



Mastercool[®] Inc.
"World Class Quality"

AUTOMOTIVE
AIR CONDITIONING, SERVICE TOOLS & EQUIPMENT

For over 35 years Mastercool has been supplying professional quality air conditioning service tools and equipment. As one of the fastest growing companies in this market, our primary goal is to drive new product innovation and technologies to make the every day work of the automotive technician easier!

With our never-ending focus on innovation and new technology, Mastercool has been awarded many patents worldwide. Our products are currently being distributed in over 76 countries and growing everyday!

Corporate Office
Manufacturing and USA Warehouse



European Sales Office and Warehouse



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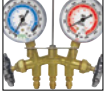




Australian Sales Office










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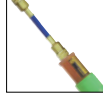

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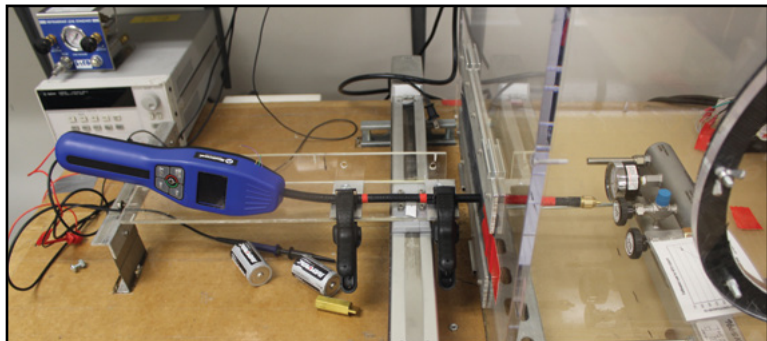
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MASTERCool PRODUCTS ARE
MADE/ASSEMBLED IN THE USA

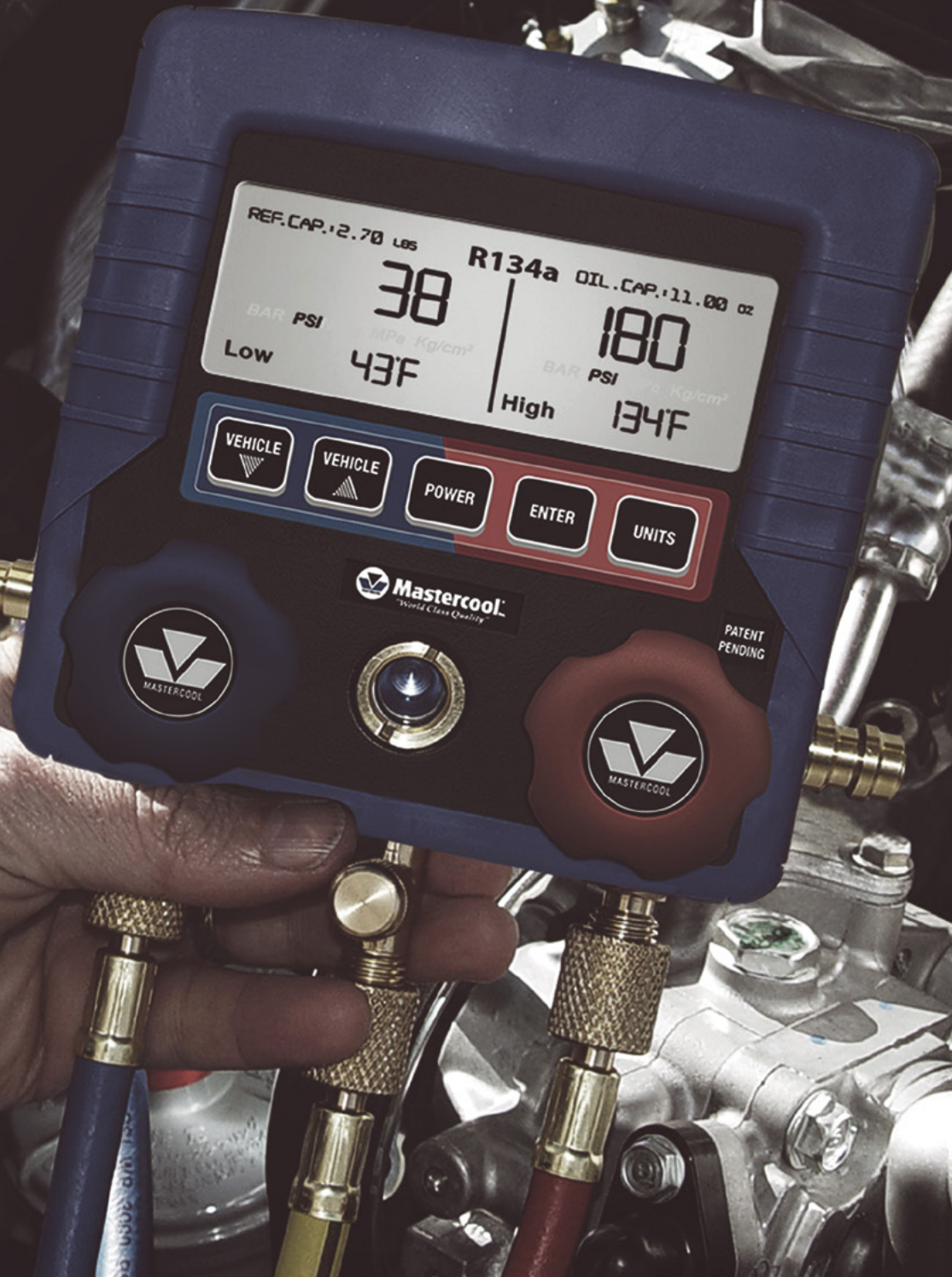


Mastercool manufactures all of its products with the highest quality components and management systems. All products are checked and tested directly at Mastercool headquarters in Randolph, New Jersey, USA.

Our products comply in every respect with the requirements set forth by SAE and EPA Standards as well as ARI Standard 740-98, EU Directives and PROP 65 guidelines.



MANIFOLDS

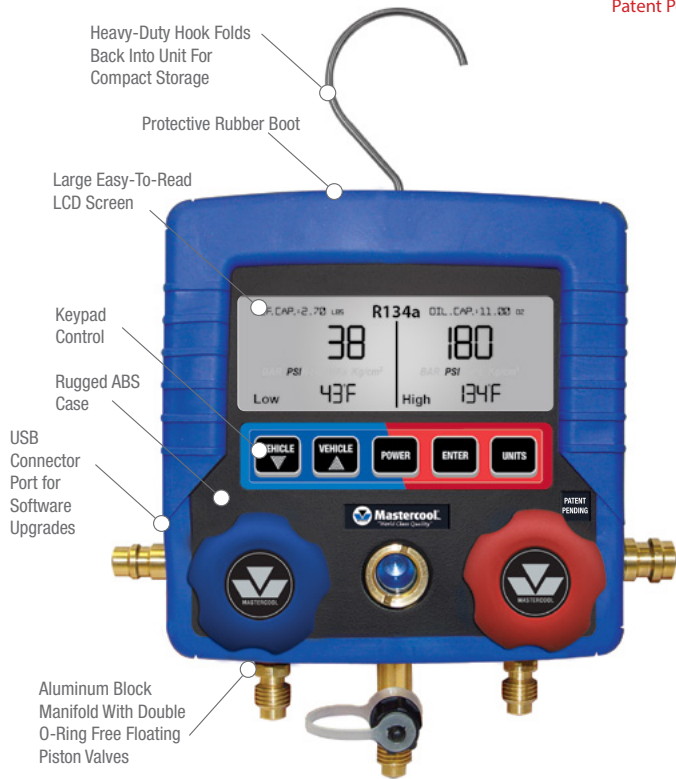




ALL THE INFORMATION YOU NEED IN THE PALM OF YOUR HAND - NOW AVAILABLE WITH R1234YF!



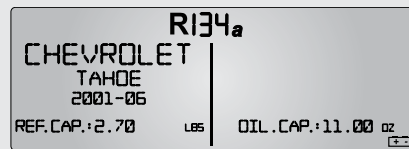
Patent Pending



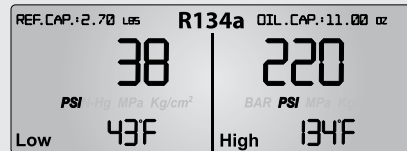
This manifold offers a large easy to read LCD that displays temperature, pressure and vacuum readings. The unit easily allows the technician to obtain refrigerant and oil capacity readings for many popular automobile manufacturers. This unit also performs systems leak check at the conclusion of the evacuation process. To insure lasting performance and durability the manifold case is constructed of ABS material and protected by a rugged rubber boot. The technician now has a fully functional manifold with the intelligence to quickly access and deliver the accurate information needed to do the job right!

SPECIFICATIONS

- Refrigerant: R134a or R134a/R1234yf
- Pressure & Vacuum Display: Low Side - PSI, Bar, MPa, Kg/cm² & IN-Hg
High Side - PSI, Bar, MPa, Kg/cm²
- Temperature Display: -40 to 200°F (-4 to 93°C)
- Response Time: 250 mSec.
- Connection: 1/2" acme
- Operating Temperature: 32 to 122°F (0 to 45°C)
- Power: 9V DC battery
- Low Battery Indicator: Special ICON on LCD
- Auto-Off: 15 min. with disabling capability



MANUFACTURER/MODEL/YEAR REFRIGERANT (LB/KG) & OIL CAPACITY (OZ/ML) DISPLAY



TEMPERATURE/PRESSURE DISPLAY



- 99134-A Digital manifold only
- 99860-A Complete kit in a blow molded case includes: R134a manifold with a set of 3-60" hoses and a set of manual couplers (82834 & 82934).
- 99872-A Complete kit in a blow molded case includes: R134a manifold with a set of 3-72" hoses and a set of manual couplers (82834 & 82934).
- 99134-AR <<NEW>> Dual R134a/R1234yf digital manifold only
- 99172 <<NEW>> Complete kit in a blow molded case includes: dual R134a/R1234yf digital manifold set of 3-72" R134a hoses, set of R134a couplers (82834, 82934), set of R1234yf couplers (83834, 83934), 1/2" ACME-M x 1/2" ACME-F LH thread adapter (83633) (2) 12 mm-M x 14 mm-F R1234yf adapters (83735)



R1234yf/R134a ALUMINUM MANIFOLD GAUGE SET



- Professional extruded aluminum block
- 2 1/2" silicone dampened, recalibrateable gauges
- Free-floating piston type valves reduce o-ring wear
- Extra access port for vacuum line
- Extra large sight glass for visual refrigerant check
- Large easy-to-grip knobs
- R1234yf high and low side couplers with extended disconnect protection sleeve meets SAE J639 & J2888
- R134a high and low side manual couplers meet SAE, UL and EPA requirements for containment of refrigerant
- 1/2" acme-m x 1/2" acme-f LH thread adapter
- (2) 12 mm-m x 14 mm-f R1234yf adapters
- Set of 3 - R134a standard hoses

- 89636-AYF** R1234yf/R134a aluminum manifold gauge set, 2 1/2" gauges, 3-36" R134a standard hoses, R134a manual couplers (82834, 82934), R1234yf couplers (83834, 83934), 1/2" acme-m x 1/2" acme-f LH thread adapter (83633), (2) 12 mm-m x 14 mm-f R1234yf adapters (83735)
- 89661-AYF** R1234yf/R134a aluminum manifold gauge set, 2 1/2" gauges, 3-60" R134a standard hoses, R134a manual couplers (82834, 82934), R1234yf couplers (83834, 83934), 1/2" acme-m x 1/2" acme-f LH thread adapter (83633), (2) 12 mm-m x 14 mm-f R1234yf adapters (83735)
- 89772-AYF** R1234yf/R134a aluminum manifold gauge set, 2 1/2" gauges, 3-72" R134a standard hoses, R134a manual couplers (82834, 82934), R1234yf couplers (83834, 83934), 1/2" acme-m x 1/2" acme-f LH thread adapter (83633), (2) 12 mm-m x 14 mm-f R1234yf adapters (83735)



R1234yf/R134a BRASS MANIFOLD GAUGE SET



- 2 1/2" silicone dampened, recalibrateable gauges
- Extra access port for vacuum line
- R1234yf high and low side quick couplers
- R134a high and low side economy couplers
- 1/2" acme-m x 1/2" acme-f LH thread adapter
- (2) 12 mm-m x 14 mm-f R1234yf adapters
- Set of 3 - R134a standard hoses

- 66636-AYF** R1234yf/R134a brass manifold gauge set, 2 1/2" gauges, 3-36" R134a standard hoses, R134a economy couplers (66234, 66334), R1234yf quick couplers (67434, 67534), 1/2" acme-m x 1/2" acme-f LH thread adapter (83633), (2) 12 mm-m x 14 mm-f R1234yf adapters (83735)
- 66661-AYF** R1234yf/R134a brass manifold gauge set, 2 1/2" gauges, 3-60" R134a standard hoses, R134a economy couplers (66234, 66334), R1234yf quick couplers (67434, 67534), 1/2" acme-m x 1/2" acme-f LH thread adapter (83633), (2) 12 mm-m x 14 mm-f R1234yf adapters (83735)
- 66672-AYF** R1234yf/R134a brass manifold gauge set, 2 1/2" gauges, 3-72" R134a standard hoses, R134a economy couplers (66234, 66334), R1234yf quick couplers (67434, 67534), 1/2" acme-m x 1/2" acme-f LH thread adapter (83633), (2) 12 mm-m x 14 mm-f R1234yf adapters (83735)

PARTS FOR 2-WAY ALUMINUM MANIFOLDS

- 85215** O-rings for aluminum manifold (4 pcs)
- 85216** Seal and seat assembly (2 pcs)

PARTS FOR 2-WAY BRASS MANIFOLD

- 34215** O-rings for brass manifolds
- 34216** Seal and seat assembly for brass manifolds



R134a AUTO A/C 2-WAY MANIFOLD GAUGE SETS WITH HOSES PACKAGED IN CLAMSHELLS



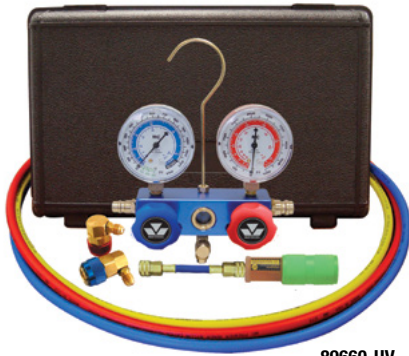
- Hose connections for blue and red are 14mm-M
- Yellow hose is 1/2" ACME-F with auto shut-off valve
- Gauges are 2 1/2" in PSI/°F, 3 1/8" in PSI/Kpa & °F

HOSE LENGTH (SET OF 3)	W/MANUAL COUPLERS		W/E-Z SNAP™ COUPLERS		W/O COUPLERS	
GAUGE SIZE	2 1/2"	3 1/8"	2 1/2"	3 1/8"	2 1/2"	3 1/8"
36"	89636	89136	88436	88136	85636	85136
60"	89661	89161	88461	88161	85661	85161
72"	89772	89172	88472	88172	85772	85172

To order manifolds with shock-resistant gauge protectors, simply place a "-G" after the part number (2 1/2" only)

AUTOMOTIVE R134a MANIFOLD GAUGE SET

>>POPULAR<<

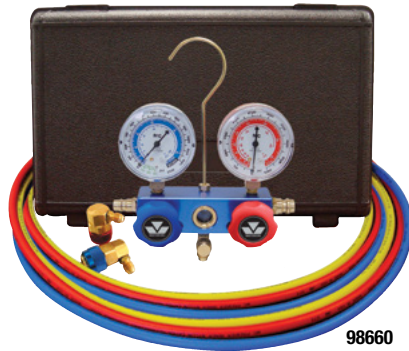


89660-UV

- Professional extruded aluminum block
- 2 1/2" silicone dampened, recalibrateable gauges
- Free-floating piston type valves reduce o-ring wear
- Extra access port for vacuum line
- Extra large sight glass for visual refrigerant check
- Large easy-to-grip knobs
- 3 - SAE approved nylon barrier hoses
- Custom molded carrying case

- 89660** Complete kit in a blow molded case includes aluminum manifold, 60" hoses and professional couplers
- 89660-UV** Complete kit in a blow molded case includes aluminum manifold, 60" hoses, professional couplers and 10 application mini dye injector
- 89661-UV** Complete kit in a blow molded case includes aluminum manifold, 60" hoses, manual couplers and 10 application mini dye injector

DUAL R134a/R12 MANIFOLD GAUGE SET



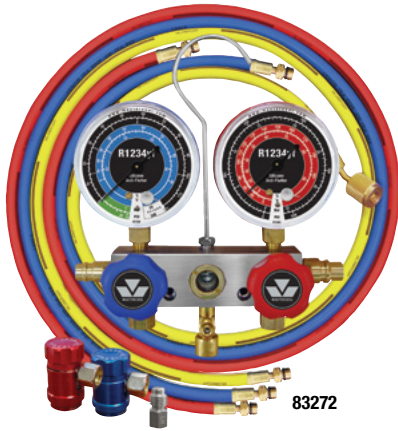
98660

- Professional extruded aluminum block
- 2 1/2" silicone dampened, recalibrateable gauges
- Free-floating piston type valves reduce o-ring wear
- Extra access port for vacuum line
- Extra large sight glass for visual refrigerant check
- Large easy-to-grip knobs
- Set of 3 - R134a nylon barrier hoses
- Set of 3 - R12 nylon barrier hoses
- Custom molded carrying case

- 98660** Complete kit in a blow molded case includes aluminum manifold, 60" hoses and professional couplers
- 98661** Complete kit in a blow molded case includes aluminum manifold, 60" hoses and manual couplers



R1234yf 2-WAY PISTON VALVE MANIFOLD FOR AUTOMOTIVE A/C



- Manifold block assembled with (3) 12mm-F fittings per SAE J2888
- Red & Blue nylon barrier hoses with 12mm-M fittings on both sides meets SAE J2888, EPA, SAE & UL standards
- Yellow hose 12mm fitting on one side and 1/2 x 16 acme LH on the other meets SAE J2888
- R1234yf high and low side couplers with extended disconnect protection sleeve meets SAE J639 & J2888
- Piston type free-floating valves reduce o-ring wear
- Extra large sight glass for visual checks of refrigerant
- Easy to recalibrate 3 1/8" gauges to ensure accuracy

Unit	Bar/PSI
Gauge p/n (HP/LP)	87500-87350
Manifold with gauges, 3 x 12 mm-F fittings	83102
Manifold with 3 – 72" hoses and R1234yf couplers packaged in a clam shell	83272

R12, R22 AND R502 2-WAY ALUMINUM MANIFOLD GAUGE SETS WITH HOSES PACKAGED IN CLAMSHELLS

- Hose connections are 1/4" SAE
- Gauges are 2 1/2" in PSI & °F



HOSE LENGTH (SET OF 3)	STANDARD HOSES STANDARD FITTINGS	STANDARD HOSES AUTO SHUT-OFF VALVES	NYLON BARRIER HOSES STANDARD FITTINGS	NYLON BARRIER HOSES AUTO SHUT-OFF VALVES	NYLON BARRIER HOSES MANUAL BALL VALVES
36"	93636	95636	96636	97636	92636
60"	93661	95661	96661	97661	92661
72"	93772	95772	96772	97772	92772

To order manifolds with shock-resistant gauge protectors, simply place a "-G" after the part number (2 1/2" only)

2-WAY ALUMINUM MANIFOLDS WITH GAUGES ONLY

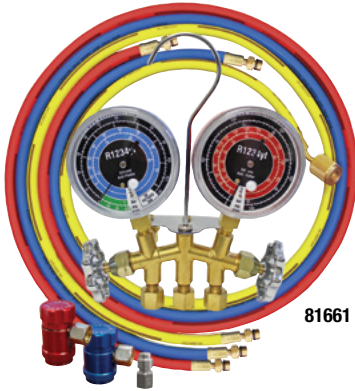
93103	R12, R22 & R502 (2 1/2" gauges) 1/4" MFL
85103	R134a (2 1/2" gauges) 1/2" ACME-M
85113	R134a (3 1/8" gauges) 1/2" ACME-M

PARTS FOR 2-WAY ALUMINUM MANIFOLDS

85215	O-rings for aluminum manifold (4 pcs)
85216	Seal and seat assembly (2 pcs)



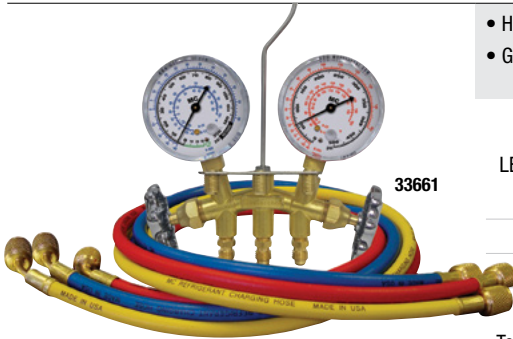
R1234yf 2-WAY BRASS MANIFOLD FOR AUTOMOTIVE A/C



- Manifold assembled with (3) 12mm-F fittings per SAE J2888
- Red & blue nylon barrier hoses with 12mm-M fittings on both sides meets SAE J2888, EPA, SAE & UL standards
- Yellow hose 12mm fitting on one side and 1/2 x 16 acme LH on the other meets SAE J2888
- R1234yf high and low side couplers with extended disconnect protection sleeve meets SAE J639 & J2888
- Easy to recalibrate 3 1/8" gauges to ensure accuracy

Unit	Bar/PSI
Gauge p/n (HP/LP)	87500-87350
Manifold with gauges, 3 x 12 mm-F fittings	81102
Manifold with 3 – 60" hoses and R1234yf couplers packaged in a clam shell	81661

R12, R22 AND R502 2-WAY BRASS MANIFOLD GAUGE SETS WITH HOSES PACKAGED IN CLAMSHELLS

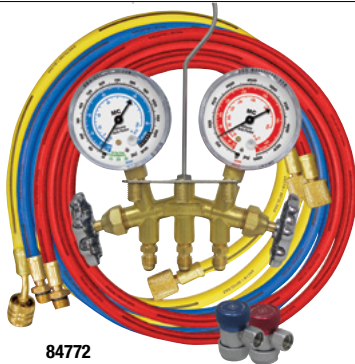


- Hose connections are 1/4" SAE
- Gauges are 2 1/2" in PSI & °F

HOSE LENGTH (SET OF 3)	STANDARD HOSES STANDARD FITTINGS	STANDARD HOSES AUTO SHUT-OFF VALVES	NYLON BARRIER HOSES STANDARD FITTINGS	NYLON BARRIER HOSES AUTO SHUT-OFF VALVES	NYLON BARRIER HOSES MANUAL BALL VALVES
36"	33636	35636	36636	37636	32636
60"	33661	35661	36661	37661	32661
72"	33772	35772	36772	37772	32772

To order manifolds with shock-resistant gauge protectors, simply place a "-G" after the part number (2 1/2" only)

R134a AUTO A/C 2-WAY BRASS MANIFOLD GAUGE SETS WITH HOSES PACKAGED IN CLAMSHELLS



- Hose connections for blue and red are 14mm-M
- Yellow hose is 1/2" ACME-F with auto shut-off valve
- Gauges are available 2 1/2" and 3 1/8" in PSI/°F

HOSE LENGTH (SET OF 3)	W/MANUAL COUPLERS		W/E-Z SNAP™ COUPLERS		W/O COUPLERS	
	GAUGE SIZE					
36"	84636	84136	83436	83136	80636	80136
60"	84661	84161	83461	83161	80661	80161
72"	84772 >>>POPULAR<<<	84172	83472	83172	80772	80172

To order manifolds with shock-resistant gauge protectors, simply place a "-G" after the part number (2 1/2" only)

AUTOMOTIVE R134a MANIFOLD GAUGE SETS WITH ECONOMY COUPLERS



- 66660** Brass R134a Manifold Gauge Set comes complete with 1 – 60" hose, 2 – 36" hoses and economy couplers. Packaged in a clamshell.
- 66661** Brass R134a Manifold Gauge Set comes complete with 3 – 60" hoses and economy couplers. Packaged in a clamshell.

2-WAY BRASS MANIFOLDS WITH GAUGES ONLY

80103	R134a (2 1/2" gauges) 1/2" ACME-M
81113	R134a (3 1/8" gauges) 1/2" ACME-M
33103	R12, R22, R502 (2 1/2" gauges) 1/4" MFL

PARTS FOR 2-WAY BRASS MANIFOLD

34215	O-rings for brass manifolds
34216	Seal and seat assembly for brass manifolds

REPLACEMENT GAUGES

Mastercool offers one of the most extensive lines of high quality replacement gauges. Our wide variety of gauges are available in different sizes and styles. All of our gauges are designed with the **ANTI-FLUTTER** feature that reduces needle fluctuation and increases reading accuracy.

	High pressure p/n	Low pressure p/n	Gauge Diameter	Units	Refrigerant Scales
	93500	93350	2 1/2"	PSI/F	R12 R22 R502
	85500	85350	2 1/2"	PSI/F	R134a R12
	85500-AYF	85350-AYF	2 1/2"	PSI/F	R1234yf R134a
	86500	86350	3 1/8"	PSI/Kpa/F	R134a
	87500	87350	3 1/8"	Bar/PSI °F/°C	R1234yf

GAUGE PROTECTORS



Mastercool gauge protectors are built to cushion shock due to rough handling. The unique ribbing deadens bumps and deflects shocks. Snug fitting. Color coded. All Mastercool manifold gauge sets are available with gauge protectors installed. To order, simply place a “-G” after any gauge set number.

2 1/2" (63 MM) GAUGE PROTECTORS

93253-E 2 1/2" (63 mm) blue gauge protector

93503-E 2 1/2" (63 mm) red gauge protector

93553-E 2 1/2" (63 mm) set (red & blue)

3 1/8" (80 MM) GAUGE PROTECTORS

91253-EE 3 1/8" (80 mm) red gauge protector

91503-EE 3 1/8" (80 mm) blue gauge protector

91553-EE 3 1/8" (80 mm) set (red & blue)

LENS



85253-E 2 1/2" (63 mm) lens

98251-E 3 1/8" (80 mm) lens

4-WAY MANIFOLD REPLACEMENT KNOBS



58211 Blue knob

58212 Red knob

58213 Yellow knob

58214 Black knob

2-WAY MANIFOLD REPLACEMENT KNOBS



85211 Blue knob

85212 Red knob

93211 Black knob

85211-R Blue knob

85212-R Red knob

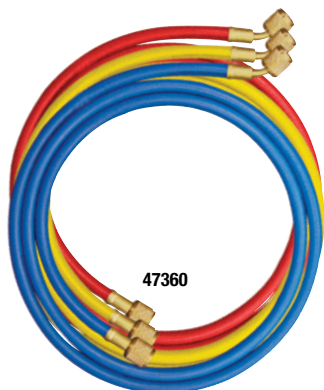
93211-R Black knob

HOSES, ADAPTERS AND ACCESSORIES



Mastercool uses only **(GRADE 5 HOSE)** with a selection of standard and nylon barrier for high pressure applications. Knurled brass nuts make finger tightening easy. **Crimped with 8 segment dies for secure fit and maximum durability.** Hoses are available in sets and a variety of lengths to meet all EPA, SAE and UL requirements for containment of refrigerant. **Sets include one blue, one red and one yellow hose.**

STANDARD & HIGH PRESSURE HOSES W/STANDARD FITTINGS (1/4" SAE)



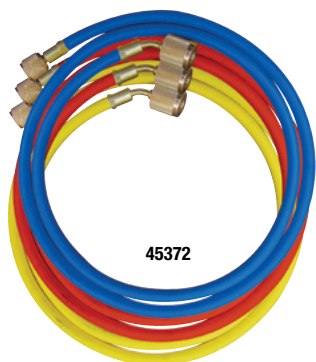
Standard Hoses, Working Pressure 600 PSI, Burst 3000 PSI

HOSE LENGTH	36"	60"	72"	96"
Blue 1/4" x 1/4"	41361	41601	41721	41961
Yellow 1/4" x 1/4"	41362	41602	41722	41962
Red 1/4" x 1/4"	41363	41603	41723	41963
SETS 1/4" x 1/4"	40336	40360	40372	40396

Nylon Barrier Hoses, Working Pressure 800 PSI, Burst 4000 PSI

Blue 1/4" x 1/4"	47361	47601	47721	47961
Yellow 1/4" x 1/4"	47362	47602	47722	47962
Red 1/4" x 1/4"	47363	47603	47723	47963
Black 1/4" x 1/4"	47364	47604	47724	47964
SETS 1/4" x 1/4"	47336	47360	47372	47396
Black 1/4" hose w/(3/8" x 3/8" fitting)	48364	48604	48724	48964

STANDARD & HIGH PRESSURE HOSES W/AUTOMATIC SHUT-OFF VALVE FITTINGS (1/4" SAE)



Standard Hoses, Working Pressure 600 PSI, Burst 3000 PSI

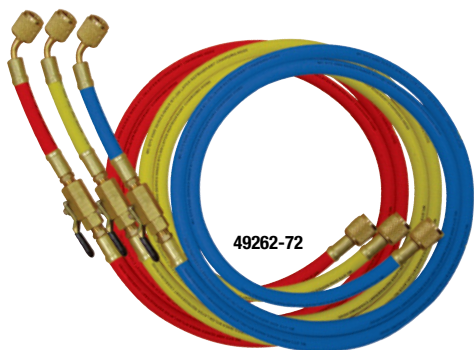
HOSE LENGTH	36"	60"	72"	96"
Blue 1/4" x 1/4"	45361	45601	45721	45961
Yellow 1/4" x 1/4"	45362	45602	45722	45962
Red 1/4" x 1/4"	45363	45603	45723	45963
SETS 1/4" x 1/4"	45336	45360	45372	45396

Nylon Barrier Hoses, Working Pressure 800 PSI, Burst 4000 PSI

Blue 1/4" x 1/4"	46361	46601	46721	46961
Yellow 1/4" x 1/4"	46362	46602	46722	46962
Red 1/4" x 1/4"	46363	46603	46723	46963
Black 1/4" x 1/4"	46364	46604	46724	46964
SETS 1/4" x 1/4"	46336	46360	46372	46396

Auto shut-off valves automatically retain refrigerant in the service hose when they are removed from the system. Meets EPA, SAE and UL standards for containment of refrigerant.

STANDARD & HIGH PRESSURE HOSES W/MANUAL SHUT-OFF VALVE FITTINGS (1/4" SAE)



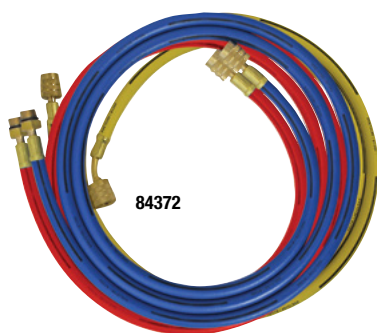
Standard Hoses, Working Pressure 600 PSI, Burst 3000 PSI

HOSE LENGTH	36"	60"	72"
Blue 1/4" x 1/4"	90263-36	90263-60	90263-72
Yellow 1/4" x 1/4"	90264-36	90264-60	90264-72
Red 1/4" x 1/4"	90265-36	90265-60	90265-72
SETS 1/4" x 1/4"	90262-36	90262-60	90262-72

Nylon Barrier Hoses, Working Pressure 800 PSI, Burst 4000 PSI

Blue 1/4" x 1/4"	49263-36	49263-60	49263-72
Yellow 1/4" x 1/4"	49264-36	49264-60	49264-72
Red 1/4" x 1/4"	49265-36	49265-60	49265-72
SETS 1/4" x 1/4"	49262-36	49262-60	49262-72

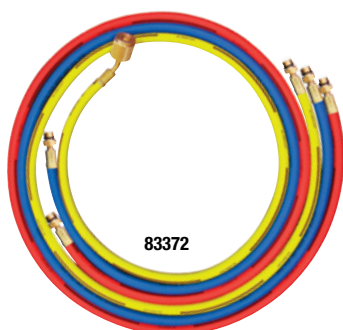
R134a HOSES WITH 1/2" ACME-F AND 14 MM-M AUTO A/C FITTINGS



HOSE LENGTH	36"	60"	72"	96"
Blue-14 mm-M x 1/2" ACME-F	84361	84601	84721	84961
Yellow w/Shut-off Valve 1/2" ACME-F x 1/2" ACME-F	84362	84602	84722	84962
Red-14 mm-M x 1/2" ACME-F	84363	84603	84723	84963
Black-1/2" ACME-F x 1/2" ACME-F	84364	84604	84724	84964
Black Conversion Hose 1/2" ACME-F x 1/4" FL-F	98364	98604	98724	98964
Yellow w/o Shut-off Valve 1/2" ACME-F x 1/2" ACME-F	84365	84605	84725	84965
SETS Blue/Red 14 mm-M x 1/2" ACME-F and Yellow w/Shut-off Valve 1/2" ACME-F x 1/2" ACME-F	84336	84360	84372	84396

Mastercool R134a charging hoses meet SAE J2196 specifications and are UL tested. Tested for working pressure of 600 PSI and burst pressure of 3000 PSI.

R1234yf HOSES (Meets J2888, EPA, SAE & UL Standards)



Nylon Barrier Hoses, Working Pressure 800 PSI, Burst 4000 PSI

HOSE LENGTH	60"	72"
Blue-12mm-M x 12mm-M	83601	83721
Yellow-12mm fitting x 1/2 x 16 ACME LH	83602	83722
Red-12mm-M x 12mm-M	83603	83723
SET blue/red 12mm-M x 12mm-M and yellow 12mm fitting x 1/2 x 16 ACME LH	83660	83372

SERVICE HOSE REPLACEMENT PARTS



	1/4" SAE		1/2" ACME		14 mm-M O-RING	UNF 1/2 - 20"	
	GASKET	DEPRESSOR	GASKET	DEPRESSOR		GASKET	DEPRESSOR
Charging Hoses	42010-10	42014-10	82010-10	42014-10	83341-10	42010-10	42014-10
Shut-Off Valve	90336-10	N/A	82336-10	N/A	N/A	N/A	N/A

80011 HEAVY DUTY RATCHET HOSE CUTTER



Ratcheted action makes this cutter extremely easy to operate resulting in quick, clean cuts. Cutting blade is made of special alloy, heat treated steel for long life. Cuts all rubber hoses and PVC pipe up to 1 1/2" (38 mm) O.D.
(Not recommended for PVC200)

80111 Replacement blade for 80011

80013 AUTOMOTIVE REFRIGERANT HOSE CUTTER



Makes quick, clean cuts. Cuts rubber automotive refrigerant hoses up to 1 1/2" O.D.

80113 Replacement blade for 80013

AUTOMATIC & MANUAL SHUT-OFF VALVES

Mastercool manufactures a complete line of shut-off valves for containment of refrigerant. EPA requires shut-off valves within 12 inches of the charging hose ends to prevent unnecessary venting of refrigerant. Using shut-off valves is much safer than allowing refrigerant to blow out during service.

90259 90° MANUAL SHUT-OFF VALVE SET



Needle valve design with flexible hose controls refrigerant with a twist of a knob. Meets SAE, EPA and UL requirements for containment of refrigerant. Screws onto charging hose end.

90° Manual Shut-Off Valve Set Includes:

90269 Blue 1/4" x 1/4"

90279 Yellow 1/4" x 1/4"

90289 Red 1/4" x 1/4"

Also Available:

90389 Red 1/4 x 3/16" (Automotive)

90262 STRAIGHT MANUAL SHUT-OFF VALVE SET



Ball valve design with flexible hose controls refrigerant with a quarter turn of the valve handle. Meets SAE, EPA and UL requirements for containment of refrigerant. One hand operation. Screws onto charging hose end.

Straight and Manual Shut-Off Valve Set includes:

90263 Blue 1/4 x 1/4"

90264 Yellow 1/4" x 1/4"

90265 Red 1/4" x 1/4"

Also Available:

90365 Red 1/4 x 3/16"

MANUAL SHUT-OFF BALL VALVES



For custom application, Mastercool offers swivel ball valves without the hoses. This valve may be used to add shut-off valves to recycling equipment, manifold sets, flushing equipment, etc.

90430 1/4 FL-F x 1/4 FL-M swivel ball valve (less hose)

82495 1/2" ACME x 1/2" ACME R134a ball valve

AUTOMATIC SHUT-OFF VALVES



Valve simply screws onto hose end. Available in straight and 90° models. Meets SAE, EPA and UL requirements for containment of refrigerant.

<< QUICK DISCONNECT : NO LOSS OF REFRIGERANT >>

90333-R 90° 1/4 FL-M x 1/4 FL-F

90333-UV 90° 1/4" FFL x 13 mm

90335-R Straight 1/4 FL-M x 1/4 FL-F

90337 Straight 1/4 FL-M x 3/16 FL-F

CONTROL VALVE



Ideal for use on charged systems. Eliminates refrigerant, oil or dye from spraying during connections.

90328	1/4" FFL x 1/4" MFL
90328-5/16	5/16" FFL x 5/16" MFL

RETROFIT ADAPTERS

INDIVIDUAL TERMINATION (BLOCK OFF) CAPS



81297	1/4 (7/16" - 20) alum.
81379	3/16 (3/8" - 24) alum.
82297	Low side R134a blue cap
82379	High side R134a red cap

STRAIGHT ADAPTERS W/VALVE CORE & SERVICE PORT CAPS



82274	Low side, 1/4 (7/16" - 20) x 13 mm
82332	High side, 1/4 (7/16" - 20) x 16 mm
82358	High side, 3/16 (3/8" - 24) x 16 mm

90° ADAPTERS W/VALVE CORE & SERVICE PORT CAPS



82275	Low side, 1/4 (7/16" - 20) x 13 mm
82333	High side, 1/4 (7/16" - 20) x 16 mm
82354	High side, 3/16 (3/8" - 24) x 16 mm

82357 GM HIGH FLOW ADAPTER W/ VALVE CORE & SERVICE PORT CAPS



GM high flow adapter

MANUAL COUPLERS

»POPULAR«



Patented manual couplers adjust easily to R134a service ports with varying dimensions. All metal construction for extra durability. Patented, spring loaded depressor will not damage service valves. Can be removed from service ports regardless of knob position without losing refrigerant. Meets SAE, UL and EPA requirements for containment of refrigerant. Color coded. **PATENT# 5,370,359**

82834 High-side manual R134a 14 mm-F x 16 mm quick coupler

82934 Low-side manual R134a 14 mm-F x 13 mm quick coupler

82834-E High-side manual R134a 1/4" FL-M x 16 mm quick coupler

82934-E Low-Side manual R134a 1/4" FL-M x 13 mm quick coupler

80034 O-ring for 16 mm quick coupler (10 pcs)

80134 O-ring for 13 mm quick coupler (10 pcs)

SAFETY-LOCK MANUAL COUPLERS



Mastercool's safety-lock manual couplers are designed for use on all R134a systems. This unique design allows the technician to work on the system without the worry of accidentally disconnecting the hose regardless of movement. Once the coupler is connected to the system, the safety-lock sleeve slides into place guaranteeing that the coupler cannot be taken off without unscrewing the manual valve. Meets all SAE, UL and EPA requirements for containment of refrigerant. Color coded.



82834-SL High side manual R134a 14 mm-F x 16 mm safety lock coupler

82934-SL Low side manual R134a 14 mm-F x 13 mm safety lock coupler

82834-SL-E High side manual R134a 1/4" FL-M x 16 mm safety lock coupler

82934-SL-E Low side manual R134a 1/4" FL-M x 13 mm safety lock coupler

80034 O-ring for 16 mm quick coupler (10 pcs)

80134 O-ring for 13 mm quick coupler (10 pcs)

E-Z SNAP™ COUPLERS



This unique patented design easily snaps on and off the A/C systems service ports under any pressure. The E-Z Snap™ automatically adjusts to various service port dimensions allowing fast and immediate access into the A/C system. The swivel feature enables the user to easily access all service ports, even in the tightest quarters. Meets SAE, UL, and EPA requirements for containment of refrigerant. **PATENT# 5,244,010**

82214 High-side E-Z Snap R134a 14 mm-F x 16 mm quick coupler

82224 Low-side E-Z Snap R134a 14 mm-F x 13 mm quick coupler

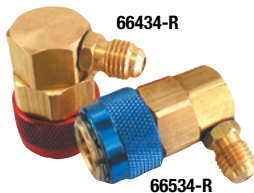
82214-E High-side E-Z Snap R134a 1/4" FL-M x 16 mm quick coupler

82224-E Low-side E-Z Snap R134a 1/4" FL-M x 13 mm quick coupler

80034 O-ring for 16 mm quick coupler (10 pcs)

80134 O-ring for 13 mm quick coupler (10 pcs)

ECONOMY COUPLERS



Specially designed to work in the tightest quarters. Snaps easily to A/C service ports.

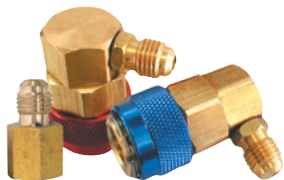
66434-R High side R134a 1/4" FL-M x 16 mm economy coupler

66534-R Low side R134a 1/4" FL-M x 13 mm economy coupler

60034-10 O-ring for 66434 (10 pcs)

60134-10 O-ring for 66534 (10 pcs)

98370 R134a CONVERSION KIT



Includes high and low side R134a couplers and R134a tank adapter.

R1234yf
Compatible

R1234yf COUPLERS



- Meets SAE J639 & J2888
- Allows recovery of entire refrigerant, including the space between the coupler and fitting

83834	High side R1234yf 12 mm-F x 17 mm coupler with extended disconnect sleeve
83934	Low side R1234yf 12 mm-F x 14 mm coupler with extended disconnect sleeve
67434	High side R1234yf 12 mm-F x 17 mm quick coupler
67534	Low side R1234yf 12 mm-F x 14 mm quick coupler

R134a EXTRA LONG COUPLERS



Extra long high side R134a coupler used on BMW E60 (2003-2009 5 series), Volvo and Renault models. This extra long high side coupler can easily reach the service port.

82836	High side extra long 14 mm-F x 16 mm
82836-E	High side extra long 1/4" SAE-M x 16 mm

NEW

R1234yf
Compatible

R134a/R1234YF CONVERSION KITS



Easily convert any R134a manifold gauge set to a R1234yf manifold gauge set.

83736-K	Kit includes: high side R1234yf 12 mm-F x 17 mm coupler (83834), low side R1234yf 12 mm-F x 14 mm coupler (83934), 1/2" ACME-M x 1/2" ACME-F LH thread adapter (83633), (2) 12mm-M x 14mm-F R1234yf adapters (83735)
63736-K	Kit includes: high side R1234yf 12 mm-F x 17 mm quick coupler (67434), low side R1234yf 12 mm-F x 14 mm quick coupler (67534), 1/2" ACME-M x 1/2" ACME-F LH thread adapter (83633), (2) 12mm-M x 14mm-F R1234yf adapters (83735)

MALE x MALE CONNECTORS



82734	14 mm-M x 1/4" FL-M (7/16-20") connector
82735	14 mm-M x M10 x 1.5-M connector
82736	14 mm-M x M12 x 1.75-M connector
82738	14 mm-M x 3/8" FL-M connector
83341	O-Ring for 82733, 82734, 82735 and 82736
80234	O-Ring for 82634, 82634-M, 90364 and 90365
83734	<<NEW>> 12mm-m x 1/4" FL-M R1234yf connector

FEMALE x MALE CONNECTORS



82634	1/4" FL-F (7/16-20") x 1/2" ACME-M connector
82634-M	1/4" FL-F (7/16-20") x 1/2" ACME-M R134a connector
82635	1/2" ACME-F x 1/4" FL-M (7/16-20") R134a adapter coupler
82733	14 mm-F x 1/2" ACME-M connector
83633	<<NEW>> 1/2" ACME-M x 1/2" ACME-F LH connector
83735	<<NEW>> 12mm-M x 14mm-F R1234yf adapter
90364	1/4" (7/16-20")-F x M10 x 1.5-M adapter
90363	5/16" (1/2-20 UNF)-F x 1/4" FL-M connector

93000 SPRING LOCK COUPLING TOOL SET



Four sizes 3/8" (#6), 1/2" (#8), 5/8" (#10) and 3/4" (#12) used on Fords and Chryslers. Durable spring loaded design for long life and reliable fit.

Set includes:

93098	3/8" (#6) red	93100	5/8" (#10) black
93099	1/2" (#8) blue	93101	3/4" (#12) beige



Mastercool®
"World Class Quality"

91207 CHARGING AND DEPRESSOR ASSORTMENT



Replacement gaskets, o-rings and depressors for charging hoses and adapters.

Consists of:

42010	1/4" gasket (3 pcs)
42014	1/4" depressor (3 pcs)
90368	3/16" depressor (3 pcs)
90369	3/16" gasket (3 pcs)
90341	1/8" o-ring (3 pcs)

91334 CHARGING ADAPTER REPAIR KIT



55 piece assortment of replacement gaskets, o-rings and depressors for charging hoses and adapters.

Consists of:

42010	1/4" gasket (10 pcs)
42014	1/4" depressor (10 pcs)
90368	3/16" depressor (10 pcs)
90369	3/16" gasket (10 pcs)
90341	1/8" o-ring (10 pcs)
92107	Quick disconnect gasket (5 pcs)

91334-A R12/R134a CHARGING HOSE REPLACEMENT PARTS ASSORTMENT



Consists of:

42010	1/4" FL gasket (10 pcs)
42014	1/4" FL depressor (5 pcs)
42016	Screw type depressor (5 pcs)
90336	Gasket for 90335 (5 pcs)
82010	Black gasket for R134a Hose (10 pcs)
83341	O-ring for R134a hose (5 pcs)
80034-2	Black o-ring for high side (5 pcs)
80134-2	Black o-ring for low side (5 pcs)

85200 DELUXE A/C SERVICE REPAIR KIT



Replacement gaskets, depressors, o-rings and nylon guides for charging hoses and adapters.

Consists of:

42010	1/4" gasket (10 pcs)
42014	1/4" depressor (10 pcs)
80034	O-ring for 82834 (10 pcs)
80034-1	High side nylon guide (5 pcs)
80134	O-ring for 82934 (10 pcs)
80134-1	Low side nylon guide (5 pcs)
82010	Gasket for R134a hose (10 pcs)
82336	Gasket for 82335 (10 pcs)
83341	O-ring for R134a hose (10 pcs)
90336	Gasket for 90335 shut-off valve (10 pcs)

91335 MASTER A/C CHARGING ADAPTER REPAIR KIT



126 piece assortment of replacement gaskets, o-rings and depressors for charging hoses and adapters. Also includes valve core removal tool and replacement valve cores.

Consists of:

- 42010** 1/4" gasket (20 pcs)
- 42014** 1/4" depressor (20 pcs)
- 90368** 3/16" depressor (20 pcs)
- 90369** 3/16" gasket (20 pcs)
- 90341** 1/8" o-ring (20 pcs)
- 92107** Quick disconnect gasket (10 pcs)
- 0377-001** Refrigeration valve core (10 pcs)
- 90378** GM large bore valve core (5 pcs)

91336 FORD SPRING LOCK REPLACEMENT O-RING AND GARTER SPRING ASSORTMENT



Compatible with R12 and R134a systems.

Consists of:

- 1336-006** #6 O-ring (10 pcs)
- 1336-008** #8 O-ring (10 pcs)
- 1336-010** #10 O-ring (10 pcs)
- 1336-012** #12 O-ring (10 pcs)
- 1336-016** #6 Garter spring (5 pcs)
- 1336-018** #8 Garter spring (5 pcs)
- 1336-110** #10 Garter spring (5 pcs)
- 1336-112** #12 Garter spring (5 pcs)

91337 R12/R134a VALVE CORE REPAIR KIT



Replacement valve cores for valve core removers & installers.

Consists of:

- 0377-001** Access valve core (20 pcs)
- 0378-001** Valve core (10 pcs)
- 0531-001** R134a JRA high/low import valve core (10 pcs)
- 0768-001** R134a domestic high flow valve core M8 (5 pcs)
- 0769-001** R134a domestic high flow valve core M10 (5 pcs)
- 81290** R12/R134a valve core remover/installer (1 pc)

91339 AUTOMOTIVE R12 & R134a O-RING ASSORTMENT (270 PIECE HNBR)



Consists of:

- | | |
|--|---|
| 91339-01 7/32" x 1/16" (5.29 x 1.78 mm) (20 pcs) | 91339-10 11 x 2 mm (15 pcs) |
| 91339-02 1/4" x 1/16" (6.07 x 1.78 mm) (20 pcs) | 91339-11 12 x 2 mm (15 pcs) |
| 91339-03 6.8 x 1.9 mm (20 pcs) | 91339-12 13.9 x 1.8 mm (10 pcs) |
| 91339-04 5/16" x 1/16" (7.65 x 1.78 mm) (20 pcs) | 91339-13 9/16" x 3/32" (13.95 x 2.62 mm) (10 pcs) |
| 91339-05 7.8 x 1.9 mm (20 pcs) | 91339-14 14 x 2 mm (10 pcs) |
| 91339-06 8 x 2 mm (20 pcs) | 91339-15 15 x 2 (10 pcs) |
| 91339-07 8.8 x 1.9 mm (20 pcs) | 91339-16 17 x 2 (10 pcs) |
| 91339-08 7/16" x 1/16" (10.82 x 1.78 mm) (15 pcs) | 91339-17 11/16" x 1/16" (17.17 x 1.78 mm) (10 pcs) |
| 91339-09 7/16" x 3/32" (10.77 x 2.62 mm) (15 pcs) | 91339-18 11/16" x 1/8" (17.04 x 3.53 mm) (10 pcs) |

58490 UNIVERSAL R12/R134a MASTER KIT

»POPULAR«



Allows the user to service valve cores without losing the systems charge. Kit covers all R12 & R134a system valve cores for Standard, JRA, Eaton and GM Large Bore.

PATENT# 6,253,436

Includes:

- Valve assembly
- R134a high side 16mm connector
- R134a low side 13mm connector
- 1/4" FL swivel connector
- Standard valve core remover/installer assembly
- GM large bore valve core remover/installer assembly
- JRA R134a valve core remover/installer assembly
- Eaton R134a low side valve core remover/installer assembly
- Eaton R134a high side valve core remover/installer assembly
- Adapter 1/4"-M x 3/16"-F high side GM/Ford
- Adapter 1/4"-M x 1/8"-F high side Ford



58490-YF UNIVERSAL R1234yf MASTER KIT



Allows the user to service valve cores without losing the systems charge. Kit covers 17 mm and 14 mm high and low side service ports.

Includes:

- Valve assembly
- High side 17 mm connector
- Low side 14 mm connector
- Standard valve core shaft
- GM large bore valve core shaft
- Eaton R134a/R1234yf high side valve core shaft

58531 R134a STANDARD & JRA (M6) VALVE CORE KIT



Allows the user to service valve cores without losing the systems charge. Kit covers the most popular R134a valve cores.

Includes:

- Valve assembly
- R134a high side 16mm connector
- R134a low side 13mm connector
- Standard valve core shaft
- JRA R134a valve core shaft

58560 R134a EATON (M8 & M10) VALVE CORE KIT



Allows the user to service valve cores without losing the systems charge. Kit covers the Eaton style R134a valve cores.

Includes:

- Valve assembly
- R134a high side 16mm connector
- R134a low side 13mm connector
- Eaton R134a low side valve core shaft
- Eaton R134a high side valve core shaft

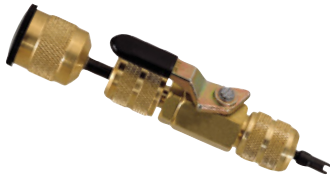
90376 VALVE CORE REMOVER W/VALVE CORES FOR R12



Quickly removes valve cores. Storage area includes six replacement access valve cores.

90377 Replacement standard valve cores for 90376 (6 pcs of 0377-001)

91490 STANDARD VALVE CORE REMOVER/INSTALLER



VALVE CORE REMOVERS/INSTALLERS AUTOMOTIVE/HVAC (1/4" FL)
Sturdy ball valve design controls refrigerant flow with 1/4 turn of the valve lever. Lever position also gives visual indication of whether valve is opened or closed.

81490 R134a VALVE CORE REMOVER AND INSTALLER



- For 13 mm and 16 mm high and low service port standard type valve
- Built-in ball valve retains charge and allows access to A/C system
- Excellent for replacing valve cores without discharging the system and for speeding recovery and recharging large systems

81290 R134a UNIVERSAL LARGE BORE REMOVER



Used on R12/R134a Standard and JRA/EATON Large Bore R134a Valve Cores.

91290 UNIVERSAL VALVE CORE REMOVER



Double ended for easy replacement of Standard and GM R12 large bore valve cores.

85530 3-IN-1 SIDE MOUNT CAN TAP VALVE



This unique design covers 2 7/8" (R134a), 2 1/2" and 2" (OIL) charge cans. Includes 1/2" ACME-M and 1/4" FL-M ports. Internal safety check valve prevents system back flow.

85510 R134a CAN TAP VALVE - SCREW-ON



- 1/2" ACME-M
- Screw-on design for R134a ACME male can taps
- Exclusive "full grip" valve knob
- Gasket assures leak proof operation
- Built-in safety check

85525 R134a RECHARGE KIT



Charge A/C systems using R134a cans with 1/2" ACME fitting

85512 R134a 1/2" ACME-M SELF-SEALING DESIGN CAN TAP VALVE



- 1/2" ACME-M thread for use with R134a self-sealing/reusable designed cans
- All metal construction provides durability
- Gasket assures leak proof operation

85535 R134a RECHARGE KIT



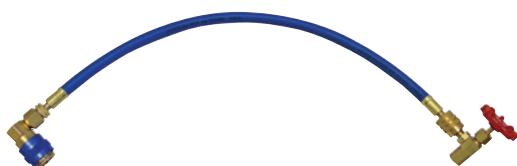
Charge A/C systems using R134a self-sealing designed cans

Consists of:

- | | |
|----------------|--|
| 85512 | R134a can tap valve - self-sealing design |
| 67534-R | R134a low side economy coupler 1/4" FL-M x 13 mm |
| 98122 | R134a 12" yellow hose |

R1234yf
Compatible**85510-YF R1234yf 1/2" ACME-LH THREAD PIERCING DESIGN CAN TAP VALVE**

- 1/2" ACME-LH thread for use with R1234yf pierce designed cans
- Exclusive "full grip" valve knob
- All metal construction provides durability
- Gasket assures leak proof operation
- Built-in safety check
- Meets SAE J2844

85525-YF R1234yf RECHARGE KIT - PIERCING DESIGNR1234yf
Compatible

Charge A/C systems using R1234yf pierce designed cans

- Meets SAE J2844 & J2888

Consists of:

85510-YF	R1234yf can tap valve - piercing design
67534	R1234yf low side quick coupler 12 mm-F x 14 mm
83181	R1234yf 18" blue hose

85512-YF R1234yf 1/2" ACME-LH THREAD SELF-SEALING DESIGN CAN TAP VALVER1234yf
Compatible

- 1/2" ACME-LH thread for use with R1234yf self-sealing/reusable designed cans
- All metal construction provides durability
- Gasket assures leak proof operation
- Meets SAE J2844

85535-YF R1234yf RECHARGE KIT - SELF-SEALING DESIGNR1234yf
Compatible

Charge A/C systems using R1234yf self-sealing/reusable designed cans

- Meets SAE J2844 & J2888

Consists of:

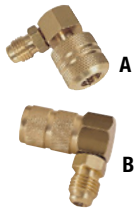
85512-YF	R1234yf can tap valve - self-sealing design
67534	R1234yf low side quick coupler 12 mm-F x 14 mm
83181	R1234yf 18" blue hose



Mastercool®
"World Class Quality"

CHARGING ADAPTERS, REPLACEMENT GASKETS, DEPRESSORS

90° ADAPTERS



		REPLACEMENT	GASKET/O-RING	DEPRESSOR
A	90333-R	Shut-off valve 1/4" MFL x 1/4" FFL	90336	-
B	90314*	1/4" MFL x 1/4" FFL	42010	42014
B	90340*	1/4" MFL x 1/8" FFL (high side) Ford 1977-1980	90341	90368
B	90354*	1/4" MFL x 3/16" FFL (high side) GM 1976 & later	90369	90368

45° ADAPTERS



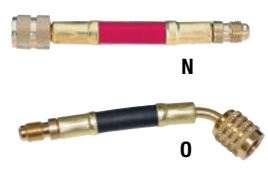
C	90924	1/4" MFL x 1/4" FFL	42010	42014
C	90927*	1/4" MFL x 3/16" FFL (high-side)	90369	90368

STRAIGHT ADAPTERS



D	82272*	R134a 1/2" ACME-F x 13 mm R134a (low side)	85511	-
E	82335	R134a shut-off valve 1/2" ACME-M x 1/2" ACME-F	90336	-
E	90335-R	Shut-off valve 1/4" MFL x 1/4" FFL	90336	-
E	90337	Shut-off valve 1/4" MFL x 3/16" FFL	90331	-
F	82634*	1/4" FFL x 1/2" ACME-M	90331	-
F	82634-M	1/4" FFL x 1/2" ACME-M without valve core	90331	-
G	82734	14 mm-M x 1/4" MFL	83341	-
H	90358*	1/4" MFL x 3/16" FFL (high side)	42010	42014
I	90274	1/4" MFL x 1/4" FFL swivel	42010	42014
I	90332**	1/4" MFL x 1/4" FFL anti-blowback fitting	42010	42014
I	90357	1/4" MFL x 3/16" FFL (high side) swivel	90369	90368
I	91084*	1/4" MFL x 3/16" FFL (high side) swivel adapter GM 1976 & Later, Ford 1981 & later	90369	90368
J	90338*	GM 1991 & later service adapter	90339	-
K	90637	3/4" NPSF x 1/4" MFL refrigeration tank adapter	90638	-
L	90633	1/4" MFL x 1/4" MFL union	-	-
L	82633	1/2" ACME-M x 1/2" ACME-M union	-	-
M	83634-M	1/4 FL-F x 1/2 ACME LH-M fitting for R1234yf systems without check valve	90331	-

FLEX ADAPTERS



N	90355*	1/4" MFL x 3/16" FFL (high side) GM 1976 & later, Ford 1981 & later	90369	90368
N	90356*	1/4" MFL x 1/4" FFL	42010	42014
N	90373*	1/4" MFL x 1/8" FFL (high side) Ford 1977-1980	90341	90368
O	90410	Convert 1/4 SAE hose into 5/16 SAE, swivel connection	82010	-

ACCESS SERVICE TOOLS



P	90296*	1/4" MFL x 1/8" NPT	-	-
P	80296*	1/2" ACME-M x 1/8" NPT	-	-

* Includes access valve core (0377-001) – (90-110 PSI opening) / ** Includes check valve core (0332-002) – (8-12 PSI opening)

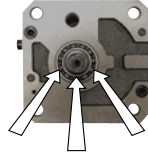
VACUUM PUMPS



2 STAGE ELITE BALL BEARING DESIGN VACUUM PUMPS



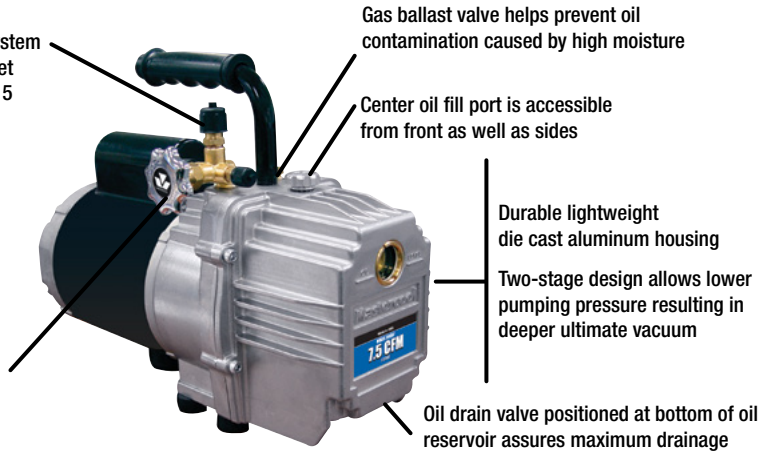
A good quality vacuum pump is an integral tool for complete A/C service. Mastercool vacuum pumps are durable and time tested. They stand up to the most grueling conditions and will provide years of reliable service. Mastercool offers a complete selection of pumps. Regardless of your service requirements, Mastercool has a model for your application.



Ball Bearing Cartridge Design
reduces running temperatures by 30% and extends the life of the pump.

Manifold valve isolates pump from the system when testing for leaks. Includes three inlet ports – 1/4", 3/8" SAE and 1/2" ACME on 5 and 7.5 CFM models

Internal check valve stops oil blowout in case of accidental power loss



Gas ballast valve helps prevent oil contamination caused by high moisture

Center oil fill port is accessible from front as well as sides

Durable lightweight die cast aluminum housing

Two-stage design allows lower pumping pressure resulting in deeper ultimate vacuum

Oil drain valve positioned at bottom of oil reservoir assures maximum drainage

5 CFM VACUUM PUMP

>>POPULAR<<



MODEL	90065
NO. OF STAGES	2
FREE AIR DISPLACEMENT	5 CFM
ULTIMATE VACUUM	25 Microns
MOTOR	1/3 HP
PUMP SPEED	1425 RPM 1725 RPM
ELECTRICAL SPECS	110 V / 60 HZ
WEIGHT	29 lbs
DIMENSIONS	14.5 x 6 x 11 x 9.5"

7 CFM VACUUM PUMP



MODEL	90067
NO. OF STAGES	2
FREE AIR DISPLACEMENT	7.5 CFM
ULTIMATE VACUUM	25 Microns
MOTOR	1/2 HP
PUMP SPEED	1425 RPM 1725 RPM
ELECTRICAL SPECS	110 V / 60 HZ
WEIGHT	35.5 lbs
DIMENSIONS IN CM	16 x 6 x 11 x 9.5"

2 STAGE DUAL VOLTAGE VACUUM PUMPS

- U.S. design
- Stronger motor
- Field serviceable
- Cooling fins to keep temperature cooler during extended motor operation
- Easily removable vapor discharge/oil fill port. Contains internal check valve to prevent escape of liquid oil
- Manifold valve isolates pump from the system when testing for leaks. Includes 3 inlet ports, 1/4", 3/8" SAE and 1/2" ACME

3 CFM DUAL VOLTAGE VACUUM PUMP



MODEL	90063-2V-110-B
NO. OF STAGES	2
FREE AIR DISPLACEMENT	3 CFM
ULTIMATE VACUUM	15 Microns
MOTOR	1/3 HP
PUMP SPEED	1720 RPM
ELECTRICAL SPECS	110 V/220 V, 50/60 Hz
POWER CORD	110 V Cable (US Standard)
WEIGHT	15.43 lbs
DIMENSIONS	11 x 6 x 10

6 CFM DUAL VOLTAGE VACUUM PUMP

»POPULAR«



MODEL	90066-2V-110-B
NO. OF STAGES	2
FREE AIR DISPLACEMENT	6 CFM
ULTIMATE VACUUM	15 Microns
MOTOR	1/2 HP
PUMP SPEED	1720 RPM
ELECTRICAL SPECS	110 V/220 V, 50/60 Hz
POWER CORD	110 V Cable (US Standard)
WEIGHT	24.25 lbs
DIMENSIONS	15 x 6.5 x 11

8 CFM DUAL VOLTAGE VACUUM PUMP



MODEL	90068-2V-110-B
NO. OF STAGES	2
FREE AIR DISPLACEMENT	8 CFM
ULTIMATE VACUUM	15 Microns
MOTOR	3/4 HP
PUMP SPEED	1720 RPM
ELECTRICAL SPECS	110 V/220 V, 50/60 Hz
POWER CORD	110 V Cable (US Standard)
WEIGHT	34 lbs
DIMENSIONS	15 x 7 x 11

12 CFM DUAL VOLTAGE VACUUM PUMP



MODEL	90612-2V-110-B
NO. OF STAGES	2
FREE AIR DISPLACEMENT	12 CFM
ULTIMATE VACUUM	15 Microns
MOTOR	1 HP
PUMP SPEED	1720 RPM
ELECTRICAL SPECS	110 V/220 V, 50/60 Hz
POWER CORD	110 V Cable (US Standard)
WEIGHT	35 lbs
DIMENSIONS	15 x 7 x 11



SINGLE STAGE VACUUM PUMPS

1.8 CFM SINGLE STAGE VACUUM PUMP



MODEL	90059-B
NO. OF STAGES	1
FREE AIR DISPLACEMENT	1.8 CFM
ULTIMATE VACUUM	80 Microns
MOTOR	1/4 HP
PUMP SPEED	1720 RPM
ELECTRICAL SPECS	110/120 V, 60 HZ
WEIGHT	13.6 lbs
DIMENSIONS	12 x 6 x 10"


3 CFM SINGLE STAGE VACUUM PUMP



MODEL	90062-B
NO. OF STAGES	1
FREE AIR DISPLACEMENT	3 CFM
ULTIMATE VACUUM	80 Microns
MOTOR	1/4 HP
PUMP SPEED	1720 RPM
ELECTRICAL SPECS	110/120 V, 60 HZ
WEIGHT	14 lbs
DIMENSIONS	12 x 6 x 10.5"

6 CFM SINGLE STAGE VACUUM PUMP



MODEL	90066-B	90066-B-SF <i>Spark Free</i>
		
NO. OF STAGES	1	1
FREE AIR DISPLACEMENT	6 CFM	6 CFM
ULTIMATE VACUUM	80 Microns	80 Microns
MOTOR	1/3 HP	1/3 HP
PUMP SPEED	1720 RPM	1720 RPM
ELECTRICAL SPECS	110/120 V, 60 HZ	110/120 V, 60 HZ
WEIGHT	20.5 lbs	20.5 lbs
DIMENSIONS	15 x 6.5 x 11"	15 x 6.5 x 11"

91200 AIR OPERATED LIGHT DUTY VACUUM PUMP



Requires 4.5 CFM/90 PSI shop air. No moving parts, no oil required, 1.3 CFM air displacement venturi type pump will pull up to 29 inches of vacuum (Hg.) at sea level. Includes 1/4" flare (R12) connection and 1/2" ACME (R134a) connection.

* PLEASE NOTE: The micron readings on all vacuum pumps represent optimal laboratory conditions. Field conditions may vary from these readings.



18 VOLT CORDLESS, 1.5 CFM, 2 STAGE VACUUM PUMP



90058-A-AUT



90058-CH



90058-BAT-5A



90058-SL-MC

- Sure-grip handle, ergonomically designed for superior comfort and portability
- Reinforced base provides extreme shock resistance
- Air cooled motor design allows for operation under high temperature conditions
- Pump runs with extremely high ultimate vacuum and low noise
- Accessible oil drain port & sight glass make both oil maintenance and accuracy easy
- Built-in device eliminates oil mist and an oil-gas separator at the air exhaust outlet prevents oil contamination in the air exhaust

SPECIFICATIONS:

- No. of stages: 2
- Free air displacement: 1.5 CFM
- Motor: DC 18V, 90 W
- Ultimate vacuum: 15 microns/3 Pa
- Oil capacity: 3.5 oz.
- Dimensions without battery: 9.9 x 3.7 x 6.1"
- Net weight: 7.9 lb

Rechargeable Battery

- Li-ion 18 V 5.0 Ah

Battery Charger

- Input 100-240 V, 50-60 Hz, 73 W
- Output: 18V/14.4V 3A

* Mastercool does not recommend this pump be used with any other battery

90058-AUT-5A	Complete kit includes: 18 V cordless vacuum pump, 1/4" SAE port and 1/2" ACME adapter, Mastercool designed rechargeable battery, Mastercool adapter sleeve, standard 110V battery charger and 3.5 oz of oil
90058-A-AUT	18 V cordless vacuum pump, 1/4" SAE port, 1/2" ACME adapter and 3.5 oz of oil (without battery and adapter sleeve)
90058-BAT-KT-5A	Mastercool rechargeable battery and adapter sleeve
90058-BAT-5A	Mastercool rechargeable battery
90058-CH	Mastercool battery charger, 110V standard US cable
90058-SL-MC	Adapter sleeve to allow for use with Mastercool batteries

82031 VACUUM PUMP SWIVEL ADAPTER



"T" style adapter screws onto existing 1/4" flare fitting and converts to 1/4"-FL and 1/2" ACME

SERVICE INFORMATION

	OIL CAPACITY	REPLACEMENT CARTRIDGE	SEAL SERVICE KIT
90065	18 oz	90165-R	90062-11-SEAL
90067	24 oz	90167-R	90062-11-SEAL
90063-2V-110-B	8.5 oz	-	-
90066-2V-110-B	15 oz	90166-B	-
90068-2V-110-B	19 oz	90168-B	-
90612-2V-110-B	18 oz	90112-B	-
90059-B, 90062-B	12 oz	-	-
90066-B, 90066-B-SF	18 oz	-	-

VACUUM PUMP OIL



90010-6	(Six) - 10 oz bottles (90058, 90063-2V-B)
90016-6	(Six) - 16 oz bottles (90059-B, 90062-B)
90018-6	(Six) - 18 oz bottles (90065, 90066-2V-B, 90612-2V-B, 90066-B, 90066-B-SF)
90024-6	(Six) - 24 oz bottles (90067, 90068-2V-B)
90032-6	(Six) - 32 oz bottles
90128-4	(Four) - 1 gallon bottles



Mastercool®
"World Class Quality"

98061 DIGITAL VACUUM GAUGE in blow molded case
98061-C DIGITAL VACUUM GAUGE in a clamshell



SPECIFICATIONS:

- Response Time: 250 mSec.
- Sensor Cable: Spiral cable extended to 6.5 feet (2.6 meter)
- Sensor: Thermocouple sensor
- Connection Fitting: 1/4" flare female adapter
- Operating Temperature: 32 to 120°F (0 to 45°C)
- Power: 9V DC battery (AC/DC Adapter optional)
- Battery Life: 36 hours
- Low Battery Indicator: Special ICON on LCD
- Vacuum Units: Micron, Torr, mTorr, mmHg, mBar, Pa
- Range: 20,000 to 1 micron
- Accuracy Range*: ATM-1000 Microns: ±10% of reading
 1000 - 100 Microns: ±7% of reading,
 100 - 1 Micron: ±5% of reading

* Unit accuracy refers to sensor specifications and is based on optimal laboratory conditions. Field operations may greatly deviate from these levels.

Optional Accessories

98061-SENSOR	Replacement Sensor
99334-110	110 V AC/DC Adapter
99333	1/4 FL-M x 1/4 FL-M x 1/4 FL-F Tee

BLOWER FANS



- 120 Volts, 60 Hz
- Rated power: 2.0 Amp
- For indoor or outdoor use
- Variable speed switch controls motor speed: 950-1650 RPM
- Built-in overload protection
- (2 pcs) 11 amp built-in grounded receptacles
- Housing material: impact resistant ABS
- 8.5 ft cord length, SJTW 14 AWG
- 4-position adjustment feet

21200	1200 CFM BLOWER FAN • Moves air up to: 1200 CFM • Unit weight: 15.9 lbs
20300	300 CFM BLOWER FAN • Moves air up to: 300 CFM • Unit weight: 11.5 lbs

20300-HTR HEATER ATTACHMENT FOR 300 CFM BLOWER FAN



- 1320 Watts, 120 Volts
- 11 Amps, 5000 BTU
- Converts blower into a heater
- Clips securely onto the front of the blower and plugs into one of the outlets on the side of the blower
- 16 AWG SJT cord, grounded plug

CHARGING AND RECOVERY EQUIPMENT



ARCTIC COMMANDER



Mastercool introduces its new ARCTIC COMMANDER line of R/R/R machines. Equipped with the latest technology, all models come standard with an 8" command center. The graphic user interface (GUI) will enable navigation through all functions and features with the greatest of ease. There is no longer a need to read any external instructions or paper manuals, simply sit back, watch and learn how to use your machines. All machines are also equipped with Wi-Fi capabilities; allowing for real-time, interactive communication and troubleshooting. ***It's about time somebody introduced R/R/R machines for the 21st century!***

SPECIFICATIONS:

- Design Certified:
R1234yf - SAE J2843
R134a - SAE J2788
- Voltage: 110 V / 60 Hz or 220 V / 50/60 Hz
- Scale Resolution: .02 lb (10 g)
- Working Temperature Range: 50/120°F (10/49°C)
- Compressor: Hermetically sealed, 12cc, high pressure
- Recovery Speed: 95% at 70 to 75°F (21 to 24°C) <30 minutes
- Recovery Cylinder: 30 lb (12.5 liters), refillable
- Charge Accuracy: ±0.5 oz. at 70 to 75°F (±15 g at 21 to 24°C)
- Filter System:
R1234yf - 1 filter for cleaning and water removal
R134a - 2 filters for cleaning and water removal
- Hoses: 96" (250 cm)
- Pressure Gauges: Class 1
- Cylinder Temperature Sensor: Integrated
- Cylinder Heater: Standard Equipment
- Dimensions (mm): 1150 (h) x 600 (w) x 770 (d)



WI-FI

Wi-Fi capability allows for real time, interactive communication and troubleshooting



COMPACT DESIGN

The machine's compact design makes it easy to maneuver and requires minimal shop space



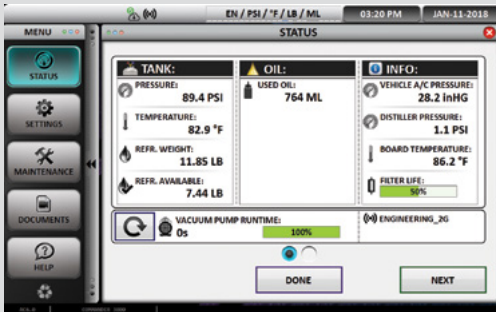
COOLING FAN

Dedicated PC board cooling fan keeps the PC board consistently cool

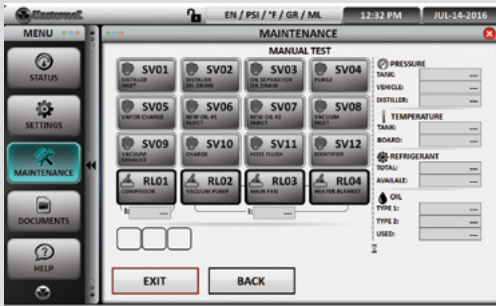
8" COLOR TABLET WITH TOUCH SCREEN FEATURES:



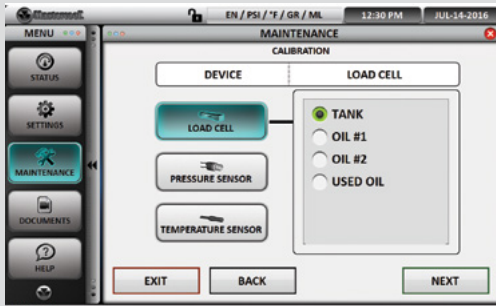
Home Screen
allows for quick touch selection of options



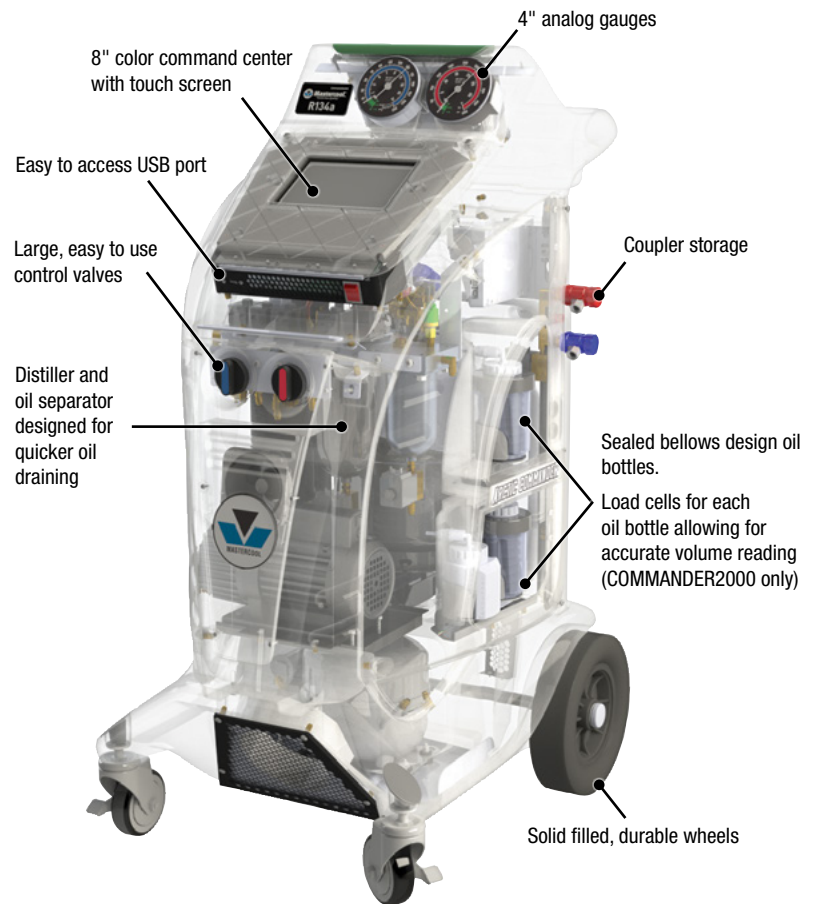
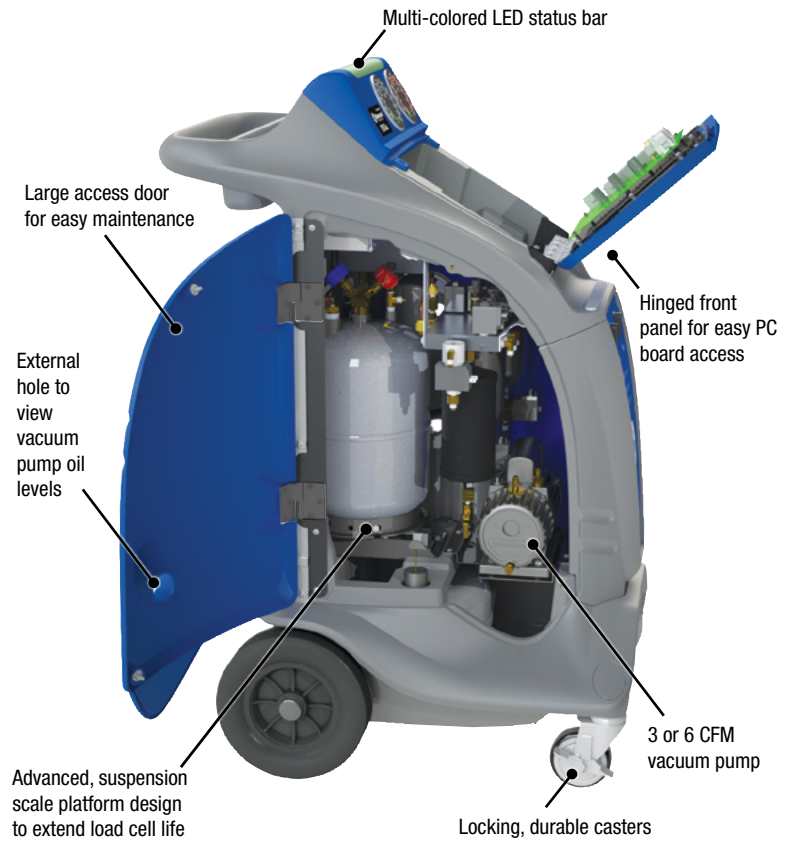
Status Screen
for quick reference of resources



Maintenance Screen
offered only to authorized service technicians allowing for quick and easy diagnosis



Maintenance Screen
offered only to authorized service technicians allowing for quick and easy diagnosis



RECOVER/RECYCLE/RECHARGE



COMMANDER4000



COMMANDER3000



COMMANDER2000



COMMANDER1000

	COMMANDER4000 (110V) R1234yf & HYBRID	COMMANDER3000 (110V) R134a & HYBRID	COMMANDER2000 (110V) R134a FULLY AUTOMATIC	COMMANDER1000 (110V) R134a SEMI-AUTOMATIC
8" Color Command Center with Touch Screen	X	X	X	X
Automatic and Manual Procedures	X	X	X	Manual procedures only
Refrigerant Database	X	X	X	Optional
Automatic Vacuum Leak Test: Programmable	X	X	X	X
Auto Oil Discharge	X	X	X	X
Auto and Manual Air Purge	X	X	X	X
Auto Filter and Full Tank Alarm	X	X	X	X
Low Refrigerant Alarm	X	X	X	X
Auto Oil Injection	N/A	N/A	X	N/A
Thermal Printer	X	X	Optional	Optional
Hose Flushing	X	X	N/A	N/A
Vehicle A/C System Flushing	Optional	Optional	N/A	N/A
Tank Heater	X	X	X	X
Vacuum Pump	6 CFM	6 CFM	6 CFM	3 CFM
Refrigerant Identifier	X	N/A	N/A	N/A
On-board Instruction Manual	X	X	X	X
Multiple Languages	X	X	X	X
On-board Unit Conversion Calculator	X	X	X	X
New Cabinet Design for Increased Air Flow	X	X	X	X
Large Analog Gauges	X	X	X	X
Hard Wired Power Cord	X	X	X	X
Hose Coupler Storage	X	X	X	X
Solid Durable Wheels with Locking Casters	X	X	X	X
Multi-colored LED Status Bar	X	X	X	N/A
Self-Diagnostic Check	X	X	X	X
Wi-Fi Capable	X	X	X	X
Dust Cover	X	X	X	X
Dimensions (mm): 1150 (h) x 600 (w) x 770 (d)	X	X	X	X

For a R1234yf machine without a refrigerant identifier, please use part number COMMANDER4000-X (for 110V model)

NOTE: Per SAE J2843, the COMMANDER4000-X will work only in conjunction with an external identifier

COMMANDER CONSUMABLES

Mastercool uses only the highest quality oils and dies with their products. In order to keep your warranty valid, please use Mastercool oils and dies at all times. For the Commander line of machines, Mastercool recommends the following consumables:

COMPRESSOR OILS



92709-65-8 92709-65-32

Maximum protection with excellent thermal & oxidative stability. Moisture tolerant. OEM approved.

92709-65-8	PAG 65 oil (8 oz (236 ml) bottle)
92709-65-32	PAG 65 oil (32 oz (1 L) bottle)
92709-100-8	PAG 100 oil (8 oz (236 ml) bottle)
92709-100-32	PAG 100 oil (32 oz (1 L) bottle)
92709-150-8	PAG 150 oil (8 oz (236 ml) bottle)
92709-150-32	PAG 150 oil (32 oz (1 L) bottle)

ZEROL[®] HD46 R1234yf MOBILE AIR CONDITIONING COMPRESSOR LUBRICANT



92709-YF-8 92709-YF-32

- Optimized miscibility in HFO refrigerant R1234yf
 - Superior lubricity
 - Exceptional viscosity index (VI)
 - Good high temperature and chemical stability
 - Low hygroscopicity (tendency to absorb moisture)
 - Formulating expertise
 - Excellent electrical resistivity properties for electrically driven systems
- * For more information please see page 59

92709-YF-8	8 fl. oz (236 ml) bottle
92709-YF-32	32 fl. oz (946 ml) bottle

ULTRAVIOLET A/C DYES



92708 92732 53625

92708	Standard universal dye 8 oz (240 ml) bottle - 32 applications
92732	Standard universal dye 32 oz (1 L) bottle - 128 applications
53625	Concentrated universal dye 2 oz (60 ml) bottle - 25 applications

COMMANDER REPLACEMENT FILTERS



COMD2-FLTRPK

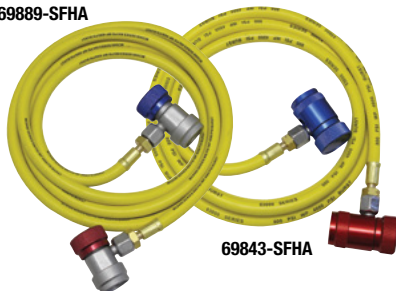
Change the filter-drier when notified by the machine to assure adequate moisture and contaminant removal as well as prevent lockout.

COMD2-FLTRPK	2 filter pack for COMMANDER1000, COMMANDER2000, COMMANDER3000. Has a 175 lb filtering capacity.
COMD1-FLTRPK	1 filter for COMMANDER4000, COMMANDER4000-E, COMMANDER3000-E, COMMANDER2000-E, COMMANDER1000-E. Has a 350 lb filtering capacity.

A/C SYSTEM FLUSH HOSE ASSEMBLY



69889-SFHA



69843-SFHA

69889-SFHA	R134a A/C system flush hose assembly includes high and low side couplers (82834, 82934) and 8 foot yellow hose
69843-SFHA	R1234yf A/C system flush hose assembly includes high and low side couplers (83834, 83934) and 8 foot yellow hose



THE TWIN TURBO SERIES IS THE MOST COMPLETE SOLUTION TO YOUR RECOVERY NEEDS!

TWIN TURBO
REFRIGERANT RECOVERY MACHINE

R32
Compatible



69300



69370

Mastercool's newest addition to the recovery machine lineup takes the reliability of the 69000 series machines and enhances those features to allow for maximum recovery capacity while at the same time decreasing size and weight. The design of the new double piston compressor and cooling by the largest fan and condenser in the market makes the 69300 series the most complete solution to your recovery needs!

FEATURES & BENEFITS:

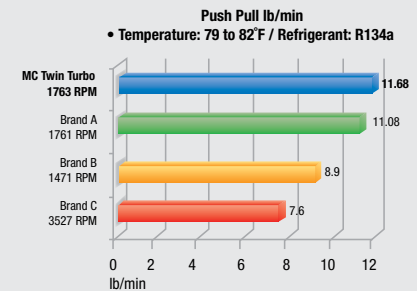
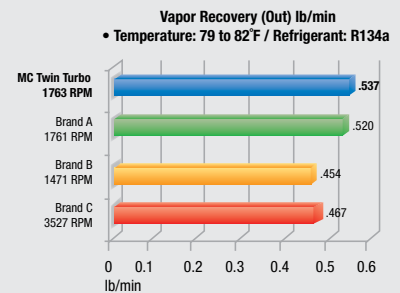
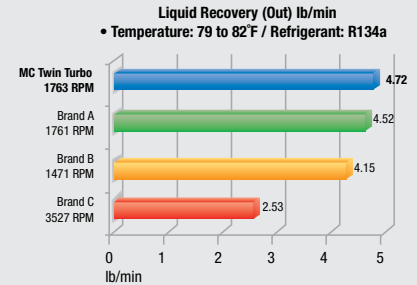
- Revolutionary double piston oil-less compressor
- Safety high pressure switch
- Simple internal structure for field service
- Largest volume recovery rate in market
- For use with all refrigerants including R410A
- Injection molded high density polyethylene case for maximum durability
- Front cover has bumper guards built in to reduce damage to the control knobs

SPECIFICATIONS:

- 1/2 hp oil less compressor
- Recovery rate:

R134a	<ul style="list-style-type: none"> • Direct vapor up to .537 lb/min • Direct liquid up to 4.72 lb/min • Push pull up to 11.68 lb/min
R22	<ul style="list-style-type: none"> • Direct vapor up to .63 lb/min • Direct liquid up to 7.56 lb/min • Push pull up to 18.3 lb/min
R410A	<ul style="list-style-type: none"> • Direct vapor up to .70 lb/min • Direct liquid up to 7.7 lb/min • Push pull up to 20.2 lb/min

- Operating temperature: 32 to 122°F
- Weight: 28.3 lbs
- Dimensions: 18" (l) x 10" (w) x 14" (h)
- Case material is HDPE (high density polyethylene)
- Compatible refrigerants: All CFC, HCFC, and HFC's



69300 115 V - 60 Hz

69370

115 V - 60 Hz
This unit offers all the same functions and features as the 69300. In addition it has a 6' 3 pole female float switch cable



3 pole female float switch cable

TWIN TURBO REFRIGERANT RECOVERY MACHINE



69360-YF



69365

These units offer all the same functions and features as the 69300, in addition, they have an oil separation module, filter dryer and sight glass.



69360 115 V - 60 Hz includes 30 lb DOT tank, sight glass, R134a low side coupler, oil drain bottle, a yellow and blue hose and a 1/4" FFL X 1/2" ACME-M adapter

Twin Turbo Complete Recovery Machine for R1234yf vehicles

COMPATIBLE WITH COMBUSTIBLE GASES

69360-YF includes a 30 lb DOT tank, sight-glass, R1234yf low side coupler, oil drain bottle and R1234yf blue and yellow hose

69365 115 V - 60 Hz Heavy Duty Recovery Machine for Buses and Fleet Applications includes 50 lb DOT tank, sight glass, R134a low side coupler, oil drain bottle, a yellow and blue hose and a 1/4" FFL X 1/2" ACME-M adapter

69500-DR Replacement filter dryer



69390



COMPATIBLE WITH COMBUSTIBLE GASES

FOR CONTAMINATED MOBILE A/C SYSTEMS DESIGNED FOR R1234yf

This unit offers all the same functions and features as the 69300.

In addition:

- Meets all requirements of SAE J2851, contaminated recovery only device
- Comes equipped with overfill protection switch cutting off at 80% tank capacity (Recovery tanks must have floats using 3 pin Brad Harris plug)
- 60" R1234yf blue hose and low side (1/4 FL-M x 13 mm) coupler
- 60" yellow transfer hose

69390 115 V - 60 Hz

69391 115 V - 60 Hz with 30 lb DOT tank



Mastercool[®]
"World Class Quality"

69000 REFRIGERANT RECOVERY SYSTEM (115 V - 60 Hz)

»POPULAR«



These recovery systems are compact, lightweight and work with all refrigerants. They're ideal for commercial, residential or industrial appliance applications. Our recovery systems offer a state-of-the-art 1/2 HP oil-less compressor with a built-in high volume cooling fan. This innovative design delivers maximum cooling efficiency which keeps the compressor working at high capacities in even the hottest climates. The compressor is also protected by an automatic low pressure cut-off switch that shuts off the unit once the recovery is complete. This AUTO SHUT-OFF feature eliminates the risk of compressor failure and reduces the user's need to monitor the entire recovery system. All of our recovery systems offer our color-coded gauges with pressure readings in PSI, BAR and MPa. Our stainless steel ball valve designed manifold, controls the flow smoothly and quickly with only a 1/4 turn. With all of this protected by a reinforced hard plastic case, Mastercool's recovery systems will meet all your refrigerant recovery needs.

FEATURES:

- High performance oil-less compressor
- High volume cooling fan design
- Automatic low pressure cut-off switch
- Liquid compatible head-valve system
- Safety high pressure cut-off switch
- Fully reinforced hard plastic casing

SPECIFICATIONS:

- 1/2 HP oil-less compressor
- Recovery rate:
Direct vapor up to .44 lb/min
Direct liquid up to 2.6 lb/min
Push-pull up to 11.9 lb
- Operating temperature range: 32 to 122°F
- Weight: 38 lbs / Dimensions: 17" (l) x 10" (w) x 12" (h)
- Refrigerants: CFC's, HCFC's, HFC's

69100 COMPLETE A/C RECOVERY SYSTEM (115 V - 60 Hz)

»POPULAR«



- Compact, lightweight and works with all refrigerants
- State of the art 1/2 hp oil-less compressor with built-in high volume cooling fan. Delivers maximum cooling efficiency which keeps compressor working at high capacities in even the warmest climates. Compressor is protected by an automatic low pressure cut-off switch that shuts off unit once the recovery is complete. This feature eliminates the risk of compressor failure and reduces user's need to monitor entire recovery process
- Includes an oil separator and filter dryer to cleanse the refrigerant during the recovery process
- Color-coded gauges with pressure readings in PSI, BAR and MPA
- Stainless steel ball valve designed manifold controls the refrigerant flow smoothly and quickly with only a 1/4 turn
- Internal components have been arranged and isolated to ensure a smooth and quiet performance
- Protected by a reinforced hard plastic case

FEATURES & BENEFITS:

- High performance oil-less compressor
- High volume cooling fan design
- Automatic low pressure cut-off switch
- Liquid compatible head-valve system
- Safety high pressure cut-off switch
- Fully reinforced hard plastic casing

SPECIFICATIONS:

- 1/2 HP oil-less compressor
- Recovery rate:
Direct vapor up to .44 lb/min
Direct liquid up to 2.62 lb/min
Push pull up to 12 lb/min
- Operating temperature range: 32 to 122°F
- Weight: 38 lbs / Dimensions: 17" L x 10" W x 12" H
- Refrigerants: all

69110 AUTOMOTIVE A/C RECOVERY SYSTEM**Design Certified to Meet SAE J2810**

- Includes recovery unit, 30 lb DOT tank, 60" yellow service hose, 72" blue and red conversion hoses, UL approved high and low side R134a manual couplers and oil purge bottle
- Designed to meet SAE J2810 and works with all refrigerants.
- Recovers and removes oil from refrigerant.
- All internal components have been arranged and isolated to ensure smooth and quiet performance.
- State of the art 1/2 hp oil-less compressor with built-in high volume cooling fan.
- Delivers maximum cooling efficiency, keeping compressor working at high capacities even in warmest climates.
- Stainless steel ball valve design manifold controls refrigerant flow smoothly and quickly with only 1/4 turn.
- Gauges provide pressure readings in PSI, BAR and MPA.

SPECIFICATIONS:

- Refrigerant R134a
- 115 Volts AC
- High Side Design Pressure 500 psig
- Low Side Design Pressure 174 psig
- 1 PH, 60 HZ., 8.6 Amps, 1.25 S/F
- Service Factor 10.75 AMP

69400-CON REFRIGERANT RECOVERY MACHINE FOR CONTAMINATED R134a AND R1234yf**COMPATIBLE WITH COMBUSTIBLE GASES**

Mastercool's "Mini Twin Turbo" recovery machine quickly and easily removes contaminated refrigerant from R134a and R1234yf systems. This machine has been constructed with the safest spark free component allowing for use with all combustible gases.

This refrigerant recovery machine for contaminated R134a and R1234yf contains: "Mini Twin Turbo" recovery machine (69400), 30 lb DOT approved tank (62010-CON), 72" yellow hose (83722-CON), 72" blue hose (83721-CON), low side R1234yf 12 mm-F x 14 mm quick coupler (67534), low side R134a 14 mm-F x 13 mm economy coupler (66334), R1234yf adapter 12mm-m x 14mm-f (83735)

SPECIFICATIONS:

- 115 V – 60 Hz
- 1/2 HP motor
- Operating temperature: 32 to 122°F (0 to 50°C)
- Compatible with all CFC, HCFC, HFC's, and combustible gases
- 30 lb DOT approved tank
- Weight (69400): 24 lbs (11 kg)
- Dimensions (69400): 11.8" (l) x 7.9" (w) x 10.6" (h) (300 mm (l) x 200 mm (w) x 270 mm (h))

69500 RECOVERYMATE

Speed up the recovery process! Remove unwanted moisture and separate oil from recovered refrigerant. (Use with any recovery machine.)

SPECIFICATIONS:

- Lightweight and easy to carry
- 4-way ball valve manifold controls the flow smoothly and quickly with only 1/4 turn
- Large capacity oil separator
- High performance dryer eliminates moisture from recovered refrigerant
- Extra large sight glass monitors refrigerant flow and changes color when a dryer change is necessary
- Rugged carrying case can stand on its own or be mounted on a wall or bench
- Length: 15" / Width: 4" / Height: 17"
- Weight: 12.25 lbs



Mastercool®
"World Class Quality"

DOT-APPROVED RECOVERY CYLINDERS

Features:

- Powder coated cylinder for high gloss, durable finish
- Pre-charged cylinder provides a clean, dry interior
- 3/4" NPT opening accepts 80% fill float switch shut-off device
- Reusable and conforms to DOT-4BA400 specs and ARI guidelines
- Collar design for ease of handling
- Storage and transport of recovered refrigerant gases
- Y-valve for liquid/vapor
- AUS Approved and TC Canadian Approved

30 LB. DOT-APPROVED RECOVERY CYLINDERS



62010

67010

67011

- Size (w x h): 9.125" x 17.52"
- Standard spec.: DOT - 4BA400
- Service pressure: 400 PSI / 2.7 MPa
- Tare weight: 17.99 LB
- Body material: HP295
- Relief valve pressure: 600 PSI / 4.1 MPa
- Nominal water capacity: >26.2 LB / 11.9 L
- Tank test pressure: 800 PSI / 5.5 MPa
- Air tightness test pressure: 400 PSI / 2.7 MPa

Model	62010 without float switch	62011 with float switch	62012 with float switch & NCG Port	64010 without float switch	67010 with float switch	67011 with float switch
Connection	1/4" FL-M (7/16-20)			1/2" ACME		
Color	yellow/gray			blue		yellow/blue

50 LB. DOT-APPROVED RECOVERY CYLINDERS



63010

66010

63010-AUS

- Size (w x h): 12.25" x 18.78"
- Standard spec.: DOT - 4BA400
- Service pressure: 400 PSI / 2.7 MPa
- Tare weight: 28.71 LB
- Body material: HP325 or HP345
- Relief valve pressure: 600 PSI / 4.1 MPa
- Nominal water capacity: >47.7 LB / 21.6 L
- Tank test pressure: 800 PSI / 5.5 MPa
- Air tightness test pressure: 400 PSI / 2.7 MPa

Model	63010 without float switch	65010 with float switch	66010 without float switch	66011 with float switch	66012 with float switch & NCG Port	63010-AUS without float switch (Australian standard)
Connection	1/4" FL-M (7/16-20)			1/2" ACME		1/2" ACME
Color	yellow/gray			yellow/gray		white

100 LB. DOT-APPROVED RECOVERY CYLINDERS



68010

- Size (w x h): 11.25" x 31.81"
- Standard spec.: DOT - 4BW400
- Service pressure: 400 PSI / 2.7 MPa
- Tare weight: 50.5 LB
- Body material: HP325
- Relief valve pressure: 600 PSI / 4.1 MPa
- Nominal water capacity: >92.5 LB / 41.9 L
- Tank test pressure: 800 PSI / 5.5 MPa
- Air tightness test pressure: >87 PSI / 0.6 MPa

Model	68010 without float switch
Connection	1/4" FL-M (7/16-20)
Color	yellow/gray

ENVIRO TANK (REFILLABLE CYLINDER)

30 LB. REFILLABLE CYLINDER



62020-W

- Size (w x h): 8.39" x 20"
- Standard spec.: DOT - 4BA400
- Service pressure: 400 PSI / 2.7 MPa
- Tare weight: 19.9 LB
- Body material: HP295
- Relief valve pressure: 600 PSI / 4.1 MPa
- Nominal water capacity: >30 LB / 13.6 L
- Tank test pressure: 800 PSI / 5.5 MPa
- Air tightness test pressure: >87 PSI / 0.6 MPa

Model	62020-W
Connection	1/4" FL-M (7/16-20)
Color	white

MOBILE ELECTRONIC CHARGING STATION



91685

Keeping the same ideals in mind as the Portable Electronic Charging Station, the mobile unit is directed towards the garage technician. With an enlarged carry cart and larger wheels, this unit can get around the shop with the greatest of ease!

- Dimensions: 45" x 18" x 16.5"

VACUUM PUMP	5 CFM
MANIFOLD	
2 Way Aluminum Block	91685
4 Way Aluminum Block	91686
VACUUM PUMP	7.5 CFM
MANIFOLD	
2 Way Aluminum Block	91687
4 Way Aluminum Block	91688

PORTABLE ELECTRONIC CHARGING STATION



91585

A lightweight, durable, steel frame cart that contains all the necessary tools to quickly and conveniently charge the A/C system. No need for different sized charging cylinders with Mastercool's rugged die cast electronic scale. Simply place the refrigerant cylinder on the scale and charge.

FEATURES:

- A rugged, lightweight steel cart with wheels and convenient storage pocket for scale and hoses allows this portable charging station to be taken almost anywhere
- 240 lb capacity scale with long lasting 9V battery (60 hrs)
- Deep micron, rotary vane vacuum pumps
- Extruded aluminum manifold with long lasting valve design

2 STAGE PORTABLE ELECTRONIC CHARGING STATION

- Includes electronic charging scale and a set of 72" hoses

Also available:

- Refrigerant tank heater blanket #98250
- D.O.T. cylinder #62010-R12 w/o float
- * R134a Automotive Service Couplers not included

VACUUM PUMP	5 CFM	7.5 CFM
MANIFOLD		
2 Way Aluminum Block with 2 1/2" gauges	91585	91587
4 Way Aluminum Block with 3 1/8" gauges	91586	91588



91585-B

R134a SINGLE STAGE PORTABLE ELECTRONIC CHARGING STATION

- 2-way manifold with 2 1/2" gauges in R134a
- Electronic charging scale, manual couplers, set of hoses

Also available:

- Refrigerant tank heater blanket #98250

1.8 CFM Single Stage Vacuum Pump	91580-A
3 CFM Single Stage Vacuum Pump	91580-B
6 CFM Single Stage Vacuum Pump	91585-B

91585-B-YF DUAL R134a/R1234yf SINGLE STAGE PORTABLE ELECTRONIC CHARGING STATION



- 2-way manifold with 2 1/2" gauges
- 6 CFM, single stage *Smart Air* vacuum pump
- Electronic charging scale, R1234yf manual couplers, R134a manual couplers, 1/2" acme-m x 1/2" acme-F LH thread fitting, R1234yf adapter 14mm-F x 12mm-M, set of 60" service hoses

98310 WIRELESS REFRIGERANT CHARGING SCALE
98315 WIRELESS REFRIGERANT CHARGING SCALE WITH SOLENOID
98315-AUT WIRELESS REFRIGERANT CHARGING SCALE WITH SOLENOID
 (includes 1/4" F-FL x 1/2 ACME-M fitting without valve core (82634-M))



98315 with solenoid



When remote is out of range the unit will automatically pause. This pause mechanism allows unit to restart when remote is back in range.

FEATURES:

- Wireless unit prevents unwanted tangles in wires
- Easily store the remote in the body of the platform
- Keypad provides synchronization and zeroing
- Extremely accurate weight sensor
- Magnet on remote allows easy placement on fixtures
- Battery life symbol for platform and remote constantly displayed on LCD
- Wireless signal strength indicator conveniently displays on remote

FUNCTIONS:

CHARGE PROGRAMMING:

Allows user to program desired quantities. Before charge is complete, an alarm will sound allowing ample time to turn off refrigerant supply.

PAUSE/CHARGE (98315 model only):

This feature allows user to stop and continue charging.

TANK CAPACITY PROGRAMMING:

EMPTY/FULL tank feature allows user to know the amount of refrigerant in the tank at any time.

REPEAT (98315 model only):

Allows user to charge previously stored amount.

SPECIFICATIONS:

- Capacity: 243 lbs (110 kg)
- Accuracy: $\leq \pm 0.05\%$ of reading
- Resolution: 0.05 lb / 0.5 oz / 0.01 kg
- 3 hrs auto off function
- Operating temperature: 32°F to 120°F (0°C to 49°C)
- Battery life: approximately 20 hours
- 31 cm platform
- Accepts all US & EU standard cylinders



REMOTE RANGE:
100 FEET (30 M),
LINE OF SIGHT

98210-A ACCU-CHARGE II



Mastercool's ACCU-CHARGE II is the most advanced electronic refrigerant scale in the market today. Constructed with a rugged aluminum cast body, the ACCU-CHARGE II now offers programming capabilities.

FUNCTIONS:

CHARGE PROGRAMMING:

Allows user to program desired quantities. Before charge is complete, an alarm will sound allowing user ample time to turn off refrigerant supply.

TANK CAPACITY PROGRAMMING:

Allows user to know the amount of refrigerant that is left in the tank at any time.

REPEAT:

Allows user to charge previously stored amount.

SPECIFICATIONS:

- Capacity: 243 lbs (110 kg)
- Accuracy: $\leq \pm 0.05\%$ of reading
- Resolution: 0.05 lb / 0.5 oz / 0.01 kg
- 3 hrs auto off function
- Operating temperature: 32 to 120°F (0 to 49°C)
- Battery life: approximately 40 hours
- Works with 110 or 220V transformer (**part no. 99334-110**)
- 9 x 9" (22 x 22 cm) platform

98211-A ACCU-CHARGE III CERTIFIED REFRIGERANT SCALE (OIML & CE Approved, Legal for Trade)



FUNCTIONS:

CHARGE PROGRAMMING:

Allows user to program desired quantities. Before charge is complete, an alarm will sound allowing user ample time to turn off refrigerant supply.

PAUSE/CHARGE:

(Using the 98230 charging solenoid module)

TANK CAPACITY PROGRAMMING:

Allows user to know the amount of refrigerant that is left in the tank at any time.

REPEAT:

Allows user to charge previously stored amount.

SPECIFICATIONS:

- Complies with European (OIML) standards
- Capacity: 110 lbs (50 kg)
- Accuracy: ±50 g
- Resolution: 0.05 kg
- 3 hours auto off function
- Operating temperature: 32 to 120°F (0 to 49°C)
- Battery life: approximately 40 hours
- 9 x 9" (22 x 22 cm) platform

98230 CHARGING SOLENOID MODULE



The 98230 charging solenoid module turns the 98210-A ACCU-CHARGE II & 98211-A ACCU-CHARGE III into automatic programmable scales!

This module allows the user to control the exact amount of refrigerant transferring to and from the A/C system. The compact design is battery powered (9V), lightweight, portable and works with all types of refrigerant. 98230 includes a short hose for tank connection, USB cord and 1/4"FL - 1/2" ACME adapters.



98250 ELECTRONIC TANK HEATER BLANKET



The Mastercool refrigerant tank heater blanket speeds up recharging time.

- Assures total discharge of refrigerant from 30 lb and 50 lb tanks. Heats tanks to 125°F resulting in maximum pressure of 185 psi for R134a and 170 psi for R12
- Quick working 300W heater element
- An excellent complement to all Mastercool refrigerant scales

69134-A REFRIGERANT IDENTIFIER FOR R134a



Keeps equipment safe, prevents contamination, detects air contamination. The refrigerant identifier helps confirm the presence and quality of R134a refrigerant in vehicle air conditioning systems. This process will help avoid potential damage from refrigerant contamination.

SPECIFICATIONS:

- Weight: 0.8 kg
- Refrigerant detected: R134a (tetrafluoroethane)
- Accuracy: PASS/FAIL - 95% pure R134a
- Power requirements: 12 VDC
- User interface: membrane type w/ visual indicators and function key
- Calibration method: manual pump aspirator
- Minimum input pressure: 1.38 Bar (20 Psig)
- Maximum input pressure: 20.70 Bar (300 Psig)
- Storage temperature: -10° to 50°C
- Operating temperature: 10 to 45°C
- Construction material: molded ABS housing/molded rubber sleeve



691234YF-MINI MINI ID REFRIGERANT IDENTIFIER FOR R1234yf



Keeps equipment safe, prevents contamination, detects air contamination

SPECIFICATIONS:

- Weight: 0.8 kg
- Refrigerant detected: R1234yf (tetrafluoropropene)
- Accuracy: PASS/FAIL - 95% pure R1234yf
- Power requirements: 12 VDC
- Approvals: UL, CE, RoHS compliant
- User interface: membrane type with visual indicators and function key
- Calibration method: manual pump aspirator
- Storage temperature: -10° to 50°C
- Operating temperature: 10°C to 45°C
- Construction material: molded ABS housing/molded rubber sleeve

LEGEND SERIES™ R1234YF & R134A REFRIGERANT ANALYZER



- Quickly and accurately determines refrigerant purity
- Displays % air in pure R1234yf & R134a
- Displays percentage purity of R1234yf, R134a, R12, R22 and hydrocarbons
- Easily prints test results with optional printer
- Capable of testing R12 with optional R12 hose accessory

SPECIFICATIONS:

- Refrigerants measured: R1234yf, R134a, R12
- Power: 12VDC @ 1.5 amps
- Contaminants measured: R22, hydrocarbons, unknown
- User interface: 5" color LCD with soft keys
- Accuracy: exceeds the requirements of SAE J2912
- Approvals: CE, UL, SAE J2912
- Refrigerant % displayed: R1234yf, R134a, R22, R12, HC, unknown, air
- Ambient operating temperature range: 10 to 49°C
- Communication protocols: USB 2.0, Bluetooth 2.0

Comes complete with: R1234yf and R134a low side service couplers, R1234yf and R134a cylinder adapters, (2) R1234yf sample hoses, (2) R134a sample hoses, charging adapter, custom fit storage case

- 69LEGEND** Legend Series™ R1234yf & R134a Refrigerant Analyzer without bluetooth / without printer
- 69LEGEND-P** Legend Series™ R1234yf & R134a Refrigerant Analyzer without bluetooth / with printer
- 69LEGEND-BT** Legend Series™ R1234yf & R134a Refrigerant Analyzer with bluetooth / without printer
- 69LEGEND-BTP** Legend Series™ R1234yf & R134a Refrigerant Analyzer with bluetooth / with printer

LEAK DETECTION



SENSITIVITY: L M H
HIGH
DETECTION
LOW
READY
CA
INT/WT
LR
HR

VOLUME MUTE
PEAK MUTE
H M L

55900 *IntellaSense II*
REFRIGERANT LEAK DETECTOR



Display



Keypad

At the heart of this leak detector is a low power metal oxide gas sensor with superior performance properties such as lower current consumption and sensor longevity. The sensor is characterized by high sensitivity and fast response upon detecting the presence of extremely small levels of chlorofluorocarbon gases. For this reason, this sensor was selected and integrated into the 55900 leak detector. In addition, a powerful microprocessor was integrated into the design that automatically selects the best operating condition for the sensor to ensure optimum performance throughout its life.

This unit comes packaged in a blow molded case with 2 "C" batteries, leak test vial and replacement filters.

<< DESIGN CERTIFIED BY INTERTEK TO MEET J2791 (R134A), J2913 (R1234yf) AND EN 14624 >>

SPECIFICATIONS:

SENSITIVITY*: HIGH \geq 0.15 oz/yr (4 g/yr), MEDIUM \geq 0.25 oz/yr (7 g/yr), LOW \geq 0.50 oz/yr (14 g/yr)

* based on optimal laboratory conditions

PROBE:

- Intelligent tip design that senses the condition of the environment, to eliminate the potential of false alarms.
- Flexible 15.5" probe for difficult to reach locations

DISPLAY:

Six vertical LED's (red, yellow or green) display the following information to the user such as:

- Relative signal level of the detected leak
- Selected sensitivity range (low/medium or high) of the unit
- Diagnostic information: low battery, interference/wait, contaminated atmosphere, readiness of the unit or fault conditions of the unit

REFRIGERANTS: Detects all refrigerants (CFC's, HCFC's, & HFC's and blends)

SENSOR LIFE: 2000 hours

SENSING ELEMENT: Heated tin oxide

OPERATING TEMPERATURE RANGE: 0 to 120°F

RESPONSE TIME: Less than 1 second

POWER: 2 C Alkaline 6000 mAh batteries

BATTERY LIFE: 30 hours

WEIGHT: 1.08 lbs

"SUPER SENSITIVE FUNCTION" allows the unit further sensitizing beyond the standard settings for locating small leaks with gases such as R1234yf and R407C

KEYPAD FUNCTIONS:

ON/OFF: Press the ON/OFF button to turn the unit on or off.

VOLUME/MUTE: Press the VOLUME/MUTE button to control the volume of the unit.

H M L SENSITIVITY: Press the H M L SENSITIVITY button to select the desired sensitivity level.

PEAK/HR/LR: The PEAK/HR/LR key serves a dual purpose:

- (1) To assist the user in locating the "largest leak" in a system with multiple leaks present
- (2) To enable the user to switch between HR (high range) and LR (low range) modes

55975

IntellaSense III

COMBUSTIBLE GAS LEAK DETECTOR

 COMPATIBLE WITH COMBUSTIBLE GASES


DETECTS: Acetone, Acetylene, Ammonia, Benzene, Butane, Butanol, Chlorine, Ethane, Ethanol, Gasoline, Hexane, Hydrogen, Hydrogen Sulfide, Isobutane, Methane (natural gas), Methanol, Methyl Acetate, Methyl Chloride, Methyl Ether, Naptha, N-Butane, Pentane, Propane, Propanol, Sulfur Dioxide and Trichloroethane

Intella Sense III Combustible Gas Leak Detector is packaged in a blow molded case with 2 "C" batteries, leak test vial and replacement filters

SPECIFICATIONS

- Sensing element: heated tin oxide
- Refrigerants: detects all refrigerants
- Battery: 2 "C" alkaline 6000 mAh batteries
- Ultimate sensitivity: 50 – 1000 ppm
- * based on optimal laboratory conditions
- Sensor life: 2000 hours
- Response time: less than 1 second
- Operating temperature range: 0°F to 120°F

PROBE:

- Intelligent tip, with environment sensing element to eliminate the potential of false alarms
- Flexible 15.5 inch probe length for difficult to reach locations

DISPLAY:

Six vertical LED's enabled selectively (red, yellow or green) to display the following information to the user such as:

- The relative signal level of the detected leak
- The selected sensitivity range (low, medium or high) of the unit
- Diagnostic information (low battery, interference/wait, contaminated atmosphere readiness of the unit or fault conditions of the unit)

KEYPAD CONTROLS:

- ON/OFF, volume/mute, sensitivity for high, medium and low level selection, peak when multiple leaks are suspected

43707 COMBUSTION GAS LEAK TESTER KIT



Fast, economical and accurate method to test for combustion gas leaks from head gasket, cylinder head & engine block.

- Dual chamber for improved accuracy and to reduce the risk of coolant contaminating the test
- Works on gasoline & diesel engines
- Indicates that a leak is present when the tester fluid changes color
- Test results in the top chamber will provide an indication of a combustion leak

KIT INCLUDES:

Test chamber with rubber bulb pump, combustion leak tester fluid and instructions packaged in a plastic box

43708

Radiator Cooling Test Cap Adapter with Vent

Test cap adapter will provide a leak free secure connection to ensure the correct testing of the cooling system without the use of a rubber cone. Works with caps from Mastercool radiator test kits (43300, 43301, 43302, 43305 and 43306)

43709

Replacement Combustion Leak Tester Fluid

Quickly check leaks between combustion chamber and cooling system

43710 COMBUSTION GAS LEAK TESTER KIT WITH TEST CAP ADAPTER



Fast, economical and accurate method to test for combustion gas leaks from head gasket, cylinder head & engine block. Includes expansion tank adapter with vent allowing the end user to securely attach adapters to radiator or expansion tank when performing a combustion gas leak test. Quick connect coupler will attach to the radiator cap and expansion tank adapters in the Mastercool 43300, 43301-A, 43302, 43305 and 43306. The test cap adapter will provide a leak free secure connection to ensure the correct testing of the cooling system without the use of a rubber cone.

- Dual chamber for improved accuracy and to reduce the risk of coolant contaminating the test
- Works on gasoline & diesel engines
- Indicates that a leak is present when the tester fluid changes color
- Test results in the top chamber will provide an indication of a combustion leak

KIT INCLUDES:

Test chamber with rubber bulb pump, combustion leak tester fluid, radiator cooling test cap adapter with vent and instructions packaged in a plastic box



Mastercool®
"World Class Quality"

56100



>>POPULAR<<

The *Raptor Refrigerant Leak Detector* offers state-of-the-art features and micro-processing technology while the design sensor delivers an accurate and instantaneous response. Packaged in a blow molded case with 2 “C” batteries and sensor tip.

FEATURES:

- Digital signal micro processor
- Visual leak level indicator
- Reset function and keypad control
- Sensitivity level adjustment
- Battery test function
- Variable frequency audible alarm
- Meets and exceeds SAE J1627

SPECIFICATIONS:

- 3 levels of sensitivity (5 levels of detection)
- Detects leaks as small as 1/10 oz per year*
*based on optimal laboratory conditions
- Detects all refrigerants (CFC's, HCFC's, HFC's)
- Power: 2 “C” batteries
- Probe: flexible 16” (43 cm)



56200



with UV Blue Light



>>POPULAR<<

The *Raptor Refrigerant Leak Detector with UV Blue Light* offers state-of-the-art features and micro-processing technology while the design sensor delivers an accurate and instantaneous response. An ultra bright UV light is built into the end of the probe allowing for both electronic and UV leak detection of even the toughest leaks. Packaged in a blow molded case with UV glasses, 2 “C” batteries and sensor tip.

FEATURES:

- Digital signal micro processor
- Mute function
- Visual leak level indicator
- Reset function and keypad control
- Battery test function
- Sensitivity level adjustment
- Ultra bright UV/blue LED light
- Variable frequency audible alarm
- Meets and exceeds SAE J1627

SPECIFICATIONS:

- 6 levels of sensitivity (15 levels of detection)
- Detects leaks as small as 1/10 oz per year*
*based on optimal laboratory conditions
- Detects all refrigerants (CFC's, HCFC's, HFC's)
- Power: 2 “C” batteries
- Probe: flexible 16” (43 cm)



COMPLETE ELECTRONIC & UV LEAK DETECTION KITS

The ultimate solution for all your A/C leak detection needs.



56300

56300 Kit includes: 56200 “Raptor” electronic leak Detector with UV blue light, UV dye injector w/25 application dye cartridge, dye injector connection hose w/ 1/4” FL adapter, dye cleaner & UV safety glasses, comes in a custom molded carrying case

56310 Kit includes: 56200 “Raptor” electronic leak detector with UV blue light, UV dye injector w/10 application dye cartridge, dye injector connection hose w/ 1/4” FL adapter, dye cleaner & UV safety glasses, comes in a custom molded carrying case

56400 Kit includes: 56200 “Raptor” electronic leak detector with UV blue light, refillable dye injector, dye injector connection hose w/ 1/4” FL adapter, 2 oz bottle of concentrated universal dye, UV safety glasses & dye cleaner, comes in a custom molded carrying case

53518-UV RECHARGEABLE 110 V HIGH INTENSITY LED UV FLASHLIGHT



- AAA battery holder provides backup power to flashlight (3 AAA batteries included)
 - Battery life: 3 to 5 hours continuous leak detection
 - Includes safety glasses and 110 V charger
- SPECIFICATIONS:**
- Lamp power: 2W
 - 154 – 170 $\mu\text{W}/\text{cm}^2$ which is compatible to a 50 watt UV flashlight
 - UV wavelength: 390-400
 - Illumination mode: on-off
 - Battery: lithium li-ion, full discharge and cut-off discharge of 4.2V and 2.75V



53513-UV MINI UV FLASHLIGHT (LED)



- High intensity LED bulb - UV illumination
- Aluminum body with anodized finish
- 3 AAA batteries
- UV wavelength: 390-400
- Easy grip texture
- 25,000 hour bulb life
- Includes safety glasses

53517-UV COMPACT UV FLASHLIGHT (LED)



- 17 LED bulb UV illumination
- Easy grip texture
- 3 AAA batteries
- Aluminum body with anodized finish
- 25,000 hour bulb life
- Includes safety glasses

53515 MACH IV FLEXIBLE UV LIGHT (LED)



- The Mach IV flexible UV light has **4 TRUE UV LEDS** delivering a brilliant fluorescent glow.
- Gets into tight areas easily.
 - Includes UV enhancing safety glasses
- PATENT NO. 6,647,761**

53515-B Light bulb

53515-BAT-2 CR2 lithium battery

53012 UV SWIVEL HEAD LIGHT (12 V/100 WATTS)



- 180° swivel heads get into tight places
- Heavy duty metal construction
- Instant on
- Includes UV enhancing safety glasses

53012-B Light bulb

53012-L Lens

53312 UV MINI LIGHT (12 V/50 WATTS)



- High intensity
- 16ft. (5m) cord
- Compact & lightweight
- Instant on
- Includes UV enhancing safety glasses



53312-B Light bulb

53312-L Lens

COMPACT UV LEAK LOCATOR KITS

Leading the way in UV LEAK DETECTION, Mastercool offers a variety of compact UV leak locator kits. Each kit offers a powerful inspection lamp, a "Refillable" or "Cartridge Type" Dye Injector and accessories. All kits are packaged in a clamshell or custom molded carrying case.



53451-110



53587

53585



53351



53100



53500

KIT PART#	INJECTOR / LIGHT	CONTENTS OF EACH KIT	VOLTAGE/WATT
53451-110	53123/ 53518-UV	Rechargeable UV light, batteries, rechargeable batteries, battery holder, refillable 2 oz dye injector, 2 oz concentrated universal A/C fluorescent dye (25 application), 4 oz dye remover, 25 service information labels, UV enhancing safety glasses	LED
53451-C-110	53223/ 53518-UV	Same as 53451-110 but with replaceable 2 oz dye cartridge (25 applications)	LED
53583	53809/ 53513-UV	Mini UV Flashlight (53513-UV), "cartridge type" 1 oz dye injector with replaceable dye cartridge, low side hose, 1/4" FL adapter, UV safety glasses, service info. labels	LED
53587	53809/ 53517-UV	Compact UV flashlight (53517-UV), 1 oz dye injector with replaceable 1 oz dye cartridge (10 application), low side hose, 1/4" FL adapter, UV enhancing safety glasses, service information labels, packaged in a clam shell	LED
53580	53809/ 53515	MACH IV flexible LED UV light with 1 oz (30 ml) dye injector, w/replaceable 1 oz (30 ml) dye cartridge (10 application.), low-side hose with R134a coupler, 1/4" FL adapter, 10 service information labels & UV enhancing safety glasses	LED
53585	53809/ 53515	Same as above, but with 1 oz OIL/ATF/Gas (53610) & diesel fluorescent dye and 1oz (30ml) engine coolant fluorescent dye (53609)	LED
53100	53123/ 53012	High intensity swivel head light, with refillable 2 oz (60 ml) dye injector, 2 oz (60 ml) concentrated universal A/C fluorescent dye (25 application.), 4 oz (1200 ml) dye remover, 25 service information labels & UV enhancing safety glasses	12 V/100 WATT
53100-C	53223/ 53012	Same as 53100, but with replaceable 2 oz (60 ml) dye cartridge (25 application.)	12 V/100 WATT
53500	53123/ 53312	High intensity mini light w/refillable 2 oz (60 ml) dye injector, 2 oz (60 ml) concentrated universal A/C fluorescent dye (25 application.), 4 oz (120 ml) dye remover, 25 service information labels & UV enhancing safety glasses	12 V/50 WATT
53500-C	53223/ 53312	Same as 53500, but with replaceable 2 oz (60 ml) dye cartridge (25 Appl.)	12 V/50 WATT
53351	53809/ 53312	High intensity, 12V/50 watt, mini light (53312, replaceable 1 oz (10 application) dye cartridge (53809), A/C connection hose w/R134a coupler, 1/4" FL adapter, 1 oz OIL/ATF/Gas and diesel fluorescent dye, 1 oz engine coolant dye, 4 oz dye remover, 25 service information labels, UV enhancing safety glasses	12 V/50 WATT

REFILLABLE UNIVERSAL OIL/DYE INJECTOR

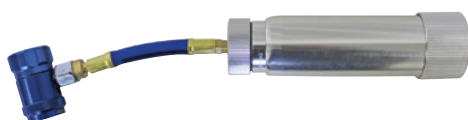


To inject the oil or dye, simply connect the injector to the low side of the A/C system and twist the handle until you reach the desired amount.

- 53123** Refillable Universal Dye Injector with auto shut-off valve adapter and 2 oz (60 ml) Bottle of Concentrated A/C Dye (25 Applications)
- 53123-A** Refillable Universal Dye/Oil Injector (w/o dye) with auto shut-off valve adapter
- 53134** Refillable Oil/Dye Injector with (R134a 13 mm Connection) and 2 oz (60 ml) Bottle of Concentrated A/C Dye (25 Applications)
- 53322** Refillable Dye Injector with (1/4" Auto Shut-off Valve Connection) and 2 oz (60 ml) Bottle of Concentrated A/C Dye (25 Applications)



53123-YF REFILLABLE R1234yf OIL/DYE INJECTOR



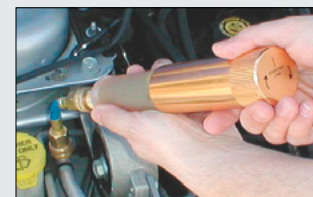
To inject the oil or dye, simply connect the injector to the low side of the A/C system and twist the handle until you reach the desired amount. The injector hose comes complete with a R1234yf coupler.

- Heavy duty, anodized aluminum 2 oz. container with dye scales represented in 1/10 ounce, 1/4 ounce and milliliters
- Nylon barrier blue hose meets J2888, EPA, SAE and UL standards
- R1234yf low side coupler with extended disconnect sleeve and meets SAEJ639 and J2888

53223 "CARTRIDGE TYPE" UNIVERSAL DYE INJECTOR



Adding dye with the 53223 is fast and easy, simply connect the injector to the low side of the A/C system and twist the handle to the next application line. The replaceable cartridge provides 25 applications of universal dye that is compatible with all systems. The injector hose comes complete with an auto shut-off valve adapter for 1/4" FL systems.

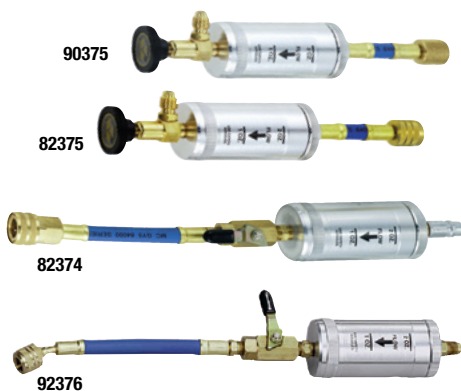


53809 MINI DYE INJECTOR



"Cartridge Type" dye injector (10 applications) concentrated dye.

OIL INJECTOR



Excellent method for adding refrigerant oil or large amounts of UV leak detection dye to the A/C system. Add oil by allowing vacuum to pull it in after the evacuation process, or use refrigerant to push it in using the recharge system. Rugged all metal 2 oz canister. Available in standard or "easy connect" design. The standard models use a needle style valve attached between the manifold gauge set or charging equipment and A/C hose. The "easy connect" models use a ball valve design attached directly onto the end of the A/C hose. Model 82374 includes a low-side coupler on the outlet hose. Model 92376 includes auto shut-off valve on the outside hose.

STANDARD

- 90375** Standard 1/4" FFL x 1/4" MFL
- 82375** ACME 1/2" FFL x 1/2" MFL

EASY CONNECT

- 82374** 13mm-M x 13mm-F low side coupler (R134a)
- 92376** 1/4" FFL x 1/4" MFL



Mastercool®
"World Class Quality"

STANDARD UNIVERSAL ULTRAVIOLET A/C DYES



- 92699** Standard Universal Dye - Six 1/4 oz packs (6 pcs) (pack = 1/4 oz (7.5 ml) - 1 application)
- 92708** Standard Universal Dye 8 oz (240 ml) bottle - 32 applications
- 92732** Standard Universal Dye 32 oz (1 L) bottle - 128 applications

CONCENTRATED UNIVERSAL ULTRAVIOLET A/C DYES



- 53825** Concentrated Universal Dye Cartridge replaceable cartridge - 25 applications
- 53810** Concentrated Universal Dye Cartridge replaceable cartridge - 10 applications
- 53625** Concentrated Universal Dye 2 oz (60 ml) bottle - 25 applications

FLUORESCENT DYE



- 53609** Engine Coolant (1 oz. (30 ml) bottle)
 - 1 oz for 1 vehicle application per 16 quarts (15 L) of fluid
- 53610** Engine Oil (1 oz. (30 ml) bottle)
 - Engine oil (Gas & Diesel) - 1 vehicle application per 4-5 quarts (4 L-5 L) of oil
 - Automatic transmission fluid - 1 vehicle application per 4-5 quarts (4 L-5 L) of fluid
 - Gasoline & diesel fuel - 1 vehicle application per 2 gallons (8 L) of fuel

AUTO A/C MASTER LEAK SHIELD



- Lubricates system and helps prevent leaks
- Seals small leaks in evaporator, condenser, hoses, o-rings and gaskets
- Illuminates larger leaks through the use of high quality universal fluorescent dye
- For R12, R134a A/C systems
- Safe for hybrid and electric compressors



- 53909** Mini Auto A/C Master Leak Shield Dye Injector “Cartridge Type” 1 oz injector with auto A/C master leak shield sealant with dye, low side hose, 1/4” FL adapter
- 53910** Auto A/C Master Leak Shield 1 oz replacement cartridge of auto A/C master leak shield sealant with dye
- 53593** Mini UV Flashlight Kit 53513-UV mini UV flashlight, “Cartridge Type” 1 oz injector with auto A/C master leak shield sealant with dye, low side hose, 1/4” FL adapter, UV safety glasses, service info. labels, packaged in clam shell
- 53597** Compact UV Flashlight Kit 53517-UV compact UV flashlight (17 LED), “Cartridge Type” 1 oz injector with auto A/C master leak shield sealant with dye, low side hose, 1/4” FL adapter, UV safety glasses, service info. labels, packaged in clam shell



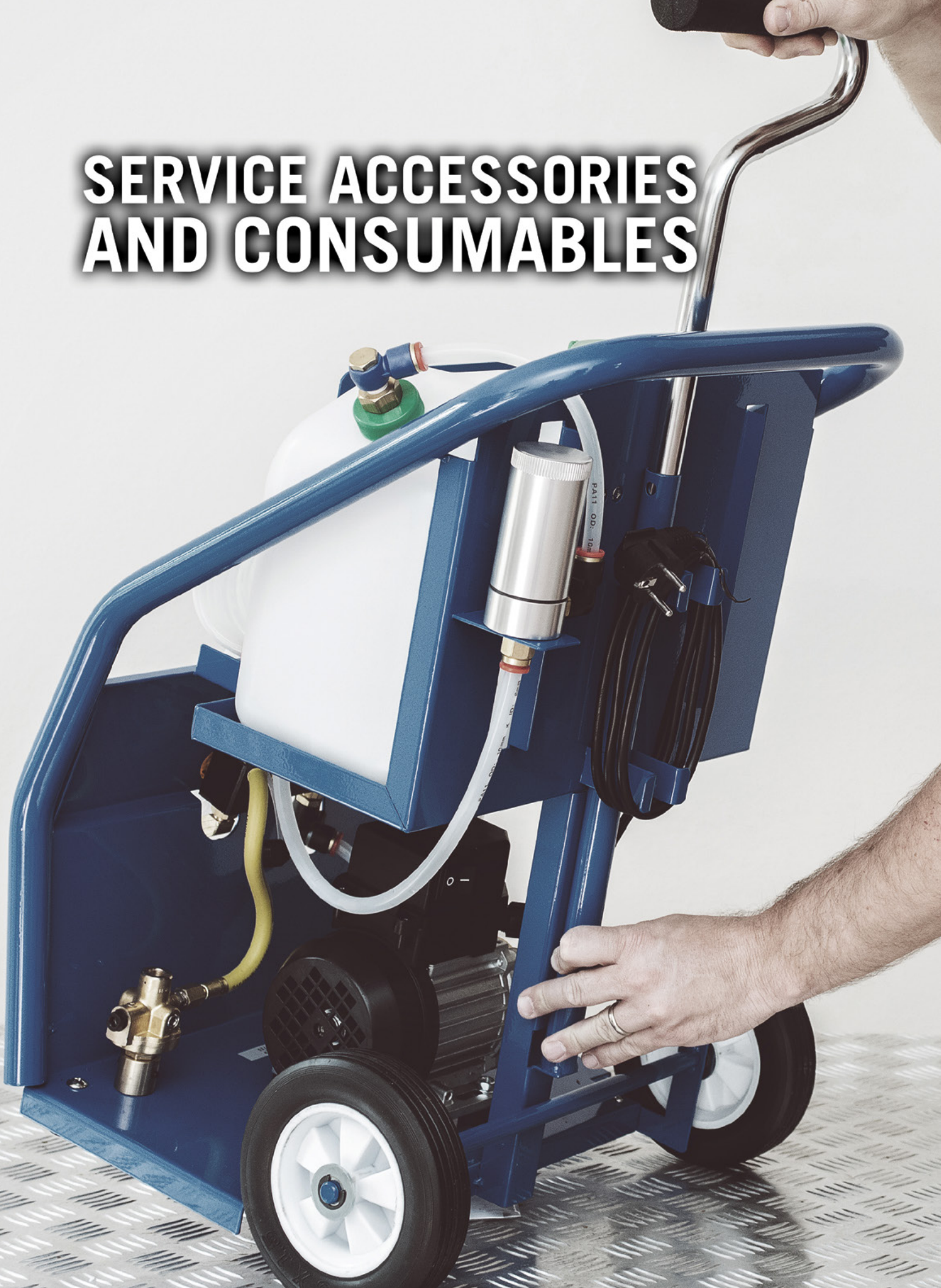
Easy to use! Stops leaks in metal and rubber automotive air conditioner parts including evaporators, condensers, o-rings, gaskets and hoses.

- For use in R134a, HFO-1234yf, hybrid and electronic A/C systems
- Includes o-ring conditioner, proprietary anti-wear and anti-oxidant additives
- Adds 1 oz. (30 ml) leak stop with UV leak detection dye
- Patented delivery system, does not contain refrigerant
- Safe, does not contain harmful polymers
- HFC Free Aerosol

US Patent No. 8,074,009, other US and foreign patents pending

- 53615-A** Auto Master Leak Shield 1 oz can of auto master leak shield sealant with dye

SERVICE ACCESSORIES AND CONSUMABLES



NITROGEN PRESSURE REGULATOR



Mastercool's nitrogen regulator is specifically designed to meet the specifications of HVAC/R and automotive A/C systems. This single stage nitrogen regulator is used to test systems for leaks when they do not contain refrigerant.

- 1/4" SAE flare outlet port, with control valve, to keep pressure on the regulator at all times
- T-Handle for ease of pressure adjustment
- 63 mm (2 1/2") gauges with guards
- High pressure gauge 4400 psig (300 bar)
- Low pressure gauge 1000 psig (70 bar)

53001 CGA580 (US) Standard, 1/4 FL-M outlet connection

- 53010-AUT** Pressure Testing Regulator Kit
- 53001 nitrogen pressure regulator
 - CGA580 (US) standard
 - 1/4 FL-M outlet connection
 - 38" yellow charging hose (47382)
 - Leak testing adapter (53042)
 - High side standard R134a, 1/4" FL-M x 16 mm economy coupler (66434-R)
 - Blow molded case (53000-PB)

OPTIONAL ACCESSORIES

66434-R High side R134a 1/4" FL-M x 16mm economy coupler

82834-E High side manual R134a 1/4" FL-M x 16 mm coupler

90413 R410a straight adapter 1/4" FL-M x 5/16" swivel-F

53042 Leak testing adapter

53000-42 Leak testing gauge

53000-70 Low pressure regulator gauge

53000-300 High pressure regulator gauge

47382 38" yellow charging hose

93254-E Black gauge guard

53000-W Teflon washer

53042-YF LEAK TESTING ADAPTER FOR R1234yf



- 80 mm gauge
- R1234yf low side coupler

69900 “MASTERCLEANSE” FLUSH MACHINE (110V/60 HZ)



Mastercool introduces its new “MASTERCLEANSE” large volume flush machines designed to flush all HVAC/R and automotive systems. “MASTERCLEANSE” will be commonly used for the removal of all solids and residues caused by breakage of compressor or filters. Designed with durable roll-away wheels and handle, this machine can conveniently move as needed.

FEATURES:

- Stainless steel ball valve controls
- 1/4” SAE connection
- Additional external container connection
- External nitrogen bottle connection
- Pump equipped with mechanical seal and PTFE gasket
- Mechanical filter present at suction side

SPECIFICATIONS:

- Pump flow rate: 16 l/min (4 g/min)
- Pump motor: 300 watts
- Pump horsepower: 110V/60 Hz - 0.4 HP,
- Full load amperage: 110V/60 Hz - 2.4 amps
- Flush container: 2.6 gal (10 l)
- Hoses: 9 ft (3 m) flexible, clear coiled
- Dimensions: 15” (l) x 16” (w) x 24” (h) with handle extended 36” (h)
- Weight: 42 lbs (19 kg)



69925 MULTIPLE FLUSHING & LEAK TEST ADAPTER KIT FOR FLUSH MACHINE



Multi-purpose leak test and flushing adapters suitable for more than 80% of the automotive air conditioning systems in the market!

- Isolates A/C system components for closed loop flushing
- Flush individual components without removing them from the vehicle
- Install adapters on A/C line ends to allow attachment of flushing equipment



TOTAL A/C QUICK FLUSH



Specific fluid for the inner flushing of air conditioning and refrigeration systems

- O-ring safe
- Non-Flammable
- Non-Corrosive
- For professional use
- Pressurized container ready to use

91051	Total A/C Quick Flush Kit
91050	17 oz. Total A/C Quick Flush Can
91050-6	6 Pack - 17 oz. Total A/C Quick Flush Cans

91046-A A/C SYSTEM FLUSH KIT



Includes flush gun, hose, canister and canister adapter. Designed to work with any light weight flushing agent which can be mixed with pressurized air. Excellent for quickly and effectively removing refrigerant oil debris during retrofitting or compressor replacement.

POPULAR



A/C FLUSH SOLVENT



- Effectively removes debris and sludge from A/C components
- Solvent-based
- Evaporates quickly
- Leaves no residue

91049-32	32 oz. Flush Solvent
91049-32-6	6 pack - 32 oz. Flush Solvent
91049-128	1 Gallon Flush Solvent
91049-128-4	4 pack - 1 Gallon Flush Solvent

92707 HYBRID A/C COMPRESSOR OIL

- Formulated for vehicles with electric A/C compressors
- High dielectric formula provides advanced compressor protection
- Synthetic lubricant specifically created for electric hybrid air conditioning compressors
- For replenishing hybrid or electric compressor oil in accordance with the quantity evacuated or the quantity recommended by the compressor manufacturer
- Provides outstanding lubricity and compressor protection
- Compatible replacement lubricant for compressors using Honda 38899RCJA01, ND-10, ND-OIL 11 (ND-11), and SE-10Y
- High dielectric protection formula has excellent “resistivity” to potential electrical current leakage in high voltage hybrid A/C systems
- Contains conditioners, inhibitors and anti-wear agents
- Net contents 7 oz. (210 ml)

COMPRESSOR OILS

Maximum protection with excellent thermal & oxidative stability. Moisture tolerant. OEM approved.

PAG 65

92709-65-8 PAG 65 Oil (8 oz (240 ml) bottle)

92709-65-32 PAG 65 Oil (32 oz (1 L) bottle)

PAG 100

53826 PAG 100 Oil (2 oz (60 ml) cartridge)

92709-100-8 PAG 100 Oil (8 oz (240 ml) bottle)

92709-100-32 PAG 100 Oil (32 oz (1 L) bottle)

PAG 150

92709-150-8 PAG 150 Oil (8 oz (240 ml) bottle)

92709-150-32 PAG 150 Oil (32 oz (1 L) bottle)

ESTER 100 OIL

53827 Ester 100 Oil (2 oz (60 ml) cartridge)

92710 Ester 100 Oil (8 oz (240 ml) bottle)

92712 Ester 100 Oil (32 oz (1 L) bottle)

ACCESSORIES

53314 Dye Remover
4 oz (120 ml)

53315 Service Labels
25 per pack, bright yellow label indicating that the system has been charged with UV Dye.

92398 UV Enhancing Safety Glasses
This is a must for protection against ultraviolet light during leak detection.



Mastercool®
"World Class Quality"

ZEROL® HD46 R1234yf MOBILE AIR CONDITIONING COMPRESSOR LUBRICANT



ZEROL HD46 is a fully formulated ISO VG46 grade polyalkylene glycol lubricant designed specifically for application with HFO refrigerant R1234yf in mobile air conditioning (MAC) systems. The product is a double end-capped PAG, and is manufactured to exacting standards of high double end-capping efficiency. ZEROL HD46 is suitable for use in both belt and electrically driven compressors utilizing R1234yf, and is also fully suitable for use in R134a belt-driven and electric MAC compressors.

- Optimized miscibility in HFO refrigerant R1234yf
- Superior lubricity compared to alternative lubricant types, including standard 'single end-capped' PAG products, and di-capped PAGs with lower di-capped material content
- Exceptional viscosity index (VI) – The high VI enhances compressor life by ensuring efficient running at temperature extremes. The high VI may also allow the user to select a lower viscosity fluid than typically used, with associated power usage savings
- Good high temperature and chemical stability, even in presence of water, resulting in system lifetime extension and reduced maintenance costs
- Low hygroscopicity (tendency to absorb moisture) compared to alternative PAG products with lower di-capping content
- Formulating expertise – ZEROL HD46 series contain optimized additive technology to provide additional corrosion protection within the A/C system, to further enhance the extreme pressure and anti-wear performance of the PAG, and to maximize fluid lifetime by ensuring against thermal or oxidative deterioration of the lubricant
- Excellent electrical resistivity properties for electrically driven systems

SPECIFICATIONS:

- Viscosity @ 40°C (cSt): 42.0 – 48.0
- Colour (Gardner): 1 max.
- Water content (ppm): 300 max.
- Total acid value (mgKOH/g): 0.03 max.
- Pour point (°C): <-25
- Capping efficiency: 85.0% minimum
- Appearance: clear to slightly hazy, free of visible particles

92709-YF-8 8 fl. oz (236 ml) bottle

92709-YF-32 32 fl. oz (946 ml) bottle

ALUM BOND



A two-component epoxy formula highly concentrated with carefully selected pure aluminum particles, modified curing agents and special high quality additives to provide maximum strength, durability and ease of application. Alumbond is aluminum filled epoxy specially formulated for repairing condenser coils, tanks, valves, pumps, castings, water jackets, radiators, etc., where non-rusting, non-magnetic aluminum finish is desired.



PHYSICAL PROPERTIES:

- Hardness (Shore, ASTM D 1706): 83D
- Coefficient of thermal expansion: 40 x 10⁻⁶ cm/cm°C
- Compression strength (ASTM D 695): 8600 psi (59 M Pa)
- Tensile strength (ASTM D 638): 3500 psi (24 M Pa)
- Maximum line pressure (after 5 hours application time): 650 psi

90935 Aluminum Repair Kit (6.5 oz package)

90934 Aluminum Repair Kit (2 oz package)

90925 CONDENSER FIN COMB



Cleans and straightens condenser and evaporator fins. Six sided head for 8, 9, 10, 12, 14 and 15 fins per inch applications.



MEASURE AND TEST INSTRUMENTS

43300 14 PIECE COOLING SYSTEM PRESSURE TEST KIT



- Detects and exposes external system leaks
- Detects internal engine leaks due to blown gaskets or cracked block
- Includes hand pump, thermometer and 12 adapters (No.'s 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13) to fit most popular domestic and import car and trucks

43301-A MASTER RADIATOR PRESSURE SYSTEM KIT AND VACUUM SYSTEM KIT

patented



- Detects and exposes external system leaks
- Detects internal engine leaks due to blown gaskets or cracked block
- Vacuum type cooling system
- Purge and refill for quick change of coolant
- Test Range: 0 – 35 psi
- Includes 1 blue radiator cap test connector R123/R125
- Includes 1 black radiator cap test connector R123/R124
- Includes 1 thermometer, 1 universal radiator cap, 1 vacuum purge and refill tool, coolant hose and additional installation accessories
- Includes hand pump and 19 adapters (No.'s 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, 21, 22 and 23) to fit most popular domestic and import cars and trucks

* For the complete pressure testing adapter chart, please see page 79

43302 25 PIECE COOLING SYSTEM PRESSURE TEST KIT



- Detects and exposes external system leaks
- Detects internal engine leaks due to blown gaskets or cracked block
- Includes blue and black radiator cap test connectors
- Includes hand pump, thermometer and 21 adapters (No.'s 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23) to fit most popular domestic and import car and trucks

43305 10 PIECE COOLING SYSTEM PRESSURE TEST ADAPTER KIT



- Adapter update kit to be used with 43300
- Detects and exposes external system leaks
- Detects internal engine leaks due to blown gaskets or cracked block
- Includes blue and black radiator cap test connectors
- Includes 8 adapters (No.'s 14, 15, 16, 17, 18, 19, 20, 21) to fit most popular domestic and import car and trucks

43306 HEAVY DUTY COOLING SYSTEM PRESSURE TEST & REFILL KIT



Remove the complications that often result from unreliable rubber plugs or bladders with our heavy duty cooling system pressure test & refill kit. This kit will save set-up time and provide precise test results.

- Uses shop air to uphold continual pressure to the cooling system during testing and refill
- 4 quick disconnect vacuum attachments provide quick refilling of the cooling system and eradicates airlocks
- For use with Freightliner, International, Kenworth, Peterbilt, Mack, Volvo, GMC and Sterling cooling systems
- Includes heavy duty vehicle adapters, pressure test regulator and vacuum refill attachment with tubing

43390 UNIVERSAL 90° ADAPTER FITTING FOR COOLING SYSTEM PRESSURE TEST ADAPTERS



- Universal fitting for cooling system pressure test hand pumps
- Provides 90° access for hard to reach places

43013 VACUUM TYPE COOLING SYSTEM FILLER KIT

patented



- Significantly shortens time for refilling new coolant by creating a vacuum in the cooling system
- No need to undergo time-consuming air bleeding after refilling new coolant
- Conical adapter offers a wide application to different radiator filler necks
- Kit can be hooked underneath the vehicle's hood for easy access
- Minimizes the risks of engine overheating
- Kit includes vacuum purge and refill tool, coolant hose, 1 universal radiator cap



43012 COOLING SYSTEM VACUUM PURGE AND REFILL KIT



- Refill new coolant by creating a vacuum in the cooling system
- No need to undergo time-consuming air bleeding after refilling new coolant
- Sealing collar with three rubber bushings offers a wide variety of applications for radiator filler necks
- Minimizes the risk of engine overheating

INCLUDED IN KIT:

Vacuum Gauge (43013-001-G)	0 - 30 inHg
Sealing Collar	Turn clockwise to expand rubber
Valve	To control air and coolant flow
Quick Coupling	For connecting vacuum pump and coolant hose
Venturi Style Vacuum	To connect with an air compressor to create vacuum
Rubber Gasket - small (43012-35)	OD 35 mm × ID 30 mm
Rubber Gasket - medium (43012-39)	OD 39 mm × ID 30 mm
Rubber Gasket - large (43012-44)	OD 44 mm × ID 30 mm
Coolant Hose	Ø 0.5" × 47" long
Drain Hose	For draining residual fluid in the radiator and the tool



43014 VACUUM-TYPE COOLING SYSTEM FILLER KIT



- Refill new coolant by creating a vacuum in the cooling system
- No need to undergo time-consuming air bleeding after refilling new coolant
- Conical adapter offers a wide variety of applications for different radiator filler necks
- Minimizes the risk of engine overheating
- For passenger and heavy duty vehicles

INCLUDED IN KIT:

Vacuum Gauge (43013-001-G)	0 - 30 inHg
Shop air connector	Connect to create vacuum
Air Valve	To control air flow
Venturi Style Vacuum	To connect with an air compressor to create vacuum
Conical Adapter	To connect to radiator or expansion tank
Coolant Hose with Connector and Coolant Valve	To add new coolant. Turn coolant valve to pull new coolant into system - 51" long
Drain Hose	For draining residual fluid in the radiator and the tool

43705 REFRACTOMETER



- Offers a quick and easy way to test the freezing point of coolant/anti-freeze
- Compatible with ethylene or propylene glycol
- Measures battery acid gravity to verify battery life
- Automatic temperature compensation
- Large, easy to read graphics, high contrast lens and adjustable viewfinder
- Strong, steel body structure
- Includes storage case, fluid dropper and mini screw driver

43050 AIR POWERED BRAKE CALIPER WIND BACK TOOL KIT

Pneumatic brake caliper piston compressor kit constructed of light weight durable anodized aluminum. Right or left hand wind-back operation for rear brake caliper pistons. Pneumatic single piston press shaft operation allows one technician to perform the brake job.

- Durable non-impact single piston shaft
- Magnetic base to secure press adapters
- 15 piece press adapter set
- Left or right wind-back operation
- O-ring protected shaft to maintain proper pressure
- Center shaft constructed of chrome alloy steel
- Protective rubber guard to prevent damage to shaft and caliper
- 3/8" drive adapter surface

43051 AIR POWERED BRAKE CALIPER WIND BACK TOOL

- Pneumatic wind back tool offers energy-savings on brake calipers
- Pneumatic tool allows right and left-hand rotation

43058 DRUM BRAKE HOLD-DOWN SPRING PLIERS

- Universal application for nearly all drum brakes
- Special curved neck provides easy access to hold-down pins regardless of the barrier created by the wheel hub
- An integral forming head without welding offers high strength



52224-A INFRARED THERMOMETER WITH LASER

»POPULAR«



The 52224-A offers laser targeting accuracy, enhanced back-lit LCD Display and an expanded temperature range. The compact design is simple to use and easy to store.

SPECIFICATIONS:

- Non-contact temperature range: -58 to 1022°F (-50 to 550°C)
- Field of view: 12 : 1
- Display illumination: back-lit LCD color display
- Target indicator: circular laser spot
- Emissivity: 0.95
- Resolution: 0.1°F / 0.1°C
- Accuracy: ±4°F (2°C) or ±2% of reading
- Response time: 0.5 seconds
- Power off: automatic after 15 seconds
- Battery life: approximately 14 hours
- Included accessories: 2 AAA batteries, instruction manual, plastic molded case



52224-CC INFRARED THERMOMETER WITH CIRCULAR LASER



Features both infrared and dual laser technologies.

SPECIFICATIONS:

- Non-contact temperature range: -76 to 1400°F (-60 to 760°C)
- Field of view: 12 : 1
- Display illumination: back-lit LCD color display
- Target indicator: Circular laser spot
- Emissivity: 0.95
- Resolution: 0.1°F / 0.1°C
- Accuracy: ±4°F (2°C) or ±2% of reading
- Response time: 1 second
- Power off: automatic after 15 seconds
- Battery life: approximately 14 hours
- Included accessories: 2 AAA batteries, instruction manual, plastic molded case



52225-A DUAL TEMP PLUS INFRARED THERMOMETER

Features both infrared and contact thermometer technologies. Includes programmable HI/LO alarms and Lock Mode to capture temperature readings. The contact function offers a built-in K type jack and wire thermocouple.

SPECIFICATIONS:

- Non-contact temperature range: -76 to 1400°F (-60 to 760°C)
- Thermocouple temperature range: -83 to 1999°F (-64 to 1400°C)
- Field of view: 30 : 1
- Display illumination: back-lit LCD display
- Target indicator: single laser spot
- Emissivity: 0.10 (10E) to 1.0 (100E)
- Resolution: 0.1°F / 0.1°C
- Modes: MIN, MAX, DIFF & AVG
- Accuracy: ±4°F (2°C) or ±2% of reading
- Response time: 1 second
- Power off: automatic after 15 seconds
- Battery life: approximately 14 hours
- Included accessories: 2 AAA batteries, 1m thermocouple probe, instruction manual, plastic molded case



3 ft. (1m) Wire Thermocouple Included

Optional accessories: 3 m wire thermocouple probe, piercing penetration probe, surface probe, air probe

52225-B ULTRA TEMP DUAL LASER THERMOMETER

Features both infrared and contact thermometer technologies. Includes programmable HI/LO alarms, and lock mode to capture temperature readings. The built-in K type jack offers optional contact functions. Illuminates working area with built-in LED light.

SPECIFICATIONS:

Non-contact temperature range: -83 to 1832°F (-64 to 1000°C)
 Thermocouple temperature range: -83 to 2552°F (-64 to 1400°C)
 Field of view: 50 : 1
 Display illumination: back-lit LCD display
 Target indicator: dual laser spot
 Emissivity: Adjustable 0.1 to 1 step .01
 Resolution: 0.1°F / 0.1°C
 Modes: MIN, MAX, DIFF & AVG
 Accuracy: ±4°F (2°C) or ±2% of reading
 Response time: 1 second
 Power off: automatic after 15 seconds
 Battery life: approximately 14 hours
 Included accessories: 2 AAA batteries, instruction manual, plastic molded case
 Optional accessories: 1 m, 3 m wire thermocouple probes, piercing penetration probe, surface probe, air probe



Optional Wire Thermocouple

52226 DUAL TEMP INFRARED/PROBE THERMOMETER



The 52226 dual temp thermometer offers both infrared and contact probe technologies.

- Infrared temperature range: -67 to 428°F (-55 to 220°C)
- Probe temperature range: -67 to 626°F (-55 to 330°C)
- Field of view ratio 1 : 1
- Adjustable emissivity
- Lock mode for hands free scanning
- Minimum/maximum capture mode
- Contact probe locks safely on the side of the unit

52227 POCKET INFRARED THERMOMETER



The 52227 pocket infrared thermometer offers accurate non-contact temperature measurement in a compact and easy to use size.

- Temperature range: -67 to 428°F (-55 to 220°C)
- Field of view ratio 1 : 1
- Adjustable emissivity
- Back-lit LCD display
- Minimum/maximum capture mode

POCKET DESIGNS



All thermometers include pocket holder and clip.

Pocket Analog Design

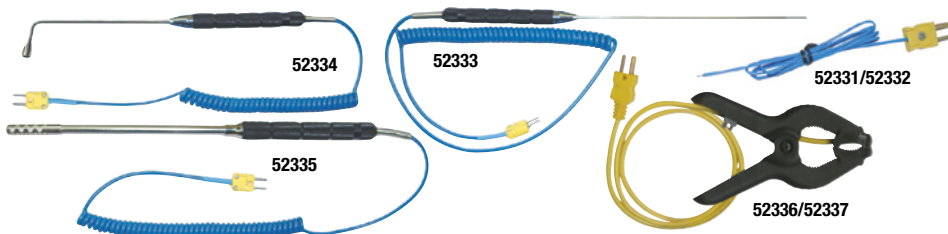
Item#	Dial Size	Temperature Scale
52220	25 mm	0 to 220°F
52161	35 mm	-40 to 160°F (-40 to 70°C)
91120	44.5 mm	0 to 220°F

Pocket Digital Design

Battery operated, on/off and auto shut-off after 10 minutes, ±1°C accuracy, 0.1°C resolution

Item#	Dial Size	Temperature Scale
52223-A	25 mm	-58 to 302°F (-50 to 150°C)

OPTIONAL THERMOCOUPLE PROBES



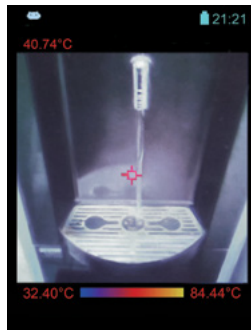
52331	Wire probe - 3 ft (1 m)
52332	Wire probe- 10 ft (3 m)
52333	Piercing penetration probe w/coil cord
52334	Surface probe w/coil cord
52335	Air probe w/coil cord
52336	Clamp-on probe - 3 ft (1 m)
52337	Clamp-on probe - 10 ft (3 m)

52325 THERMAL IMAGING CAMERA WITH VISIBLE CAMERA

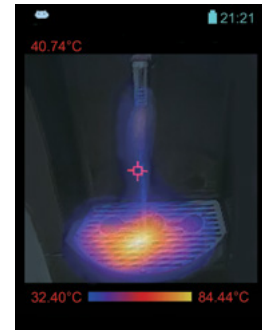
with carry case, micro SD card, CD, USB cord, batteries and instructions



VISIBLE CAMERA:



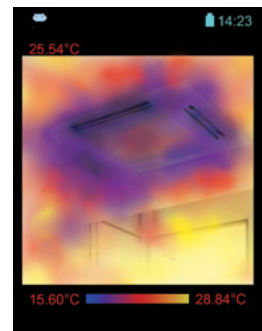
Visual



Fusion



Visual



Fusion

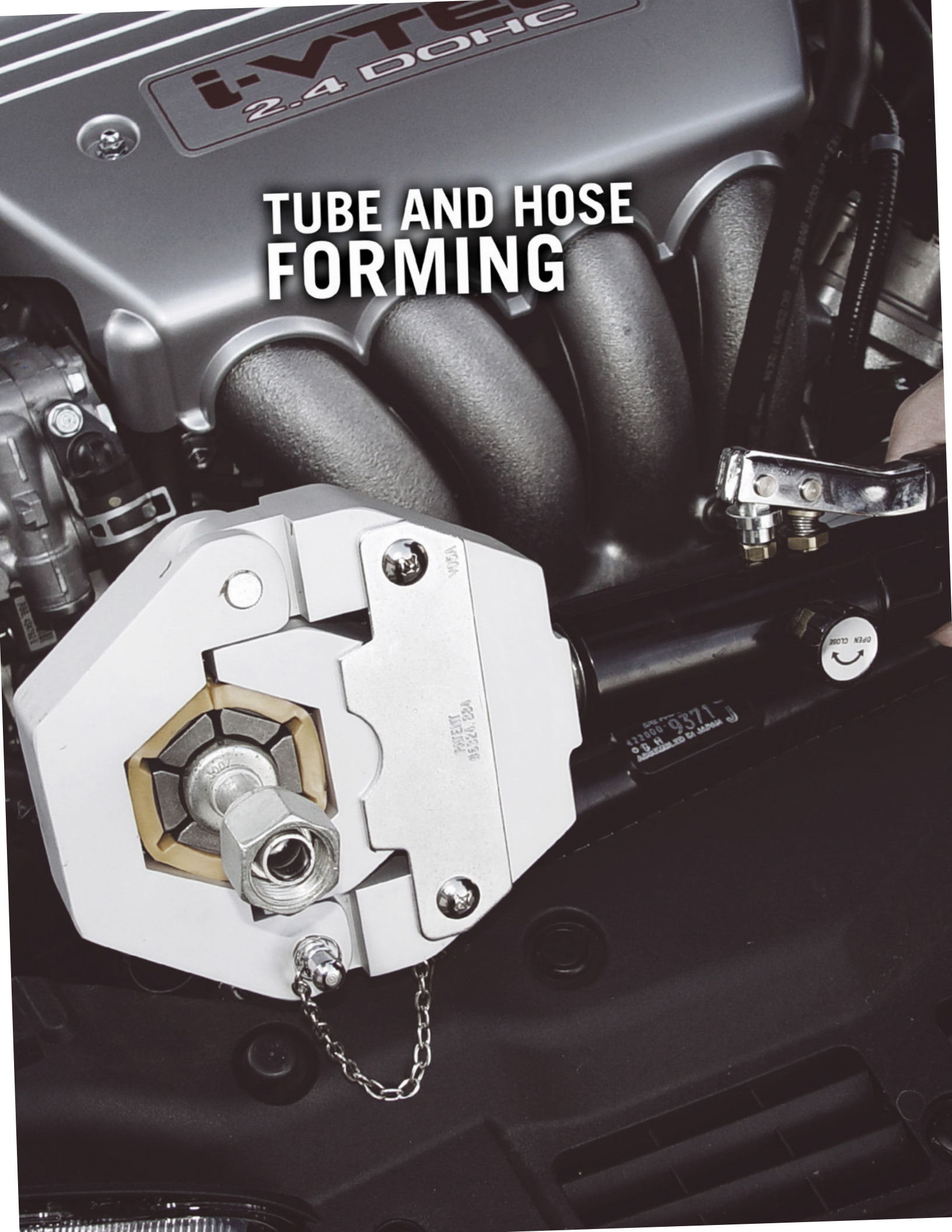
- Fully automatic
- Focus free
- Superior measurement/accuracy
- Micro SD card storage
- Reporting software included

SPECIFICATIONS:

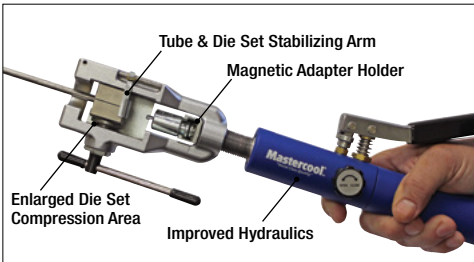
Thermal image resolution:	32 x 31 pixels
Visual image resolution:	640 x 480
Measurement range:	-4 to 662°F (-20 to 350°C)
Accuracy (tamb=20 to 26°C):	±2% of reading, or 4°F (2°C) whichever is greater
Thermal sensitivity:	0.1°F (0.1°C)
Frame rate:	9 Hz
Field of view:	40 x 40 deg
Emissivity range:	0.95 default – adjustable 0.1 to 1 step 0.1
Focus:	Focus free
LCD size:	2.8" (71 mm)
LCD:	Color
Image storage:	Stores up to 25,000 images, BMP format (typical 8G micro SD card)
Memory type:	Micro SD card
Sensor filter:	8 to 14 um
Interface:	USB
Battery type:	3.6V Li-ion rechargeable battery
Battery life (with back-lit):	3 hours continuous use
Dimensions:	3.73 x 2.91 x 9.20 inch (94.65 x 74.03 x 233.68 mm)

i-VTEC
2.4 DOHC

TUBE AND HOSE FORMING



72475 UNIVERSAL HYDRAULIC FLARING TOOL SET



This kit fabricates: push connect 1/4, 5/16 and 3/8", GM fuel line flare, brake lines and transmission 5/16 and 3/8", flare/double flare 3/16, 1/4, 5/16, 3/8 and 1/2", metric bubble flare 4.75, 6, 8, and 10 mm. Comes in a custom molded box. **PATENT# 5,782,128**

- 71202** Hydra-flare yoke & pump assembly
- 71097-01** 45° flaring cone
- 72485-PB** Custom molded plastic box for 72475

Push Connect Adapters

- 71204** 1/4" adapter
- 71205** 5/16" adapter
- 71206** 3/8" adapter

Push Connect Die Sets

- 71214** 1/4" die set
- 71215** 5/16" die set
- 71216** 3/8" die set

GM Fuel Line Adapters

- 71405** 5/16" adapter
- 71406** 3/8" adapter

GM Fuel Line Die Sets

- 71415** 5/16" die set
- 71416** 3/8" die set

45° & Double Flaring Adapters

- 71097-03** 3/16" adapter
- 71097-04** 1/4" adapter
- 71097-05** 5/16" adapter
- 71097-06** 3/8" adapter
- 71097-08** 1/2" adapter

45° & Double Flaring Die Sets

- 71097-13** 3/16" die set
- 71097-14** 1/4" die set
- 71097-15** 5/16" die set
- 71097-16** 3/8" die set
- 71097-18** 1/2" die set

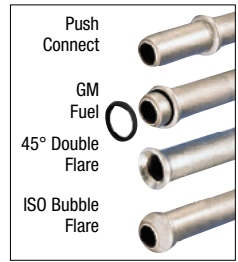
Metric Bubble Flaring Adapters

- 71475-4M** 4.75mm adapter
- 71475-6M** 6mm adapter
- 71475-8M** 8mm adapter
- 71475-10M** 10mm adapter

Metric Bubble Flaring Die Sets

- 71475-14M** 4.75mm die set
- 71475-16M** 6mm die set
- 71475-18M** 8mm die set
- 71475-110M** 10mm die set

>>POPULAR<<



72485 UNIVERSAL HYDRAULIC FLARING TOOL SET



This kit fabricates: push connect 1/4, 5/16 and 3/8", GM fuel line flare, brake lines and transmission 5/16 and 3/8", flare/double flare 3/16, 1/4, 5/16, 3/8 and 1/2", metric bubble flare 4.75, 6, 8, and 10 mm, GM transmission cooling line 3/8 and 1/2". Comes in a custom molded box. **PATENT# 5,782,128**

- 71202** Hydra-flare yoke & pump assembly
- 71097-01** 45° flaring cone
- 72485-PB** Custom molded plastic box for 72475

Push Connect Adapters

- 71204** 1/4" adapter
- 71205** 5/16" adapter
- 71206** 3/8" adapter

Push Connect Die Sets

- 71214** 1/4" die set
- 71215** 5/16" die set
- 71216** 3/8" die set

GM Fuel Line Adapters

- 71405** 5/16" adapter
- 71406** 3/8" adapter

GM Fuel Line Die Sets

- 71415** 5/16" die set
- 71416** 3/8" die set

45° & Double Flaring Adapters

- 71097-03** 3/16" adapter
- 71097-04** 1/4" adapter
- 71097-05** 5/16" adapter
- 71097-06** 3/8" adapter
- 71097-08** 1/2" adapter

45° & Double Flaring Die Sets

- 71097-13** 3/16" die set
- 71097-14** 1/4" die set
- 71097-15** 5/16" die set
- 71097-16** 3/8" die set
- 71097-18** 1/2" die set

Metric Bubble Flaring Adapters

- 71475-4M** 4.75mm adapter
- 71475-6M** 6mm adapter
- 71475-8M** 8mm adapter
- 71475-10M** 10mm adapter

Metric Bubble Flaring Die Sets

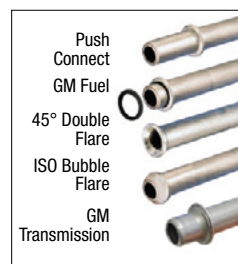
- 71475-14M** 4.75mm die set
- 71475-16M** 6mm die set
- 71475-18M** 8mm die set
- 71475-110M** 10mm die set

GM Transmission Cooling Line Adapters

- 71099-06** 3/8" adapter
- 71099-08** 1/2" adapter

GM Transmission Cooling Line Die Sets

- 71099-16** 3/8" die set
- 71099-18** 1/2" die set



71197 45° AND DOUBLE FLARING ADAPTERS AND DIES FOR HYDRA-FLARE YOKE AND PUMP ASSEMBLY



To be used with 71475 hydraulic pump assembly.

Includes:

- 71097-01 45° flaring cone
- 71097-03 3/16" 45° & double flaring adapter
- 71097-04 1/4" 45° & double flaring adapter
- 71097-05 5/16" 45° & double flaring adapter
- 71097-06 3/8" 45° & double flaring adapter
- 71097-08 1/2" 45° & double flaring adapter
- 71097-13 3/16" 45° & double flaring die set
- 71097-14 1/4" 45° & double flaring die set
- 71097-15 5/16" 45° & double flaring die set
- 71097-16 3/8" 45° & double flaring die set
- 71097-18 1/2" 45° & double flaring die set

71144 GM FUEL LINE ADAPTERS AND DIES FOR HYDRA-FLARE YOKE AND PUMP ASSEMBLY



To be used with 71475 hydraulic pump assembly.

Includes:

- 71405 5/16" GM fuel line adapter
- 71406 3/8" GM fuel line adapter
- 71415 5/16" GM fuel line die set
- 71416 3/8" GM fuel line die set

71175 METRIC BUBBLE FLARING ADAPTERS AND DIES FOR HYDRA-FLARE YOKE AND PUMP ASSEMBLY



To be used with 71475 hydraulic pump assembly.

Includes:

- 71475-4M 4.75mm metric bubble flaring adapters
- 71475-6M 6mm metric bubble flaring adapters
- 71475-8M 8mm metric bubble flaring adapters
- 71475-10M 10mm metric bubble flaring adapters
- 71475-14M 4.75mm metric bubble flaring die set
- 71475-16M 6mm metric bubble flaring die set
- 71475-18M 8mm metric bubble flaring die set
- 71475-110M 10mm metric bubble flaring die set

71099-TC 3/8" GM TRANSMISSION COOLING LINE DIE AND ADAPTER SET



To be used with 71475 hydraulic pump assembly.

Includes:

- 71099-06 3/8" GM transmission cooling line adapter
- 71099-16 3/8" GM transmission cooling line die set

71099-TC8 1/2" GM TRANSMISSION COOLING LINE DIE AND ADAPTER SET



To be used with 71475 hydraulic pump assembly.

Includes:

- 71099-08 1/2" GM transmission cooling line adapter
- 71099-18 1/2" GM transmission cooling line die set

71098 37° FLARING & DOUBLE FLARING ADAPTER SET



Includes:

- 71098-03 3/16" 37° double flaring adapter
- 71098-04 1/4" 37° double flaring adapter
- 71098-05 5/16" 37° double flaring adapter
- 71098-06 3/8" 37° double flaring adapter
- 71098-08 1/2" 37° double flaring adapter
- 71098-01 37° cone
- 71098-13 3/16" 37° double flare die set
- 71098-14 1/4" 37° double flare die set
- 71098-15 5/16" 37° double flare die set
- 71098-16 3/8" 37° double flare die set
- 71098-18 1/2" 37° double flare die set

71201-001A-REPK REPAIR KIT FOR 71475, 71480, 71300, 71400, 71450, 72475, 72480, 72300, 72400, 72450, 72485



Includes snap ring "c-clip", o-ring for shaft, back Up o-ring for shaft, valve assembly kit with .187" silver ball, back check valve and shaft handle assembly

72480 37° FLARING AND DOUBLE FLARING HYDRAULIC TOOL KIT



This kit fabricates factory style 37° and 37° double flare found on aviation and specialty automotive applications. The hand-held hydraulic pump operates easily with all steel and light stainless tubing. Includes: 3/16, 1/4, 5/16, 3/8 and 1/2" dies 3/16, 1/4, 5/16, 3/8 and 1/2" double flare adapters and 37° Cone.

- 71202** Hydra-flare yoke & pump assembly
- 71098-01** 37° cone
- 72480-PB** Custom molded plastic box for 72480

37° Double Flaring Adapters & Die Sets

- | | |
|--|--|
| 71098-03 3/16" double flare adapter | 71098-13 3/16" double flare die set |
| 71097-04 1/4" double flare adapter | 71098-14 1/4" double flare die set |
| 71097-05 5/16" double flare adapter | 71098-15 5/16" double flare die set |
| 71097-06 3/8" double flare adapter | 71098-16 3/8" double flare die set |
| 71097-08 1/2" double flare adapter | 71098-18 1/2" double flare die set |

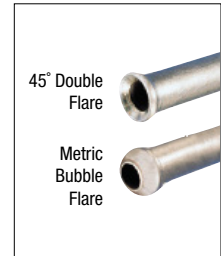


72450 DOUBLE FLARE & METRIC BUBBLE FLARING TOOL SET



This kit fabricates flare/double flare 3/16, 1/4, 5/16, 3/8 and 1/2"; and metric bubble flare 4.75, 6, 8 and 10mm. Comes in a custom molded carrying case and includes:

- 71202** Hydra-flare yoke & pump assembly
 - 71097-01** 45° flaring cone
- | | |
|--|--|
| 45° & Double Flaring Adapters | 45° & Double Flaring Die Sets |
| 71097-03 3/16" adapter | 71097-13 3/16" die set |
| 71097-04 1/4" adapter | 71097-14 1/4" die set |
| 71097-05 5/16" adapter | 71097-15 5/16" die set |
| 71097-06 3/8" adapter | 71097-16 3/8" die set |
| 71097-08 1/2" adapter | 71097-18 1/2" die set |
| Metric Bubble Flaring Adapters | Metric Bubble Flaring Die Sets |
| 71475-4M 4.75mm adapter | 71475-14M 4.75mm die set |
| 71475-6M 6mm adapter | 71475-16M 6mm die set |
| 71475-8M 8mm adapter | 71475-18M 8mm die set |
| 71475-10M 10mm adapter | 71475-110M 10mm die set |



72400 GM FUEL LINE FLARING KIT



This kit fabricates the special flares found on most GM fuel lines and some GM truck power steering pump return lines (5/16"). Kit comes in a custom molded carrying case and includes:

- 71202** Hydra-flare yoke & pump assembly
- | | |
|------------------------------|------------------------------|
| GM Fuel Line Adapters | GM Fuel Line Die Sets |
| 71405 5/16" adapter | 71415 5/16" die set |
| 71406 3/8" adapter | 71416 3/8" die set |

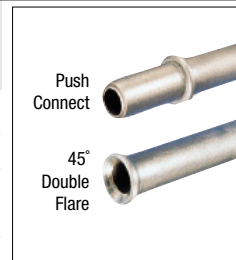


72300 PUSH-CONNECT, 45° & DOUBLE FLARING SET WITH “HYDRA-FLARE”



Fabricates “production quality” flares quickly and easily with hand held convenience. Flaring die sets for five sizes: 3/16, 1/4, 5/16, 3/8 and 1/2” O.D. tubing; five double flaring adapters cover 3/16, 1/4, 5/16, 3/8 and 1/2” O.D. tubing. Set includes:

71202	Hydra-flare yoke & pump assembly	
71097-01	45° flaring cone	
Push Connect Adapters		
71204	1/4” adapter	71214 1/4” die set
71205	5/16” adapter	71215 5/16” die set
71206	3/8” adapter	71216 3/8” die set
45° & Double Flaring Adapters		
71097-03	3/16” adapter	71097-13 3/16” die set
71097-04	1/4” adapter	71097-14 1/4” die set
71097-05	5/16” adapter	71097-15 5/16” die set
71097-06	3/8” adapter	71097-16 3/8” die set
71097-08	1/2” adapter	71097-18 1/2” die set



71100 METRIC BUBBLE FLARING TOOL SET



Fashions International Standards Organization (I.S.O.) bubble flare found on European, Japanese and some domestic model brake lines. Flares without removing brake lines from a vehicle. Includes hardened steel bar and carrying case. Set includes: Adapters for 4.75, 6, 8 and 10mm O.D. tubing.

Also available:

71101	Set of four bubble flaring adapters for 4.75, 6, 8 and 10mm O.D. tubing
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70092 45° FLARING, DOUBLE FLARING & CUTTING TOOL SET



Includes heavy duty tube cutter 70033 for 1/8 to 1 1/8” O.D. tubing; standard 45° flaring tool 70051 flares 7 sizes: 3/16, 1/4, 5/16, 3/8, 7/16, 1/2 and 5/8” O.D. tubing; five double flaring adapters 70192 cover 3/16, 1/4, 5/16, 3/8 and 1/2” O.D. tubing.

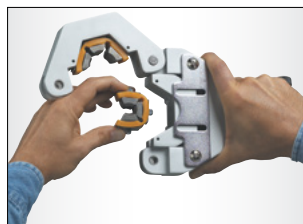
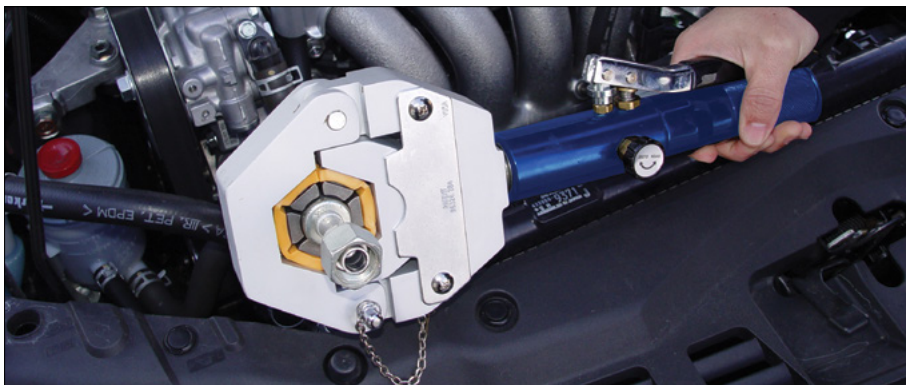
Also available:

70097	Same as 70092, less 70033 tube cutter
70192	Set of 5 double flaring adapters for 3/16, 1/4, 5/16, 3/8 and 1/2” O.D. tubing
70092-M	Metric flaring, double flaring & cutting tool set flares 7 metric sizes: 4, 6, 8, 10, 12, 15 and 16mm O.D. tubing
70192-M	Metric double flaring adapter set covers 4.75, 5, 6, 8 and 10mm O.D. tubing
70097-M	Same as 70092-M, less 70033 tube cutter



71500-A HYDRA-KRIMP

»POPULAR«



The die snaps quickly into the press fixture requiring no pins or screws.



Fabricating A/C Hoses Just Got Easier...

Mastercool's patented "Hydra - Krimp" makes crimping barbed and beaded fittings as easy as 1 - 2 - 3! The lightweight hand-held hydraulic press is very portable and ideal for shop and field applications. The kit comes with a complete set of dies covering hose sizes #6, #8, #10, #12 and reduced barrier #6, #8, #10 and #12. The dies snap quickly into the press fixture requiring no pins or screws. **PATENT# 6,324,884**

Kit comes in a custom molded case and includes:

- 71500-001AB** Hydra-Krimp pump
- 71500-001B** Hydra-Krimp yoke
- 71500-001C** Complete die set assembly (7 pc. set)
- 71500-6** Die set - #6 (5/16"), die set - #8 (13/32" reduced barrier)
- 71500-8** Die set - #8 (13/32")
- 71500-10** Die set - #10 (1/2")
- 71500-12** Die set - #12 (5/8")
- 71500-6SRB** Die set - #6 (5/16" reduced barrier)
- 71500-10SRB** Die set - #10 (1/2" reduced barrier)
- 71500-12SRB** Die set - #12 (5/8" reduced barrier)
- 71500-PB** Custom molded box

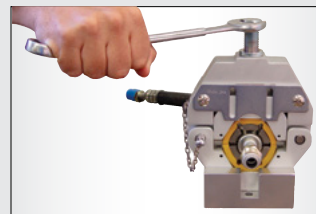
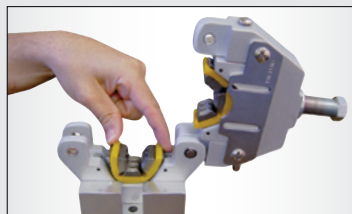
71550 A/C HOSE CRIMPER

»POPULAR«



The 71550 is our "manual style" A/C hose crimper. The dies snap quickly into place requiring no pins or screws. The unit can be easily mounted to a bench using the holding fixture or held securely in a vice. This kit comes with a complete set of dies covering standard hose sizes #6, #8, #10 and #12. **PATENT# 6,324,884**

***Optional reduced barrier sizes are available.**



The die snaps quickly into the press fixture requiring no pins or screws.

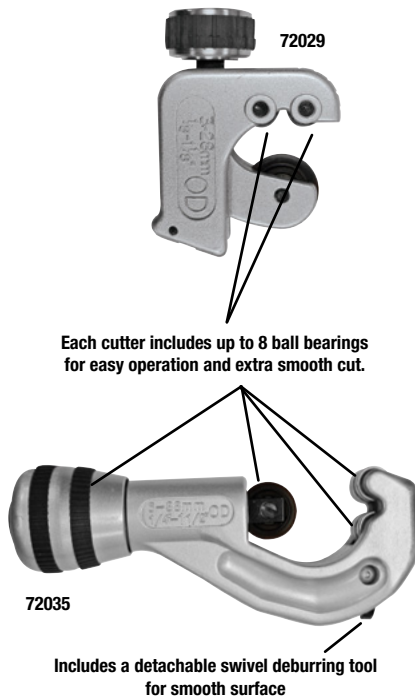


Kit comes in a custom molded case and includes:

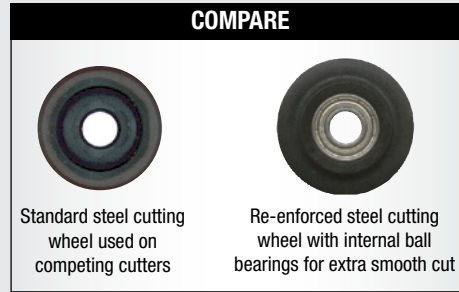
- | | | | |
|------------------|--------------------------|-----------------|-----------------------------|
| 71500-001 | Hydra-Krimp pump | 71500-8 | Die set - #8 (13/32") |
| 71550-002 | Arbor assembly | 71500-10 | Die set - #10 (1/2") |
| 71550-003 | Holding fixture assembly | 71500-12 | Die set - #12 (5/8") |
| 71500-6 | Die set - #6 (5/16") | 71550-PB | Custom molded carrying case |



BALL BEARING CUTTERS



Mastercool's ball bearing tube cutters offer the latest "reduced friction" technology! Our reduced friction design incorporates ball bearings into the cutter wheel, tube rollers and a control knob. Reducing the resistance in these high friction areas allows the cutter to roll fast and easy as it slices through the tube. The "reduced friction" design is sure to save time and reduce fatigue!



- 72029** "Reduced friction" tube cutter for 1/8 to 1 1/8" (3-28 mm)
- 72035** "Reduced friction" tube cutter for 1/4 to 1 1/2" (6-38 mm)
- 72030** Replacement cutting wheel for 72029
- 72034** Replacement cutting wheel for 72035

TUBE CUTTERS



Mastercool tube cutters are lightweight yet durable. Carbide steel cutting wheels work with hard and soft copper, aluminum, brass, thin wall steel and stainless steel. All cutters feature rollers with flare cut-off grooves to salvage as much old tubing material as possible.

- 70027** Mini tube cutter for 1/8 to 5/8" (3-16 mm) O.D. tubing (1/8 to 1/2" nominal)
- 70029** Mini tube cutter for 3/8 to 1 1/8" (4-28 mm) O.D. tubing (1/4 to 1" nominal)
- 70033** Heavy duty tube cutter for 1/8 to 1 1/8" (4-28 mm) O.D. tubing (1/4 to 1" nominal)
- 70035** Heavy duty tube cutter for 1/4 to 1 5/8" (6-40 mm) (1/4 to 1 1/2" nominal)
- 70037** Sliding ratchet tube cutter for 1/4 to 2 5/8" (6-67 mm) O.D. tubing (1/4 to 2 3/4" nominal), triple chrome plated
- 70038** Sliding ratchet tube cutter for 1/4 to 3 1/2" (6-89 mm) O.D. tubing (1/4 to 3" nominal)



RATCHET STYLE TUBE CUTTER



When you don't have swing room, ratchet action allows cutting all the way around the tubing easy.

70030 (1/4 to 7/8" O.D. tubing)

70031 (5/16 to 1 1/8" O.D. tubing)

80021 PLUMBERS TYPE MINI CUTTER



Designed for applications with limited working space. Cuts soft copper, aluminum and thin wall steel tubing. Tube cutter for 1/8 to 7/8" (4-22 mm) O.D. Tubing. (1/8 to 3/4" nom.)

80121 Spare cutting wheel for 80021

REPLACEMENT CUTTER WHEELS



70028



70034

70028 Replacement cutting wheels for 70027 (10 pcs).

70034 Replacement cutting wheels for 70029, 70030, 70031, 70033, 70035, 70037 (10 pcs + 1 holding screw)

70128 Carbide cutting wheel & screw set for 70027 includes: 2 spare cutting wheels and 1 holding screw

70134 Carbide cutting wheel and screw set for 70029, 70035. Includes: 2 spare cutting wheels and 1 holding screw

70138 Replacement cutting wheel for 70038 (1 per pkg.) Cut hard and soft copper, aluminum, brass, thin wall steel and stainless steel

70237 PVC cutting wheel for 70037. Cuts PVC and ABS

70238 Oversize PVC cutting wheel for 70038. Wheel is 1 5/8" diameter. Cuts PVC and ABS

TUBE CONSTRICTOR WHEEL

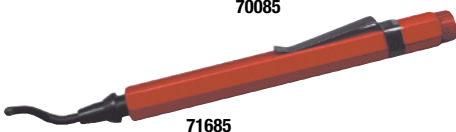


70233 Used with 70033 or 70035

INNER-OUTER REAMERS



70085

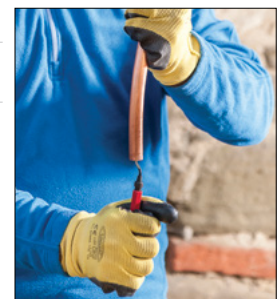


71685

70085 Inner/outer reamer for 3/16 to 1 1/2" O.D. tubing

71685 Designed to remove inner burrs easily. Full metal grip. Includes one spare tungsten blade for long use

71686-2 Two spare blades for 71685 (2 pcs)

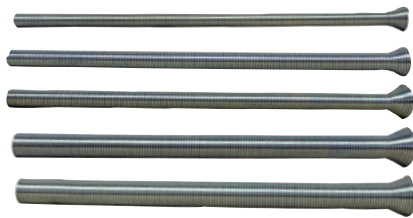


70069-A 4-IN-1 LEVER STYLE TUBE BENDER



Complete 180° bend all metal multi-purpose tube bender for 3/16, 1/4, 5/16 and 3/8" O.D. tubing.

SPRING STYLE TUBE BENDERS



Economical and effective tools for bending soft copper or aluminum tubing without kinks. Special nickel plated, spring steel is flared on one end for quick tube insertion. Each tool bends one size.

MODEL#	SIZE	LENGTH
70071	1/4"	10"
70072	5/16"	10"
70073	3/8"	10"
70074	1/2"	12"
70075	5/8"	14"
70077	3/4"	14"

70076 SPRING STYLE TUBE BENDER SET



Set of 5 spring benders for 1/4, 5/16, 3/8, 1/2 and 5/8" O.D. tubing.

RATCHET WRENCHES



- 70081** Steel forged wrench with reversible ratchet. 9/16", 1/2" hex, 1/4" and 3/16" square
- 70082** Compact chrome satin wrench specially designed for use in hard to reach places. 1/4, 3/8, 3/16 and 5/16" square ratchet

91000-A DELUXE CLUTCH HUB PULLER/INSTALLER KIT **>>POPULAR<<**

Kit contains a complete offering of A/C compressor clutch hub pullers and installers for GM, Ford, Chrysler and Imports. Includes a compressor identification chart and comes in a custom molded case.



92311 DELUXE ORIFICE TUBE SERVICE KIT

This 5 piece universal kit will remove and install any style orifice tube. Comes in custom molded box.



92329 TOYOTA A/C DISCONNECT TOOL

The new Toyota spring lock A/C hose couplings require this special disconnect tool. Simply insert the end of the tool into the coupling to disengage the hose.



91002 GM & FORD ORIFICE TUBE REMOVER/INSTALLER



Used on all GM (CCOT) and Ford (FOTCC) systems with evaporator inlet orifice tube

91008 FORD (FOTCC) REMOVER/INSTALLER



Used for Ford systems produced after 1980

91009 GM (CCOT) & FORD (FOTCC) SCREEN EXTRACTOR



Used with 91002 and 91008

91010 FORD AEROSTAR EXPANSION TUBE REMOVER/INSTALLER



Special design for condenser mounted tube

90499 UNIVERSAL CLUTCH HOLDING TOOL



PRESSURE TESTING ADAPTER CHART

CAP #	MAKE & MODEL
2	Mercedes Benz, GM (Buick), Jeep
3	Buick (Lesabre: 1990-, Park Avenue: 1991-), Chrysler (Sebring: 1995-), Chevrolet (Venture: 1997-), Dodge (Caravan: 1989-, Dakota: 1989-, Stratus: 1995-), Jeep, Mercedes (W123, W124, W126, W201), Oldsmobile (Silhouette: 1990-), Pontiac (Bonneville: 1990-, Grand Prix: -2003)
4	Acura (Integra: 1991-1993, Legend: 1989-1990, NSX: 1995-2004, SLX: 1997, Vigor: 1992-1994), BMW (M6:2008), Chevrolet (Nova: 1985-1998, Spectrum: 1985-1988, Sprint: 1986-1988), Chrysler (Laser: 1991-1998, Sebring: 1996-1998), Dodge (Avenger: 1995-1995, Colt: 1984-1991, Ram 50: 1989-1992, Stealth 1993-1996), Eagle (Summit: 1989, Talon: 1991-1998), Ford (Aspire: 1994-1997, Escort: 1991-2002, Expedition: 2009-2011, Explorer: 1995-2001, Explorer Sport Trac: 2001-2005, F150: 2009-2011, Festiva: 1989-1993, Mustang: 1997-2004, Probe: 1989-1997, Ranger: 1995-2011, Tempo: 1992-1994, Thunderbird: 1992-1995, Windstar: 1996-1999), Geo (Metro: 1989-1993, Prizm: 1989-1991, Spectrum: 1989, Storm: 1990-1993, Tracker: 1989), GM (Nova, Spectrum, Sprint), Honda (Accord: 1990-1993, Civic: 1988-1991, CRX: 1989-1990, Motorcycles: 1991-2004, Passport: 1994-2002, Prelude: 1990-1998), Hyundai (Accent: 1995-2010, Azera: 2006-2010, Elantra: 1992-2011, Entourage: 2007-2008, Excel: 1986-1994, Genesis: 2009-2010, Genesis Coupe: 2010, Sante Fe: 2002-2010, Scoupe: 1994, Sonata: 1989-2011, Tiburon: 1998-2008, Tuscon: 2005-2010, Veracruz: 2007-2010, XG 350: 2004) Infiniti: (FX35: 2003-2007, G20: 1991-2002, G35: 2004-2007, I30: 1997-2000, I35: 2002-2004, J30: 1996, M30: 1990-1992, M35: 2006-2009, M45: 2003-2010, Q45: 1990-2006, QX4: 1998-2003), Isuzu (Amigo: 1989-2000, Axiom: 2002-2004, I-Mark: 1985-1989, Impulse: 1985-1992), Kia (Amanti: 2006-2009, Borrego: 2009, Forte: 2011, Optima: 2002-2010, Rio: 2002-2011, Rio5: 2007-2011, Rondo: 2009-2010, Sedona: 2003-2011, Sephia: 1994-2001, Sorrento: 2003-2011, Soul: 2010-2011, Spectra: 2002-2009, Spectra5: 2005-2009, Sportage: 1995-2011), Lexus (ES300: 1996-2003, ES330: 2005, LS400: 1992, LX 450: 1996-1999, LX470: 1998-2005, SC400: 1992), Lincoln (Navigator: 2009-2011), Mazda (323: 1986-1993, 626: 1985-1999, 929: 1990-1993, B2000: 1986-1987, B2200: 1988-1993, B2300: 2005, B2500: 1998-2000, B2600: 1987-1993, B3000: 1996-2007, B4000: 1995-2006, CX-9: 2007-2010, Matia: 1991-2005, Millennia: 1995-2002, MPV: 1991-2006, MX-5 Matia: 2006-2012, MX-6: 1991-1997, Protege: 1993-2003, RX-7: 1986-1995, RX-8: 2005-2009), Mercury (Capri: 1991-1994, Cougar: 1989-1992, Cougar w/V6: 1993-1997, Mountaineer: 1997-2000, Topaz: 1992-1994, Tracer: 1988-1999, Villager: 1994-2002), Mitsubishi (3000GT: 1992-1996, Cordia: 1986-1988, Diamante: 1992-1995, Eclipse: 1990-1999, Galant: 1989-1993, Mighty Max: 1987-1994, Mirage: 1985-1992, Montero: 1989-1998, Outlander: 2003-2011, Outlander Sport: 2011, Precis: 1988-1992, Starion: 1984-1986), Mercedes Benz, Nissan (200SX: 1984-1988, 240SX: 1990-1994, 300ZX: 1984-1996, Altima: 1993-2006, Axxess: 1990, Cube: 2009-2010, D21: 1986-1994, Frontier: 1998-2011, Maxima: 1987-2008, Murano: 2003-2007, NX: 1991-1993, Pathfinder: 1987-2004, Pulsar NX: 1987-1989, Quest: 1994-2009, Rogue: 2009-2010, Sentra: 1987-2011, Stanza: 1987-1992, Versa: 2007-2011, Xterra: 2000-2012), Plymouth (Colt: 1984-1991, Laser: 1993-1994), Subaru (Baja: 2004-2005, Brat: 1983-1987, DL: 1983-1989, Forester: 1999-2011, GL: 1983-1989, GL-10: 1985-1989, Impreza: 1993-2001, Justy: 1998-1993, Legacy: 1990-2011, Loyale: 1990-1992, Outback: 2000-2011, RX: 1986, SVX: 1994-1997, XT: 1985-1991), Suzuki (Equator: 2009-2011, Samurai: 1986, Sidekick: 1989-1991, Swift: 1990-1994, XL-7: 2004-2006), Toyota (4Runner: 1986-1995, Avalon: 1995-2004, Camry: 1983-1991, Camry 4cylinder: 1994-1999, Celica: 1983-1989, Corolla: 1983-1992, Cressida: 1985-1992, Land Cruiser: 1993-2007, MR2: 1989-1995, Previa: 1991-1997, Sienna: 1998-2006, Solara: 1999-2008, Starlet: 1983-1984, Supra: 1987-1990, T100: 1995-1998, Tacoma: 1996-2004, Tercel: 1983-1990)
5	Acura (CL: 1997-2002, Integra: 1994-2000, Legend: 1993-1995, MDX: 2001-2011, RDX: 2009-2012, RL: 1996-2011, TSX: 2007-2012), Chevrolet (Metro: 1999-2000, Prizm: 1998-2002, Tracker: 1998-2004), Chrysler (Sebring: 2011), Dodge (Colt: 1993-1994, Stratus: 2001-2004), Eagle (Summit: 1992-1993), Geo (Metro: 1995-1997, Prizm: 1993-1997, Tracker: 1997), Honda (Accord: 1994-2011, Civic: 1992-2010, Civic del Sol: 1993-1997, CR-V: 1997-2010, CR-Z: 2011, Element: 2003-2010, Fit: 2008-2009, Insight: 2001-2011, Odyssey: 1998-2010, Pilot: 2003-2011, Prelude: 1999-2001, Ridgeline: 2007-2011, S2000: 2006-2009), Isuzu (Oasis: 1997, Rodeo: 1999-2000, Rodeo Sport: 2003), Lexus (ES250: 1990-1991, ES350: 2008-2012, GS300: 1993-2003, GS350: 2007-2009, GS430: 2004-2007, GX470: 2004-2005, IS300: 2003, IS350: 2009-2012, LS430: 2001-2003, LX570: 2011-2013, RX300: 1999-2006, RX350: 2008-2010, RX400H: 2006-2008, SC300: 1992-2010), Mazda (Mazda 2: 2011, Mazda 5: 2008-2010, Protege: 1995-2003), Mercedes (ML-class, W163, W164), Mitsubishi (Diamante: 1996-2004, Eclipse: 2000-2010, Endeavor: 2006-2011, Expo: 1992-1995, Expo LRV: 1992-1994, Galant: 1994-2011, Mirage: 1993-2002, Montero Sport: 1997-2003), Plymouth (Colt: 1992-1994), Pontiac (Vibe: 2003-2010), Scion (FR-S: 2013, iQ: 2012, tC: 2005-2010, xA: 2006), Subaru (B9 Tribeca: 2006-2007, Tribeca: 2008-2010), Suzuki (Aerio: 2003-2007, Esteem: 1995-2002, Sidekick: 1991-1998, Swift: 1999-2001, SX4: 2004, Cordoba-6K2: 1999-2002, Cordoba-6L2: 2002-2009, Ibiza III-6K1: 1999-2002, Ibiza IV-6L1: 2002-2009, 2005-2010, Camry V6 w/auto trans: 1990-1991, Camry: 1992-2011, Celica: 1990-1999, Corolla: 1993-2012, Echo: 2001-2005, FJ Cruiser: 2007-2010, Highlander: 2001-2011, Land Cruiser: 2009, Matrix: 2003-2011, Paseo: 1992-1998, Prius: 2001-2009, RAV4: 1996-2003, Sequoia: 2001-2011, Sienna: 2007-2011, Supra: 1990-1998, Tacoma: 2005-2011, Tercel: 1991-1998, Tundra: 2000-2011, Venza: 2009-2011, Yaris: 2008-2011), VW (Touareg: 2004)
6	Cadillac (Catera: 1997-2001), Chevrolet (Aveo: 2004-2011, Aveo5: 2006-2011, Epica: 2004), Daewoo (Leganza: 1999-2002, Lanos: 1999-2002, Nubira: 1999-2002), Ford (Contour: 1995-2000, Fiesta: 1995-, Focus: 1998-, Fusion: 2006-), GM (Achieva, Skylark, Grand Am: 1992-2002), Jaguar (All: 1990-1994, XJ8: 1998-2001, XJR: 1998-2001, XK8: 1997-2006, XKR: 2000-2006, X-Type: 2002-2007), Jeep , Land Rover (Discovery: 1989-2004, Range Rover: 1988-1994), Mercedes-Benz (ML-Class: 1997-2011), Mercury (Mystique: 1995-2000), Pontiac (Le Mans: 1988-1993, G3: 2009, Wave: 2005, Wave5: 2005), Porsche (911: 1999-, Boxter: 1997-), Saab (900: 1994-1998, 9-3: 1999-2003, 9-5: 1999-2008), Saturn (L100: 2001-2002, L200: 2001-2003, L300:2001-2005, L300-1: 2004, L300-2: 2004, L300-3: 2004, LS: 2000, LS1: 2000, LS2: 2000, LW1: 2000, LW2: 2000, LW200: 2001-2003, LW300: 2001-2003, Vue: 2002), Suzuki (Forenza: 2004-2008, Reno: 2005-2008, Swift+: 2004, Verona: 2004-2005)
7	Alfa Romeo (145-930: 1994-2001, 146-930: 1994-2001, 164-164: 1987-1998, 166-936: 1998, 33-907A: 1990-1994, 33 sportwagon-907B: 1990-1994, GTV-916C: 1994, Spider-916S: 1994-2005), Citroen (Jumper Box 230L: 1994-2002, Jumper Bus 230P: 1994-2002, Jumper Platform/Chassis 230: 1994-2002), Fiat (Coupe FA/175: 1993-2000, Cromia-154: 1985-1996, Ducato Box-230L: 1994-2002, Ducato Box-244: 2002, Ducato Bus-230: 1994-2002, Ducato Bus-244Z: 2002, Ducato Platform/Chassis230: 1994-2002), Lancia (Delta II-836: 1993-1999, Kappa-938A: 1994-2001, Kappa Coupe-838: 1996-2001, Kappa SW-838B: 1996-2001, Thema-834: 1984-1994, Thema SW-834: 1987-1994), MiniCooper (S:2002-), Peugeot (206: 1999-, 307-2004-, 406: 1999-, 407: 2004-, 807: 2004-, Boxer Box-230L: 1994-2002, Boxer Bus-230P: 1994-2002, Boxer platform/Chassis-ZCT: 1994-2002), Renault (All-1985-1987, Avantage: 2002-, Espace: 2002-), Saab (900-1978-1993, 9000: 1986-1998), Sterling (All: 1987-1991), Jeep , Volvo (Passenger vehicles w threaded neck)
8	VW (Vento, T4, Passat: 1990-1997, Beetle, Sharan, Cabrio: 1995-2002, Corrado: 1990-1994, Eurovan: 1993-2003, Golf: 1990-1999, 1990-1998: with female thread on filler neck of expansion tank - except 1998 Passat & New Beetle, Jetta: 1990-1999)
9	Audi (A3: 2006-2012, A3-8P1: 2003, A3 Sportback-8PA: 2004, A4: 1996-2012, A4-8EC, B7: 2004-2008, A4 Avant-8ED, B7: 2004-2008, A4 Quattro: 1996-2012, A5: 2011-2012, A5 Quattro: 2008-2012, A6: 1998-2012, A6 Quattro: 1998-2011, A7 Quattro: 2012, A8 Quattro: 2004-2010, Allroad Quattro: 2001-2005, Q5: 2009-2012, Q7: 2007-2012, R8: 2008-2012, RS4: 2007-2008, RS6: 2003, S4: 2000-2012, S5: 2008-2012, S6: 2002-2011, S8: 2007-2009, TT: 2000-2009, TT-8J3: 2006, TT-8N3: 1998-2006, TT Quattro: 2000-2013, TT Roadster-8J9: 2007, TT Roadster 8N9: 1999-2006), BMW (345), Porsche (Cayenne), Seat (Altea-5P1: 2004, Cordoba-6K2: 1999-2002, Cordoba-6L2: 2002-2009, Ibiza III-6K1: 1999-2002, Ibiza IV-6L1: 2002-2009, Leon-1M1: 199-2006), Skoda (Fabia: 2006, Fabia 6Y2: 1999-2008, Fabia Combi: 2007, Fabia Combi-6Y5: 2000-2007, Fabia Praktik: 2001-2007, Fabia Saloon-6Y3: 1999-2007, Laura-1Z3: 2004, Octavia 1U2: 1996-2010, Octavia Combi-1U5: 1998-2010, Octavia Combi-1Z5: 2004, Roomster-5J: 2006, Superb Estate: 3T5: 2009), VW (Beatie: 1998-2012, Caddy III Box-2KA, 2KH, 2CA, 2CH: 2004, Caddy III Estate-2KB, 2KJ, 2CB, 2CJ: 2004, CC: 2009-2013, Crafter 30-35 Bus 2E: 2006, Crafter 30-50 Box 2E: 2006, Crafter 30-50 Platform / Chassis 2F, EOS: 2007-2012, EOS-1F7, 1F8: 2006, Fox-5Z1, 5Z3: 2003, Golf: 1999-2012, Golf Plus-5M1, 521: 2005, Golf V-1K1: 2003-2009, Golf V Variant 1K5: 2007, GTI: 2006-2013, Jetta: 1997-2012, Jetta I Saloon-1K2: 2005-2010, LT 28-35 II Bus-2DM: 1996-2006, LT 28-46 II Box-2DX0AE: 1996-2006, LT 28-46 II Platform/Chassis 2DX0FE: 1996-2006, Multivan Mk V-7HM, 7HN, 7EF, 7EM, 7EN: 2003, New Beetle-9C1, 1C1: 1998, New Beetle Convertible-1Y7: 2002-2010, Passat: 1998-2012, Passat-3B3: 2000-2005, Passat-3C2: 2005, Passat Variant-3B6: 2000-2005, Passat Varian 3C5: 2005, Polo-9N: 2001, Polo Saloon: 2002, R32: 2008, Rabbit: 2006-2009, Tiguan: 2009, Touareg: 2004-2012, Touran-1T1, 1T2, 1T3: 2003, Transporter/Caravelle MK V Bus-7HB, 7HJ, 7EB, 7EJ, 7EF: 2003, Transporter MK V Box-7HA, 7HH, 7EA, 7EH: 2003, Transporter MK V Platform/Chassis-7JD, 7JE, 7JL, 7JY, 7JZ: 2003)
10	BMW (3-E30: 1982-1992, 3-E36: 1990-1998, 3-E46: 1998-2005, 3-E90: 2005, 3 Compact-E36: 1994-2000, 3 Compact-E46: 2001-2005, 3 Convertible-E30: 1985-1993, 3 Convertible-E36: 1993-1999, 3 Convertible-E46: 2000, 3 Coupe-E36: 1992-1999, 3 Coupe-E-46: 1999, 3 Touring-E30: 1987-1994, 3 Touring-E36: 1995-1999, 3 Touring-E46: 1999-2005, 3 Touring-E91: 2005, 5-E28: 1980-1990, 5-E34: 1987-1995, 5-E39: 1995-2003, 5-E60: 2003, 5 Touring-E34: 1991-1997, 5 Touring-E39: 1997-2004, 7-E23: 1977-1986, 7-E32: 1986-1994, 7-E38: 1994-2001, 7 E65, E66: 2001, 8-E31: 1990-1999, X3-E83: 2004, X3-E53: 2000, Z3-E36: 1995-2003, Z3 Coupe-E36: 1997-2003, Z4-E85: 2003, Z4 Coupe-E86: 2006, Z8-E53: 2000-2003, Brilliance 3 Series-E46: 2003-2005, Brilliance 3 Series-E90: 2004), Landrover (Freelander-LN: 1998, Range Rover III-LM: 2002)
11	Audi (1975-1993: w/ male thread on expansion tank), VW (1975-1993: w/ male thread on expansion tank, Golf: 1983-1992, Cabriolet: 1985-1993, Dasher: 1980-1981, Fox: 1987-1993, Golf: 1985-1990, Jetta: 1980-1990, Quantum: 1980-1988, Rabbit: 1975, Rabbit Convertible: 1980-1984, Scirocco: 1975-1988)

PRESSURE TESTING ADAPTER CHART

12	<p>Caterham (Super Seven 1990-1999), Ford (Cougar 1998-2001, Mondeo 1996-2007, Mondeo Estate Wagon: 1996-2007, Transit 260: 2000-2006, Transit 280: 2000-2006, Transit 300: 2000-2006, Transit 330: 2000-2006, Transit 350: 2000-2006, Transit 425: 2003-2006, Transit 430: 2001-2006, Transit Tourneo: 2000-2006, Courier III: 1990-1995, Courier IV: 1995-2001, Escort 55 IV: 1986-1990, Escort 55 VI: 1994-2000, Escort 75 VI: 1994-2000, Escort IV: 1986-1990, Escort V: 1990-1996, Escort VI: 1995-2000, Fiesta Classic: 1987-1989, Fiesta II: 1989-1989, Fiesta III: 1989-1996, Fiesta IV: 1995-1999, Fiesta V: 1999-2002, Fiesta Van 11: 1987-1989, Fiesta Van 1V: 1995-2002, Fiesta Van V: 1999-2002, Fiesta Van V1: 2002-2008, Fiesta V1: 2002-2008, Focus 1: 1998-2005, Focus Wagon 1: 1998-2005, Fusion: 2002-2005, Granada Scorpio: 1985-1994, Ka 1: 1996-2005, Mondeo 1: 1993-1996, Mondeo 11: 1996-1998, Mondeo Wagon 1: 1993-1996, Mondeo Wagon 11: 1996-2000, Orion 11: 1986-1990, Orion 111: 1990-1993, P100 Sierra: 1989-1994, Puma 1: 1997-2002, Scorpio 1: 1984-1994, Scorpio 11: 1994-1998, Sierra Cosworth 11: 1987-1993, Sierra 1: 1984-1987, Sierra11: 1987-1993, Sierra Sapphire 11: 1987-1993, Streetka 1: 2003-2005, Transit 100: 1994-1999, Transit 120: 1994-1999, Transit 150: 1994-1999, Transit 190: 1994-1999, Transit Connect: 2002-), Landrover, Mazda (2: 2002-2007, 121: 1996-2002), Opel (Agila: 2000-2008, Ascona B: 1978-1981, Ascona C: 1981-1988, Astra Cabrio F: 1993-2001, Astra Cabrio G: 2001-2005, Astra Classic F: 1998-2002, Astra Coupe G: 1999-2005, Astra F: 1991-1998, Astra G: 1998-2005, Astra H: 2004-2005, Astra Van F: 1991-1998, Astra Van G: 1998-2004, Calibra: 1989-1998, Combo Corsa B: 1992-2001, Combo Corsa C: 2001-2004, Corsa A: 1982-1993, Corsa B: 1993-2000, Corsa C: 2000-2006, Corsa Van A: 1982-1994, Corsa Van B: 1994-2001, Corsa Van C: 2000-2003, Frontera A: 1991-1998, Kadett O: 1979-1984, Kadett E: 1984-1992, Kadett Van E: 1984-1992, Manta A: 1974-1975, Manta B: 1975-1988, Meriva: 2003-2005, Monza: 1981-1987, Omega A: 1986-1994, Omega B: 1994-2003, Senator A: 1981-1987, Senator B: 1987-1993, Tigra A: 1994-2001, Tigra B: 2004, Vectra A: 1988-1995, Vectra B: 1995-2003, Zafira A: 1999-2005, Zafira Van: 2002-2003), Saab (900 11: 1993-1998), Skoda (Favorit: 1989-1995, Favorit Forman: 1993-1995, Felicia - 6U1: 1994-2000), Ssangyong, Vauxhall (Astra Cabrio 111: 1991-2001, Astra Cabrio 1V: 2001-2007, Astra Coupe 1V: 1999-2005, Astra 1: 1979-1984, Astra 11: 1984-1991, Astra 111: 1991-1998, Astra 1V: 1998-2005, Astra Van 111: 1991-1996, Astra Van 1V: 1998-2005, Astramax: 1985-1991, Astravan 1 1982-1984, Astravan 11 1984-1991, Belmont: 1986-1991, Calibra: 1990-1998, Carlton: 1983-1994, Cavalier 11: 1981-1988, Cavalier 111: 1988-1995, Combo: 1993-2004, Combo Crew Van: 2001-2006, Corsa 1: 1993-2000, Corsa 11: 2000-2006, Corsa Van 1: 1993-2001, Corsa Van 11: 2001-2006, Frontera A: 1991-1998, Meriva: 1982-1993, Nova: 1982-1993, Nova Van: 1990-1993, Omega: 1994-2003, Senator: 1987-1993, Tigra: 1994-2004, Vectra 1: 1999-2005, Zafira A: 1999-2005, Zafira B: 2005-2007)</p>
13	<p>Chrysler (Crossfire: 2004-), Mercedes (w/ thread filler neck on expansion tank, except M-Class, 300SE: 1992-1993, 400SE: 1992, 400SEL: 1993, 500SEC: 1993, 500SEL: 1992-1993, 500SL: 1900-1993, 600SEC: 1993, 600SEL: 1992-1993, 600SL: 1993, C230: 2002, C240: 2001-2005, C280: 1994-2007, C300: 2008-2009, C32 AMG: 2002-2004, C320: 2001: 2005, C350: 2008, C36 AMG: 1995-1997, C43 AMG: 1998-2000, CL500: 1998-2006, CL55 AMG: 2001-2002, CL600: 1998-2006, CL65 AMG: 2005-2006, CLK 320: 1998-2005, CLK 430: 1999-2003, CLK500: 2003-2005, CLK55 AMG: 2001-2005, E300: 1996-1997, E320: 1996-2005, E350: 2006-2009, E420: 1997, E430: 1998-2002, E500: 2003-2006, E55 AMG: 1999-2002, E550: 2009, G500: 2002-2005, G55 AMG: 2003-2005, GL450: 2007-2008, ML350: 2006-2008, ML500: 2006-2007, ML550: 2008-2009, S320: 1994-1999, S350: 1994-2006, S420: 1994-1999, S500: 1994-2006, S55 AMG: 2001-2006, S600: 1994-2006, S65 AMG: 2006, SL320: 1994-1997, SL500: 1994-1998, SL600: 1994-2002, SLK280: 2006-2008, SLK32 AMG: 2002-2004, SLK 320: 2001-2004, SLK 350: 2006-2008, SLK55 AMG: 2008)</p>
14	<p>Ford (Mondeo: 2000-2007, Focus: 2000-2005, C-MAX03, Contour: 1995-2000), Mercury (Cougar: 1999, Mystique: 1995-1999)</p>
15	<p>Ford International (C-Max: 2007-2012, C-Max 11: 2010, Fiesta V JH, JO: 2001, Fiesta Van: 2009, Fiesta VI: 2009, Fiesta VI: 2008, Focus C-Max: 2003-2007, Focus 11 OA: 2004, Focus 11 Convertible: 2006, Focus 11 Estate OAW: 2004, Focus Saloon OA: 2005, Focus 11 Station Wagon OAW: 2004, Focus 111: 2011, Focus 111 Saloon: 2011, Focus 111 Turnier: 2011, Galaxy: 2006, Grand C-Max: 2010, Kuga: 2008, Mondeo 1V: 2007, Mondeo 1V Saloon: 2007, Mondeo 1V Turnier: 2007, Rager: 2011, S-Max: 2006, Transit Bus: 2006, Transit Flatbed Chassis: 2006, Transit Tourneo: 2006), Ford Asia & Oceania (Fiesta: 2002-2013, Focus: 2004-2011, Focus Estate Wagon: 2011, Mondeo: 2007, Ranger: 2011), Ford Europe (B-Max: 2012, C-Max: 2007-2012, Fiesta: 2001-2013, Focus Van: 2008-2010, Focus: 2004-2013, Focus CC: 2006-2011, Focus C-Max: 2003-2007, Focus Estate Wagon: 2004-2013, Focus Van: 2005-2013, Galaxy: 2006-2011, Galaxy Van: 2006-2010, Grand C-Max: 2010-2012, Kuga: 2008-2012, Mondeo: 2007-2012, Mondeo Estate Wagon: 2007-2011, S-Max: 2006-2011, Transit 250: 2011, Transit 260: 2006, Transit 280: 2006, Transit 300: 2006, Transit 330: 2006-2013, Transit 350: 2006-2013, Transit 370: 2006, Transit 410: 2006, Transit 430: 2006-2013, Transit 460: 2006, Transit Custom 250: 2012, Transit Custom 270: 2012, Transit Custom 290: 2012, Transit Custom 300: 2012, Transit Custom 310: 2012, Transit Custom 330: 2012, Transit Tourneo: 2012, Transit Tourneo Custom: 2012), Ford USA (Ranger: 2011), Ford Australia (Fiesta WS: 2008, Fiesta Hatchback WT: 2010, Fiesta Saloon WT: 2010, Focus Hatchback LT: 2005, Focus Hatchback LV: 2009-2011, Focus Hatchback LT: 2005, Focus Saloon LS, LT: 2005, Focus Saloon LV: 2009-2011, Mondeo Hatchback MA, MB: 2007), Land Rover (Freelander 2 FA: 2006, Range Rover Evoque: 2011, Freelander: 2006-2013, LR2: 2006), Mazda (2: 2007, 3: 2003-2013, 5: 2010, 2 0E: 2007, 3 BK: 2003, 3 BL: 2009, 3 Saloon BK: 2000-2009, 3 Saloon BL: 2009, 5 CW: 2010, Axela: 2003, BT50: 2011), Volvo (C30: 2006-2012, C70: 2005-2011, C70 11 Convertible: 2006, S40: 2004-2010, S40 11 MS 2004, S60: 2010-2013, S60 11: 2010, S80: 2006-2011, S80 11 AS: 2006, V40: 2012, V40 Cross Country: 2012, V40 Hatchback: 2012, V50: 2003-2012, V50 NW: 2004, V60: 2010-2013, V70: 2007-2012, V70 III Estate: 2007, XC60: 2008, XC70: 20 7-2012, XC70 Cross Country: 2007-2011, XC70 11: 2007)</p>
16	<p>Mercedes (A140: 19 7-2004, A150: 2009-2011, B40: 2012-2015, A160: 1997-2012, A170: 1998-2012, A180: 220004-2012, A190: 1999-2004, A200: 2004-2012, A21 AMG: 2002-2004, A210: 2002-2004, B150: 2009-2011, B160: 2009-2011, B170: 2005-2011, B180: 200 -2011, B200: 2005-2011, Vaneo: 2001-2005, Vaneo 1.6: 2002, Vaneo 1.7: 2002, Vaneo 1.9: 2002, W168: 1997-2004)</p>
17	<p>BMW (X5: 2000-2011, X5 M: 2009-2012, X5 xDrive 30i: 2008-2010, X5 xDrive 48i, X5 xDrive 50i: 2010-2012, X6: 2008-2012, ActiveHybrid X6: 2010, X6 M: 2009, X6 xDrive 35i: 2008-2013, X6 xDrive 50i: 2008, Z3: 1996-2002, Z4: 2003-2008, Z8: 2000-2003)</p>
18	<p>Ford (Galaxy Van : 1995-2006), SEAT (Alhambra Van: 1996-2010), VW (Sharan Van: 1996-2010)</p>
19	<p>Lexus (GS460: 2008-2011, HS 250h: 2010, 1S F: 2008-2013, LS460: 2007-2013, LS 600h: 2008-2012), Scion (tC: 2011-2012, xB: 2008-2012), Toyota (Celica: 2000-2005, MR2 Spyder: 2000-2005, Prius: 2010-2011, RAV4: 2006-2012)</p>
20	<p>Saab (EcoPower 9-3, 9-5)</p>
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