	G	H
1342-BT-06S06	3/4" ODS								
1342-BT-06S07	7/8" ODS	23	53	69	84	27	105	24	127
1342-BT-06S09	1 1/8" ODS	27							170
1342-BT-08S09	1 1/8" ODS	29	67	72	88	30	109	16	190
1342-BT-08S11	1 3/8" ODS	35							

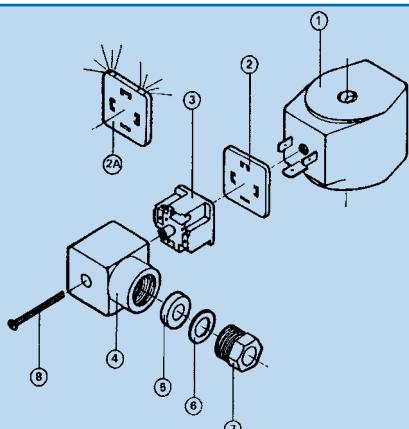


TYPICAL APPLICATION

(Multi-evapos with hot gas defrost system)

- 1: Compressor
- 2: Condenser
- 3: Receiver
- 4: Core filter drier
- 5: Strainer
- 6: Solenoid valve
- 7: Check-valve
- 8: Thermostatic exp. vlv.
- 9: Evaporator
- 10: Back pressure regulator
- 11: Liquid suction accumulator





- 1 COIL
 2 GASKET
 2a GASKET. With luminous indicator when coil is energised
 code Nr. 4180-8 (upon request)
 3 BLOCK WITH ELECTRICAL TERMINALS.
 maximum section of wiring AWG14 (1,6 mm)
 4 CONNECTOR WITH OPENING FOR ARMORED CABLE
 Strain relief "PG9" outside diameter of covered cable from 6 to 8 mm. Upon request luminous connector.
 5 CABLE SEAL
 6 WASHER
 7 CABLE SEAL SCREW
 8 FIXING SCREW



MF-1150C-230U

"DIN" STANDARD SOLENOID COILS

+ "LUMINOUS DIN CONNECTOR"

STANDARD COIL ORDERING FOR ALL SOLENOID VALVES

MF-1150C-024U	COIL	24V	50Hz	11W
MF-1150C-048U	COIL	48V	50Hz	11W
MF-1150C-230U	COIL	230V	50Hz	11W
MF-1360C-110U	COIL	110V	60Hz	13W
MF-1900C-024U	COIL	24V	(DC)	19W

DESCRIPTION

- Only one standard coil for all solenoid valves.
- Capsuled, humidity and weather proof. Continuous use.
- DIN 43650 (ISO 4400) connectors for PG9, PG11 or 1/2" NPT cable guides (PG9 is the standard DIN connector normally supplied and available on stock).
- IP65 protection (explosion proof version upon request).
- Luminous gasket or luminous DIN connector incorporated to light up when the coil is energized (upon request).
- The thermal isolation is +155°C, Class "F".

ELECTRICAL INSTALLATION

- All the coils are for continuous use or high frequency of operation and are properly sealed against humidity.
- Verify that the coil supplied with the valve is of the correct tension and current required. If not, replace it with the adequate coil without changing the valve.
- The tension variation that is permitted without affecting the performance of the valve is of -15% to +10% of the nominal tension.
- The rest of the models described in this manual are provided normally with capsulated coils with DIN 43650 (ISO 4400) connections.

SOLENOID VALVE OPERATING CONTROLLERS

VOC-10 **VALVE OPERATING CONTROLLER** with 10 mm diameter bore size

VOC-15 **VALVE OPERATING CONTROLLER** with 15 mm diameter bore size

VOC-18 **VALVE OPERATING CONTROLLER** with 18 mm diameter bore size

- The quickest and easiest way to convert electrically operated solenoid valves into hand operated valves. To allow testing of valve operation and to undertake repairs.
- 3 models with 3 different stem sizes fit all models of solenoid valves on the market.
- Pocket size, easy to use, the ideal addition to every service engineer's tool kit.
- Do not use the magnet when the solenoid valve is electrically operated.



VOC-15

SOLENOID VALVES CAPACITY TABLES

1. LIQUID CAPACITY TABLE in kW

	PART NUMBER	CONNECTION	ΔP KPa	REFRIGERANTS			
				R22	R134a	R404A	R507
 	2041-BT-2 2041-BT-2S2	1/4" male flare 1/4" ODS	15	3,23	2,99	2,20	2,17
			20	3,73	3,46	2,54	2,50
			30	4,56	4,23	3,11	3,06
			50	5,89	5,46	4,01	3,96
			100	8,33	7,73	5,67	5,59
	2041-BT-3 2041-BT-3S3	3/8" male flare 3/8" ODS	15	24	22	16	16
			20	28	26	19	19
			30	34	32	23	23
			50	44	41	30	30
			100	62	58	43	42
	2041-BT-4 2041-BT-4S4 2041-BT-4S5	1/2" male flare 1/2" ODS 5/8" ODS	15	28	26	19	19
			20	33	30	22	22
			30	40	37	27	27
			50	52	48	35	35
			100	73	68	50	49
	2041-BT-5 2041-BT-5S5 2041-BT-5S6 2041-BT-5S7	5/8" male flare 5/8" ODS 3/4" ODS 7/8" ODS	15	54	50	37	37
			20	63	58	43	42
			30	77	71	52	52
			50	99	92	68	67
			100	141	130	96	94
	1342-BT-06S06 1342-BT-06S07 1342-BT-06S09	3/4" ODS 7/8" ODS 1 1/8" ODS	20	116	108	79	78
			30	143	132	97	96
			50	184	171	125	124
			100	260	241	177	175
	1342-BT-08S09 1342-BT-08S11	1 1/8" ODS 1 3/8" ODS	20	256	238	174	172
			30	314	291	214	211
			50	405	376	276	272
			100	573	531	390	385

All capacities are calculated with a condensing temperature of +25°C and an evaporation temperature of -10°C.

CORRECTION FACTORS

For capacities in other condensing or evaporating temperatures, use the correction factor:

CONDENSING TEMPERATURE	REFRIGERANTS			
	R22	R134a	R404A	R507
+20°C	1,04	1,05	1,08	1,07
+25°C	1,00	1,00	1,00	1,00
+30°C	0,95	0,95	0,92	0,93
+35°C	0,91	0,89	0,84	0,86
+40°C	0,86	0,84	0,76	0,78

EVAPORATION TEMPERATURE	REFRIGERANTS			
	R22	R134a	R404A	R507
+10°C	1,04	1,07	1,09	1,09
+5°C	1,03	1,06	1,07	1,07
0°C	1,02	1,04	1,05	1,04
-5°C	1,01	1,02	1,02	1,02
-10°C	1,00	1,00	1,00	1,00
-20°C	0,98	0,96	0,95	0,95
-30°C	0,95	0,92	0,90	0,91
-40°C	0,92	0,88	0,85	

2. SUCTION (vapour) CAPACITY TABLES

R22 SUCTION (vapour) CAPACITY TABLE

	PART NUMBER	CONNECTION	ΔP KPa	EVAPORATION TEMPERATURE IN °C							
				10	5	0	-5	-10	-20	-30	-40
 	2041-BT-2 2041-BT-2S2	1/4" male flare 1/4" ODS	10	0,42	0,39	0,37	0,32	0,29	0,24	0,19	0,15
			20	0,59	0,55	0,55	1,45	0,41	0,33	0,26	0,20
			30	0,72	0,66	0,63	0,55	0,50	0,40	0,31	0,23
			40	0,83	0,76	0,69	0,63	0,56	0,45	0,34	0,25
	2041-BT-3 2041-BT-3S3	3/8" male flare 1/4" ODS	10	3,2	2,9	2,8	2,4	2,2	1,8	1,4	1,1
			20	4,5	4,1	4,1	3,4	3,1	2,5	2,0	1,5
			30	5,4	5,0	4,7	4,1	3,7	3,0	2,3	1,7
			40	6,2	5,7	5,2	4,7	4,2	3,4	2,6	1,9
	2041-BT-4 2041-BT-4S4 2041-BT-4S5	1/2" male flare 1/2" ODS 5/8" ODS	10	3,7	3,4	3,3	2,8	2,6	2,1	1,7	1,3
			20	5,2	4,8	4,8	4,0	3,8	2,9	2,3	1,7
			30	6,3	5,8	5,5	4,8	4,3	3,5	2,7	2,0
			40	7,2	6,6	6,0	5,5	4,9	3,9	3,0	2,2
	2041-BT-5 2041-BT-5S5 2041-BT-5S6 2041-BT-5S7	5/8" male flare 5/8" ODS 3/4" ODS 7/8" ODS	10	7,1	6,6	6,3	5,5	5,0	4,0	3,2	2,5
			20	10,0	9,2	9,3	7,6	6,9	5,6	4,4	3,4
			30	12,2	11,2	10,7	9,2	8,4	6,7	5,2	3,9
			40	14,0	12,8	11,6	10,6	9,5	7,6	5,8	4,2
	1342-BT-06S06 1342-BT-06S07 1342-BT-06S09	3/4" ODS 7/8" ODS 1 1/8" ODS	20	18,6	17,0	17,2	14,2	12,8	10,4	8,2	6,2
			30	22,6	20,7	19,8	17,1	15,5	12,4	9,7	7,1
			40	25,9	23,7	21,6	19,5	17,6	14,0	10,8	7,8
	1342-BT-08S09 1342-BT-08S11	1 1/8" ODS 1 3/8" ODS	20	41	37	38	31	28	23	18	14
			30	50	45	44	38	34	27	21	16
			40	57	52	47	43	39	31	24	17

All capacities are calculated with a condensing temperature of +25°C and an evaporation temperature of -10°C.

For capacities in other temperatures use the following correction factor:

CONDENSING TEMPERATURE	15	20	25	30	35	40
CORRECTION FACTOR	1,07	1,04	1,00	0,96	0,93	0,89

R134a SUCTION (vapour) CAPACITY TABLE

	PART NUMBER	CONNECTION	ΔP KPa	EVAPORATION TEMPERATURE IN °C							
				10	5	0	-5	-10	-20	-30	-40
 	2041-BT-2 2041-BT-2S2	1/4" male flare 1/4" ODS	10	0,34	0,30	0,27	0,24	0,22	0,17	0,13	0,09
			20	0,47	0,42	0,38	0,34	0,30	0,23	0,17	0,12
			30	0,57	0,51	0,46	0,41	0,36	0,27	0,19	
			40	0,65	0,58	0,52	0,46	0,40	0,30	0,20	
	2041-BT-3 2041-BT-3S3	3/8" male flare 3/8" ODS	10	2,5	2,3	2,0	1,8	1,6	1,3	1,0	0,7
			20	3,5	3,2	2,9	2,5	2,3	1,7	1,3	0,9
			30	4,3	3,8	3,4	3,0	2,7	2,0	1,4	
			40	4,9	4,4	3,9	3,4	3,0	2,2	1,5	
	2041-BT-4 2041-BT-4S4 2041-BT-4S5	1/2" male flare 1/2" ODS 5/8" ODS	10	2,9	2,7	2,4	2,1	1,9	1,5	1,1	0,8
			20	4,1	3,7	3,3	3,0	2,6	2,0	1,5	1,0
			30	5,0	4,5	4,0	3,5	3,1	2,4	1,6	
			40	5,7	5,1	4,5	4,0	3,5	2,6	1,7	
	2041-BT-5 2041-BT-5S5 2041-BT-5S6 2041-BT-5S7	5/8" male flare 5/8" ODS 3/4" ODS 7/8" ODS	10	5,7	5,1	4,6	4,1	3,7	2,9	2,2	1,5
			20	7,9	7,2	6,4	5,7	5,1	3,9	2,9	2,0
			30	9,6	8,6	7,7	6,8	6,0	4,5	3,2	
			40	10,9	9,8	8,7	7,7	6,8	5,0	3,4	
	1342-BT-06S06 1342-BT-06S07 1342-BT-06S09	3/4" ODS 7/8" ODS 1 1/8" ODS	20	14,7	13,2	11,9	10,6	9,4	7,2	5,3	3,6
			30	17,8	16,0	14,3	12,7	11,2	8,4	5,9	
			40	20,2	18,2	16,2	14,3	12,5	9,3	6,2	
	1342-BT-08S09 1342-BT-08S11	1 1/8" ODS 1 3/8" ODS	20	32	29	26	23	21	16	12	8
			30	39	35	31	28	25	19	13	
			40	45	40	36	31	28	20	14	

For capacities in other temperatures use the following correction factor:

CONDENSING TEMPERATURE	15	20	25	30	35	40
CORRECTION FACTOR	1,08	1,04	1,00	0,96	0,91	0,87

R404A SUCTION (vapour) CAPACITY TABLE

	PART NUMBER	CONNECTION	ΔP KPa	EVAPORATION TEMPERATURE IN °C							
				10	5	0	-5	-10	-20	-30	-40
 	2041-BT-2 2041-BT-2S2	1/4" male flare 1/4" ODS	10	0,38	0,35	0,32	0,28	0,26	0,20	0,16	0,12
			20	0,54	0,49	0,44	0,40	0,36	0,28	0,22	0,18
			30	0,66	0,59	0,54	0,46	0,43	0,34	0,26	0,19
	2041-BT-3 2041-BT-3S3	3/8" male flare 3/8" ODS	40	0,75	0,68	0,61	0,55	0,49	0,38	0,29	0,21
			10	2,9	2,6	2,4	2,1	1,9	1,5	1,2	0,9
			20	4,0	3,7	3,3	3,0	2,7	2,1	1,6	1,2
			30	4,9	4,5	4,0	3,6	3,2	2,5	1,9	1,4
	2041-BT-4 2041-BT-4S4 2041-BT-4S5	1/2" male flare 1/2" ODS 5/8" ODS	40	5,6	5,1	4,6	4,1	3,7	2,9	2,2	1,5
			10	3,4	3,0	2,8	2,5	2,2	1,8	1,4	1,0
			20	4,7	4,3	3,9	3,5	3,1	2,5	1,9	1,4
			30	5,7	5,2	4,7	4,2	3,8	3,0	2,3	1,6
	2041-BT-5 2041-BT-5S5 2041-BT-5S6 2041-BT-5S7	5/8" male flare 5/8" ODS 3/4" ODS 7/8" ODS	40	6,6	6,0	5,4	4,8	4,3	3,4	2,7	2,0
			10	6,5	5,9	5,3	4,8	4,3	3,4	2,7	2,0
			20	9,1	8,2	7,5	6,7	6,0	4,8	3,7	2,7
			30	11,1	10,0	9,1	8,1	7,3	5,7	4,4	3,1
	1342-BT-06S06 1342-BT-06S07 1342-BT-06S09	3/4" ODS 7/8" ODS 11/8" ODS	20	16,8	15,3	13,8	12,4	11,1	8,8	6,8	5,0
			30	20,5	18,6	16,8	15,1	13,5	10,6	8,1	5,8
			40	23,5	21,3	19,2	17,2	15,4	12,0	9,1	6,4
	1342-BT-08S09 1342-BT-08S11	11/8" ODS 13/8" ODS	20	37,0	34,0	30	27	25	19	15	11
			30	45,0	41,0	37	33	30	23	18	13
			40	52,0	47,0	42	38	34	26	20	14

All capacities are calculated with a condensing temperature of +25°C and an evaporation temperature of -10°C.

For capacities in other temperatures use the following correction factor:

CONDENSING TEMPERATURE	15	20	25	30	35	40
CORRECTION FACTOR	1,13	1,06	1,00	0,94	0,86	0,81

R507 SUCTION (vapour) CAPACITY TABLE

	PART NUMBER	CONNECTION	ΔP KPa	EVAPORATION TEMPERATURE IN °C							
				10	5	0	-5	-10	-20	-30	-40
 	2041-BT-2 2041-BT-2S2	1/4" male flare 1/4" ODS	10	0,39	0,35	0,32	0,29	0,26	0,21	0,16	0,12
			20	0,55	0,50	0,45	0,41	0,37	0,29	0,23	0,18
			30	0,67	0,61	0,55	0,50	0,45	0,36	0,26	0,21
			40	0,77	0,70	0,64	0,58	0,52	0,41	0,32	0,24
	2041-BT-3 2041-BT-3S3	3/8" male flare 3/8" ODS	10	2,9	2,7	2,4	2,2	2,0	1,6	1,2	1,0
			20	4,1	3,7	3,4	3,1	2,7	2,2	1,7	1,4
			30	5,0	4,6	4,1	3,7	3,4	2,7	2,1	1,8
			40	5,8	5,3	4,8	4,3	3,9	3,1	2,4	2,0
	2041-BT-4 2041-BT-4S4 2041-BT-4S5	1/2" male flare 1/2" ODS 5/8" ODS	10	3,4	3,1	2,8	2,5	2,3	1,8	1,4	1,0
			20	4,8	4,4	3,9	3,6	3,2	2,5	2,0	1,6
			30	5,9	5,3	4,8	4,4	3,9	3,1	2,4	2,0
			40	6,8	6,2	5,6	5,0	4,5	3,6	2,6	2,2
	2041-BT-5 2041-BT-5S5 2041-BT-5S6 2041-BT-5S7	5/8" male flare 5/8" ODS 3/4" ODS 7/8" ODS	10	6,6	6,0	5,4	4,9	4,4	3,5	2,6	2,0
			20	9,2	8,4	7,6	6,9	6,2	4,9	4,0	3,6
			30	11,3	10,3	9,3	8,4	7,6	6,0	4,7	4,0
			40	13,1	11,9	10,8	9,7	8,7	6,9	5,4	4,4
	1342-BT-06S06 1342-BT-06S07 1342-BT-06S09	3/4" ODS 7/8" ODS 11/8" ODS	20	17,1	15,6	14,1	12,7	11,4	9,1	7,0	6,0
			30	21,0	19,1	17,3	15,6	14,0	11,1	8,6	7,6
			40	24,2	22,0	19,9	18,0	16,1	12,9	10,0	9,0
	1342-BT-08S09 1342-BT-08S11	11/8" ODS 13/8" ODS	20	37,7	34,3	31,0	28,0	25,1	20,0	15,5	13,0
			30	46,1	42,0	38,0	34,3	30,8	24,5	19,0	16,0
			40	53,3	48,5	43,9	39,6	35,5	28,3	21,9	19,0

All capacities are calculated with a condensing temperature of +25°C and an evaporation temperature of -10°C.

For capacities in other temperatures use the following correction factor:

CONDENSING TEMPERATURE	15	20	25	30	35	40
CORRECTION FACTOR	1,08	1,04	1,00	0,96	0,91	0,87

3. HOT GAS CAPACITY TABLES

R22 HOT GAS CAPACITY TABLE

	PART NUMBER	CONNECTION	T. cond. °C	PRESSURE DIFFERENTIAL IN KPa						
				10	20	40	80	160	320	640
	2041-BT-2 2041-BT-2S2	1/4" male flare 1/4" ODS	25	0,476	0,670	0,941	1,310	1,792	2,347	2,652
			30	0,490	0,690	0,969	1,352	1,859	2,463	2,922
			35	0,501	0,707	0,994	1,389	1,916	2,563	3,144
			40	0,512	0,722	1,016	1,422	1,968	2,654	3,337
	2041-BT-3 2041-BT-3S3	3/8" male flare 3/8" ODS	25	3,57	5,03	7,06	9,83	13,44	17,60	19,89
			30	3,67	5,18	7,27	10,14	13,94	18,48	21,91
			35	3,76	5,30	7,45	10,42	14,37	19,22	23,58
			40	3,84	5,42	7,62	10,67	14,76	19,91	25,03
	2041-BT-4 2041-BT-4S4 2041-BT-4S5	1/2" male flare 1/2" ODS 5/8" ODS	25	4,16	5,87	8,23	11,46	15,68	20,54	23,20
			30	4,28	6,04	8,48	11,83	16,26	21,56	25,57
			35	4,39	6,18	8,69	12,15	16,76	22,43	27,51
			40	4,48	6,32	8,89	12,45	17,22	23,22	29,20
	2041-BT-5 2041-BT-5S5 2041-BT-5S6 2041-BT-5S7	5/8" male flare 5/8" ODS 3/4" ODS 7/8" ODS	25	8,0	11,3	15,9	22,1	30,2	39,6	44,7
			30	8,3	11,6	16,4	22,8	31,4	41,6	49,3
			35	8,5	11,9	16,8	23,4	32,3	43,3	53,1
			40	8,6	12,2	17,2	24,0	33,2	44,8	56,3
	1342-BT-06S06 1342-BT-06S07 1342-BT-06S09	3/4" ODS 7/8" ODS 1 1/8" ODS	25		21,0	29,4	40,9	56	73	83
			30		21,6	30,3	42,3	58	77	91
			35		22,1	31,1	43,4	60	80	98
			40		22,6	31,8	44,5	62	83	104
	1342-BT-08S09 1342-BT-08S11	1 1/8" ODS 1 3/8" ODS	25		46,1	65	90	123	161	182
			30		47,4	67	93	128	169	201
			35		48,6	68	95	132	176	216
			40		49,7	70	98	135	182	229

All capacities are calculated with a temperature before the valve, corresponding to the condensing temperature with a superheat of +25°C and an evaporation temperature of -10°C.

For capacities in other temperatures, use the following correction factor:

EVAPORATING TEMPERATURE	10	0	-10	-20	-30	-40
CORRECTION FACTOR	1,05	1,02	1,00	0,97	0,95	0,92

R134a HOT GAS CAPACITY TABLE

	PART NUMBER	CONNECTION	T. cond. °C	PRESSURE DIFFERENTIAL IN KPa						
				10	20	40	80	160	320	640
	2041-BT-2 2041-BT-2S2	1/4" male flare 1/4" ODS	25	0,380	0,534	0,745	1,023	1,355	1,617	1,617
			30	0,387	0,544	0,760	1,048	1,403	1,733	1,733
			35	0,395	0,556	0,778	1,077	1,453	1,840	1,839
			40	0,401	0,564	0,791	1,097	1,491	1,924	1,923
	2041-BT-3 2041-BT-3S3	3/8" male flare 3/8" ODS	25	2,85	4,01	5,59	7,67	10,16	12,13	12,13
			30	2,90	4,08	5,70	7,86	10,52	12,99	13,00
			35	2,96	4,17	5,83	8,07	10,90	13,80	13,80
			40	3,01	4,23	5,93	8,23	11,19	14,43	14,43
	2041-BT-4 2041-BT-4S4 2041-BT-4S5	1/2" male flare 1/2" ODS 5/8" ODS	25	3,33	4,67	6,52	8,95	11,85	14,15	14,15
			30	3,39	4,76	6,65	9,17	12,28	15,16	15,17
			35	3,46	4,86	6,81	9,42	12,72	16,10	16,09
			40	3,51	4,94	6,92	9,60	13,05	16,83	16,83
	2041-BT-5 2041-BT-5S5 2041-BT-5S6 2041-BT-5S7	5/8" male flare 5/8" ODS 3/4" ODS 7/8" ODS	25	6,4	9,0	12,6	17,3	22,9	27,3	27,3
			30	6,5	9,2	12,8	17,7	23,7	29,2	29,3
			35	6,7	9,4	13,1	18,2	24,5	31,0	31,0
			40	6,8	9,5	13,3	18,5	25,2	32,5	32,5
	1342-BT-06S06 1342-BT-06S07 1342-BT-06S09	3/4" ODS 7/8" ODS 1 1/8" ODS	25		17	23	32	42	51	51
			30		17	24	33	44	54	54
			35		17	24	34	45	57	57
			40		18	25	34	47	60	60
	1342-BT-08S09 1342-BT-08S11	1 1/8" ODS 1 3/8" ODS	25		37	51	70	93	111	111
			30		37	52	72	96	119	119
			35		38	53	74	100	126	126
			40		39	54	75	103	132	132

All capacities are calculated with a temperature before the valve, corresponding to the condensing temperature with a superheat of +25°C and an evaporation temperature of -10°C.

For capacities in other temperatures, use the following correction factor:

EVAPORATING TEMPERATURE	10	0	-10	-20	-30	-40
CORRECTION FACTOR	1,08	1,04	1	0,96	0,92	0,87

R404A HOT GAS CAPACITY TABLE

	PART NUMBER	CONNECTION	T. cond. °C	PRESSURE DIFFERENTIAL IN KPa						
				10	20	40	80	160	320	640
	2041-BT-2 2041-BT-2S2	1/4" male flare 1/4" ODS	25	0,412	0,581	0,815	1,14	1,56	2,05	1,75
			30	0,410	0,578	0,812	1,13	1,56	2,08	1,83
			35	0,406	0,572	0,805	1,13	1,55	2,09	1,89
			40	0,395	0,557	0,784	1,10	1,52	2,06	2,61
	2041-BT-3 2041-BT-3S3	3/8" male flare 3/8" ODS	25	3,09	4,35	6,11	8,52	11,67	15,38	13,09
			30	3,08	4,34	6,09	8,50	11,70	15,58	13,73
			35	3,04	4,29	6,04	8,44	11,65	15,65	14,14
			40	2,96	4,18	5,88	8,23	11,40	15,41	19,60
	2041-BT4 2041-BT-4S4 2041-BT-4S5	1/2" male flare 1/2" ODS 5/8" ODS	25	3,60	5,08	7,13	9,94	13,62	17,94	15,28
			30	3,59	5,06	7,11	9,92	13,65	18,18	16,02
			35	3,55	5,01	7,04	9,84	13,59	18,25	16,50
			40	3,46	4,87	6,86	9,60	13,30	17,98	22,86
	2041-BT-5 2041-BT-5S5 2041-BT-5S6 2041-BT-5S7	5/8" male flare 5/8" ODS 3/4" ODS 7/8" ODS	25	7,0	9,8	13,8	19,2	26,3	34,6	29,5
			30	7,0	9,8	13,7	19,1	26,3	35,1	30,9
			35	7,0	9,7	13,6	19,0	26,2	35,2	31,8
			40	7,0	9,4	13,2	18,5	25,7	34,7	44,1
	1342-BT-06S06 1342-BT-06S07 1342-BT-06S09	3/4" ODS 7/8" ODS 1 1/8" ODS	25		18,1	25,5	35,5	48,6	64,1	54,6
			30		18,1	25,4	35,4	48,8	64,9	57,2
			35		17,9	25,1	35,2	48,5	65,2	58,9
			40		17,4	24,5	34,3	47,5	64,2	81,7
	1342-BT-08S09 1342-BT-08S11	1 1/8" ODS 1 3/8" ODS	25		39,9	56,0	78	107	141	120
			30		39,7	55,8	78	107	143	126
			35		39,3	55,3	77	107	143	130
			40		38,3	53,9	75	105	141	180

All capacities are calculated with a temperature before the valve, corresponding to the condensing temperature with a superheat of +25°C and an evaporation temperature of -10°C.

For capacities in other temperatures,
 use the following correction factor:

EVAPORATING TEMPERATURE	10	0	-10	-20	-30	-40
CORRECTION FACTOR	1,10	1,05	1	0,95	0,89	083

R507 HOT GAS CAPACITY TABLE

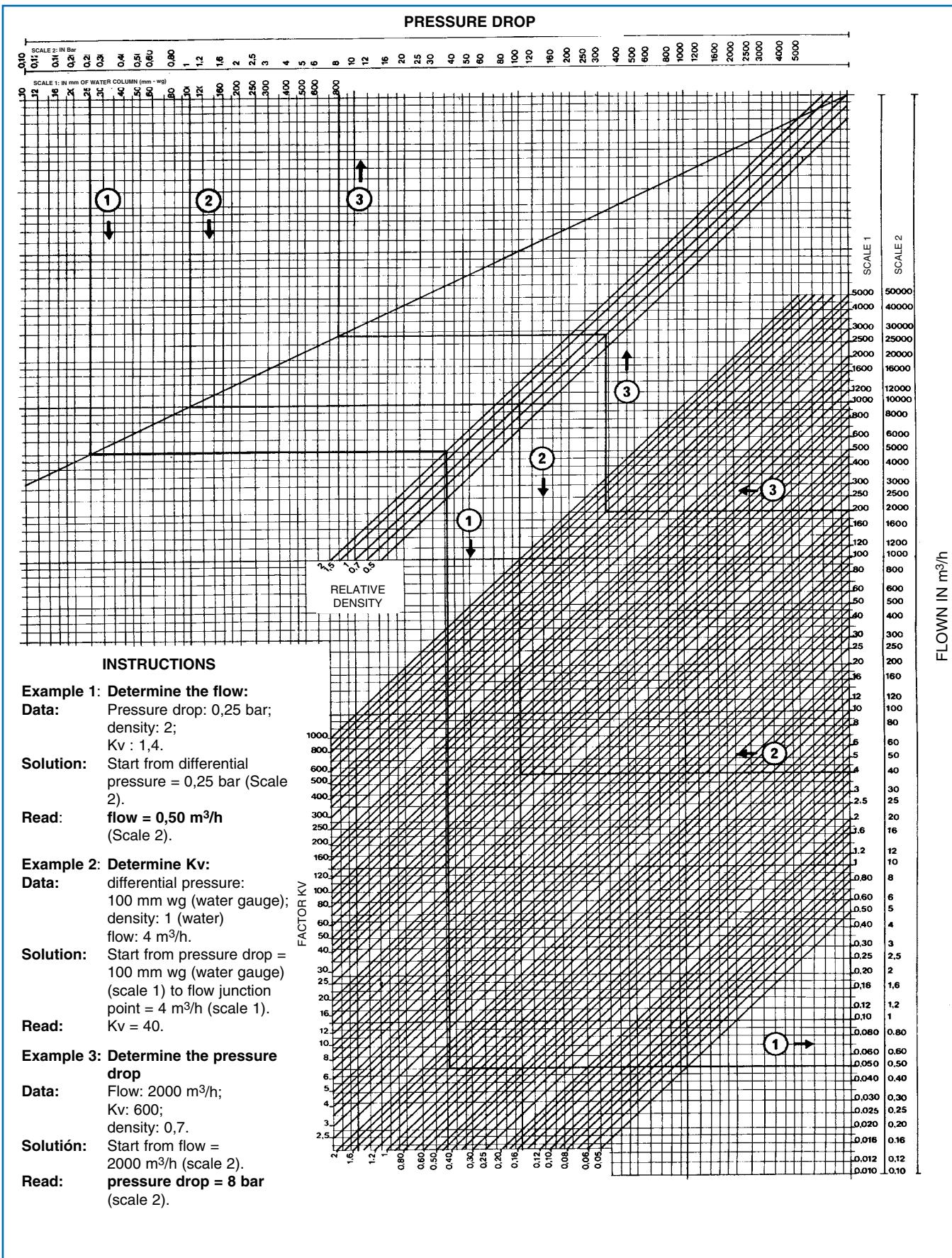
	PART NUMBER	CONNECTION	T. cond. °C	PRESSURE DIFFERENTIAL IN KPa						
				10	20	40	80	160	320	640
	2041-BT-2 2041-BT-2S2	1/4" male flare 1/4" ODS	25	0,414	0,584	0,820	1,143	1,568	2,071	1,717
			30	0,438	0,618	0,868	1,213	1,670	2,229	1,908
			35	0,445	0,628	0,883	1,235	1,707	2,297	2,017
			40	0,411	0,580	0,816	1,143	1,584	2,145	2,739
	2041-BT-3 2041-BT-3S3	3/8" male flare 3/8" ODS	25	3,11	4,38	6,15	8,57	11,76	15,53	12,88
			30	3,29	4,63	6,51	9,10	12,53	16,72	14,31
			35	3,34	4,71	6,62	9,27	12,81	17,23	15,13
			40	3,08	4,35	6,12	8,57	11,88	16,08	20,54
	2041-BT-4 2041-BT-4S4 2041-BT-4S5	1/2" male flare 1/2" ODS 5/8" ODS	25	3,62	5,11	7,17	10,00	13,72	18,12	15,02
			30	3,83	5,41	7,60	10,61	14,62	19,50	16,69
			35	3,90	5,50	7,73	10,81	14,94	20,10	17,65
			40	3,60	5,07	7,14	10,00	13,86	18,77	23,96
	2041-BT-5 2041-BT-5S5 2041-BT-5S6 2041-BT-5S7	5/8" male flare 5/8" ODS 3/4" ODS 7/8" ODS	25	7,0	9,9	13,8	19,3	26,5	35,0	29,0
			30	7,4	10,4	14,7	20,5	28,2	37,6	32,2
			35	7,5	10,6	14,9	20,8	28,8	38,8	34,0
			40	6,9	9,8	13,8	19,3	26,7	36,2	46,2
	1342-BT-06S06 1342-BT-06S07 1342-BT-06S09	3/4" ODS 7/8" ODS 1 1/8" ODS	25		18,2	25,6	35,7	49,0	64,7	53,6
			30		19,3	27,1	37,9	52,2	69,7	59,6
			35		19,6	27,6	38,6	53,4	71,8	63,0
			40		18,1	25,5	35,7	49,5	67,0	85,6
	1342-BT-08S09 1342-BT-08S11	1 1/8" ODS 1 3/8" ODS	25		40,1	56,4	79	108	142	118
			30		42,5	59,7	83	115	153	131
			35		43,2	60,7	85	117	158	139
			40		39,9	56,1	79	109	147	188

All capacities are calculated with a temperature before the valve, corresponding to the condensing temperature with a superheat of +25°C and an evaporation temperature of -10°C.

For capacities in other temperatures,
 use the following correction factor:

EVAPORATING TEMPERATURE	10	0	-10	-20	-30
CORRECTION FACTOR	1,10	1,05	1	0,96	0,90

LIQUID FLOW CHART CAPACITY TABLE FOR INDUSTRIAL VALVES



MOISTURE LIQUID INDICATORS

"MULTI-POSITIVE DIAGNOSIS"

FEATURES

- Heavy forged brass body. Brass or copper fittings.
- Clear fused glass window. Color scale for multi-positive *L/QUID* and *MOISTURE READINGS* of the refrigerant condition in air-conditioning or refrigeration systems.

SPECIFICATIONS

- For R12, R22, R502, R134a, R404A, R407C, R507 and other blends with their specific oil and lubricant.
- Safe working pressure: **35 bar** (500 psi).
- Minimum burst pressure: **175 bar** (2500 psi).
- Maximum temperature rating: **+93°C (+200°F)**.
- **CE** approved (PED).

INSTALLATION & RECOMMENDATIONS

- When installed, the moisture Indicator element will be *PINK*, indicating moisture in the ambient atmosphere. Always, install it at the *OUTLET* of any drier and let the system operate at least **12 hours**. After such a delay, if the moisture element remains *PINK* or *LIGHT VIOLET*, install a new drier and continue to run the system until the element becomes *BLUE*.
- For moisture Indicators equipped with a replaceable cap assembly (**MI-CAP**), remove it before brazing. To replace any cap assembly **MI-CAP**, wrench tighten 1/2 turn beyond handtight position or use a proper sealing torque of **34,3 N.m** approx or **3,5 kgm** or **25 ft.lbs**.

MOISTURE INDICATIONS

- Because of the different solubility limits expressed in **PPM of water** (Part Per Million), the color change will not occur at the same level for all refrigerants. Also, because the temperature of the refrigerant liquid will affect this solubility level, the color change will occur at a different level, according to the liquid temperature. Of course, the moisture color change does not occur until the moisture value stays under the solubility level.

NO MOISTURE

The solubility level is generally given (in PPM) by the manufacturer for each of its refrigerants. Under such a level, PPM's are completely solubilized and can not be detected. In such a state, refrigerants are considered perfectly dry and safe.

MOISTURE DIAGNOSIS

See our **1. MOISTURE COLOR TABLE** for a positive PPM moisture diagnosis of your system.

REVERSIBILITY

The color changes of our moisture Indicators are fully **REVERSIBLE** in the liquid line, offering a positive and permanent moisture reading.

COLOR INDICATIONS

BLUE: Safe (no dangerous PPM of water in the line).
(The refrigerant is dry and safe).

LIGHT VIOLET: Caution (you must change the drier now. The moisture reaches the solubility level).

PINK: Danger (dangerous moisture in the system).

OTHER INDICATIONS

DISCOLORED: Danger (system with excessive amount of water or containing liquid dehydrating agents or liquid leak detectors).

DARK GRAY/BLACK: Danger (oil separation problems).

BUBBLES: Danger (high pressure drop: clogged drier or solid cores, Loss of refrigerant, etc...).



REFRIG. TYPE	PPM MOISTURE CONTENT (Part Per Million)			
	TEMP. (°C/F)	COLOR INDICATIONS		
		BLUE	LIGHT VIOLET	PINK
R12	24° / 75°	< 5	5 through 15	>15
	38° / 100°	<10	10 through 30	>30
	52° / 125°	<15	15 through 45	>45
	24° / 75°	<30	30 through 120	>120
R22	38° / 100°	<45	45 through 180	>180
R500	24° / 75° 52° / 125°	<15 <60	15 through 60 60 through 240	>60 >240
R502	24° / 75° 38° / 100° 52° / 125°	<15 <25 <30	15 through 60 25 through 90 30 through 120	>60 >90 >120
R134a	24° / 75° 38° / 100° 52° / 125°	<15 <35 <50	15 through 80 35 through 120 50 through 150	>80 >120 >150
R404A	38° / 100° 52° / 125°	<25 <45	25 through 110 45 through 140	>110 >140

NOTE:

- **BLUE** column indicates the maximum PPM solubility level under which any refrigerant is considered as dry and safe (*PPM means Part Per Million*). This is the maximum amount of water (*in PPM*) completely solubilized in the refrigerant involved.
- See right "**COLOR INDICATIONS**" explanations. Compare these *PPM* values with water retention capacities given (under their specific *PPM* level) for all *LIQUID FILTER DRIERS*, *SHELLS* and *CORES*, shown before.
- Above (<) means equal or below the *PPM* value.
- Above (>) means equal or above the *PPM* value.

CE



US-1/4-MM

CE



US-3/8-SS

CE



US-1 1/8-SS-RC

SELECTION & ORDERING

MOISTURE INDICATOR
(MALE FLARE x MALE FLARE SAE).

US-1/4-MM INDICATOR 1/4" m. flare x 1/4" m. flare 66 x 29 mm

MOISTURE INDICATOR
(MALE FLARE x FEMALE SAE).

US-1/4-MF INDICATOR 1/4" m. flare x 1/4" f. flare 65 x 33 mm

MOISTURE INDICATORS
(O.D.S. SOLDER x O.D.S. SOLDER).

US-3/8-SS INDICATOR 3/8" O.D.S. x 3/8" O.D.S. 120 x 28 mm
US-1/2-SS INDICATOR 1/2" O.D.S. x 1/2" O.D.S. 124 x 33 mm
US-5/8-SS INDICATOR 5/8" O.D.S. x 5/8" O.D.S. 124 x 35 mm

MOISTURE INDICATOR with "MI-CAP" REPLACEABLE HEAD
(O.D.S. SOLDER x O.D.S. SOLDER).

US-1 1/8-SS-RC INDICATOR 1 1/8" O.D.S. x 1 1/8" O.D.S. 160 x 63 mm

SADDLE TYPE BRASS BODIES

(DIRECT SOLDERING ON TUBING WITHOUT CUTTINGS)
 (SADDLE GROOVE CONNECTIONS).

SA-1¹/₈	To be soldered on any 1 ¹ / ₈ " Ø tubing
SA-1³/₈	To be soldered on any 1 ³ / ₈ " Ø tubing
SA-1⁵/₈	To be soldered on any 1 ⁵ / ₈ " Ø tubing
SA-2¹/₈	To be soldered on any 2 ¹ / ₈ " Ø tubing

REPLACEABLE STD CAP MOISTURE ELEMENT (FOR ALL ABOVE SADDLES and MI-SS INDICATORS).

MI-CAP	Standard replaceable element ready to be screwed on all above saddles and MI-SS (Tightening torque 3,5 kgm or 25 ft.lbs).
---------------	---



LIQUID SIGHT GLASSES WITH FLOATING BALL

"SUITABLE FOR ALL REFRIGERANTS, STEEL PLATED"

BSG-104	SERVICE LIQUID SIGHT GLASS 1/2" MPT (NPT male pipe)
BSG-106	SERVICE LIQUID SIGHT GLASS 3/4" MPT (NPT male pipe)
BSG-108	SERVICE LIQUID SIGHT GLASS 1" MPT (NPT male pipe)
BSG-110	SERVICE LIQUID SIGHT GLASS 1¹/₄" MPT (NPT male pipe)
BSG-112	SERVICE LIQUID SIGHT GLASS 1¹/₂" MPT (NPT male pipe)
BSG-116	SERVICE LIQUID SIGHT GLASS 2" MPT (NPT male pipe)
BSG-M2615	OEM LIQUID SIGHT GLASS M26 x 1,5
BSG-M3615	OEM LIQUID SIGHT GLASS M36 x 1,5
BSG-M522	OEM LIQUID SIGHT GLASS M52 x 2

DESCRIPTION

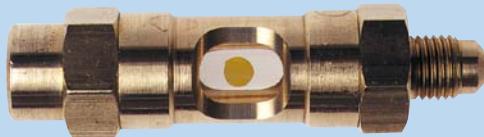
- Screw type sight glass with floating ball.
- Can be used for liquid level control in receivers.
- Floating ball allows to see exact level.
- Maximum service pressure: **40 bar** (580 psi).
- Maximum service temperature: **-40°C to +100°C** (-40°F to +212°F).
- For all CFC, HCFC and HFC refrigerants, oils and NH₃.

INSTALLATION

- NPT male pipe thread or male metric thread.
- NPT type sight glasses also fit in our saddle mountings FPT "BS" on page 153.
- Very easy to install on tubes, receivers etc.
- It is possible to install 2 sight glasses opposite to each other.



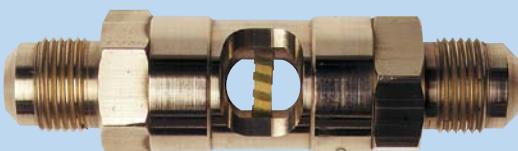
BSG Series



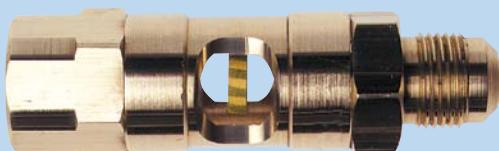
SG-114



SG-118R



SG-204R



SG-260R

EYE SIGHT GLASSES

"IF YOU WANT TO KNOW FOR SURE"

1. LIQUID EYE SIGHT GLASSES

SG-110	SIGHT GLASS 1/4" male fl. x 1/4" male fl.	L = 80 mm
SG-111	SIGHT GLASS 3/8" male fl. x 3/8" male fl.	L = 86 mm
SG-204	SIGHT GLASS 1/2" male fl. x 1/2" male fl.	L = 100 mm
SG-205	SIGHT GLASS 5/8" male fl. x 5/8" male fl.	L = 105 mm

SG-114	SIGHT GLASS 1/4" male fl. x 1/4" fem. fl.	L = 78 mm
SG-115	SIGHT GLASS 3/8" male fl. x 3/8" fem. fl.	L = 83 mm
SG-206	SIGHT GLASS 1/2" male fl. x 1/2" fem. fl.	L = 94 mm
SG-207	SIGHT GLASS 5/8" male fl. x 5/8" fem. fl.	L = 102 mm

SG-118	SIGHT GLASS 1/4" O.D.S. x 1/4" O.D.S.	L = 185 mm
SG-119	SIGHT GLASS 3/8" O.D.S. x 3/8" O.D.S.	L = 197 mm
SG-208	SIGHT GLASS 1/2" O.D.S. x 1/2" O.D.S.	L = 197 mm
SG-209	SIGHT GLASS 5/8" O.D.S. x 5/8" O.D.S.	L = 197 mm

FEATURES

- The brass body "**see-through**" feature that is more readable than other sight glasses. No restriction (full flow).
- The dot on the tube is magnified when, the tube is full of liquid to give you a quick and positive indication.
- The "**in line**" PYREX glass is shock resistant and expansion compensated.
- U.L. listed** (n° SA-5506).
- MWP 20,80 bar (302 psi).

INSTALLATION

- Male flare x male flare SAE or male flare x female flare SAE.
- O.D.S. x O.D.S. solder type. Vertical or horizontal installation.

2. MOISTURE SIGHT GLASSES

SG-110R	SIGHT GLASS 1/4" male fl. x 1/4" male fl.	L = 80 mm
SG-111R	SIGHT GLASS 3/8" male fl. x 3/8" male fl.	L = 86 mm
SG-204R	SIGHT GLASS 1/2" male fl. x 1/2" male fl.	L = 100 mm
SG-205R	SIGHT GLASS 5/8" male fl. x 5/8" male fl.	L = 105 mm

SG-114R	SIGHT GLASS 1/4" male fl. x 1/4" fem. fl.	L = 78 mm
SG-115R	SIGHT GLASS 3/8" male fl. x 3/8" fem. fl.	L = 83 mm
SG-206R	SIGHT GLASS 1/2" male fl. x 1/2" fem. fl.	L = 94 mm
SG-207R	SIGHT GLASS 5/8" male fl. x 5/8" fem. fl.	L = 102 mm

SG-118R	SIGHT GLASS 1/4" O.D.S. x 1/4" O.D.S.	L = 185 mm
SG-119R	SIGHT GLASS 3/8" O.D.S. x 3/8" O.D.S.	L = 197 mm
SG-208R	SIGHT GLASS 1/2" O.D.S. x 1/2" O.D.S.	L = 197 mm
SG-209R	SIGHT GLASS 5/8" O.D.S. x 5/8" O.D.S.	L = 197 mm

FEATURES

- The brass body "**see-through**" feature provides an easy and quick indication of moisture in all refrigerants.
- MOISTURE:** A few hours after installation, the "**reactor**" will stabilize, alternating **GREEN** and **YELLOW** bands.
- NO MOISTURE:** You will see permanent **GREEN** bands.
- No restriction (full flow).
- The "**in line**" PYREX glass is shock resistant and expansion compensated.
- U.L. listed** (n° SA-5506).
- MWP 20,80 bar (302 psi).

INSTALLATION

- Male flare x male flare SAE or male flare x female flare SAE.
- O.D.S. x O.D.S. solder types. Vertical or horizontal installation.

OIL SEPARATORS

"ADVANCED OEM'S TECHNOLOGY"

SPECIFICATIONS

- Suitable for **R12, R22, R505, R134a, R404A, R507** as well as all **CFC, HCFC** and **HFC** and their specific lubricants.
- **MAXIMUM WORKING PRESSURE: 31 bar** (450 psi).
- **BURST PRESSURE: 175 bar** (2500 psi).
- **MAX. WORKING PRESSURE FOR STAINLESS STEEL OIL FLOAT: 62 bar** (880 psi).
- **MAX WORKING PRESSURE FOR RETURN OIL FLOAT MECANISM: 28 bar** (400 psi).
- **CONNECTIONS:** "ODS" for copper tubing.
"FPT" for female national pipe thread.
- **OIL RETURN CONNECTION: 3/8" flare male SAE** (on top).
- Ferrous metals and other particles present in the refrigerant/oil mixture are trapped by copper fine mesh screens at inlet and outlet and a magnetic pin inside the separator itself.
- A special baffle-plate prevents oil being carried over with the leaving refrigerant.
- **CE** approved (PED).

WHY ?

- A properly sized oil separator will efficiently separate all oil from the refrigerant vapour (high pressure side) and return this oil back to the compressor unit (low pressure side).
- As a result, the following advantages will be achieved:
 - A constant oil level in the compressor crankcase.
 - An extended compressor life time.
 - A clean and well balanced refrigerant circuit with an effective heat transfer in the evaporator and condenser.

HOW ?

- The refrigerant vapour will always contain oil vapour/liquid and therefore, the "**ITE** ® "OIL SEPARATORS" are designed to operate:
 - A positive tornado change in the direction of the vapour mixture results in an initial separation of heavier oil particles.
 - The initial high velocity reduction of the oil vapour/liquid results in an oil condensation against the separator innerwall.
 - The oil returns through a float mechanism, back to the compressor crankcase.
 - Only clean refrigerant vapour continues towards the condenser under its original velocity.

WHERE ?

- The OIL SEPARATOR should be positioned in the discharge line between Compressor and condenser and be securely mounted in a vertical position (refer to instruction sheet **801-GB**).

SELECTION ?

1-CONNECTIONS:

Inlet and outlet connections must be the same size (or larger) than the discharge line (not under).

2-NOMINAL CAPACITY/VOLUME:

The efficiency of separation depends very much on the nominal capacity/volume ratio of the separator (see the capacity table).

Therefore in multi-compressor unit running at full output, a single separator might do properly the job. However, in case of power reduction (one or more compressors being switched off) the separator will be oversized and less efficient during that time.

In such a case, more than one separator should be considered and selected in accordance with the various requirements of the power reduction situation.

3-OIL PRE-CHARGE:

After installation and before starting, do not forget the oil pre-charging. Fill the separator with the suitable oil pre-charge (see the table).

CE



OSC-82



OS-80

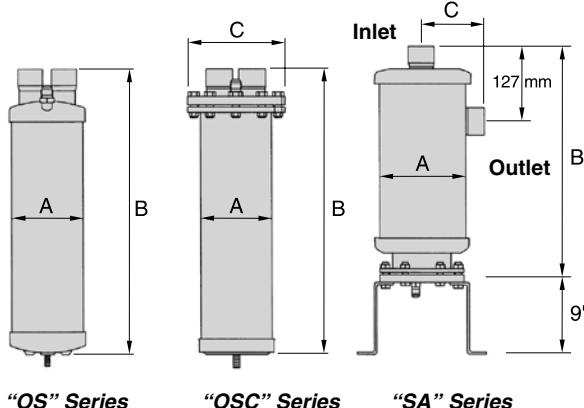
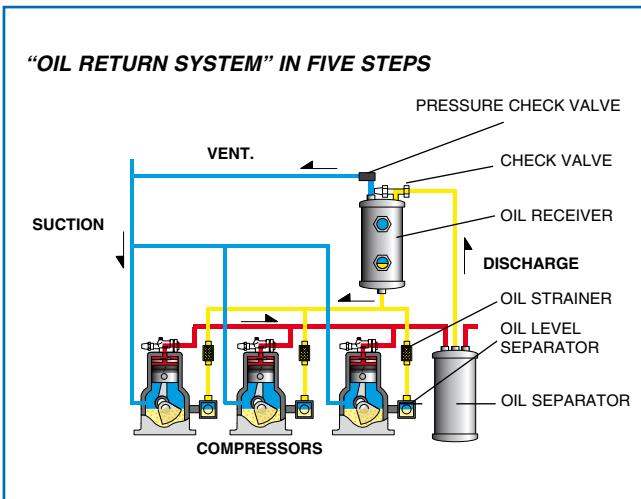
CE



OS-87



OSC-88



SELECTION - CAPACITY TABLE - ORDERING

- NOMINAL CAPACITIES ACCORDING TO EVAPORATING TEMPERATURES.
- CAPACITIES SHOWN IN kW (1 kW = 860 Fg/h = 0,284 US TON OF REFRIGERATION).

"OS" COMPACT SERIES

PART NR.	END CONN.	DIMENSIONS (mm)			R22		R502		R134a		R404A R507		Maxi Flow	Oil pre-charge'	Weight
TYPE S	(ODS)	A	B	C	-40°C	+5°C	-40°C	+5°C	-40°C	+5°C	-40°C	+5°C	(m³/h)	(cl)	kg
OS-81	3/8"	102	210	-	3,5	5,3	3,5	5,3	2,6	3,5	3,5	5,3	1,7	34	2,3
OS-82	1/2"	102	261	-	5,3	7,1	5,3	7,1	3,5	5,3	5,3	7,0	2,5	34	2,7
OS-85	5/8"	102	362	-	15,8	19,3	16,7	20,2	10,5	14,1	14,1	19,3	6,8	34	3,2
OS-87	7/8"	102	451	-	24,6	28,1	26,4	29,9	15,8	19,3	22,8	29,9	11,0	34	4,1
OS-88	1 1/8"	102	534	-	31,6	36,9	33,4	40,4	21,1	26,4	28,9	38,7	13,6	34	4,6
OS-90	1 3/8"	102	540	-	40,4	47,5	41,2	51,0	28,2	33,4	36,9	49,2	17,0	34	4,6

"OSC" CLEANABLE SERIES

PART NR.	END CONN.	DIMENSIONS (mm)			R22		R502		R134a		R404A R507		Maxi Flow	Oil pre-charge'	Weight
TYPE S	(ODS)	A	B	C	-40°C	+5°C	-40°C	+5°C	-40°C	+5°C	-40°C	+5°C	(m³/h)	(cl)	kg
OSC-85	5/8"	102	362	139,7	15,8	19,3	16,7	20,2	10,5	14,1	14,1	19,3	6,8	34	5,0
OSC-87	7/8"	102	451	139,7	24,6	28,1	26,4	29,9	15,8	19,3	22,8	29,9	10,2	34	6,0
OSC-88	1 1/8"	102	534	139,7	31,6	36,9	33,4	40,4	21,1	26,4	28,9	38,7	13,6	34	6,4
OSC-90	1 3/8"	102	540	139,7	40,4	47,5	42,2	51,0	28,2	33,4	36,9	49,2	17,0	34	6,4
OSC-92	1 5/8"	102	553	139,7	42,2	49,2	45,7	52,7	38,7	45,8	53,0	67,0	23,8	34	6,4

"SA" HIGH CAPACITY CLEANABLE SERIES

PART NR.	END CONN.	DIMENSIONS (mm)			R22		R502		R134a		R404A R507		Maxi Flow	Oil pre-charge'	Weight
TYPE S	(ODS)	A	B	C	-40°C	+5°C	-40°C	+5°C	-40°C	+5°C	-40°C	+5°C	(m³/h)	(cl)	kg
SA-507	2 1/8"	152	486	-	87,9	105,4	105,4	123,0	63,3	74,0	84,4	109,0	38,3	85	9,0

REMARKS:

- Before the Oil Separator is installed, an initial charge of oil (same oil that is in the compressor) should be added to it to supply the amount that is held over in the sump of this Separator. See this amount in the Capacity Table expressed in Centilitres (34 Cl = 0,3 Quart & 85 Cl = 0,75 Quart).
- Also note: 1 m³/h = 0,59 CFM and 1 kg = 2,2 lbs.
- ALL Capacities shown are based on +38°C (+100°F) Condensing Temperature and +18°C (+65°F) Suction Gas Temperature and on connection size being same as Compressor discharge Valve.
- If necessary, contact "ITE" "nv" for "Selection" and/or "Oil Return System" arrangement in 5 Steps.

“ITE “OIL LEVEL CONTROL

OIL LEVEL CONTROL

- This oil level control maintains the oil level in the compressor crankcase at 1/2 or 1/4 glass.
- Designed to attach directly to the sight glass place on compressor crankcases.
- The sight glass from the compressor must be bolted to the second oil level control flange.
- The oil supply line from the oil receiver must be connected directly to the 3/8" male flare SAE or better thru the angle service valve 3/8" female swivel x 3/8" male flare (OAV-06FS).
- If the crankcase compressor housing is different than the oil level control flange, use the adaptor kits listed on page 258.
- Each oil level control is equipped with a complete gasket kit and bolts necessary to the fitting.
- CE approved (PED).**

STANDARD OIL LEVEL CONTROL

OLC-12	OIL LEVEL CONTROL, oil level 1/2 glass, Pressure differential: 0,35 to 2,1 bar. Maximum working pressure: 31 bar
--------	--

- Fixing flange: 3 bolts.
- Bolts axe diameter: 47,6 mm.

CE

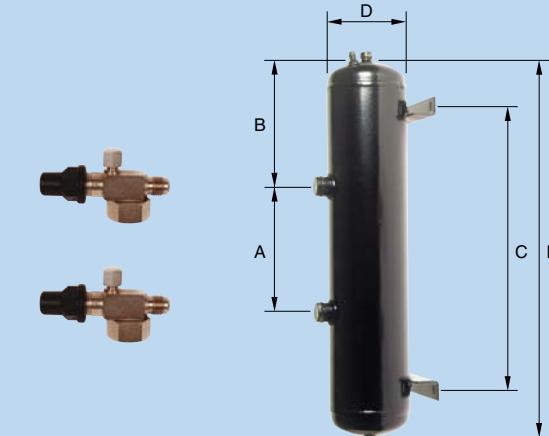


OLC-12

OIL RECEIVERS - VERTICAL

- It is recommended to keep an oil reserve to avoid any oil foaming in the compressor crankcases.
- Oil remains in the receiver enabling the oil level control to operate properly and ensure a correct oil distribution towards each compressor crankcase.
- Supplied with 2 rotaloc valves with backseating that fit the top and bottom receiver connections. Each rotaloc valve provides a regular 3/8" male flare SAE connection and an extra 1/4" male flare SAE port (with cap) to allow filling or emptying of oil from the receiver.
- Oil receivers have 2 sight glasses with incorporated ball.
- Extra 3/8" male flare SAE connection on top for check-valve connection.

PART NUMBER	LITRES	A	B	C	D	E
ORV-08	8	160	160	360	152	480
ORV-12	12	236	236	532	152	710
ORV-15	15	300	300	575	152	900



ORV-08

STRAINERS

- These strainers stop the migration of all small dirt particles to the oil level control or compressor, filtration 150 microns.
- Allow a very good straining with a low pressure drop.
- It is recommended to use one strainer for each oil level control. If not, please use **OST-2270**, same as **OST-700** but with a bigger filtration surface.
- Strainer **OFD-553** is specially built for POE oil filtration.
- Offers a very big filtration surface (227 cm²) and is filled with 131 cm³ XH-9 desiccant for high moisture removal.
- This strainer also offers a very high capacity with a low pressure drop.
- 3/8" male flare SAE connection (same as oil line).

PART NUMBER	CONNECTIONS	SURFACE OF FILTRATION (cm ²)	FILTRATION CAPACITY (μ)
OST-700	3/8" male flare	70	150
OST-2270	3/8" male flare	227	150
OFD-553	3/8" male flare	227	30



OFD-553

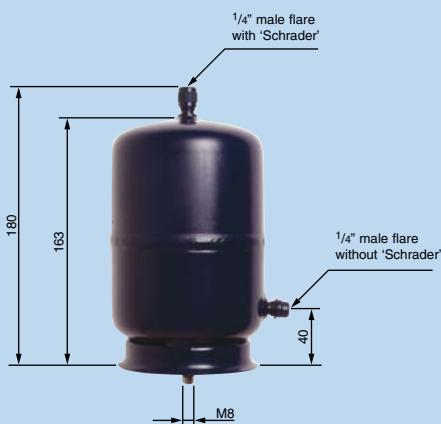


OPCV-1400

PRESSURE CONTROL VALVE

OPCV-1400 PRESSURE CONTROL VALVE, Δp : 1,40

- This control valve is installed between the oil receiver and the suction line. It must be installed on the 3/8" male flare connection of the oil receiver.
- Ensures a pressure differential of 1,4 bar between the oil receiver and the suction line and allows a correct oil supply for the oil level controls.
- Connection Inlet: 3/8 " female flare
Outlet: 3/8 " male flare



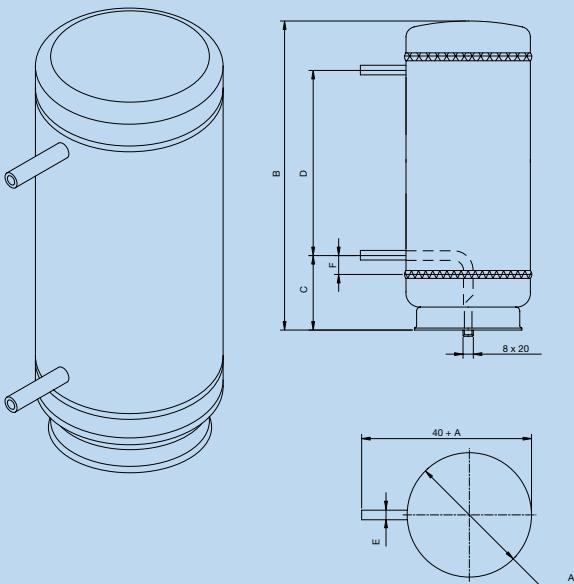
ORVS-1008

OIL RECEIVER - VERTICAL

ORVS-1008 VERTICAL OIL RECEIVER 0,8 l

- Suitable for all CFC, HFC and HCFC refrigerants.
- Working temperature: -10°C to +100°C.
- Maximum working pressure: 32 bar.
- Also available with sight glass and safety relief valve upon request
- PED and CE certified.
- Diameter: 101 mm.
- Equipped with 1/4" male flare top connection with schrader valve and 1/4" male flare side connection without schrader valve.

Other receivers available upon request.



LRV

LIQUID RECEIVERS

LRV-1018 VERTICAL LIQUID RECEIVER 1,8 l

LRV-1039 VERTICAL LIQUID RECEIVER 3,9 l

LRV-1092 VERTICAL LIQUID RECEIVER 9,2 l

SPECIFICATIONS

- Suitable for all CFC, HFC and HCFC refrigerants.
- Working temperature: -10°C to +100°C.
- Maximum working pressure: 32 bar.
- Also available with connection for sight glass and safety relief valve upon request.
- PED - CE certified.

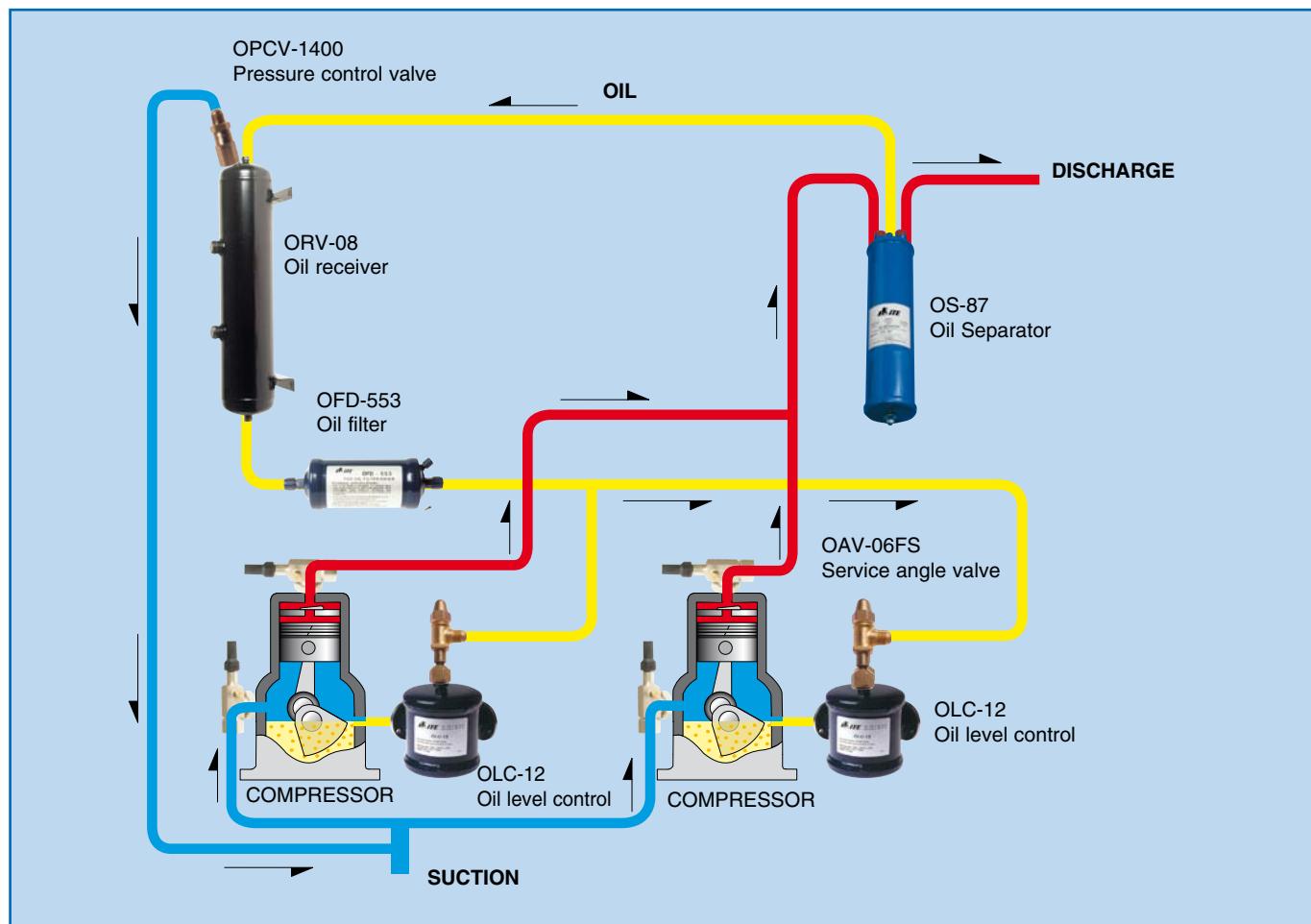
DIMENSIONS

Part Number	A	B	C	D	E	F
LRV-1018	101	252	66	140	Ø 8 x 1	25
LRV-1039	121	420	77	276	Ø 10 x 1	24
LRV-1092	168	487	92	295	Ø 12 x 1	35

SERVICE ANGLE VALVE

OAV-06FS ANGLE VALVE
3/8" female swivel x 3/8" male flare

- This service angle valve can be mounted on inlet connection (or others) of oil level controls.
- Oil line can be isolated when servicing compressor, strainer, oil level control etc.
- This strongly built valve is equipped with a 3/8" female flare connection swivel allowing a 360° positioning of the valve.





ACK-001



ACK-007



ACK-005

COMPRESSOR ADAPTER KITS

COMPRESSOR KIT	COMPRESSOR MANUFACTURER	COMPRESSOR MODEL	SIGHT GLASS VERSION
ACK-001 ACK-008	BITZER BITZER	2, 4, 6 new version	Flange, 4 bolts Ø 50 mm 1 1/8" - 18 (thread)
ACK-003 ACK-004	CARRIER CARRIER	DA, DR, 5F, 5H, O6D EA, ER, OBE, OBCC	1 1/2" - 18 (thread) Flange, 3 bolts Ø 47,6 mm
ACK-007 ACK-004 ACK-005	Copeland DWM Copeland DWM Copeland	ZR 90 K to ZR 19 M, ZF, ZS, scroll D2, D3, D9, D4, D6 except D6C D8, 8CC	3/4" NPT (thread) Flange, 3 bolts Ø 47,6 mm Flange, 3 bolts Ø 47,6 mm
ACK-004	Dunham-Bosh	B4	Flange, 3 bolts Ø 47,6 mm
ACK-004	Frascold	All versions	Flange, 3 bolts Ø 47,6 mm
ACK-008	Maneurop	MT, LT ...	1 1/8" - 18 (thread)
ACK-004 ACK-005	Prestcold Prestcold	P2, P3, PR, P4, P6 P8	Flange, 3 bolts Ø 47,6 mm Flange, 3 bolts Ø 47,6 mm
ACK-007	Royce	All versions	3/4" NPT (thread)
ACK-004 ACK-007	Trane Trane	M, R, K	Flange, 3 bolts Ø 47,6 mm 3/4" NPT (thread)
ACK-004	York	GC, GS, JS	Flange, 3 bolts Ø 47,6 mm

CONVERSION TABLES

COMMON THREADS

Thread UNF	US Spec. SAE	Outside. major dia- meter mm	Core dia. (min size) mm	Pitch nr. per inch	Pitch mm
5/16" - 24 UNF	1/8" SAE	7,938	6,792	24	1,058
3/8" - 24 UNF	3/16" SAE	9,525	8,379	24	1,058
7/16" - 20 UNF	1/4" SAE	11,112	9,738	20	1,270
1/2" - 20 UNF	5/16" SAE	12,700	11,328	20	1,270
5/8" - 18 UNF	3/8" SAE	15,875	14,348	18	1,411
3/4" - 16 UNF	1/2" SAE	19,050	17,330	16	1,588
7/8" - 14 UNF	5/8" SAE	22,225	20,262	14	1,814
1 1/16" - 14 UNF	3/4" SAE	25,400	25,024	14	1,814
1 1/8" - 12 UNF	-	28,575	26,284	12	2,117
1 1/4" - 12 UNF	7/8" SAE	31,750	29,459	12	2,117
1 3/8" - 12 UNF	1" SAE	34,925	32,634	12	2,117
1 1/2" - 12 UNF	-	38,100	35,809	12	2,117

TORQUE FOR SAE FLARE FITTINGS

TUBE DIAM.	RECOMMENDED TORQUE	MAXIMUM TORQUE
1/8"	8,0 Nm (6 ft.lbs)	9,5 Nm (7 ft.lbs)
3/16"	11,0 Nm (8 ft.lbs)	12,2 Nm (9 ft.lbs)
1/4"	12,2 Nm (9 ft.lbs)	13,5 Nm (10 ft.lbs)
5/16"	19,0 Nm (14 ft.lbs)	22,0 Nm (16 ft.lbs)
3/8"	27,0 Nm (20 ft.lbs)	33,7 Nm (25 ft.lbs)
1/2"	40,5 Nm (30 ft.lbs)	47,2 Nm (35 ft.lbs)
5/8"	60,8 Nm (45 ft.lbs)	74,2 Nm (55 ft.lbs)
3/4"	107,0 Nm (79 ft.lbs)	119,0 Nm (88 ft.lbs)
7/8"	147,0 Nm (108 ft.lbs)	154,0 Nm (113 ft.lbs)

POWER

	kW	Watt	Kcal/h	BTU/h
1 kW	-	1000,000	860,000	3412,00
1 Watt	0,001000	-	0,860	3,41
1 Kcal/h	0,001163	1,163	-	3,95
1 BTU/h	0,000293	0,293	0,250	-

1 kW = 0,284 US tons of refrigeration

MEASURES

Linear measures				
mm x 0,039370	= inches	x 25,4000000	= mm	
cm x 0,393700	= inches	x 2,5400000	= cm	
m x 39,370000	= inches	x 0,0254000	= m	
m x 3,281000	= feet	x 0,3048000	= m	
m x 1,093600	= yards	x 0,9144000	= m	
Km x 3280,800000	= feet	x 0,0003048	= Km	
Km x 1093,600000	= yards	x 0,0009144	= Km	
Km x 0,621337	= miles	x 1,6094320	= Km	

Square measures				
mm ² x 0,001550	= sq inches	x 645,2000000	= mm ²	
cm ² x 0,155000	= sq inches	x 6,4520000	= cm ²	
m ² x 10,764000	= sq feet	x 0,0929000	= m ²	
m ² x 1,196000	= sq yards	x 0,8361000	= m ²	
Km ² x 0,386100	= sq miles	x 2,5900000	= Km ²	
ha x 2,471000	= acres	x 0,4047000	= ha	

Capacity				
cm ³ x 0,061023	= cu inches	x 16,3870000	= cm ³	
cm ³ x 0,033810	= fl ounces	x 29,5700000	= cm ³	
l x 61,023000	= cu inches	x 0,0163870	= l	
l x 0,035310	= cu feet	x 28,3170000	= l	
l x 0,264200	= U.S. gal	x 3,7850000	= l	
l x 0,220000	= Imperial gal	x 4,5440000	= l	
m ³ x 35,314000	= cu feet	x 0,0283200	= m ³	

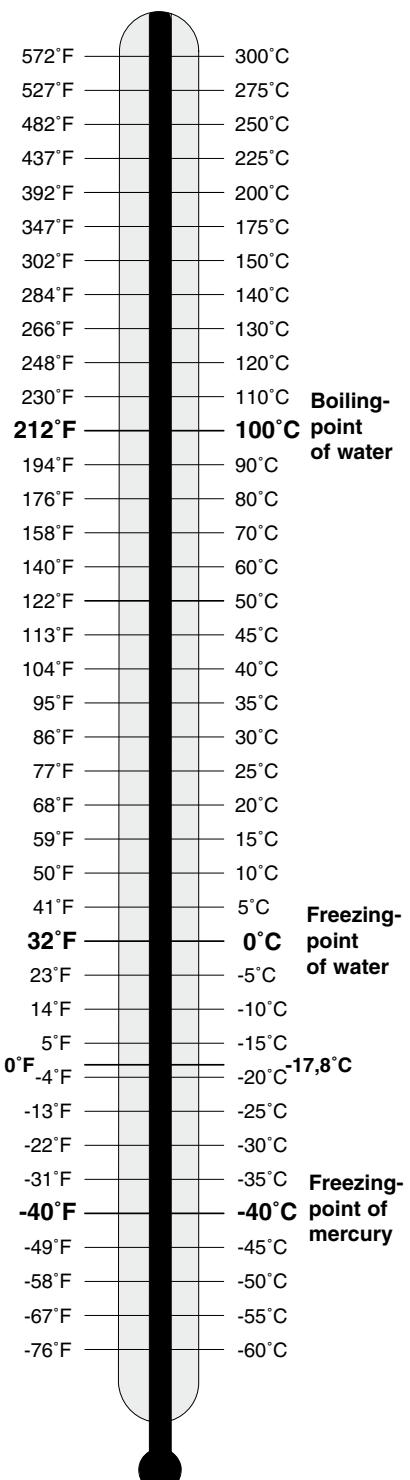
USED ABBREVIATIONS

FFL	: Female Flare sae 45°
MFL	: Male Flare sae 45°
FPT	: Female national Pipe Thread
MPT	: Male national Pipe Thread
ODS	: Solder Ends Connections

TEMPERATURE

$$^{\circ}\text{F} = ^{\circ}\text{C} \times 1,8 + 32$$

$$^{\circ}\text{C} = (^{\circ}\text{F} - 32) / 1,8$$



Weights

g	x	15,432000	= grains	x	0,06480	= g
g	x	0,035300	= oz	x	28,35000	= g
Kg	x	35,270000	= oz	x	0,02835	= Kg
Kg	x	2,204600	= lbs	x	0,45360	= Kg
Kg	x	0,001102	= U.S. tons (short)	x	907,20000	= Kg
Kg	x	0,000984	= long tons	x	1.016,04800	= Kg

Flow

l/min	x	0,264200	= U.S. gallon/min	x	3,78500	= l/min
l/min	x	0,035310	= cfm	x	28,31700	= l/min
l/hr	x	0,004400	= U.S. gallon/min	x	227,10000	= l/hr
m³/hr	x	0,588600	= cfm	x	1,69920	= m³/hr
m³/hr	x	4,402800	= U.S. gallon/min	x	0,22710	= m³/hr
m³/hr	x	16,670000	= l/min	x	0,06000	= m³/hr

VACUUM

Boiling temperatures of water at converted pressures	Microns	Torr (mmHg)	mbar	Absolute pressure inches Hg ("HgA)	psia	% Vacuum
100°C	760000	760,000	1013,00000	29,92100	14,69600	0,0000
	750000	750,000	999,67000	29,52700	14,50300	1,3200
	700000	700,000	933,03000	27,55900	13,53600	7,8900
	600000	600,000	799,74000	23,62200	11,60200	21,0500
	535000	535,000	713,01000	21,06000	10,35000	29,6000
	400000	400,000	533,18000	15,74800	7,73500	47,3700
	355092	355,100	473,45600	13,98000	6,87000	53,2800
	300000	300,000	399,87000	11,81100	5,80100	60,5300
	233680	233,680	311,57400	9,20000	4,52000	69,2600
	149352	149,350	199,13400	5,88000	2,89000	80,3500
50°C	100000	100,000	133,29000	3,93700	1,93400	86,8400
	92456	92,460	123,28000	3,64000	1,79000	87,8300
	80000	80,000	106,63000	3,15000	1,54700	89,4700
	70000	70,000	93,30000	2,75600	1,35400	90,7900
	60000	60,000	79,97000	2,36200	1,16000	92,1100
40°C	55118	55,120	73,49400	2,17000	1,06615	92,7500
	40000	40,000	53,32000	1,57500	0,77300	94,7400
	31750	31,750	42,33400	1,25000	0,61410	95,8200
	25400	25,400	33,86000	1,00000	0,49100	96,6600
30°C	20000	20,000	26,66000	0,78740	0,38700	97,3700
	12700	12,700	16,93400	0,50000	0,24560	98,3300
	7620	7,620	10,16000	0,30000	0,14740	99,0000
-6,1°C	2540	2,540	3,38600	0,10000	0,04910	99,6600
	750	0,750	0,99970	0,02950	0,01450	99,9000
	254	0,254	0,33860	0,01000	0,00491	99,9665
-31,1°C	127	0,127	0,16930	0,00500	0,00246	99,9830
	10	0,010	0,01330	0,00039	0,00019	99,9987
-37,2°C	0	0,000	0,00000	0,00000	0,00000	100,0000

Conversion formulas

$$\begin{aligned} \text{Torr (mmHg)} &= "HgA \times 25,4 \\ &= \text{psia} \times 51,7 \\ &= \text{mbar} \times 0,75 \end{aligned}$$

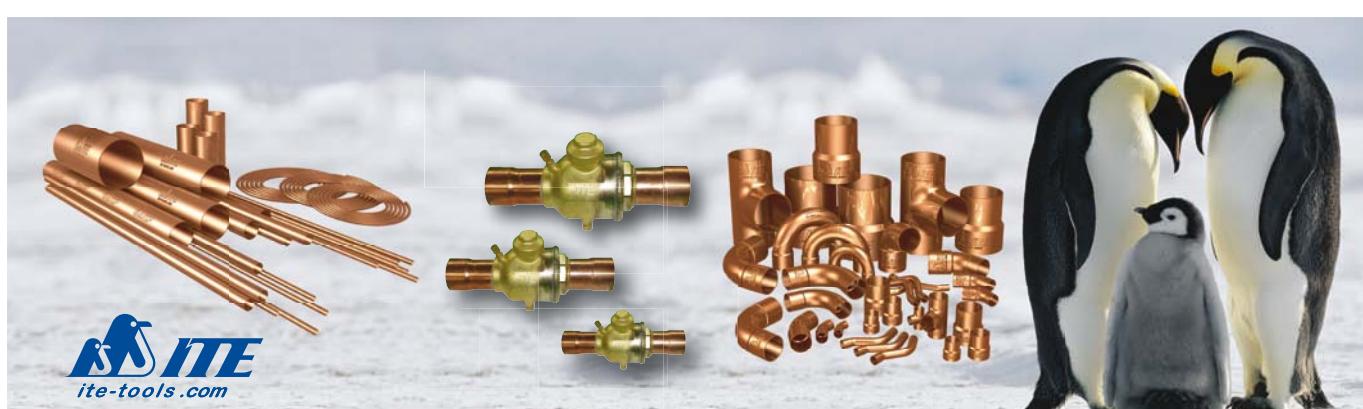
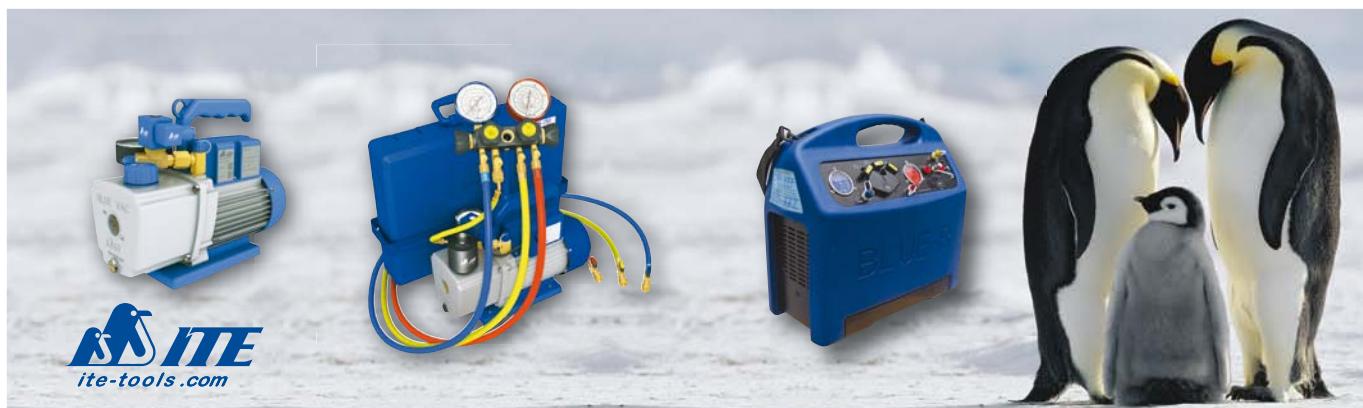
$$\begin{aligned} \text{HgAbsolute} &= \text{mmHg}/25,4 \\ &= \text{psia} \times 2 \\ &= \text{mbar} \times 0,0295 \end{aligned}$$

PRESSURE

	psi	kPa	kg/cm²	inches of Hg	mm of Hg	ounces per square inch	bar	mbar
1 psi	-	6,895	0,07031	2,0360	51,715	16,000	0,0689	68,948
1 kPa	0,1450	-	0,01020	0,2953	7,501	2,321	0,0100	10,000
1 kg/cm²	14,2233	98,067	-	28,9590	735,559	227,573	0,9807	1.013,250
1 inch of Hg	0,4912	3,386	0,03453	-	25,400	7,858	0,0339	33,864
1 mm of Hg	0,0193	0,133	0,00136	0,0394	-	0,309	0,0013	1,333
1 ounce per square inch	0,0625	0,431	0,00439	0,1273	3,232	-	0,0043	4,309
1 bar	14,5038	100,000	1,01972	29,5300	750,063	232,061	-	1.000,000
1 mbar	0,0145	0,100	0,00102	0,0295	0,750	0,232	0,0010	-

Supplier of Material and Training in several International Tenders organized by Official Associations such as UNIDO, UNDP, UNEP, CIPPI Prospect within the Framework of Phasing Out Ozone Depleting Substances Consumption.





TERMS AND CONDITIONS OF SALE

1. ITE sells products for professional use in the HVACR (heating, ventilation, air conditioning and refrigeration) industries only. These products are to be used by qualified professionals only. Sales are subject to the present conditions. Any conditions of purchase stipulated by the Purchasers which could be in conflict with the present conditions will be inapplicable, unless ITE accepts in writing such conditions. The present conditions of sale and the conditions of warranty will enter into force in any event upon the silent acceptance of ITE's order acknowledgement or invoice by the Purchasers.
2. When ordering the Purchaser must state both article number and product description. ITE's quotations are without engagement. All orders, contracts or other understandings are valid only if they have been confirmed in writing by a duly authorized corporate officer of ITE. Ordering the right product and the right quantity is the sole responsibility of the Purchaser.
3. Without prejudice to ITE's legal rights in the event of breach of contract by Purchasers, ITE reserves the right to suspend deliveries or at their option cancel unfulfilled part of contract in whole or part if Purchasers fail to fulfill any obligation there under or if by reason of Act of God, war, force majeure, governmental control, storm, fire, tempest, strikes, lockouts, inevitable accident or any other unforeseen circumstances outside their control, ITE is prevented in whole or in part from performing their obligations under the contract. Partial deliveries by ITE are permitted.
4. Delivery dates are approximate only and without engagement but every endeavor will be made to carry out Purchasers' requirements provided that all necessary information is given to ITE at the time the order is placed.
5. Each delivery shall be considered as a separate contract and a failure of any delivery shall not vitiate the contract as to others. Additionally the standard package quantities, shown in all price lists, should strictly be observed. ITE will automatically ship standard package as the smallest sellable unit.
6. Property in products shall pass to Purchaser upon receipt by ITE of full payment. ITE has the right to consider partial payments as breach of contract by the Purchaser.
7. Unless ITE or their principals agree to work to Purchasers' drawings and specifications, ITE's or their principal's normal tolerances and material specifications will apply.
8. Performance figures as given by ITE are based upon manufacturers' experience but are not guaranteed.
9. Inspection and acceptance tests, if any, shall be carried out at the manufacturers' premises. If the Purchaser fails to have the agreed inspection carried out and/or to be represented at the agreed acceptance tests, the products shall be deemed to have been delivered in accordance with the specifications in the contract. If the agreement does not provide for inspection tests the products will be deemed in conformity with the contract and accepted by the Purchaser, unless Purchaser notifies ITE in writing of deterioration of the products within 3 months following delivery of the products. If products alleged to be apparently defective are returned to ITE, carriage paid for examination with full statement of allegation within 1 month of delivery or such other period as ITE may agree in writing or if ITE agrees that return of such product is impracticable and are given the opportunity of examining them *in situ* ITE will repair or at their option replace free of charge such product as they recognize to be defective owing to faulty material or workmanship and refund carriage on them. Subject only as stated in these conditions no warranty, condition or representation whatsoever is given or to be implied in connection with products supplied under the contract. In the case of "hidden" defects such claims must be made within 3 months. In case of damage or loss caused by transportation Purchaser's exclusive remedy shall be as provided for in article 22.
10. The products sold by ITE are for professional use only. ITE accepts no responsibility for any loss, damage or injury howsoever caused arising out of or in connection with products supplied under the contract nor for any consequential loss.
11. Payment terms are strictly 45 days net from invoice date unless otherwise stated. Payments are to be made by bank transfer only. Payment at due date and without any deduction is a condition precedent to subsequent delivery and time of payment is of the essence of the contract. Payment of ITE's invoices will be made in EURO or in U.S. Dollars according to the invoice or to the quotation unless otherwise approved by ITE in writing. Transfer charges occurring at Purchaser's bank or at the correspondents of the Purchaser's bank are for Purchaser's account. The invoices shall bear interest as of their due date at an annual rate of interest of 12%. The overdue amount shall further be increased with a lump indemnity equal to 10% of such overdue amount with a minimum of 100 EURO. In the event of accounts becoming overdue ITE reserves the rights to take lien on supplied products, to cancel all outstanding orders and to modify the payment terms for all outstanding orders, notwithstanding other normal legal rights. If full payment of any invoice is not received by ITE by due date this will be considered as breach of contract and all outstanding invoices are due immediately.
12. All drawings, quotations, specifications or any other information submitted to Purchasers or to any other party remain ITE's property and must not be copied, disclosed to any third party or otherwise used without ITE's written permission. All information of any kind provided by ITE under any form is purely indicative and can be modified by ITE.
13. Unless otherwise specified, all packing cases and other containers are nonrefundable and packing is provided in accordance with ITE's standard practice.
14. ITE accepts no responsibility where patterns, jigs, fixtures, drawings, specifications or other particulars supplied by Purchasers are inaccurate or in defective condition, and Purchasers shall indemnify ITE against any loss suffered by ITE by reason of such inaccuracy or defective condition.
15. Purchasers shall indemnify ITE against all claims, demands, damages, penalties, costs and expenses to which ITE may become liable by reason of any infringement or alleged infringements of Letters Patent or registered design arising out of performance of a contract in accordance with Purchaser's specifications, or by reason of any infringement or alleged infringement of trademarks. Purchaser is not permitted to use any of the ITE's trademarks without ITE's written permission.
16. Delivery terms
 - A. All shipments will be made ex-warehouse Sint-Niklaas, Belgium. Purchasers bear the risk of transportation of the products.
 - B. Minimum order amount to be accepted and processed without additional charges is 500 EURO net. For orders below 500 EURO, extra charges will be added. If the order is to be invoiced in another currency the EURO equivalent is calculated based on the daily exchange rate published by the ECB of the day the order has been received.
17. ITE shall include following documents in the shipments: packing list, 2 copies; invoice, 1 original and 1 copy. Additional documents issued by ITE will be charged at 70 EURO per document. All other documents will be subject to quotation.
18. ITE's prices are without VAT and / or any other tax. ITE reserves the right to adjust prices. The adjustments will become effective on shipments on orders received after date of price change. Possible clerical or typographical errors will be corrected without notice. Notice of price changes shall deemed to have been served on the date of dispatch by E-mail, mail or fax or other means to Purchaser's last known address.
19. Cancellation charges:
 - A. On orders for immediate delivery, 15% cancellation charges are applicable if cancellation is received after the date of order reception.
 - B. On scheduled orders, 15% cancellation charges are applicable if cancellation is received in the last 8 weeks before the scheduled delivery.
20. All returns of products should be authorized first by ITE in writing. The return will be evaluated according to ITE's return products policy (copies available on application). All returns must be accompanied by the original and undamaged packaging. The cost for the return shall be fully paid by the Purchaser. Should ITE accept the return, the Purchaser will be charged 25% of the value of the returned products. If a return does not meet these conditions the Purchaser still must pay for the returned products. Purchaser then has the right to have the products sent back on his expense.
21. The warranty period is twelve months starting from invoice date, unless otherwise confirmed by ITE. Parts to be replaced due to normal use are not subject to warranty. In the case of justified warranty claims approved by ITE management the warranty is limited to the replacement of the products sold by ITE. Returns of products under warranty are subject to the conditions of article 20. ITE is not liable for and there is no warranty in the case of any damage caused by incorrect or unprofessional storage, installation, use or maintenance of the products sold or for damages resulting from a case of force majeure or any other unforeseen incident.
22. Waiver by ITE of a breach of any terms and conditions of this contract by the Purchaser shall not constitute a waiver of any other breach of the same or other term.
23. If the products are to be delivered within the E.U., even if the products are collected by the Purchaser, the Purchaser shall supply ITE with a valid VAT number of the company to whom the products are to be delivered. The Purchaser shall immediately inform ITE in writing of any changes of the VAT number. The Purchaser will be responsible for and compensate all damages suffered by ITE resulting in non or late communication regarding the valid VAT number. Upon ITE's request the Purchaser shall immediately provide written proof of the validity of the VAT number.
24. If the products are to be delivered outside the E.U., even if the products are collected by the Purchaser, or if the Purchaser receives the products from ITE outside the E.U., then it is the Purchaser's responsibility that ITE receives sufficient evidence that the products have left the E.U. The Purchaser shall compensate all damages suffered by ITE resulting in the lack of such evidence.
25. All commercial transactions to which these terms and conditions apply or which arise from the same are concluded or deemed concluded in Antwerp and are governed by Belgian law and the Antwerp practice of the trade insofar as they are not contrary to these terms and conditions. All controversies will be settled by the Courts of Antwerp. ITE reserves the right at their sole option to bring any dispute before any Belgian or foreign Court which may have jurisdiction on the basis of the general principles concerning competence.

Copies of these conditions of sale are available in French, Dutch, German, Italian and Spanish.

Ces conditions de vente sont également disponibles en langue Française.

Diese Bedingungen sind ebenfalls verfügbar auf Deutsch.

Deze verkoopsvoorraarden zijn ook beschikbaar in het Nederlands.

Condizione di vendita sono anche disponibile in lingua Italiana.

Estas condiciones de ventas son disponibles también en Español.



member



member



member



member



member



Your no. 1 supplier for:

- Electronic measurement and control instruments
- Evacuating and charging equipment
- Service manifolds, gauges and charging hoses
- Tube working tools
- Automatic access valves & fittings
- Forged brass & steel fittings "NPT" and "Flare 45° SAE"
- Copper tubes, coils & solder fittings (Inch & Metric)
- Refrigeration accessories
- Fluid control components

ITE does not accept any responsibility for possible errors in catalogs, brochures and other printed material.
ITE reserves the right to alter product specifications and details.

NON-BINDING DOCUMENT