



As we end the first decade of this new century we can reflect on what a tumultuous ten year period this has been. From the dot-com crash at the beginning of the decade to the near depression at the end of the decade, it will be remembered by most businesses and individuals as tough times. Whereas the economists and others who study economic cycles and indicators say the recession has

ended, and indeed there are signs that signal things are beginning to improve, the ongoing unemployment situation, housing market stagnation and mounting deficit are factors that must be addressed to keep the economy moving in a positive direction.

We at JB are convinced that the resiliency demonstrated time and again by the American business community will once again make significant progress in the months ahead leading the way to a strong and robust recovery. For JB it means continuing to focus on the fundamentals that made us successful from our beginning; investing in new technology, product development, manufacturing processes and development of our employees. You have heard this all before but they remain JB's core values that have served us well in the past and will pave the way to future successes. Our products have been and will continue to be manufactured in the U. S. A., thereby reaffirming JB's commitment to protect American jobs and keep our dollars at home. This commitment requires us to keep our costs under control and continue to invest in technology that allows us to remain competitive without sacrificing JB's well known quality, and we have active programs underway to ensure that our commitment remains intact.

We want to recognize and acknowledge our employees and superior distributor network. Many of JB's employees have been with the company for many years and their tireless efforts and ideas have been instrumental to JB's longevity. JB's knowledgeable and dedicated distributor force has led the charge in keeping JB products at the forefront with our customers, and their expert observations and suggestions continue to influence product development and enhancements.

As we progress into the New Year, you can expect to see several new products added to our portfolio, with the particular details announced at an appropriate time. We appreciate the feedback we have received from our customers and distributors in assisting us to determine where best to invest our efforts to improve JB's operations, and we encourage additional feedback on any of JB's activities, either positive or negative. We are in business to service our customers and we need to be certain our activities are in sync with our customer needs.

Finally, ever mindful that we would not exist without our customers, we thank you for your continuing support, and we once again pledge our commitment to you; our employees and distributors will strive for excellence in all that we do. Hopefully along the way JB will be gaining and retaining your confidence and become your primary supplier for your service equipment needs. Let's work together to make 2011 a prosperous year for all.

Jeff Cherif President

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43

standard hose

MADE IN USA



PUMP FROM THE SYSTEM TO DETERMINE LEAKS IN THE SYSTEM

WELL-PROTECTED DRAIN VALVE SEALED WITH O-RINGTO PREVENT LEAKS

Best Pump in the industry

JB Industries' Platinum® Series Vacuum pump is the best pump in the industry. This pump is designed for the serious air conditioning and refrigeration technician. American made and subjected to JB's rigorous performance standards, the Platinum® Series is the top of the line for both quality and durability. Backed by an unprecedented **24 month over-the-counter warranty, there is no better pump on the market. Because each Platinum® pump is made at our facility in Aurora, Illinois, quality and dependability are woven in with hard working American pride. Completely field repairable, our Platinum® series is designed to last. Turn to page 76 for a complete list of repair parts.

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® SERIES VACUUM PUMPS







UNITED KINGDOM

INTERNATIONAL

Operating Temperature 150°F +/- 18° F (60° C +/- 10°C)

ı	US DOMESTIC	DV-42N	DV-85N	DV-142N	DV-200N	DV-285N
		1.5 CFM (42 l/m)	3 CFM (85 l/m)	5 CFM (142 l/m)	7 CFM (200 l/m)	10 CFM (285 I/m)
P	MOTOR	1/2 HP, 1725 RPM				
	VOLTAGE	115v, 60Hz				
	PLUG	Std. U.S. 110v				
	INTAKE PORT	1/4"	1/4" x 3/8"	3/8" x 1/4" x 3/8"	1/2" x 1/4" x 3/8"	1/2" x 1/4" x 3/8"
	OIL CAP	27 oz. (798 cc)	27 oz. (798 cc)	23 oz. (680 cc)	23 oz. (680 cc)	24 oz. (709 cc)
9	SHIP DIMENS.	17-5/8" (h) x 9-1/8" (w) x 14" (l)				
	WEIGHT	29 lbs. (13.2 Kg)	30 lbs. (13.6 Kg)	32 lbs. (14.5 Kg)	32 lbs. (14.5 Kg)	34 lbs. (15.4 Kg)

DUAL **VOLTAGE**

DV-42N-250

DV-85N-250

DV-142N-250

DV-200N-250

1725/1425 RPM

DV-285N-250

MOTOR 1/2 HP

1725/1425 RPM

230v/50Hz

PLUG Std. U.S. 220v

115v/60Hz, 230v/50Hz

Std. U.S. 220v

1/2 HP

1/2 HP 1725/1425 RPM 1725/1425 RPM

115v/60Hz, 115v/60Hz, 230v/50Hz 230v/50Hz

Std. U.S. 220v Std. U.S. 220v

1/2 HP

1/2 HP

1725/1425 RPM

115v/60Hz, 230v/50Hz

Std. U.S. 220v

EURO DV-42N-250EU

VOLTAGE 115v/60Hz,

DV-85N-250EU

DV-142N-250EU

DV-200N-250EU

DV-285N-250EU

MOTOR 1/2 HP, 1425 RPM

230v, 50Hz

230v, 50Hz

230v, 50Hz

VOLTAGE 230v, 50Hz

230v, 50Hz

PLUG Euro

Euro

Euro

Euro

Euro

2413

KINGDOM

DV-42N-250UK

DV-85N-250UK

DV-142N-250UK

DV-200N-250UK

(DV-285N-250UK)

MOTOR 1/2 HP, 1425 RPM

VOLTAGE 230v, 50Hz

230v, 50Hz

230v, 50Hz

230v, 50Hz

230v, 50Hz

PLUG UK

UK

UK

UK

UK

To check vacuum accurately, use the new DV-40 SUPERNOVA or the DV-22N (see pages 10 & 11). *One Micron On A U-Tube Manometer. 25,400 Microns = 1"

ELIMINATOR



2 STAGE DIRECT DRIVE TO ACHIEVE DEEP 25 MICRON VACUUM

AVAILABLE DOMESTIC 115
VOLT, INTERNATIONAL 230
VOLT, AND DUAL VOLTAGE

CHECK VALVE PREVENTS OIL BACK FLOW DURING POWER FAILURE

LOW PROFILE ROCKER SWITCH

ALL METAL CONSTRUCTION IN-CLUDING ALL BRASS FITTINGS

SCRATCH RESISTANT POWDER PAINTED COVER AND TRAP

TETHERED SAFETY CAP PRE-VENTS OIL SPILLS DURING TRANSPORT



OIL EXHAUST FILTER ELIMINATES MIST FROM EXHAUST. SOLD AS AN ACCESSORY ON PAGE 9.

WELL-PROTECTED DRAIN VALVE SEALED WITH O-RING TO PREVENT LEAKS MADE IN USA

Best VALUE in the industry

Built for the Air Conditioning Serviceman who wants a high quality, dependable vacuum pump, the Eliminator® Series offers many higher end features without the higher end price. American made, 100% tested to JB's stringent quality standards, backed by an unparalleled **24 month over-the-counter warranty, the Eliminator® is the best value vacuum pump in the industry. This is the only American made economy vacuum pump on the market and because each Eliminator® is made at our factory in Aurora, Illinois American pride is built into each one of these workhorses. Completely field repairable, these pumps are built to withstand the toughest jobs. Please refer to page 78 for a complete list of repair parts.

ELIMINATOR® SERIES VACUUM PUMPS

HOW TO CHOOSE THE RIGHT SIZE PUMPS

CFM²= maximum tonnage rating. Therefore take the CFM rating of a pump and multiply it by that number to find the maximum number of tons the pump is rated for. Therefore, a 3 CFM pump (3 x 3) is rated for 9 tons. A 7 CFM pump (7 x 7) is rated for 49 tons. In many cases, depending on the system line sizes of large tonnage systems, it is better to put two or more smaller, easily maneuverable pumps at different locations. This will overcome some of the pressure drop problems and actually evacuate faster than a single, large pump. Pumps in the 1.5 to 10 CFM class are adequate to handle 99% of the work.

DV-3E DV-4E DV-6E DOMESTIC **CFM 3 CFM (85 I/m)** 4 CFM (113 I/m) 6 CFM (170 l/m)

MOTOR 1/2 HP, 1725 RPM

VOLTAGE 115v, 60Hz

PLUG Std. U.S. 110v

INTAKE PORT 1/4" x 3/8"

OIL CAP 24.5 oz. (724 cc)

SHIP DIMENS. 17-5/8" (h) x

9-1/8" (w) x 14" (l)

WEIGHT 29 lbs. (13.1 Kg)

1/2 HP, 1725 RPM

115v, 60Hz

Std. U.S. 110v

1/4" x 3/8"

22.5 oz. (665 cc)

17-5/8" (h) x

9-1/8" (w) x 14" (l)

30 lbs. (13.6 Kg)





The last inch of pressure as indicated on the gauge is 25,400 microns.

DUAL VOLTAGE

DV-3E-250

MOTOR 1/2 HP 1725/1425 RPM

VOLTAGE 115v/230v

50/60Hz

PLUG Std. U.S. 220v

MOTOR 1/2 HP, 1425 RPM

VOLTAGE 230v, 50Hz

VOLTAGE 230v, 50Hz

PLUG UK

PLUG Euro

DV-4E-250

1/2 HP, 1725/1425 RPM

115v/230v 50/60Hz

Std. U.S. 220v

DV-6E-250

1/2 HP 1725/1425 RPM

1/2 HP, 1725 RPM

115v. 60Hz

1/4" x 3/8"

Std. U.S. 110v

22.5 oz. (665 cc)

9-1/8" (w) x 14" (l)

30 lbs. (13.6 Kg)

17-5/8" (h) x

115v/230v 50/60Hz

Std. U.S. 220v

EURO

DV-3E-250EU

DV-4E-250EU

1/2 HP. 1425 RPM

230v, 50Hz

Euro

DV-6E-250EU

1/2 HP, 1425 RPM

230v, 50Hz

Euro

KINGDOM

DV-3E-250UK

MOTOR 1/2 HP, 1425 RPM

DV-4E-250UK

1/2 HP. 1425 RPM

230v, 50Hz

UK

DV-6E-250UK

1/2 HP. 1425 RPM 230v. 50Hz

UK

Operating Temperature 150°F +/- 18° F (60° C +/- 10°C)

HOW TO MEASURE EVACUATION

A micron is a unit of pressure starting from a perfect vacuum (no pressure) expressed in linear increments. One inch equals 25,400 microns. That last inch of pressure below zero on the low side compound gauge (see illustration) is 25,400 microns. A compound gauge only indicates that a vacuum is being produced, but does not tell you if moisture or contaminants are still in the system. Evacuation is complete when a system holds 500 microns to ensure dehydration is complete. Therefore, there is a small fraction of an inch difference between a complete evacuation and an inadequately evacuated system. A compound gauge cannot measure this pressure at these levels accurately. Only a micron gauge like the new SUPERNOVA DV-40 or our DV-22 (refer to pages 10 and 11) can accurately read the low pressures produced when evacuation / dehydration is complete.

To check vacuum accurately, use the new DV-40 SUPERNOVA or the DV-22N (see pages 10 & 11). *One Micron On A U-Tube Manometer. 25,400 Microns = 1"

DEEP VACUUM PUMP ACCESSORIES

Best OIL in the industry

Black Gold Vacuum Pump Oil is the Gold Standard in Vacuum pump care. For use in any vacuum pump, Black Gold is extremely pure and non-detergent. Our Black Gold is hydro processed which means it goes through a series of catalytic steps rendering the oil extremely refined, more viscous, and more stable. The result is clear mineral oil which will alert you to contamination sooner as it becomes cloudy or milky. In extreme temperatures, the oil will be more resistant to contaminants. We still recommend, however, that the oil be changed after every evacuation for maximum performance and pump efficiency.

The best test to see if your oil is contaminated is through a micron gauge. With a leak-free system, if your DV-22N micron gauge is still not reading a deep vacuum, the oil is too contaminated and should be changed. If the micron gauge pulls down to about 50 microns the oil is good. Viscosity is a measure of the weight of the oil. For industrial oil, the viscosity is an ISO grading at 40°C. Black Gold vacuum pump oil is an ISO 41, a special to this type of application.



MSDS INFORMATION FOR OUR BLACK GOLD PUMP OIL CAN BE FOUND UNDER TECHNICAL INFORMATION ON OUR WEB SITE AT WWW.JBIND.COM.

PART NO.	DESCRIPTION	CTN. QTY.	SHIPPING WEIGHT	CARTON DIMENS.
DVO-1	Pint Bottle	24	25 Lbs /11.4 kg	9" x 14-1/4" x 12-1/2"
DVO-12	Quart Bottle	12	24 Lbs /10.9 kg	11" x 13" x 10"
DVO-24	Gallon Bottle	6	47 Lbs /21.4 kg	12-1/2" x 15-1/2" x 12-1/2"

FLEXIBLE METAL LINE

Unlike charging hose, our flexible metal lines will not permeate under vacuum. Our metal lines feature finger-tight O-ring coupler ends.

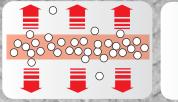
PART NO.	DESCRIPTION
D10436	1/4" x 36" flexible metal line (one 45° fitting)
D10472	1/4" x 72" flexible metal line (one 45° fitting)
D10636	3/8" x 36" flexible metal line (one 45° fitting)
D10660	3/8" x 60" flexible metal line (one 45° fitting)
DV-294	1/4" x 10" flexible metal line (straight fittings)
P90009	1/4" replacement O-ring (10 pack)
P90012	3/8" replacement O-ring (10 pack)



DIRECTION OF PERMEATION THROUGH HOSE WALL

Even with the advanced technology of today's hoses, permeation through the hose compound still exists.

When checking pressure rise, the atmosphere will permeate to the lower pressure in the hoses and the micron reading will slowly rise.



Charging System

Gas under pressure in the hose will permeate to the lower pressure of the atmosphere.

Evacuation

The atmosphere which has a higher pressure permeates to the lower pressure in the hose.

DEEP VACUUM PUMP ACCESSORIES

SWIVEL COUPLERS

Features an O-ring Seal.





PART NO.	DESCRIPTION
D10244	1/4" female swivel coupler
D10266	3/8" female swivel coupler
P90009	1/4" replacement O-ring (10 pack)
P90012	3/8" replacement O-ring (10 pack)

OIL MIST FILTER

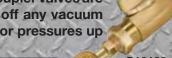
Eliminates oil mist from pump handle. DV-F8 fits 1/2" exhaust pipe in 2008 model Platinums and 2011 Eliminators, while DV-F6 fits 3/8" exhaust pipe for all Eliminator series up to 2011and pre-2008 model Platinums.



PART NO.	DESCRIPTION
DV-F6	Oil Mist Filter 3/8"
DV-F8	Oil Mist Filter 1/2"

SHUT OFF VALVE

Our O-ring quick coupler valves are great for blanking off any vacuum system and work for pressures up to 800 lbs.



D10162

PART NO.	DESCRIPTION

1/4" Fe QC x 1/4" flare

ECONOMY DEEP

Ideal for use in domestic service, the deep vacuum manifold features separate valves for isolating the system from the pump and charging and/or performing pressure drop tests. The manifold can be hooked up for charging, to a micron gauge, and to charging hoses as well as quickly connecting to a pump with a 3/8" intake port. Use P90018 as replacement o-rings.



D10162

Features an O-ring seal and no depressor. Please refer to page 52 for a complete list of elbow, straight, and FTP thread couplers and valves.



QC-E64

PART NO.	DESCRIPTION
QC-E64	3/8" QC x 1/4" SAE elbow
QC-S64	3/8" QC x 1/4" SAE straight
P90009	1/4" replacement O-ring (10 pack)
P90012	3/8" replacement O-ring (10 pack)

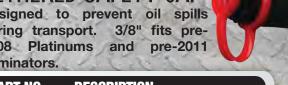
BLANK-OFF MANIFOLD VALVE D10160 Blank-Off Manifold valves



isolate the pump from the system. These are USA designed and necessary for all pumps without an internal blank-off valve like the Eliminator®, The 3/8" QC connects to the center manifold port, the 3/8" SAE flare port is for the hose connection from the pump, and the 1/4" ports are for the refrigerant line and the micron gauge.

TETHERED SAFETY CAP

Designed to prevent oil spills during transport. 3/8" fits pre-2008 Platinums and pre-2011 Eliminators.



PART NO.	DESCRIPTION	
DV-EP6	Tethered Cap 3/8"	
DV-EP8	Tethered Cap 1/2"	
The second second	THE RESERVE OF THE PARTY OF THE	10 10 10

SUPERNOVA

DV-40 DIGITAL MICRON GAUGE



INNOVATION AT ITS BEST

JB Industries is proud to introduce our award winning SUPERNOVA gauge. The unit allows a service technician to be certain when a system is properly evacuated of air and moisture before charging with refrigerant. The SUPERNOVA is accurate from 12,000 microns down to 10 microns. The unit features many user-defined programmable options such as duration of the backlight, programmed shutoff, and the ability to set alarms when system reaches defined mark. The service technician can customize the SUPERNOVA to fit work habits. Make service calls more efficient without sacrificing quality. The SUPERNOVA has been named a Bronze winner for the 2009 Dealer Design in tools.







BRASS FITTING ON LENGTHY FLEXIBLE CORD FOR HARD TO REACH PLACES

PROGRAMMABLE ALARM
ALLOWS YOU TO PERFORM
OTHER TASKS

FACTORY CALIBRATED AND REQUIRES NO ADDITIONAL CALIBRATION

MEASURES IN MICRONS, PSIA, INHG, PASCALS, TORR, MTORR, AND MBAR

DURATION OF BACKLIGHT IS PROGRAMMABLE

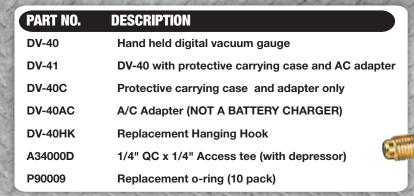
OPERATES ON THREE (3) AA BATTERIES (NOT INCLUDED)

LARGE, EASY TO READ LCD SCREEN

PROGRAMMABLE SHUT-OFF

IF SENSOR GETS CONTAMINATED, CLEAN WITH SIMPLE ALCOHOL

OPERATES ON 3 AA BATTER-IES (NOT INCLUDED)



*The DV-40 is not recommended for connection to vacuum pump when blanking off isolation valve.

The preferred hook-up uses the DV-29 when the blank-off valve is engaged as illustrated on pages 16-17.

DIGITAL MICRON GAUGES

DV-22N DIGITAL GAUGE

JB's DV-22 reads vacuum in 7 international units: Microns, PSIA, InHg, mBars, Pascals, Torr, and mTorr. The DV-22 has a micron range of 20 to 9,000 microns. It is a good idea to attach the micron gauge to the vacuum pump before evacuation to make sure the pump pulls down to at least 50 microns. If it doesn't, your pump oil is contaminated and should be changed. A compound gauge only indicates that a vacuum is being produced, but does not tell you if moisture and acids are still present in the system. Micron gauges are the only tool to accurately read the low pressure produced when evacuation/ dehydration is complete. Refer to page 7 under "How to Measure Evacuation" for more information.

-22N GAUGE

PUSH TO TURN ON HOLD TO TURN OFF

TO RESET, LOWEST VACUUM

AUTO OFF AFTER 10 MINUTES



DIGITAL DISPLAY WITH SOLID
STATE CIRCUITRY
AUTOMATICALLY
ADJUSTS FOR FLUCTUATING
TEMPERATURE

SEALED TOUCH BUTTONS
PROTECT AGAINST
DIRTAND DUST



MADE IN USA

EFFECTIVE RANGE 20-9000 MICRONS

LOW BATTERY INDICATOR ALERTS TO REPLACING 9-VOLT BATTERY (NOT INCLUDED)

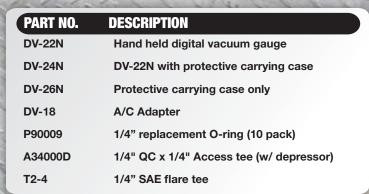
SAVES LAST VACUUM READOUT
AFTER SHUT-DOWN

LEAK-PROOF WITH O-RING COU-PLER TO ENSURE PROPER REGIS-TER OF VACUUM

POWERS OFF AFTER 10 MINUTES OF NO USE TO PRESERVE BATTERY

+32°F TO 120°F +0°C TO 48.9°C AMBIENT TEMPERATURE

NIST TRACEABLE





*The DV-22N is not recommended for connection to vacuum pump when blanking off isolation valve.

The preferred hook-up uses the DV-29 when the blank-off valve is engaged as illustrated on pages 16-17.



LEAK DETECTOR



JB Industries is proud to unveil the new, revolutionary LD 5000 PROWLER refrigerant gas leak detector. Using our new proprietary JBI Electrochemical sensor technology for unparalleled accuracy coupled with the unique user features; there simply is no better hand held probe type service leak detector system on the market. The sensor is durable and will not be damaged by overexposure to refrigerant gas or contaminated by condensate water. Its new slim-line design makes it easy to probe difficult to search areas. The sensitivity is extremely accurate for all HFC, HCFC and blended refrigerants as well as the new HFO refrigerants. The technology provides for low battery consumption, excellent circuit stability, extremely long sensor life, and the electrochemical function of the sensor does not diminish over time with use. The sensor life has been tested to be greater than ten years, which is unique in the industry and it is safe to use in a combustible atmosphere. The PROWLER features a large LCD screen that flips upward so that the user can adjust the screen position for better visibility. The bar graph shows the intensity of a leak to help pinpoint the source of the leak. The sensitivity can be programmed from high to medium to low. If a leak is detected, there is an audible alarm that will sound, vibration in handle, and bar graph on the screen. The LCD display also indicates the amount of remaining battery life. The PROWLER does not require rechargeable batteries. Operates on 4 AA batteries (included).

CETIFICATIONS:

CE

SAE J2791 EN 14624 SENSITIVITY TO R-1234yf*

ELECTROCHEMICAL SENSOR

GREATER THAN 10 YEAR SENSOR

OPERATES ON 4 AA BATTERIES FOR 10 CONTINUOUS HOURS

WARM UP TIME < 30 SECONDS

RESPONSE TIME IS IMMEDIATE

AUTOMATIC ZERO

LEAK INDICATION THROUGH VI-BRATING HANDLE, AUDIO ALARM, AND BAR GRAPH ON LCD SCREEN

INSTRUMENT WILL REMAIN IN WARM UP MODE IF SENSOR FAILS



HIGHLY SENSITIVE AND ACCURATE FOR ALL HFC, HCFC, BLENDS, AND HFO REFRIGERANTS INCLUDING:

0.05 oz/yr **R-404A** 0.05 oz/yr

R-407A 0.05 oz/yr **R-427A** 0.05 oz/yr

R-134a

0.025 oz/yr 0.05 oz/YR

0.0125 oz/yr

17" FLEXIBLE PROBE



ALERTS TO LEAK THROUGH VIBRATING HANDLE, AUDIBLE ALARM, AND BAR GRAPH

TIBLE/ATMOSPHERE

SAFE TO USE IN COMBUS-

SENSITIVITY CAN BE SET TO HIGH, MEDIUM, AND LOW

LCD SCREEN TILTS UP-**WARD FOR EASY VIEWING** AT ANY ANGLE

SENSOR LIFE GREATER TAHN 10 YEARS

VIBRATING HANDLE ALETS TOLEAKS

BAR GRAPH SHOWS

INTENSITY OF LEAK

PART NO. **DESCRIPTION**

LD-5000

Prowler Leak Detector in Case

LD-S100

Replacement sensor

* R-1234yf is a replacement for all HFC (134a) and HCFC (R22) refrigerants that are currently being phased out. It is an A2L flammable refrigerant as defined by ASHRAE 34.

ATLAS REFRIGERANT CHARGING SCALE

Allas Refrigerant Charging Scale

The JB ATLAS refrigerant charging Scale is designed for the HVAC/R industry. Every ay users will appreci-

ate the advanced solid state load cell for superior sensitivity (0.25 oz/ 10 gm) and accuracy. The ATLAS's 220 pound (100 kg) weight capacity, all metal construction, heavy duty plastic storage case, and easy to read hand held combine to make the ATLAS the best overall package in the industry. Pound for Price our 220 pound scale competes at a 110 pound price. Operates with a 9 volt battery (included).

220 LB (100 KG) CAPACITY

PIECES ARE MODULARIZED SO PARTS ARE EASILY REPLACED WITHOUT NEED TO PURCHASE **ENTIRELY NEW UNIT**

DISPLAYS WEIGHT IN DECIMAL POUNDS, POUNDS & OUNCES, AND KILOGRAMS

AUTO SHUT OFF AFTER 30 MIN-UTES TO PRESERVE BATTERY **AND CAN BE DISABLED**







Technical Information

Usage Indoor/Outdoor Not waterproof **Operating Temp.** +32°F to 122°F (0°C to +50°C) +14°F to 140°F Storage Temp. (-10°C to +60°C) Humidity **Non Condensing Altitude**

Pollution Degree

Battery Life

Over Voltage Category

85% RH @113°F (45°C).

6500 feet (2000 meters)

Approximately 60 hours



OPTIONAL CHARGING MODULE

S-MOD) TURNS THE ATLAS INTO	
A CHARGING STATION WITHOUT	
IE CYLINDER EVER LEAVING THE	9
IGHING PLATFORM. TRANSFERS	
PTO 999 POUNDS IN CHARGING	JB N
CREMENTS OF 0.25 OZ (10GM).	ATLAS
CONNECTION IS A 1/4" FLARE.	
12 2 2 2 2 2 2 2	ALC: NO.
	A STATE OF THE PARTY OF THE PAR

OR IN DIRECT SUNLIGHT

PART NO.	DESCRIPTION
DS-20000	220 lb weight capacity ATLAS scale
DS-MOD	Charging Module
DSR-10	Replacement communication cable
DSR-20	Replacement handheld remote
DSR-30	Replacement weighing platform

SUPERHEAT SUBCOOLING GAUGES

SH-35N SUPERHEAT SUBCOOLING GAUGE

Our Superheat and Subcooling Gauge saves high, low, and average values for detailed analysis. The SH-35N's gauges feature a built-in R-22 table, or use the plug-in refrigerant pressure-temperature memory key. Included with gauge is a multi key, an A34000 access tee, a 6' (1.8m) dry/wet bulb temperature sensor, and 5 socks in a convenient carrying case.

SH-35N SUPERHEAT, SUBCOOLING PRESSURE, TEMPERATURE

AD TO CLEAR

DIGITAL DISPLAY WITH SOLID
STATE CIRCUITRY AUTOMATICALLY
ADJUSTS FOR FLUCTUATING
TEMPERATURE

R-22 BUILT IN AND MULTI-REFRIGERANT KEY IS INCLUDED, SEE CHART FOR LIST OF ALL REFRIGERANTS

1 AND 24-HOUR MEMORY

SAVES HIGH, LOW, AND AVERAGE VALUES FOR DETAILED ANALYSIS

LOW BATTERY INDICATOR ALERTS REPLACING 9-VOLT BATTERY (NOT INCLUDED)

PULSATION PROOF AND ACCURATE TO ANY ELEVATION UP TO 16,000 FEET WITHOUT ADJUSTMENT FOR USE IN MOST GEOGRAPHICAL APPLICATIONS

SIMPLE TWO-BUTTON OPERATION

MADE IN USA

PART NO.	DESCRIPTION	
SH-35N	Superheat/Subcooling gauge (F°) in case	
SH-36N	Superheat/Subcooling gauge (C°) in case	
SK-35N	Key with 32 refrigerants (2007 model) (F°)	
SK-36N	Key with 32 refrigerants (2007 model) (C°)	
A34000	1/4" QC x 1/4" access tee	
SH-54	6' (1.8m) temperature sensor	
SH-58	Temperature clamp	
SH-55	Plastic carrying case	
SH-56	Socks (5 pack)	
SH-51	28' (8.5m) temperature sensor extension	
A31992	Replacement plastic 1/4" SAE cap	
DV-18	AC Adapter	

R22 is built in to the SH-35N

Refrigerant data source from NIST REFRPRO software and manufacturers data.

12 MONTH WARRANTY

SEALED TOUCH
BUTTONS PROTECT
AGAINST DIRT AND
DUST

MULTI REFRIGERANT KEY LISTING						
R12	R403B	R410A	R422C			
R22*	R404A	R411C	R422D			
R134a	R406A	R413A	R427A			
R290	R407A	R414B	R428A			
R401A	R407B	R416A	R438A			
R401B	R407C	R417A	R502			
R402A	R408A	R422A	R507			
R402B	R409A	R422B	R508B			
	R12 R22* R134a R290 R401A R401B	R12 R403B R22* R404A R134a R406A R290 R407A R401A R407B R401B R407C R402A R408A	R12 R403B R410A R22* R404A R411C R134a R406A R413A R290 R407A R414B R401A R407B R416A R401B R407C R417A R402A R408A R422A			

SH-35 and SH-36 Refrigerant Keys For prior SH-35 and SH-36 models without the

multi key, refrigerant keys are available.

PART NO. °F PART NO. °C R-12 SK-40012 SK-50012 R-134A SK-40134A SK-50134A R-404A SK-40404A SK-50404A R-410A SK-40410A SK-50410A R-502 SK-50502 SK-40502 R-507 SK-40507 SK-50507

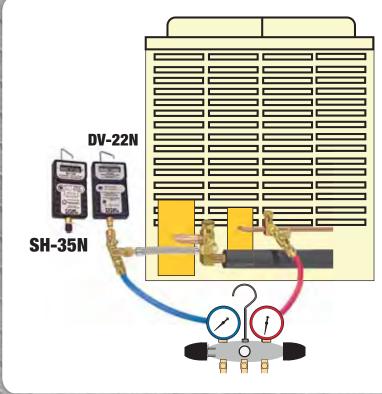
Technical Information

Action Vol. 5-Selection of the	STANDARD	METRIC
Pressure Disp. Range	29 InHg to	(-98 kPa to
	600 psig	4134 kPa)
Temp Display Range	-40° F to 200° F	-40° C to 93° C
Operating Temp	32° F to 176° F	0° C to 80° C
Max. Overpressure	800 psig	5512 kPa

SUPERHEAT SUBCOOLING GAUGES

DV-29 Micron and Superheat Gauge Hookup Test Unit Used in conjunction with our micron gauges DV-40 or DV-22N and our superheat/ subcool gauge the SH-35N,

Used in conjunction with our micron gauges DV-40 or DV-22N and our superheat/ subcool gauge the SH-35N, the DV-29 ensures a leak proof setup. JB's DV-29 works with all micron gauges and creates a closed system, eliminating any leakage under deep vacuum. The DV-29 eliminates other problems when attaching the micron gauge into the system. If the micron gauge is attached directly to the vacuum pump or with a 3' (91.4 cm) dedicated hose, you will get a lower reading as the gauge is sensing what the pump is doing and not what the pump is doing to the system.









DV-294

USA

USED IN CONJUNCTION WITH OUR DV-22N AND SH-35N, THE DV-29 ENSURES A LEAK PROOF SETUP THE DV-29 CONSISTS OF ONE EACH OF THE FOLLOWING:

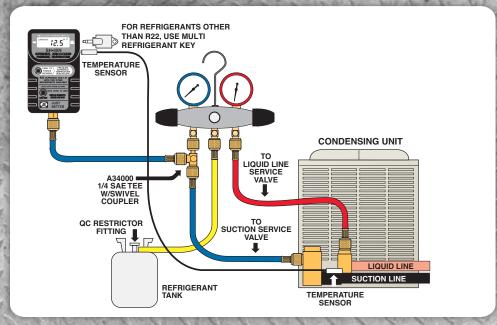
- 10" (25.4 CM) METAL HOSE WITH O-RING QUICK COUPLERS (DV-294)
- 90° MALE FLARE WITH 1/4" O-RING QUICK COU-PLER (DV-292)
- BALL VALVE WITH O-RING QUICK COUPLER WITH DEPRESSOR (DV-295)
- VALVE ASSEMBLY WITH 1/4" MALE FLARE CONNECTIONS (DV-293)

CHARGING AND TESTING METHODS

CHARGING METHODS

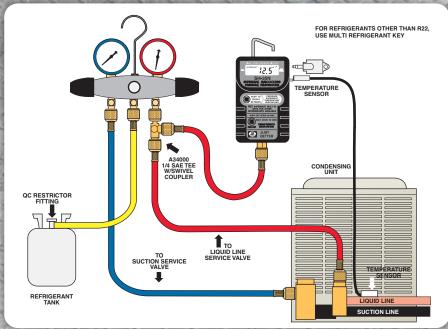
Charging by superheat method residential arc or refrigeration systems equipped with txv and receiver, capillary tube, or metering device

CONTACT MANUFACTURER OR WHOLESALER FOR SUPERHEAT NUMBER.



Charging by subcooling method CONTACT MANUFACTURER OR WHOLESALER FOR SUBCOOLING NUMBER.

Average subcooling value is 10°-12°F.

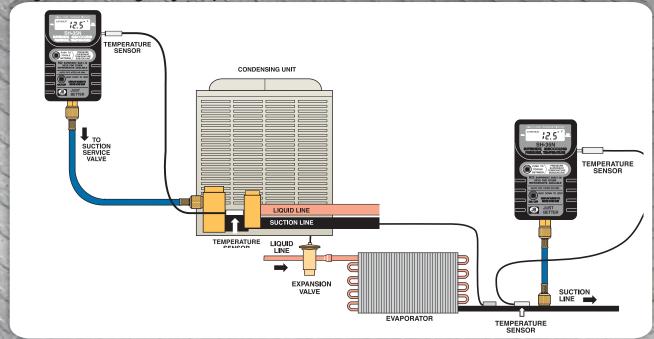


^{*}For refrigerants other than R22, use multi refrigerant key Operating instructions available under Technical Information at www.jbind.com

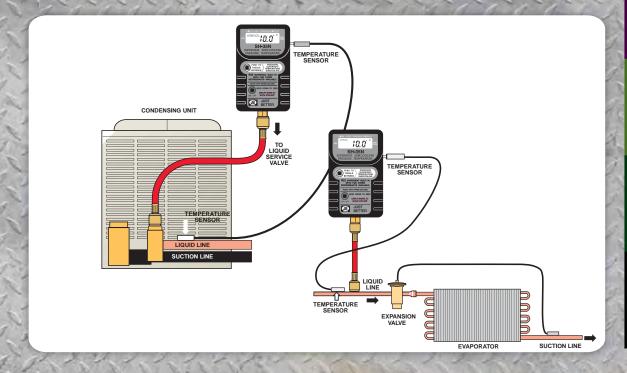
CHARGING AND TESTING METHODS

TESTING METHODS

Testing for charge by superheat



Testing for charge by subcooling



DIGITAL MANIFOLD

Most Intelligent Manifold on the Market

The Award winning DM-2 is the most intelligent manifold on the market. Combining a superheat/subcooling gauge

The Award winning DM-2 is the most intelligent manifold on the market. Combining a superheat/subcooling gauge with a charging and testing manifold and temperature gauge, the DM-2 is a must for the serious service technician. Calibration, calculation, and conversion are automatic, thereby eliminating errors and ensuring that you charge correctly. The built-in capabilities of this unit make it low maintenance, accurate, and quick. Many functions are instant and continue to analyze and record up to 24 hours. This year, we are proud to introduce the four valve version of our digital manifold. This product is so revolutionary and vital for the job, that it has won the Dealer Design Awards TWICE. Our two valve won the gold medal in 2006, and our four valve version won the bronze medal for 2008.



COMBINES SUPERHEAT AND SUBCOOLING GAUGE WITH STANDARD MANIFOLD CAPABILITIES

32 REFRIGERANTS BUILT IN. PLEASE SEE CHART ON NEXT PAGE FOR REFRIGERANTS

ADVANCED SOFTWARE AL-LOWS FOR QUICK CONVER-SIONS FROM °F TO °C AND PSI TO KPA

AUTO CALIBRATES TO ZERO FOR THE ELEVATION EACH TIME TURNED ON WITHOUT PRESSURE

SHOWS LOW SIDE AND HIGH SIDE PRESSURES IN SEPA-RATE DISPLAYS

SUPERHEAT AND SUBCOOLING TEMPERATURES SHOWN SIMULTANEOUSLY

OPERATES ON 9-VOLT BAT-TERY

PROVIDES MIN., MAX., AND AVG. VALUE FOR ANY DISPLAY



FOR FASTER EVACUATION. REFER TO PAGE 20 FOR A DESCRIPTION OF HOW OUR FULL FLOW WORKS

NOT INTENDED TO HANG ON BACK OF TRUCK

ONE TEMPERATURE SENSOR AND ONE CLAMP TO MEASURE TEMPERATURE DROP ACROSS A COOLING COIL

DIGITAL MANIFOLD



AWARDS the NEWS

THE DIGITAL MANIFOLD WON THE PRODUCT DESIGN GOLD **AWARD FOR 2006 (TWO VALVE** DEALER DESIGN VERSION) AND THE BRONZE AWARD FOR 2008 (FOUR **VALVE VERSION) IN THE ACHR DEALER DESIGN AWARDS FOR** THE TOOLS CATEGORY

Technical Information

Pressure Disp. Range **Temp Display Range Operating Temp** Max. Overpressure

STANDARD 0 to 600 psig (0 to 4134 kPa) -40° C to 93° C -40° F to 200° F 32° F to 176° F 0° C to 80° C 800 psig 5512 kPa R-410A rated

PRESSURE RANGE +/- 1 PSI TO 200 PSI (+/- 1.5° C) TEMPERATURE RANGE +/- 1°F (+/- 10°C)

BUILT-IN REFRIGERANTS FOR THE DIGITAL MANIFOLD:

R12	R403B	R410A	R422C
R22	R404A	R411C	R422D
R134a	R406A	R413A	R427A
R290	R407A	R414B	R428A
R401A	R407B	R416A	R438A
R401B	R407C	R417A	R502
R402A	R408A	R422A	R507
R402B	R409A	R422B	R508B

_	
PART NO.	DESCRIPTION
DM2-8	2-valve digital manifold (no hoses), temperature
	sensor and case
DM2-5	2-valve digital manifold, set 60" (152 cm) Kobra®
	CCLE hoses, temperature sensor, and case
DM2-3	2-valve digital manifold, set 60" (152 cm) Kobra®
	CCLE hoses, temperature clamp, sensor, and case
DM4-3	4-valve digital manifold, set 60" (152 cm) Kobra®
	CCLE hoses, temperature clamp, sensor, and case
DM2-103	Case only (fits both 2 and 4 valve versions)
SH-51	28' (8.5 m) temperature sensor extension
SH-60	6' (1.8 m) temperature sensor with right elbow
SH-59	Temperature clamp
SH-56	Socks (5 pack)
DMB	Protective rubber boot (retrofits all DM2 models)
A34000	1/4" QC x 1/4" access branch tee



STANDARD BRASS 2-VALVE MANIFOLD

The Industry Standard
An industry standard for countless years, the JB M2 series of manifolds features our full flow design for faster evacuation/ charging. Coupled with an angled bar for better knuckle clearance in rotating the hand wheels and the original free flowing dual O-ring sealing system, the M2 is the classic American made manifold. All of JB's brass manifolds are equipped with heavy-duty metal gauge cases for added durability.

SURGE DAMPENED GAUGES FOR RE-**DUCED NEEDLE MOVEMENT**

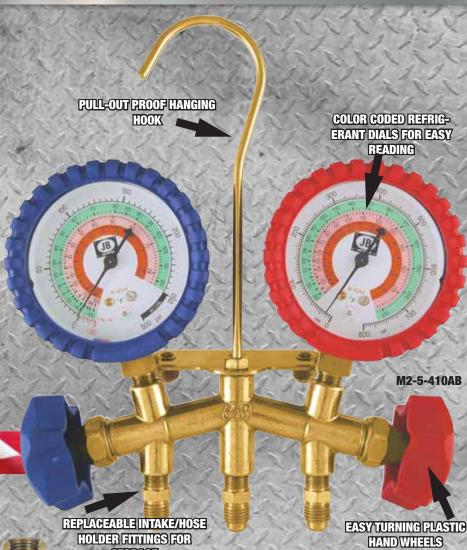
ORIGINAL FREE FLOATING **O-RING SEALING SYSTEM** FASTER **EVACUATION/CHARGING. SEE BELOW FOR DESCRIPTION**

AVAILABLE FOR USE WITH R410A

AVAILABLE WITH 2-1/2" AND 3-1/8" SIZE GAUGES WITH AND WITHOUT **BOOTS**

METRIC INFORMATION

OFFERED WITH 63.5 MM (2-1/2") **METRIC GAUGES READING BAR/** PSI, KPA/PSI, AND KG/CM2. FOR IN-FORMATION ON METRIC VERSIONS, **PLEASE REFER TO PAGE 32.**



MADE IN USA



STORAGE

ORIGINAL FREE FLOATING DUAL O-RING SEALING SYSTEM

- **DOUBLE O-RING**
- STEM SEATS RETRACT COMPLETELY FROM FULL FLOW PATH
- **ZERO LEAKAGE HIGH PRESSURE RAISED SEAT FOR POSITIVE SEATING**
- DOUBLE SIZE FLOW PATH THROUGHOUT LENGTH OF CENTER PORT

GAUGE FEATURES AND REPLACEMENTS ARE DETAILED ON PAGE 35. METRIC REPLACEMENT GAUGE VERSIONS ARE DETAILED ON PAGE 38. KOBRA HOSES ARE DETAILED BEGINNING ON PAGE 40. REFER TO "MANIFOLD REPAIR PARTS" BEGINNING ON PAGE 80 FOR ALL JB MANIFOLD REPAIR PARTS

STANDARD BRASS 2-VALVE MANIFOLD

TO FIND THE RIGHT MANIFOLD

- 1. CHOOSE THE DESIRED REFRIGERANT COMBINATION
- 2. SELECT THE HOSE SET THAT SUITS YOUR NEEDS
- 3. MOVE ACROSS THE CHART TO FIND THE GAUGES AND YOUR MODEL NUMBER

	Includes (3) 60" hoses unless otherwise noted	Standard 2-1/2" gauges	2-1/2" gauges with boots	Glow-in-the-dark 3-1/8" gauges	3-1/8" gauges with 1% accuracy
R-12	NO HOSE SET	M2-8	M2-8B		
R-22	CL (36" RB, 60" Y)	M2-6	M2-6B		
R-502	CCL 60" STANDARD	M2-5	M2-5B		
1	CCL 36" STANDARD	M2-36	M2-36B		
R-22	NO HOSE SET	M2-21125	M2-21125B	M2-22125	M2-23125
R-134a R-404A	CCLE 60" KOBRA® HOSE	M2-21131	M2-21131B	M2-22131	M2-23131
		1 1 1 1	9 9 9	9 9 9 9 9	1 1 2
	NO HOSE SET	M2-8-410A	M2-8-410AB	M2-2225	M2-23225
R-404A R-410A	CCLE 60" KOBRA® HOSE	M2-5-410A	M2-5-410AB	M2-22231	M2-23231
1	1 1 1 1 1	11/1/	Mary Jak	The state of	
	NO HOSE SET	M2-21525	M2-21525B	M2-22525	
K-41U/A	CCLE 60" KOBRA® HOSE	M2-21531	M2-21531B	M2-22531	
	44.77		1111	1976	They have
R-427A R-422b	NO HOSE SET			M2-22325	
R-22 R-410A	NO HOSE SET			M2-22425	
K-4W/6					

1/4" PREMIUM BRASS 2-VALVE ZEPPELIN®

2-VALVE PREMIUM BRASS MANIFOLD

SURGE DAMPENED GAUGES FOR REDUCED NEEDLE MOVEMENT

ORIGINAL FREE FLOATING DUAL O-RING SEALING SYSTEM FOR FASTER EVACUATION/CHARGING. SEE PAGE 20 FOR DESCRIPTION

AVAILABLE FOR USE WITH R410A

AVAILABLE WITH 2-1/2" AND 3-1/8" SIZE GAUGES

ALL MODELS AVAILABLE WITH AND WITHOUT SIGHT GLASS

FOR RE
B DUAL
WEOR
ARGING.
ON

110A
10 3-1/8"

THE AND

HEAVY ADUTY FORGED BRASS
BODY IS RUGGED AND DURABLE

FULL-OUT PROOF HANGING HOOK

23225

PULL-OUT PROOF HANGING HOOK

23225

PULL-OUT PROOF HANGING HOOK

PULL-OUT PROOF HANGING HOOK

PULL-OUT PROOF HANGING HOOK

PULL-OUT PROOF HANGING HOOK

THE AND

T

MADE IN USA

SOFT GRIP RUBBER HAND WHEELS REDUCE TURNING TO OPEN/CLOSE

REPLACEABLE INTAKE/HOSE HOLDER FITTINGS FOR STORAGE (ON BACK)

2-Valve Premium Brass Manifold

The American made Zeppelin® series of manifolds are available in brass and aluminum. This series features durable molded "Soft Grip" rubber handles that eases opening and closing while the improved stem design means "Full Open" in only 2½ turns. Featured here, the brass Zeppelin® series, available only in 2-valve, also incorporates cutting edge styling and technology to significantly reduce the weight of the manifold.

In addition to the new look, JB also offers an increased selection of gauges in metal cases and refrigerant combinations. Standard 2-1/2", large glow-in-the-dark 3-1/8", and liquid-filled 3-1/8" gauges can be coupled with different refrigerant combinations and JB's multiple hose options to serve any application. All manifolds include a 60" (152.3 cm) hose set unless noted otherwise.

Glow-in-the-dark

1/4" PREMIUM BRASS 2-VALVE ZEPPELIN®

Standard

3-1/8" Liquid

TO FIND THE RIGHT MANIFOLD

- 1. CHOOSE THE DESIRED REFRIGERANT COMBINATION
- 2. SELECT THE HOSE SET THAT SUITS YOUR NEEDS

Includes (3) 60" hoses

3. MOVE ACROSS THE CHART TO FIND THE GAUGES AND YOUR MODEL NUMBER

11/1/2	unless otherwise noted	2-1/2" gauges	filled gauges	3-1/8" gauges
R-12	NO HOSE SET	23000	23050	23025
	1/4" CCL STANDARD HOSE SET	23004		23029
	1/4" CCLE KOBRA® HOSE SET	23006	23056	23031*
K-502	1/4" CCLBV KOBRA® HOSE W/ BALL VALVE	23013	23063	23038
(Replaces	1/4" CCLS KOBRA® HOSE W/ SECURE SEAL	23017	23067	23042
M8 series)		*23	3031 available with sig	ht glass, order 23033
	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	165/5/63	12/2/	
R_222	NO HOSE SET	23100	23150	23125
N 444	1/4" CCLE KOBRA® HOSE SET	23106	23156	23131*
K-134d	1/4" CCLBV KOBRA® HOSE W/ BALL VALVE	23113	23163	23138
R-404A	1/4" CCLS KOBRA® HOSE W/ SECURE SEAL	23117	23167	23142
		*2	3131 available with sig	ht glass, order 23133
	1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	*2	3131 available with sig	ht glass, order 23133
R-99	NO HOSE SET	*2 23200	3131 available with sig	tht glass, order 23133
R-22	NO HOSE SET 1/4" CCLE KOBRA® HOSE SET	222	12,000	2220
R-22 R-404A		23200	23250	23225
R-22 R-404A R-410A	1/4" CCLE KOBRA® HOSE SET	23200 23206 23213 	23250 23256 23263 23267	23225 23231* 23238
R-22 R-404A R-410A	1/4" CCLE KOBRA® HOSE SET 1/4" CCLBV KOBRA® HOSE W/ BALL VALVE	23200 23206 23213 	23250 23256 23263 23267	23225 23231*
R-22 R-404A R-410A	1/4" CCLE KOBRA® HOSE SET 1/4" CCLBV KOBRA® HOSE W/ BALL VALVE	23200 23206 23213 	23250 23256 23263 23267	23225 23231* 23238
R-22 R-404A R-410A	1/4" CCLE KOBRA® HOSE SET 1/4" CCLBV KOBRA® HOSE W/ BALL VALVE	23200 23206 23213 	23250 23256 23263 23267	23225 23231* 23238
R-22 R-404A R-410A R-134a R-404A	1/4" CCLE KOBRA® HOSE SET 1/4" CCLBV KOBRA® HOSE W/ BALL VALVE 1/4" CCLS KOBRA® HOSE W/ SECURE SEAL	23200 23206 23213 	23250 23256 23263 23267	23225 23231* 23238 ght glass, order 23233
R-22 R-404A R-410A R-134a R-404A	1/4" CCLE KOBRA® HOSE SET 1/4" CCLBV KOBRA® HOSE W/ BALL VALVE 1/4" CCLS KOBRA® HOSE W/ SECURE SEAL NO HOSE SET	23200 23206 23213 **2	23250 23256 23263 23267	23225 23231* 23238 ght glass, order 23233

R-410A

(Replaces M5 series)

(Replaces M7 series)

NO HOSE SET	23500	 23525
1/4" & 5/16" CCLE KOBRA® HOSE SET	23510	 23535
1/4" CCLE KOBRA® HOSE SET	23506	 23531*
1/4" CCLBV KOBRA® HOSE W/ BALL VALVE	23513	 23538*
1/4" CCLV KOBRA® HOSE W/ WHIP END	23521	 23546

*23531 available with sight glass, order 23533 *23238 available with sight glass, order 23540

GAUGES DO NOT ILLUMINATE.

ZEDDELLO 2-VALVE ALUMINUM MANIFOLD

2-Valve ALUMINUM Manifold

The American made Zeppelin® series of manifolds are available in brass and aluminum. This series features durable molded "Soft Grip" rubber handles that eases opening and closing while the improved stem design means "Full Open" in only 2½ turns. Featured here, the aluminum Zeppelin® series, available in 2-valve and 4-valve, also incorporates cutting edge styling and technology to significantly reduce the weight of the manifold.

In addition to the new look, JB also offers an increased selection of gauges in metal cases and refrigerant combinations. Standard 2-1/2", large glow-in-the-dark 3-1/8", and liquid-filled 3-1/8" gauges can be coupled with different refrigerant combinations and JB's multiple hose options to serve any application. All manifolds include a 60" (152.3 cm) hose set unless noted otherwise.

SURGE DAMPENED GAUGES FOR REDUCED NEEDLE MOVEMENT

ORIGINAL FREE FLOATING DUAL O-RING SEALING SYSTEM FOR FASTER EVACUATION/CHARGING. SEE PAGE 20 FOR DESCRIPTION

AVAILABLE FOR USE WITH R410A

AVAILABLE WITH 2-1/2" AND 3-1/8" SIZE GAUGES

COLOR CODED REFRIGERANT DIALS
FOR EASY READING

PULL-OUT PROOF HANGING HOOK

24225

MADE IN USA

METRIC INFORMATION

OFFERED WITH 63.5 MM (2-1/2") METRIC GAUGES READING BAR/ PSI, KPA/PSI, AND KG/CM². FOR IN-FORMATION ON METRIC VERSIONS, PLEASE REFER TO PAGE 33.

SOFT GRIP RUBBER HAND WHEELS REDUCE TURNING TO OPEN/CLOSE

PRECISELY MACHINED ANODIZED ALUMINUM BODY

GAUGE FEATURES AND REPLACEMENTS ARE DETAILED ON PAGE 35.
METRIC REPLACEMENT GAUGE VERSIONS ARE DETAILED ON PAGE 38.

REPLACEABLE INTAKE/HOSE HOLDER FITTINGS FOR STORAGE (ON BACK)



1 1 3		1 11 10 1		The state of the s
TO THE	Includes (3) 60" hoses unless otherwise noted	Standard 2-1/2" gauges	3-1/8" Liquid filled gauges	Glow-in-the-dark 3-1/8" gauges
R-12	NO HOSE SET	24000	24050	24025
n 99	1/4" CCLE KOBRA® HOSE SET	24008	24058	24033
K-22	1/4" CCLBV KOBRA® HOSE W/ BALL VALVE		24065	24040
R-502	1/4" CCLS KOBRA® HOSE W/ SECURE SEAL		24069	24044
				1 1 1 1
CLL		Show I do to	and the state of	And the
R=22	NO HOSE SET	24100	24150	24125
D 12/12	1/4" CCLE KOBRA® HOSE SET	24108	24158	24133
	1/4" CCLBV KOBRA® HOSE W/ BALL VALVE		24165	24140
K-404A	1/4" CCLS KOBRA® HOSE W/ SECURE SEAL		24169	24144
12/2/				
D 9 9	The Fort Start Start of the	The second		The state of the s
K-22	NO HOSE SET	24200	24250	24225
$R_A \cap A \Delta$	1/4" CCLE KOBRA® HOSE SET	24208	24258	24233
	1/4" CCLV KOBRA® HOSE W/ WHIP END		24265	24240
K-4IUA				1
1.1.1	1 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2,2,2,2	1.1.2.1	2011
2			GA	NUGES DO NOT ILLUMINATE.
	NO HOSE SET	24500		24525
K-4IUA	1/4" CCLE KOBRA® HOSE SET	24508		24533
12.2				'
D 77		2/2/2/2	the state of the	12/2/200
K-134a	NO HOSE SET		24600	
$\mathbf{p}_{-}\mathbf{M}\mathbf{M}\mathbf{M}$	1/4" CCLE KOBRA® HOSE SET		24608	
	1/4" CCLBV KOBRA® HOSE W/ BALL VALVE		24615	
K-41UA				
30		1.1.1.1	30,000	2222
R_427A				
	NO HOSE SET			24325
K-4 <u>ZZ</u> U				
R-407/A				
	Company of the same		Part of the	1 1 1 1
n 99			and the same of the	
R-22	NO HOSE SET			04405
R-410A	NO HOSE SET			24425
K-40/6				

PULL-OUT PROOF HANGING

HOOK

NEW ECONOMY 4-VALVe

Designed from our industry standard two valve model, the M4 features the same free flowing dual o-ring scaling system. This American made manifold is rugged and durable.

SURGE DAMPENED GAUGES FOR REDUCED NEEDLE MOVE-MENT

ORIGINAL FREE FLOATING DUAL O-RING SEALING SYSTEM FOR FASTER EVACUATION/CHARGING. SEE BELOW FOR DESCRIPTION

AVAILABLE FOR USE WITH R410A

AVAILABLE WITH 2-1/2" AND 3-1/8" SIZE GAUGES WITH AND WITHOUT BOOTS

REPLACEABLE INTAKE/HOSE HOLDER FITTINGS FOR STORAGE

MADE IN USA

EASY/TURNING/PLASTIC



ORIGINAL FREE FLOATING DUAL O-RING SEALING SYSTEM

M4-22225

- DOUBLE O-RING
- 2. STEM SEATS RETRACT COMPLETELY FROM FULL FLOW PATH
- 3. ZERO LEAKAGE HIGH PRESSURE RAISED SEAT FOR POSITIVE SEATING

HANDWHEELS

COLOR CODED REFRIGERANT DIALS FOR EASY READING

4. DOUBLE SIZE FLOW PATH THROUGHOUT LENGTH OF CENTER PORT

GAUGE FEATURES AND REPLACEMENTS ARE DETAILED ON PAGE 35.
KOBRA HOSES ARE DETAILED BEGINNING ON PAGE 40.

REFER TO "MANIFOLD REPAIR PARTS" BEGINNING ON PAGE 81 FOR ALL JB MANIFOLD REPAIR PARTS

TO FIND THE RIGHT MANIFOLD

- 1. CHOOSE THE DESIRED REFRIGERANT COMBINATION
- 2. SELECT THE HOSE SET THAT SUITS YOUR NEEDS
- 3. MOVE ACROSS THE CHART TO FIND THE GAUGES AND YOUR MODEL NUMBE

R-12	
R-22	
R-502	

Includes (4) 60" hoses unless otherwise noted			Glow-in-the-dark 3-1/8" gauges
NO HOSE SET	M4-8	M4-8B	
CCL 60" STANDARD	M4-5	M4-5B	
CCL 36" STANDARD	M4-36	M4-36B	
		•	1



M4-21125	M4-21125B	M4-22125
M4-21131	M4-21131B	M4-22131



NO HOSE SET	M4-8-410A	M4-8-410AB	M4-2225
CCLE 60" KOBRA® HOSE	M4-5-410A	M4-5-410AB	M4-22231

Manifolds for Every Price Point

Good

Better

Best

2 Valve

M2 Series
Page 20

Brass Zeppelin
Page 22

Aluminum Zeppelin
Page 24

4 Valve

M4 Series Page 26 Ball Valve Page 28 Aluminum Zeppelin Page 30

BALL-VALVE MANIFOLD

coming soon! NEW 4 Valve ball valve manifold

newest member of our manifold family, the ball valve manifold features four valves operated by internal metering ball valves that can do finite openings perfect for charging liquid form with no liquid charging adapter necessary!! Quarter turn to open/ close. Full 3/8" bore lets you work quickly and efficiently. As always, it is made in the USA!



MADE IN USA

Includes (4) 60" hoses unless otherwise noted	Standard 2-1/2" gauges	Glow-in-the-dark 3-1/8" gauges	
NO HOSE SET	26000	26025	
1/4" CCLE KOBRA® HOSE SET	26008	26033	
1/4" CCLBV KOBRA® HOSE W/ BALL VALVE		26040	
1/4" CCLS KOBRA® HOSE W/ SECURE SEAL		26044	

(- <u> </u> <u> </u>	NO HOSE SET	26100	26125
2_12/12	1/4" CCLE KOBRA® HOSE SET	26108	26133
	1/4" CCLBV KOBRA® HOSE W/ BALL VALVE		26140
-4U4A	1/4" CCLS KOBRA® HOSE W/ SECURE SEAL		26144

R_222	NO HOSE SET	26200	26225	
$\mathbf{D} \mathbf{A} \mathbf{A} \mathbf{A}$	1/4" CCLE KOBRA® HOSE SET	26208	26233	
R-404A	1/4" CCLBV KOBRA® HOSE W/ BALL VALVE		26240	
R-410A	1/4" CCLV KOBRA® HOSE W/ WHIP END		26244	

4 VALVE LIMITED EDITION MANIFOLD

40% FASTER THAN THE LEADING 4-VALVE MANIFOLD

INCLUDES SET OF 5 FOOT BLACK KOBRA HIGH PRESSURE HOSES WITH CHROME COLORED FITTINGS

AVAILABLE WITH AND WITHOUT HEAVY DUTY **BLACK RUBBER GAUGE BOOTS**

> FULL 3/8" BORE EVACUATES **FASTER**

> > FORGED ALUMINUM CONSTRUCTION

STEM SEATS RETRACT **COMPLETELY FOR FULL** UNRESTRICTED FLOW

CONTOURED RUBBER SOFT GRIP HANDLES

CHROME COLORED FITTINGS

MADE IN USA



CCLE 60" KOBRA® HOSE

with boots

without boots

25233B-BK

25233-BK

4-VALVE ALUMINUM MANIFO

SURGE DAMPENED GAUGES FOR RE-**DUCED NEEDLE MOVEMENT**

FULL 3/8" BORE EVACUATES 40% FASTER THAN THE COMPETING **4-VALVE MANIFOLD**

AVAILABLE WITH 2-1/2" AND 3-1/8" SIZE GAUGES

> SOFT GRIP RUBBER HAND VHEELS REDUCE TURNING TO OPEN/CLOSE

METRIC INFORMATION

OFFERED WITH 63.5 MM (2-1/2") METRIC GAUGES READING BAR/ PSI, KPA/PSI, AND KG/CM2. FOR IN-FORMATION ON METRIC VERSIONS, **PLEASE REFER TO PAGE 34.**

MADE IN USA

REPLACEABLE INTAKE/HOSE HOLDER FITTINGS FOR STORAGE (ON BACK)

FULL 3/8" BORE EVACUATES 40% FASTER

COLOR CODED REFRIGERANT DIALS FOR EASY READING

B

SIGHT GLASS STANDARD ON ALL 4-VALVE MODLES

PULL-OUT PROOF HANGING HOO

HEAVY-DUTY FORGED ALUMINUM **BODY IS RUGGED AND DURABLY**

4-Valve ALUMINUM Manifold

The American-made Zeppelin® series of manifolds. Available in brass and aluminum, this series features durable molded "Soft Grip" rubber handles that eases opening and closing while the improved stem design means "Full Open" in only 2½ turns. The aluminum Zeppelin® series, available in 2- and 4- valve, also incorporates cutting edge styling and technology to significantly reduce the weight of the manifold.

In addition to the new look, JB also offers an increased selection of gauges in metal cases and refrigerant combinations. Standard 2-1/2", large 3-1/8" glow-in-the-dark, and large 3-1/8" liquid-filled gauges can be coupled with different refrigerant combinations and JB's multiple hose options to serve any application. All manifolds include a 60" (152 cm) hose set unless noted otherwise.

GAUGE FEATURES AND REPLACEMENTS ARE DETAILED ON PAGE 35. METRIC REPLACEMENT GAUGE VERSIONS ARE DETAILED ON PAGE 38.

D 40	Includes (4) 60" hoses unless otherwise noted	Standard 2-1/2" gauges	3-1/8" Liquid filled gauges	Glow-in-the-dark 3-1/8" gauges
R-12	NO HOSE SET	25000	25050	25025
R_99	1/4" CCLE KOBRA® HOSE SET	25008	25058	25033
D ENA	1/4" CCLBV KOBRA® HOSE W/ BALL VALVE		25065	25040
K-DUZ	1/4" CCLS KOBRA® HOSE W/ SECURE SEA	L	25069	25044
			2770	TITLE
R-22	NO HOSE SET	25100	25150	25125
R_13/12	1/4" CCLE KOBRA® HOSE SET	25108	25158	25133
	1/4" CCLBV KOBRA® HOSE W/ BALL VALVE		25165	25140
K-4U4 <i>P</i>	1/4" CCLS KOBRA® HOSE W/ SECURE SEA	L	25169	25144
	1 1 1 1 1 1 1 1 1 1 1 1	1	J. Jak	1 1 Man
R_??	NO HOSE SET	25200	25250	25225
D ////	1/4" CCLE KOBRA® HOSE SET	25208	25258	25233
K-4U4 <i>F</i>	1/4" CCLBV KOBRA® HOSE W/ BALL VALVE		25265	25240
R-410A	1/4" CCLV KOBRA® HOSE W/ WHIP END		25269	25244
177		T. C.C.	ロアア	
R-427A R-422b R407-A	NO HOSE SET			25325
R-22 R-410A R407-C	NO HOSE SET			25425
11	3066444444	454	46.24	GAUGES DO NOT ILLUMINATE.
3 3 1	NO HOSE SET	25500	25550	25525
R-410A	1/4" CCLE KOBRA® HOSE SET	25508	25558	25533
	1/4" CCLV KOBRA® HOSE W/ WHIP END	25523	25573	25548
R-22	NEW: EXCLUSIVE 4" REFRIGERANT GAUINFORMATION FOUND ON PAGE 37.	GE WITH 4 REFRI	GERANTS. REPLA	
D 40 4				4" naunes

R-134a R-404A

1/4" CCLE KOBRA® HOSE SET
1/4" CCLV KOBRA® HOSE W/ WHIP END

4" gauges 25708 25713

GAUGE BOOTS FOR THE 2-1/2" AND 3-1/8" ARE DETAILED ON PAGE 38.

IF YOU DO NOT SEE A REFRIGERANT COMBINATION, PLEASE CONTACT US AT 800-323-0811.

METRIC BRASS MANIFOLD

M2 Metric Brass Manifold

JB's classic forged brass manifold is offered with 63.5 mm (2-1/2") metric gauges in BAR/PSI, kPA/PSI, and kg/cm² as well as Standard CL and Kobra® CLE series hoses. Look to page 20 for all the features of JB's brass manifold.

Available with 80 mm (3-1/8") metric gauges in select quantities. For more information, please contact sales@jbind.com or 800.323.0811.



MADE IN USA

Includes (3) 60" hoses (unless noted)	BAR/PSI	kPA/PSI	kg/cm
No hose set	28502	28202	2810
1/4" CCLA standard hose with quick couplers	28505	28205	2810
	121	1.1.1	
No hose set	28572	28272	281
1/4" CCL standard hose set (36"/91 cm hose)	28570	28270	281
1/4" CCL standard hose set (60"/152 cm hose)	28574	28274	281
1/4" CCLS Kobra® hose with secure seal (60"/152 cm hose)	28576	28276	281
100000000000000000000000000000000000000	SKR		A.
No hose set	28582	28282	2818
1/4" CCL standard hose set (36"/91 cm hose)	28580	28280	2818
1/4" CCL standard hose set (60"/152 cm hose)	28584	28284	2818
1/4" CCLE Kobra® hose (60"/152 cm hose)	28586	28286	2818
1/4" CCLS Kobra® hose with secure seal (60"/152 cm hose)	28588	28288	2818

No hose set	28592	28292	28192
1/4" CCLE Kobra® hose set	28596	28296	28196
5/16", 1/4", 5/16" CCLE Kobra® hose set	28597	28297	28197
1/4" CCLBV Kobra® hose set with ball valve	28599	28299	28199

METRIC ZEPPELIN® MANIFOLD

Metric Aluminum Zeppelin®

JB's Zeppelin® manifold is offered with 63.5 mm (2-1/2") metric gauges in BAR/PSI, kPA/PSI, and kg/cm² as well as Standard CL and Kobra® CLE series hoses. Look to page 24 for all the features of JB's 2-valve aluminum manifold.

Available with 80 mm (3-1/8") metric gauges in select quantities. For more information, please contact sales@jbind. com or 800.323.0811.



MADE IN USA

	Includes (3) 60" hoses (unless noted)	BAR/PSI	kPA/PSI	kg/cm²
P_12/12	No hose set	28732	28832	28932
N-194a	1/4" CCLA standard hose with quick couplers	28735	28835	28935

R-22
R-404A
R_/11/\A

No hose set	28752	28852	28952
1/4" CCLE Kobra® hose set	28754	28854	28954
1/4" CCLBV Kobra® hose set with ball valve	28759	28859	28959

93	IZ	IZ.	3
	R	-22	5
3	R-	-502	

D 12

No hose set	28772	28872	28972
1/4" CCL standard hose set (36"/91 cm hose)	28770	28870	28970
1/4" CCL standard hose set (60"/152 cm hose)	28774	28874	28974
1/4" CCLS Kobra® hose with secure seal (60"/152 cm hose)	28776	28876	28976

R-134a	
R-404A	
R-507	

No hose set	28782	28882	28982
1/4" CCL standard hose set (36"/91 cm hose)	28780	28880	28980
1/4" CCL standard hose set (60"/152 cm hose)	28784	28884	28984
1/4" CCLE Kobra® hose (60"/152 cm hose)	28786	28886	28986
1/4" CCLS Kobra® hose with secure seal (60"/152 cm hose)	28788	28888	28988
		•	•

4-VALVE METRIC ALUMINUM ZEPPELIN

4-Valve Metric Aluminum Zeppelin® Evacuate, charge, or test your system without disconnecting

Evacuate, charge, or test your system without disconnecting hoses with JB's 4-valve aluminum manifold. This manifold is offered with 63.5 mm (2-1/2") metric gauges and CL and Kobra® CLE series hoses. See page 30 for all the features of the 4-valve manifold. JB's four valve is a full 3/8" bore which renders it 40% faster than the leading competitor.

Available with 80 mm (3-1/8") metric gauges in select quantities. For more information, please contact sales@jbind.com or 800.323.0811.



MADE IN USA

Includes (4) 60" hoses (unless noted)	BAR/PSI	kPA/PSI	kg/cm²
No hose set	27772	27872	27972
1/4" CCL standard hose set (36"/91 cm hose)	27770	27870	27970
1/4" CCL standard hose set (60"/152 cm hose)	27774	27874	27974
1/4" CCLS Kobra® hose with secure seal (60"/152 cm hose)	27776	27876	27976

n	A STATE OF THE PARTY AND A STATE OF THE PARTY	from the state of the state of	and the second	Contract of the last of the la
K-22	No hose set	27752	27852	27952
D M M M	1/4" CCLE Kobra® hose set	27754	27854	27954
K-404A	1/4" CCLBV Kobra® hose set with ball valve	27759	27859	27959
R_410A				·

No hose set	27782	27882	27982
1/4" CCL standard hose set (36"/91 cm hose)	27780	27880	27980
1/4" CCL standard hose set (60"/152 cm hose)	27784	27884	27984
1/4" CCLE Kobra® hose set (60"/152 cm hose)	27786	27886	27986
1/4" CCLS Kobra® hose with secure seal (60"/152 cm hose)	27788	27888	27988
	1/4" CCL standard hose set (60"/152 cm hose) 1/4" CCLE Kobra® hose set (60"/152 cm hose)	1/4" CCL standard hose set (36"/91 cm hose) 27780 1/4" CCL standard hose set (60"/152 cm hose) 27784 1/4" CCLE Kobra® hose set (60"/152 cm hose) 27786	1/4" CCL standard hose set (36"/91 cm hose) 27780 27880 1/4" CCL standard hose set (60"/152 cm hose) 27784 27884 1/4" CCLE Kobra® hose set (60"/152 cm hose) 27786 27886

2-1/2" STANDARD GAUGES

MADE IN USA

REFRIGERANTS	COMPOUND STEEL CASE	PRESSURE STEEL CASE
R-12, R-22, R-502**	M2-250	M2-500
R-22, R-134a, R-404A	M2-430	M2-435
R-22, R-404, R-410A**	M2-460	M2-465
R-134a, R-404A, R-507	M2-420	M2-425
R-134a	M2-350	M2-355
R-410A	M2-410	M2-415

** AVAILABLE IN BRASS OR CHROME. ADD SUFFIX "B" FOR BRASS OR "C" FOR CHROME I.E. M2-460B.

2-1/2" (63.5 mm) Gauges

These high quality, all steel case standard gauges are identical to the gauges used on our manifold sets. They are surge dampened for accuracy. Gauges are sensitive instruments and therefore should not be subjected to pressures beyond scale.

- High impact clear view Lexan lens
- Recalibration screw
- Full size brass movements
- 1/8" MPT connections



R-134a, R-404A and R-507 Refrigerant Gauges

Compound Gauge: 30" vacuum to 120 psi, retard to 350 psi. Pressure Gauge: 0 to 500 psi



R-410A Refrigerant Gauges

Compound Gauge: 30" vacuum to 250 psi, retard to 500 psi. Pressure Gauge: 0 to 800 psi





R-22, R-404, R-410A Refrigerant Gauges

Compound Gauge: 30" vacuum to 250 psi, retard to 500 psi. Pressure Gauge: 0 to 800 psi Available with Brass or Chrome Cases Compound M2-

460B or M2-460C and Pressure M2-465B or M2-465C





R-12, R-22 and R-502 Refrigerant Gauges

Compound Gauge: 30" vacuum to 120 psi, retard to 350 psi. Pressure Gauge: 0 to 500 psi Available with Brass or Chrome Cases Compound M2-250B or M2-250C and Pressure M2-500B or M2-500C

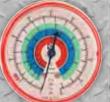




R-134a Refrigerant Gauges

Compound Gauge: 30" vacuum to 120 psi, retard to 350 psi. Pressure Gauge: 0 to 500 psi





R-22, R-134a, R-404A Refrigerant Gauges

Compound Gauge: 30" vacuum to 120 psi, retard to 350 psi. Pressure Gauge: 0 to 500 psi

3-1/8" GAUGES

Il luminated Gauges

JB offers 3-1/8" (80 mm) illuminated gauges. The glow-in-the-dark dials store energy to emit light in dimly lit or dark applications. The R-410A only gauge are not glow-in-the-dark due to their pink dial. The illuminated large gauges are also available a with 1% accuracy rating. Please refer to the 1% accuracy area on the manifold charts for refrigerant combination availability.



M2-851 and M2-856

R-22, R-134a, and R-404A Refrigerant Gauges

Compound Gauge: 30" vacuum to 120 psi, retard to 350 psi. Pressure Gauge: 0 to 500 psi Also available in Class One 1% certified accuracy gauges. M2-951 Compound and M2-956 Pressure.



M2-810 and M2-815 (Note: These gauges do not illuminate)

R-410A Refrigerant Gauges

Compound Gauge: 30" vacuum to 250 psi, retard to 500 psi. Pressure Gauge: 0 to 800 psi



M2-820 and M2-825

R-22, R-404, R-410A Refrigerant Gauges

Compound Gauge: 30" vacuum to 250 psi, retard to 500 psi. Pressure Gauge: 0 to 800 psi
Also available in Class One 1% certified accuracy gauges. M2-924 Compound and M2-925 Pressure.

MADE IN USA

REFRIGERANTS	COMPOUND STEEL CASE ILLUMINATED	PRESSURE STEEL CASE ILLUMINATED
R-12, R-22, R-502	M2-800	M2-805
R-22, R-134a, R-404A	M2-851	M2-856
R-22, R-404, R-410A	M2-820	M2-825
R-410A	M2-810	M2-815
R-22, R-410A, R-407C	M2-830	M2-831
R427A, R422B, R407A	M2-828	M2-829
R-22, R-404, R-410A 1%	6 M2-924	M2-925
R-22, R-134a, R-404A 19	6 M2-951	M2-956



R-22, R-410A and R-407C Refrigerant Gauges Compound Gauge: 30" vacuum to 250 psi, retard to 500 psi. Pressure Gauge: 0 to 800 psi



R427A, R422B and R407A Refrigerant Gauges Compound Gauge: 30" vacuum to 250 psi, retard to 500 psi. Pressure Gauge: 0 to 800 psi

not pictured

R-12, R-22 and R-502 Refrigerant Gauges

Compound Gauge: 30" vacuum to 120 psi, retard to 350 psi. Pressure Gauge: 0 to 500 psi

3-1/8" LIQUID FILLED GAUGES

3-1/8" (80 mm) Liquid-filled Gauges Made with European craftsmanship and quality standards,

Made with European craftsmanship and quality standards, these Class 1 gauges are +/- 1% accuracy. These liquid filled gauges are offered with an exclusive four refrigerant combination dial for most applications.

- CLASS 1 GAUGES FOR 1% ACCURACY
- RECALIBRATION SCREW
- HEAVY-DUTY CASE WITHSTANDS DAILY USE
- NO LEAK SYSTEM PREVENTS GLYCERIN LEAK



REFRIGERANTS	COMPOUND LIQUID-FILLED	PRESSURE LIQUID-FILLED
R-22, R-134a, R-404A, R-410A	M2-860	M2-865



MADE IN USA

- HIGHLY ACCURATE TO 1%
- 1/8" MPT FITTING
- TOUGH, IMPACT-RESISTANT ZYTEL CASING WITH OVER 10,000 POUND TENSILE STRENGTH
- TEMPERATURE COMPENSATED FOR CHANGES IN CASE PRESSURE FOR ACCURACY

3-1/8" (80 mm) Liquid-filled Gauge These 3-1/8" (80 mm) American-made liquid-filled gauges are

These 3-1/8 (80 mm) American-made liquid-filled gauges are simply the toughest in the industry and are backed by an extended warranty. Features an internal "breathing diaphragm" that eliminates air bubbles which can distort the reading. Thus, calibration is unnecessary. The seal on the internal diaphragm prevents freezing and corrosion.

REFRIGERANTS	COMPOUND LIQUID-FILLED	PRESSURE LIQUID-FILLED
R-12, R-22, R-502	M2-870	M2-875
R-22, R-134a, R-404A	M2-880	M2-885
R-22, R-404, R-410A	M2-890	M2-895

NEW! 4"GAUGE WITH 4 REFRIGERANTS

These 4" gauges feature 1% accuracy and illuminate in low and dimly lit areas. Features the four most common refrigerants in use today. Available on the ZEPPELIN four valve manifold (see page 31). Please note, gauges may not fit on all manufacturer's manifold bodies due to the width of these gauges.



REFRIGERANTS	COMPOUND	PRESSURE
R-22, R-134a, R-404A, R-410A	M2-400	M2-405

METRIC GAUGES

63.5 mm (2-1/2") Metric Gauges These high quality metric gauges are identical to the

gauges used on our manifold sets. Featuring high impact Lexan lenses for better durability and visibility. Gauges are sensitive instruments and therefore should not be subjected to pressures beyond scale. Please refer to pages 32-34 for product information on metric manifolds.

- AVAILABLE IN BAR/PSI, KPA/PSI, AND KG/CM² MEASUREMENTS
- FULL SIZE BRASS MOVEMENTS
- FULL SIZE BRASS MOVEMENTS
- RECALIBRATION SCREW
- 1/8" MPT CONNECTION

BAR/PSI kg/cm² kPA/PSI

MADE IN USA

Refrigerant	Compound	Pressure	Compound	Pressure	Compound	Pressure
Combination	BAR/PSI	BAR/PSI	kPA/PSI	kPA/PSI	kPg/cm2	kg/cm2
R-12, R-22, R-502	29280	29285	29260	29263	29384	29385
R-22, R-404, R-410A	29310	29315	29311	29316	29312	29317
R-134a, R-404A, R-410A	29290	29295	29291	29296	29292	29297
R-134a	29330	29335	29331	29336	29332	29337
R-22, R-134a, R-404A	29333	29338				

FOR SAFETY REASONS, GAUGES AND HOSES NOT SPECIFIED FOR R410 CAN DAMAGE PRODUCT AND CAUSE INJURY.

Protective Gauge Boots Protective gauge boots add even more durability to both 2-1/2"

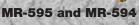
(63.5 mm) and 3-1/8" (80 mm) gauges on your manifold. They are not required on liquid-filled gauges.

PART NO.	DESCRIPTION
MR-591	2-1/2" Red boot
MR-592	2-1/2" Blue boot
MR-597	Set of red and blue 2-1/2" boots
MR-594	3-1/8" Red four refrigerant liquid
	gauge boot
MR-595	3-1/8" Blue four refrigerant liquid
	gauge boot
MR-593	3-1/8" Black boot
MR-596	Set of two 3-1/8" black boots





MR-592 and MR-591



MR-593



MANIFOLD ACCESSORIES

Controls Pump 40200

The controls pump is used in conjunction with a gauge manifold to quickly and accurately test and set single or dual pressure controls to 350 psi and 25" of vacuum.





DESCRIPTION
2-1/2" (63.5 mm) Gauge case screw-on
lens (one) fits plastic and metal
80 mm Gauge case snap-on lens (one)

Gauge Mounting Brackets

PART NO.	DESCRIPTION
M2-106	1/8" FPT
M2-108	1/4" FPT

LIQUID CHARGING ADAPTER

Metering element reduces liquid flow to a level below capacity of compressor. This assures a safe, fast charge without damaging the compressor. Accepts liquid refrigerant from the cylinder and discharges into low side of the



system Liquid charging is recommended when charging blends into refrigeration and air conditioning systems, and a liquid charger adapter is Necessary for safe and fast liquid

charging through the low side of a system.

Eliminates the time and effort of heating cylinders

	THE RESERVE OF THE PARTY OF THE
LC-5	5/16" Liquid Charging Adapter
LC-4	1/4" Liquid Charging Adapter
PART NO.	DESCRIPTION

PART NO.	DESCRIPTION
40200	Controls pump with 40201
40201	Replacement Adapter with O-Ring
40202	Replacement Adapter O-Ring
40203	Replacement Pressure access valve
	with 35 psi core
40204	Replacement Piston O-Ring
40205	Replace Pressure valve core 35 psi
40206	Replace Vacuum valve core 3 psi
40207	Replacement Vacuum access valve
	with 3 psi core

manifold rebuild kits

Rebuild kits are now available for our manifold series. Standard rebuild kits include a stem, nut, piston with seat, and o-rings. Premium rebuild kits feature 2 standard kits plus 2 handwheels and screws. For a complete list of manifold repair parts, please refer to the manifold repair parts section beginning on page 75.



PART NO.	DESCRIPTION
M2R-S	Standard M2 rebuild
	(also fits M5 thru M9 series)
M2R-P	Premium M2 rebuild
	(fits M2 series only)
M4R-S	Standard M4 rebuild
M4R-P	Premium M4 rebuild
2VZR-S	Standard Zeppelin 2-valve rebuild
	(fits both Aluminum and brass)
2VZR-P	Premium Zeppelin 2-valve rebuild
	(fits both aluminum and brass)
4VZR-S	Standard Zeppelin 4-valve rebuild
4VZR-P	Premium Zeppelin 4-valve rebuild

FOR SAFETY REASONS, GAUGES AND HOSES NOT SPEC-IFIED FOR R-410A CAN DAMAGE PRODUCT AND CAUSE INJURY. FOR MANIFOLD REPLACEMENT PARTS, PLEASE REFER TO "MANIFOLD REPAIR PARTS" BEGINNING ON **PAGE 75.**

KOBRA® HIGH PRESSURE HOSE

HIGH PRESSURE HOSE

MAXIMUM FLOW. NO BLOWOUTS. BEST HOSE IN THE INDUSTRY

JB introduces a revolutionary patent pending design improvement to our American-made Kobra series of high pressure hoses. The internal enhancements significantly reduce blowouts, provide maximum flow, and are the best hoses available on the market. We have redesigned the gasket, the barb, the depressor, and the cup as a complete upgrade to the existing hose fitting. The process of each step is outlined below. In addition, JB's Kobra® series of refrigerant hoses are made from Kevlar®—the same material that stops bullets in bullet-proof vests. The hoses are incredibly strong and flexible. A common crimp grips the full circumference of the hose, yielding a maximum hold and uniform seal that prevents leaks and busts. Kobra® hoses feature a nitrile cover which is better than neoprene because it is more resistant to oil, giving the hoses a longer life. With a pressure rating of 800 psi working and 4000 psi burst, these hoses can be used with ALL common refrigerants except ammonia.

KOBRA™ CHARGING HOSE

NITRILĘ COVER

KEVLAR BRAID
RUBBER

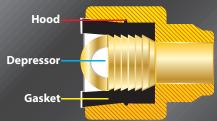
VENEER TUBE

Provides a 5 to 1 safety factor - beats industry standard of 4-1

MADE IN USA

800 Working 4000 Burst

KOBRA™ CUT AWAY



Gasket features a hood with a straight edge that snaps into straight edge of barb. This straight edge to straight edge force eliminates blow outs.

Depressor is barbed, locking into gasket. Outward force of depressor pushes gasket further into place resulting in no blow outs KOBRA HOSES SOLD IN SETS COME IN A UV PROTECTIVE BAG TO RESIST FADING.

KOBRA® HIGH PRESSURE HOSE

Kobra® CLE Series

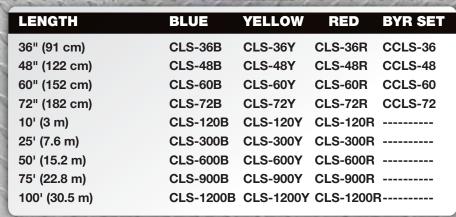


LE	NGTH	BLUE	YELLOW	RED	BYR SET	BLACK
36'	' (91 cm)	CLE-36B	CLE-36Y	CLE-36R	CCLE-36	CLB-36
48'	' (122 cm)	CLE-48B	CLE-48Y	CLE-48R	CCLE-48	CLB-48
60'	' (152 cm)	CLE-60B	CLE-60Y	CLE-60R	CCLE-60	CLB-60
72'	' (182 cm)	CLE-72B	CLE-72Y	CLE-72R	CCLE-72	CLB-72
10'	(3 m)	CLE-120B	CLE-120Y	CLE-120R		
25'	(7.6 m)	CLE-300B	CLE-300Y	CLE-300R		
50'	(15.2 m)	CLE-600B	CLE-600Y	CLE-600R		
75'	(22.8 m)	CLE-900B	CLE-900Y	CLE-900R		
100	0' (30.5 m)	CLE-1200B	CLE-1200Y	CLE-1200F	R	



- GASKET SEAL FITTING
- DEPRESSOR SET TO ARI STAN-**DARD FOR ACCESS VALVE CORE**
- FEATURES BLOWOUT RESIS-TANT DEPRESSOR AND BARREL GASKET
- **P90514 DEPRESSOR**
- **P511 GASKET**

Kobra® CLs Series Susa





- SECURE SEAL FITTING
- OPENS TO FULL FLOW
- AUTOMATICALLY TRAPS REFRIGERANT **DISCHARGE IN HOSE**
- P90022 O-RING

Kobra® CLBV Series Susa



LENGTH	BLUE	YELLOW	RED	BYR SET
36" (91 cm)	CLBV-36B	CLBV-36Y	CLBV-36R	CCLBV-36
48" (122 cm)	CLBV-48B	CLBV-48Y	CLBV-48R	CCLBV-48
60" (152 cm)	CLBV-60B	CLBV-60Y	CLBV-60R	CCLBV-60
72" (182 cm)	CLBV-72B	CLBV-72Y	CLBV-72R	CCLBV-72



P90514 DEPRESSOR P511 GASKET

Kobra® CLV Series Susa



3	LENGTH	BLUE	YELLOW	RED	BYR SET
	36" (91 cm)	CLV-36B	CLV-36Y	CLV-36R	CCLV-36
1	48" (122 cm)	CLV-48B	CLV-48Y	CLV-48R	CCLV-48
ă	60" (152 cm)	CLV-60B	CLV-60Y	CLV-60R	CCLV-60
į	72" (182 cm)	CLV-72B	CLV-72Y	CLV-72R	CCLV-72



P90514 DEPRESSOR P511 GASKET

BALL VALVE HOSE

Whip End Only with Ball Valve

(CONNECTS TO HOSE FITTING)





LENGTH	BLUE	YELLOW	RED	BYR SET	BLACK
1/4" X 6" (15 cm)	CLV-6B	CLV-6Y	CLV-6R	CCLV-6	CLV-6BL
3/8" X 6" (15 cm)					

retro fit hose kit ball valve



One 1/4" yellow whip end (CLV-6Y), one 1/4" black whip end (CLV-6BL), and one 3/8" black whip end to retro fit to existing hoses.

(REPLACEMENT FOR CLV)

LENGTH	BLUE	YELLOW	RED
6" (15 cm)	CLP-6B	CLP-6Y	CLP-6R

Whip End Only MPT Fitting





3/8" KOBRA Black and Yellow Charging Hose Available in yellow and black, these hoses feature gasket seal fit-

Available in yellow and black, these hoses feature gasket seal fittings. Both colors of charging hose have a 500 psi working pressure and 2500 psi burst. Lined with Kevlar, these hoses are tough and dependable. Black hoses are available with and without UL approved Shut-off ball valve. P90016 is the replacement gasket for these hoses.

KOBRA™ CHARGING HOSE





LENGTH	BLACK WITH BALL VALVE SHUT-OFF		YELLOW
36" (91 cm)	CLV6-36	CL6-36	CL6-36Y
48" (122 cm)	CLV6-48	CL6-48	CL6-48Y
60" (152 cm)	CLV6-60	CL6-60	CL6-60Y
72" (182 cm)	CLV6-72	CL6-72	CL6-72Y

600 Working 3000 Burst

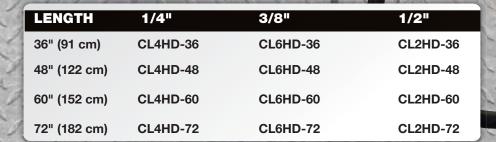


STANDARD CHARGING HOSE

1/4",3/8" AND 1/2" Heavy-Duty BLACK Charging Hose

New heavy-duty charging hose reduces permeation and handle 900 psi working, 3500 psi burst. Available in black only. Straight fittings by straight fittings.

900 Working 3500 Burst



Deep Vacuum Flexible Metal Hoses

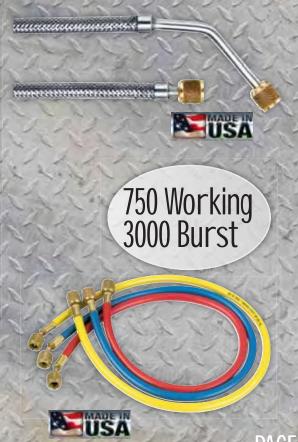
Unlike charging hose, our flexible metal lines will not permeate under vacuum. Our metal lines feature finger-tight O-ring coupler ends.

PART NO.	DESCRIPTION
D10436	1/4" x 36" flexible metal line (one 45° fitting)
D10472	1/4" x 72" flexible metal line (one 45° fitting)
D10636	3/8" x 36" flexible metal line (one 45° fitting)
D10660	3/8" x 60" flexible metal line (one 45° fitting)
P90009	1/4" replacement O-ring (10 pack)
P90016	3/8" replacement gasket (10 pack)
P90008	1/2" replacement gasket (X pack)

1/4"STANDARD Charging Hose

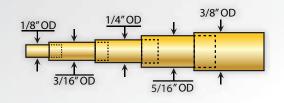
With a pressure rating of 750 psi working and 3000 psi burst, these hoses are ideal or use with all standard refrigerants (except high pressure refrigerants). Permeation can be detected and will vary with refrigerant type and time of exposure.

LENGTH	BLUE	YELLOW	RED	BYR SET
36" (91 cm)	CL-36B	CL-36Y	CL-36R	CCL-36
48" (122 cm)	CL-48B	CL-48Y	CL-48R	CCL-48
60" (152 cm)	CL-60B	CL-60Y	CL-60R	CCL-60
72" (182 cm)	CL-72B	CL-72Y	CL-72R	CCL-72



JB machines access valves at their Aurora, Illinois facility using brass of the highest content, 65% copper and 35% zinc. This gives our brass fittings and access valves high tensile strength while resisting corrosion. If you are not buying American made brass fittings, ask yourself what is the metal content used in the imported versions, do you trust it, and can you afford to have them fail? We also machine all of our valves according to the strict specifications of ARI to ensure proper sealing of valve and core surfaces. Quality and dependability from American made products.

AC/R COPPER TUBE FITTING GUIDE



CONNECTING TUBE SIZE

OD TUBE SIZE	ODS INTERNAL TUBE FIT	ODF EXTERNAL TUBE FIT	
1/8		3/16	
3/16	1/8	1/4	3/16
1/4	3/16	5/16	1/4
5/16	1/4	3/8	5/16
3/8	5/16		3/8

ODS AND ODF FIT DESCRIPTIONS



Descriptions for solder/braze access valves specify the connecting tube OD. Size and type fit illustrated below are the types of fit for A31723 valve.

PART NO. DECRIPTION

TYPE OF FIT

A31723 3/16" ODS X 1/4" ODF

1/4"ODF FIT

Connecting line slips around access fitting. Look under the ODF heading in the AC/R Copper Tube chart above.

There are two types. JB Access Valve description for ODF is always "swage fit." The connecting tube OD is the same OD as the fitting end. Therefore A31723 above will also slip into 5/16" OD tube.

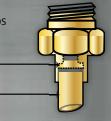
If connecting to wrot copper fitting, use ODF swage size.



3/16"OD FIT

Connecting line slips into solder cup. Note extra depth solder cups on copper solder tees.

Internal Solder Cup.
3/16" OD Tube



Nominclature:

FOR EASY REFERENCE, THE LAST TWO NUMERALS OF OUR FLARE FITTINGS CORRESPOND TO THEIR RESPECTIVE TUBE SIZES:.

NUM	TUBE SZ.	NUM	TUBE SZ.
02	1/8"	08	1/2"
03	3/16"	10	5/8"
04	1/4"	12	3/4"
05	5/16"	14	7/8"
06	3/8"	18	1-1/8"

Specifications

ARI Standard 720-2002

ARI Torque 3.0 - 5.0 inches/pound

Temp Range -40 F° to 250 F° (-40 C° to 121 C°

Valve Bodies

Valve Core Stainless steel and brass for use with all refrigerants such as R-12,

R-22, R-134a, R-410A, and R-502. Resistant to oils, alkalites, and

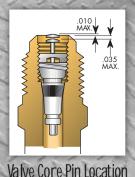
diluted mineral acids.





Use these fittings with Sil-phos alloy and copper fittings. Install through the side of the larger line to extend length approximately two inches. Includes cap (NFT5-4) and valve core. 1/4" ID.





After valve installation,

replace valve core with

valve core tool. Torque

to ARI specifications.

GENEROUS COUNTER BORE ALLOWS REMOVAL OF CORE IF FLARE **BECOMES DAMAGED.**

ALL TEES AND CROSSES ARE TAPPED TO RECEIVE AN ACCESS CORE IN ALL 1/4" SAE FLARE ENDS.

ALL PIPE CONNECTIONS HAVE INTERNAL BRAZE CUPS FOR DIP TUBE APPLICATIONS.

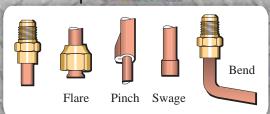
ALL VALVES ARE EQUIPPED WITH CAP AND ONE VALVE CORE (BRAZE TYPE LOOSELY ASSEMBLED).

PART NO.	TUBE EXT. SIZE	BLISTER PKG.
A31002	1/8" OD	5
A31003	3/16" OD X 1/8" ID	5
A31004	1/4" OD X 3/16" ID	5
A31005	5/16" OD X 1/4" ID	5
A31006	3/8" OD X 5/16" ID	5
A31008	1/2" OD	3
A31004S	1/4" OD	5
A31006S	3/8" OD	5

NOTE: OD X ID sizes are for copper tube extension. For connecting line size, see chart on left for ODS and ODF fit.

Multi-step





PART NO.	TUBE EXT SIZE	BLISTER PKG.
A31009	1/8" OD EXT; 3/16", 1/4" and 5/16" ODF body s	3 eteps
A31011	3/16" OD EXT; 1/4 and 3/8" ODF boo steps	

Copper Saddle Braze/Tapper

The new A32800 series of saddles offer the best protection from leaks. Once brazed on, you can check for leaks before piercing the tube. The steel pin is inserted and the cap is tightened down to pierce the tube. Body sizes are contoured to match specific tube sizes. The Braze/Tapper has a hardened steel-piercing needle and is furnished with a cap.



PART NO.	TUBE SIZE	BLISTER PKG.	PART NO.	TUBE SIZE	BLISTER
*A32804	1/4"	5	*A32904	1/4"	5
*A32805	5/16"	5	*A32905	5/16"	5
*A32806	3/8"	5	*A32906	3/8"	5
*A32808	1/2"	3	*A32908	1/2"	3
*A32810	5/8"	3	*A32910	5/8"	3
*A32812	3/4"	2	*A32912	3/4"	2
*A32814	7/8"	2	*A32914	7/8"	2
*A32818	1-1/8"	2		., •	-

Copper Braze Tees

- BEND. CUT. FLARE. SWAGE OR PINCH
- EXTRA DEPTH SLIP FIT BRAZE CUPS
- SIMPLE INSTALLATION **ANYWHERE ALONG LINE**



SEE PAGE 43 FOR FORGED BRASS TEES



Swaged Copper Braze Tees Simple installation anywhere



- BRAZE CUP ENDS
- USE SIL-PHOS ALLOY

SEE PAGE 43 FOR FORGED BRASS TEES



PART NO.	SLIP FIT CONNECT LINE SIZE	OAL	LENGTH "A"	BLISTER PKG.
A31134	1/4" ODS X 5/16" ODF	2-1/8"	1"	3
A31135	5/16" ODS X 3/8" ODF	2-1/8"	1"	3
A31136	3/8" ODS X 1/2" ODF	2-1/8"	1"	3
A31138	1/2" ODS	2-1/8"	1"	3
A31140	5/8" ODS	2-1/2"	1"	1
A31142	3/4" ODS	3"	1-1/4"	1
A31144	7/8" ODS	3-1/2"	1-1/2"	1
A31148	1-1/8" ODS	3-13/16'	1-5/8"	1
A31154	3/16" ODS X 1/4" ODF	4"	1-15/16	" 2
A31155	1/4" ODS X 5/16" ODF	4"	1-15/16	" 2
A31156	5/16" ODS X 3/8" ODF	4"	1-15/16	" 2

PART NO.	SLIP FIT CONNECT LINE SIZE		BLISTER PKG.
A31334	1/4" OD	2- 1/8"	3
A31335	5/16" OD	2 -1/8"	3
A31336	3/8" OD	2- 1/8"	3
A31338	1/2" OD	2- 1/8"	3
A31340	5/8" OD	2 -1/2"	1
A31342	3/4" OD	3"	1
A31344	7/8" OD	3- 1/2"	1
A31348	1-1/8" OD	3 -13/16"	1

Copper Access Union

- USE SIL-PHOS ALLOY
- CONNECTING LINE SIZE FOR ODS **AND ODF EXTERNAL TUBE ENDS**

SEE PAGE 43 FOR FORGED BRASS TEES





	PART NO.	CONNECTING LINE SIZE	A (OAL)	B (MIN)	BLISTER PKG.
į	A31199	1/4" OD	2-3/8"	5/16"	2
9	A31200	3/8" OD	2-3/4"	5/16"	2
	A31201	1/2" OD	3"	3/8"	2
	A31202	5/8" OD	3-1/4"	1/2"	2
3	A31204	7/8" OD	3-3/4"	3/4"	2
ı					

Multi-step



PART NO.	TUBE EXTENSION SIZE	BLISTER PKG.
A31012	1/8" ext. 1/8" and 3/16" tube	3

Copper 90° Elbow





PART NO.	CONNECTING LINE SIZE	PKG.
A31160	5/8" ODS	1
A31162	3/4" ODS	1
A31164	7/8" ODS	1
A31168	1-1/8" ODS	1

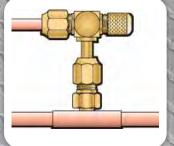
Swivel Flare Connection

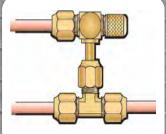
Add multiple ports with just one fitting. These valves offer a safe, simple installation without the need for brazing. All of the flare ends are tapped to receive access core. JB provides a full range of various end configurations to provide greater flexibility. One core and cap are packaged with each valve.

Typical swivel flare installation

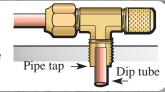
Swivel flare with core depressor installed on existing access valve. Add a new line or control. No refrigerant loss on charged system.

Valve without depressor installed on flare fitting. Multiple ports provide additional line or controls and access site.





Typical MPT Installation All MPT connections have internal braze cup for dip tube



Cross with Three Access Ports



installation.



PART NO.	DESCRIPTION	BLISTER PKG.
A31522	1/8" MPT cross	1

MPT Connections A31452 tee A31454





PART NO.	DESCRIPTION	BLISTER PKG.
A31452	1/8" MPT branch	3
A31454	1/4" MPT branch	3
A31512	1/8" MPT run	3
A31514	1/4" MPT run	3
	A31452 A31454 A31512	A31454 1/4" MPT branch A31512 1/8" MPT run

MPT CONNECTIONS





PART NO.	DESCRIPTION	BLISTER PKG.
*A31482	1/8" MPT half union	5
*A31484	1/4" MPT half union	5
*A31492	1/8" MPT elbow	3
*A31494	1/4" MPT elbow	3

Swivel Tee with Depressor



A31851 A31864 (no depressor)



PART NO.		LISTER KG.
A31851	1/4" Fe SAE swivel nut on run	3
A31852	1/4" Fe SAE swivel nut on branch	3

Swivel Tee without Depressor



A31852 A31854 (no depressor)



PART NO.	DESCRIPTION	BLISTER PKG.
A31854	1/4" Fe SAE swivel nut on branch	3
A31864	1/4" Fe SAE swivel nut on run	3

Swivel 3/8"SAE Tee





PART NO.	DESCRIPTION	BLISTER PKG.
A31853	3/8" SAE X 3/8" Fe SAE swivel nut X 1/4" access	1
A31856	3/8" SAE X 1/4" access X 3/8" Fe SAE swivel nut	1

Swivel Cross with Depressor



PART NO.	DESCRIPTION B	LISTER PKG.
A31520	1/4" Fe SAE swivel nut x access	1

Flared Tube Connection WADE IN USA





*Core pre-torqued to ARI

PART NO.	DESCRIPTION	BLISTER PKG.
*A31424	1/4" Fe SAE union w/ flare	nut 3
A31444	1/4" Fe SAE tee w/ nuts	3

FLARE CONNECTION AND FLARE FITTING ADAPTER



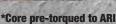
*Core pre-torqued to ARI



PART NO.		BLISTER PKG.	
*A31614	1/4" Fe SAE w/ copper gasket	5	
*A31734	1/4" Fe SAE swivel nut w/ depresso	or 3	

bulkhead mounting





au mounting	
ÎSA	- MIN-11-11-11-11-11-11-11-11-11-11-11-11-11
-torqued to ARI	

PART NO.	DESCRIPTION	BLISTER PKG.
*A31434	Access x 1/4" SAE w/ nut	1
*A31727	Access x 3/16" and 1/4" ODS or	1
	3/8" ODF	

forged brass braze tees



PART NO.	DESCRIPTION	BLISTER PKG.
A31234	1/4" ODS x 3/8" ODF	3
A31235	5/16" ODS x 3/8" ODF	3
A31236	3/8" ODS x 1/2" ODF	3
A31238	1/2" ODS x 5/8" ODF	3
A31544	1/4" ODS	3

brass bodies USA



	PART NO.	DESCRIPTION	BLISTER PKG.
1	A31722	1/8" ODS x 1/4" ODF	3
	A31723	3/16" ODS x 1/4" ODF	3
	A31724	1/4" ODS x 3/8" ODF	3
	A31725	5/16" ODS x 1/2" ODF	3
	A31726	3/8" ODS x 1/2" ODF	3
	A31728	1/2" ODS x 5/8" ODF	3

multi step USA



PART NO.		SLISTER KG.
A31720	3/16" ODS x 1/4" or 3/8" ODF steps	5
A31729	3/16", 1/4", 5/16", 1/2" ODF steps	3
A31736	1/8" ODS x 3/16", 1/4" or 5/16" ODF	3

VALVE CORE TOOLS

Access valve coupler with depressor





Quickly add controls or branch line to service valve. Valve core depressed when coupler is tightened.

PART NO.		BLISTER PKG.
A33004	1/4" SAE swivel flare x Male flare	1

SAE 45° Brass Flared Tube Fittings



	(
Š	PART NO.	DESCRIPTION	BLISTER PKG.
	A32600	1/4" (NS4-4)	10
ì	A32601	5/16" (NS4-5)	5
	A32602	3/8" (NS4-6)	10
	A32603	1/2" (NS4-8)	5
1	A32604	5/8" (NS4-10)	5
	A32605	3/4" (NS4-12)	2
۰			

Swivel FE Flare x Solder Adapter **DOUBLE DEEP SOLDER CUTS**



A32700-04



PART NO.	DESCRIPTION	BLISTER PKG.
A32700	1/4" x 1/4" (US5-44)	4
A32701	3/8" x 3/8" (US5-66)	4
A32702	1/2" x 1/2" (US5-88)	4
A32703	5/8" x 5/8" (US5-1010)	2
A32704	3/4" x 3/4"(US5-1212)	2

Valve core torque tool A32008

JB is proud to announce a revolutionary new tool that will become the must have item for every technician. Our new valve core torque tool automatically sets proper torque. Calibrated to precise torquing requirements for core valves, the tool will no longer tighten once proper torque is achieved. Eliminates guess work which results in under and over torquing. Works with all Schrader valve cores.



Valve Core Torque Tool

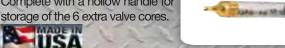
The rotary torque mechanism prevents over-torquing of valve core.



PART NO.	DESCRIPTION
32002	1/4" Valve core torque tool
32003	Core remover bit replacement part

1/4"Valve Core Tool

Complete with a hollow handle for



PART NO.	DESCRIPTION	
A32004	1/4" Valve core tool	

1/4"Valve Cores

PTFE/ neoprene seal replacement valve core. Max 800 psi and 220°F (104°C).



		н
PART NO.	DESCRIPTION	3
\31999	1/4" Valve Core (5 pack)	
31999-25	1/4" Valve Core (25 pack)	ĺ
31999-100	1/4" Valve Core (100 pack)	þ

CAPS

Evacuation and Core Remover Tools

Specifically designed to valve off the system to remove valve core, these tools feature a quarter turn ball valve shut-off and O-ring seals. The valve core can be completely removed and replaced without losing system charge. Speed-up evacuation, recovery, or recharging time through the full flow port. Both tools have a storage area to house spare valve cores.





PART NO.	DESCRIPTION
A32500N	1/4" Valve core remover
A32505N	5/16" Valve core remover
A32525N	1/4" Valve core remover w/ access port
A32501N	Core remover bit for A32500N replacement
A32504	Core remover bit for A32525N replacement

Evacuation Core Remover and Superheat Thermometer Tool Set



This combo set calculates superheat from -58°F to +302°F (-50°C to 150°C) with the temperature/pressure tool. All items have O-ring seals and the core remover tool has a quarter turn ball valve shut-off.

PART NO.	DESCRIPTION
A32550N	Evacuation core remover and superheat tool set
A32504	Core remover bit replacement part

Evacuation/Recovery Tool

Our evacuation/recovery tool is a plier-type tool with a quick release trigger which punctures large holes into the line for discharge of a recovery unit. Fits 3/16" to 7/8" OD hard tubing.



PART NO.	DESCRIPTION
A32100	Evacuation/Recovery tool
A32101	Hardened steel needle and gasket

Core Removers

A31997 is a 1/4" SAE gasket seal cap with core remover feature. A31998 is a 1/4" plastic core remover.





	,
PART NO.	DESCRIPTION
A31997	1/4" SAE gasket seal caps with core removers (10 pack)
A31998	1/4" plastic core removers (5 pack)

O-Ring Quick Seal Caps

MADE IN

Deep Vacuum and A/C Refrigeration. Finger tight sealing for all male SAE connections.



The State of the S		
PART NO.	DESCRIPTION	
NFT5-4	1/4" SAE cap (10 pack)	
NFT5-6	3/8" SAE cap (3 pack)	
NFT5-4-100	1/4" SAE cap (100 pack)	

3/8" SAE cap (100 pack)

Replacement 1/4" O-ring (5 pack)

Replacement 3/8" O-ring (5 pack)

Quick Seal Gasket Caps

For A/C Refrigeration service. Finger tight sealing for all male SAE connections.





NFT5-6-100

P90010

P90011

PART NO.	DESCRIPTION
A31985	1/4" SAE cap (10 pack)
A31985-100	1/4" SAE cap (100 pack)
P509	Replacement gasket (10 pack)
P509-25	Replacement gasket (25 pack)

Wrench Style Seal Cap

For A/C Refrigeration service. Brass to brass positive seal and permanent installation.



PART NO.	DESCRIPTION
A31986	1/4" SAE cap (5 pack)

Specialty Caps and 1/2" 16 ACME Caps.



PART NO.	DESCRIPTION
A31992	1/4" SAE cap (5 pack)
A31992-100	1/4" SAE cap (100 pack)
13493	Plastic cap with retainer s

Plastic cap with retainer strap (2 pack)

13494 Plastic cap (1 pack)

0-Ring Seal Line Piercing

Our spring loaded needle automatically back-seats, forming a leak proof seal. A simple installation that is 100% restriction free. Both models fit 1/4", 5/16", 3/8", 1/2", and 5/8" OD tubing.



PART NO.	DESCRIPTION
LT-456	1/4" - 3/8" Line piercing valve
LT-810	1/2" - 5/8" Line piercing valve

E-Z Tapper

The back-seating stem eliminates line restriction when servicing through access port or use the valve for flow control.



PART NO.	DESCRIPTION
EZ-40288	E-Z topper piercing valve
EZ-40288-126	6 E-Z tapper gasket (5 pack)

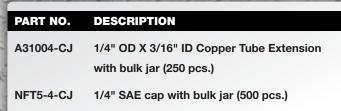
Back Seating Control Valve

Ideal for use on pre-charged line sets. Eliminates spraying of leak detection dye and refrigerant. Compact brass body for long service. Swivel coupler with double safety grooves.



PART NO.	DESCRIPTION
A33000	1/4" SAE x 1/4" O-ring quick coupler
P90009	Replacement O-ring (10 pack)

for 2011, JB has taken a few of the best selling access valves and packaged them in a convenient display jar. Featuring individual labels with unique bar codes, the item can be scanned at the top of the jar rather than looking it up in the computer. Saves counter personnel time to directly sell single units without having to look up part numbers in the system. Order the jar once, then just restock as needed.



access valve service kit

NEW for 2011, JB has taken the most popular access fittings used on service calls and created an access valve service kit with convenient storage case. The interior of the label includes part numbers to make individual reordering and stocking convenient.



PART NO.	DESCRIPTION
AVK-001	Access Valve Service Kit in Storage Case

COUPLERS

Quick Couplers

5/16" female x 1/4" male adapter is designed to give the end user the ability to connect their standard refrigeration hoses to 5/16" (1/2" UNF) fittings being used on most R-410A minisplits. Swiveled so the adapter can remain on hoses for easy on/off application and installation.

3/8" couplers with patented O-Ring seal for deep vacuum. No depressor.

3/16" couplers with valve depressor, safety channels and O-Ring seal



For410A5/16" connections, use QC-S5

1/4" and 5/16" couplers with valve core depressor, safety channels and rubber gasket seal

straight

PART NO.	DESCRIPTION	
QC-S3	3/16" QC x 1/4" SAE	
QC-S4	1/4" QC x 1/4" SAE	The Cally
QC-S46	1/4" QC x 3/8" SAE	0
QC-S5	5/16" QC x 1/4" SAE	QC-S4A
QC-S64	3/8" QC x 1/4" SAE (no depres	sor)
QC-S65	3/8" QC x 5/16" SAE (no depre	essor)



PART NO.	DESCRIPTION
QC-S4A	1/4" QC X 1/8" FTP
QC-S4B	1/4" QC X 1/4" FTP



Elbow



PART NO.	DESCRIPTION
QC-E3	3/16" QC X 1/4" SAE elbow
QC-E4	1/4" QC X 1/4" SAE elbow
QC-E5	5/16" QC X 1/4" SAE elbow
OC-E64	3/8" OC Y 1/4" SAE albow (no depressor)

Quick Coupler Shut-Off Fittings

Use with existing charging hose. Immediately traps refrigerant discharge from hose when disconnected from access fitting.





PART NO.	DESCRIPTION	
33112N	1/4" QC x 1/4" SAE	1
33113N	1/4" QC x 1/4" SAE 90°	
3311RK	Replacement kit to rebuild	

Quick Coupler Access Tee O-Ring seal quick coupler.

Furnished with cap and valve





PART NO.	DESCRIPTION
A34000	1/4" QC x 1/4" access branch tee
P90009	Replacement O-Ring (10 pack)

Swivel Cylinder Valve Finger tight seal. Includes gasket.





PART NO.	DESCRIPTION
CV-20004	3/4" NPS x 1/4" M flare
CV-20006	3/4" NPS x 3/8" M flare

PART NO.

A33500





Replacement Parts for quick couplers

PART NO.	DESCRIPTION	ŀ
P90009	1/4" O-Ring (10 pack)	٦
P509	1/4" gasket (6 pack)	ı
P90513	Depressor for 1/4" QC (5 pack)	1
P90012	3/8" O-Ring (10 pack)	

AUTOMOTIVE

134a Automotive Couplers

Quick connect/ disconnect valve actuation without refrigerant venting. Safety sleeve holds coupler securely to service port. Color coded knobs.



PART NO.	DESCRIPTION
AC-13430	High side 90 degree snap coupler x 14 mm
AC-13435	Low side 90 degree snap coupler x 14 mm
AC-15530	High side 90 degree snap coupler x 1/4" SAE
AC-15535	Low side 90 degree snap coupler x 1/4" SAE

134a automotive quick adapter

Retrofit existing SAE flare fitting for 134a





PART NO.	DESCRIPTION	QC
		GASKET
QC-S4A-134a	1/4" QC x 1/2" male ACME thread	P509
QC-13445-134a	1/2" ACME QC x 1/4" male flare	P510

1/2" Acme thread half union



PART NO.	DESCRIPTION
AF-13450	1/8" NPTF
AF-13451	1/4" NPTF
AF-13452	3/8" NPTF
AF-13455	1/4" Fe SAE
AF-13457	3/8" Fe SAE





SIDE CAN TAP SCT-1030

The design of our side can tap allows you to easily adjust from R-12 to R134a refrigerant cylinders for quick and easy charging. Slide handles with proper collar around can and close to pierce. Do not use with other refrigerants. Features a 1/4" x 1/2" ACME thread fitting.

1/2" ACME service valve





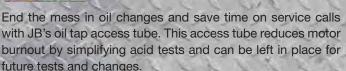
PART NO.	DESCRIPTION	BLISTER PKG.
AF-13550	1/2" ACME x 1/8" NPTF v	v/ 13494 cap 1

SCT-1030

Oil Tap Tube

A33600





PART NO.	DESCRIPTION
A33600	Oil Tap Tube
RG-33600	Replacement Gasket

REFRIGERANT BALL VALVES

Full Flow Ball-Refrigeration

JB's ball-refrigeration valves have a large port design that provides a minimum pressure drop with straight through flow. Copper end fittings reduce installation time without disturbing valve. We have two types of ball valves to suit your needs. Our traditional ball valves have brass actutators and a working pressure rating of 500 psi. Our new addition ball valve features stainless steel actuators and a working pressure rating of 700 psi. We differentiate the two types here by "Brass" and "Steel". Both are UL listed.

BRASS NO PORT	STEEL NO PORT	BRASS WITH PORT	STEEL WITH	DESCRIPTION
	V34350		V34525	1/4" ODS extensions
V34200	V34300	V34400	V34500	3/8" ODS extensions
V34201	V34301	V34401	V34501	1/2" ODS extensions
V34202	V34302	V34402	V34502	5/8" ODS extensions
V34203	V34303			3/4" ODS extensions
V34204	V34304	V34404	V34504	7/8" ODS extensions
V34206	V34306	V34406	V34506	1-1/8" ODS extensions
V34207	V34307	V34407	V34407	1-3/8" ODS extensions
V34208	V34308	V34408	V34508	1-5/8" ODS extensions
V34209	V34309	V34409	V34509	2-1/8" ODS extensions
V34210	V34310			2-5/8" ODS extensions
V34211	V34311			3-1/8" ODS extensions



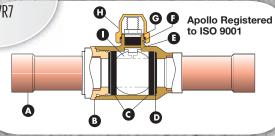
stainless steel **ACTUATORS** PRESSURE TO 700 PSI ULLISTED 32DC

"BRASS" BALL VALVE FEATURES



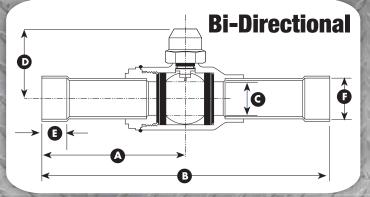
- A. COPPER TUBE EXTENSIONS
- **B. HERMETIC WELDED AND BRAZED JOINTS**
- C. REINFORCED TEFLON* SEATS
- D. ONE PIECE FORGED BRASS BODY
- E. BEARING WASHER
- F. CHANGEABLE REINFORCED PTFE STEM PACKING
- G. PACKING GLAND
- H. STEM CAP ASSEMBLY WITH NEOPRENE SEAL
- I. CHROMIUM PLATED BALL WITH VENTED VALVE

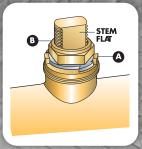
BRASS ACTUATORS PRESSURE TO 500 PSI **UL LISTED 57R7**



- 500 PSI WORKING PRESSURE
- UP TO +500° F WORKING TEMPERATURE AT 0 PSI
- UP TO +300° F WORKING TEMPERATURE AT 500 PSI
- NO BOLTED OR SCREWED BONNETS OR FLANGES TO LEAK

REFRIGERANT BALL VALVES





Operation

Quarter turn mechanical stop. Positive open and closed positions. B. Packing gland adjusting nut.

Part No.	0.D.	Cv(1)	Equivalent	Refe	rence din	ensiona	al data		
	Tube Siz	æ	Length (2)	A	В	C	D	E	
V34200 V34400	3/8"	2.9"	10.8"	3.18"	6.09"	.3"	1.55"	3/8"	3/8
V34201 V34401	1/2"	5.6"	13.3"	3.18"	6.09"	.45"	1.55"	3/8"	1/2
V34202 V34402	5/8"	13.1"	10.4"	3.43"	6.59"	.5"	1.55"	1/2"	5/8
V34203	3/4"			3.45"	7.27"	.69"	1.89"	3/4"	3/4
V34204 V34404	7/8"	31.9"	11.2"	3.69"	7.07"	.75"	1.83"	3/4"	7/8
V34206 V34406	1-1/8"	68"	10.7"	4.20"	8.00"	1.00"	2.01"	2-9/32"	1-1/8
V34207 V34407	1-3/8"	109"	11.6"	4.54"	8.63"	1.25"	2.61"	3-1/32"	1-3/8
V34208 V34408	1-5/8"	152"	13.2"	4.47"	8.85"	1.5"	2.79"	1-3/32"	1-5/8
V34209 V34409	2-1/8"	275"	15.1"	4.84"	9.59"	2.00"	3.17"	1-11/32"	2-1/8
V34210	2-5/8"	349"	21.1"	5.00"	10.00"	2.43"	3.90"	1-31/64"	2-5/8
V34211	3-1/8"	391"	30.1"	7.00"	14.00"	2.50"	3.90"	1-43/64"	3-1/8

This is the most commonly used flow coefficient used by piping engineers in the design of piping systems. It is defined as "the number of US gallons of water per minute at 70° F (21° C) that will flow through a valve at a pressure drop (P1-P2) of 1 psi."

Refrigeration Shut-Off Ball Valves

Ideal for building your own vacuum or charging system, our straight through flow design has no restriction. A quarter turn and the valve is fully open or closed.

Most engineers, contractors, and others engaged in the layout and installation of refrigeration and/ or air conditioning systems will normally use the "equivalent length" method of determining the pressure drop through the systems. Since proper line sizing is critical to all installations, it is important to be able to determine the pressure drop through each component that makes up the system. "Equivalent length" figures are readily available through a number of sources for fittings, valves, etc.

PART NO.	DESCRIPTION
V34900	1/8" FPT x 1/8" FPT
V34910	3/8" FPT x 3/8" FPT



PART NO.	DESCRIPTION
V34901	1/4" SAE x 1/8" MPT
V34905	1/4" SAE x 1/4" MPT



Needle Valves

The packing used in the needle seat valves is resistant to gasoline, oils, and water while providing excellent sealing characteristics over the life of the valve. Metal to Metal seating provides ease in shutoff to working pressures of 105 psi.



Comp x Comp

PART NO.	DESCRIPTION
NV62-4	1/4" X 1/4"



in exclusive partnership with

THENBERGER pipetool technologies at work

The partnership of **ROTHENBERGER** and JB brings together the best of German engineering and European craftsmanship with American distribution to create the highest quality tools in the HVAC/R marketplace.

ROTHENBERGER tools are made of the highest quality materials and to the strictest quality standards to ensure that these tools will not fail when you need them the most. Backed by a 24 month over-the-counter warranty, JB and ROTHENBERGER are dedicated to standing behind their products. We have seen a tremendous growth and acceptance in the marketplace. Through the JB distribution channel, **ROTHENBERGER** is now available in over 900 HVAC/R branch locations nationwide. Once you get your hands on these tools, you can immediately feel the quality and see why ROTHENBERGER tools are Just Better. We are proud to present our collection for your review. Should you not see a particular tool of interest, please contact us at 800-323-0811. The entire ROTHENBERGER product line and technical features can be viewed at our web site www.jbind.com.



Mini Tube Cutters

Used for cutting copper tubes, these mini tube cutters have a large knurled knob and handy design to produce fatigue-free pressure control. The two guide rollers with recess assist with cutting close to flares. Compatible with Yellow Jacket 60120 cutting wheels.



RT70401/ RT70402



RT70105



RT70015

PART NO.	DESCRIPTION
RT70401	Copper 1/8" to 5/8" OD
RT70402	Copper 1/4" to 7/8" OD
RT70105	Copper MINICUT 1/8" to 7/8" OD
RT70015	Copper MINI MAX 1/8" to 1-1/8" OD
RT70017B	Replacement cutter wheel (2 pack)
RT70017D	Replacement cutter wheel (5 pack)

ROTRAC PLUS

New JB precision tube cutters for copper tube are manufactured by ROTHENBERGER for JB and designed with smoothrunning telescopic action for a consistent working radius. Features include a rolling stop which protects the cutter wheel, a protected screw spindle to shield against dirt and jamming, and a lightweight cast aluminum body. The deburrer swivels up, and the spare cutter wheel is stored in the handle, making them always within reach. Compatible with Yellow Jacket 60120 cutting wheels.





PART NO.	DESCRIPTION
RT70020	Copper tube 1/8" to 1-1/8" OD
RT70021	Copper tube 1/4" to 1-5/8" OD
RT70007B	Replacement cutter wheel (2 pack)
RT70007X	Replacement cutter wheel (10 pack)
RT99016	Replacement clip and axle

Professional Tube Cutter

For tubes made out of copper, brass, aluminum, this

tube cutter features a retractable deburrer blade and a spare cutter wheel in the handle. The smooth adjustment knob allows for quick adjustment. Compatible with Yellow 60124 Jacket cutting wheels.



DESCRIPTION
1/4" to 1-3/8" OD copper, aluminum pipe
1/4" to 1-5/8" OD copper, aluminum pipe
Replacement deburring blade (10 pack)
Replacement cutter wheel (2 pack)
Replacement cutter wheel (5 pack)
Replacement cutter wheel for stainless steel
(5 pack)

Ratchet Tube Cutter

For copper, brass, aluminum, thin-walled steel, and plastic coated tubes, this ratchet tube cutter has a retractable internal deburring tool and spare cutter wheel in the handle so they are

always within reach. The ratchet telescopic guide with automatic spring-driven withdrawal allows for quick adjustment and fast opening. RT70030 is compatible with Yellow Jacket 60120 cutting wheels.



PART NO.	DESCRIPTION
RT70030	1/8" to 2-5/8" OD
RT70142	2" to 5" OD
RT70017B	Replacement cutter wheel for RT70030 (2 pack)
RT70017D	Replacement cutter wheel for RT70030 (5 pack)
RT70057D	Replacement cutter wheel for RT70142 (2 pack)
RT21652B	Replacement deburring blade (10 pack)

Chain Tube Cutter

For copper, brass, aluminum, thin-walled steel tubes, and plastic coated tubes 1" to 2" OD. The stable chain with 15 mini

cutter wheels has a two-step adjustment. Ideal for working in confined spaces like parallel-running tubes.



PART NO.	DESCRIPTION	No.
RT70285	1" to 2" OD chain tube cutter	K
RT70286	Replacement cutter wheel chain	

Pipe Slice

Cut tubes with less turns with this tube cutter. The self-clamping and self alignment feature make readjustment unnecessary. Ideal for those hard to reach places. Made of cast aluminum.



PART NO.	DESCRIPTION
RT88807	Nominal 3/8" OD 1/2"
RT88810	Nominal 1/2" OD 5/8"
RT88808	Nominal 5/8" OD 3/4"
RT88802	Nominal 3/4" OD 7/8"
RT88814	Nominal 1" OD 1-1/8"

PLASTICUT PEX CUTTER

For cutting pipes made of MDPE, PE, PP, HEP20, P-EX. This cutter is ideal for use in confined spaces. The unique, patented design cuts clean and square using no force to operate. The lightweight, simple to use tool is highly efficient with no moving parts.



		-1
PART NO.	DESCRIPTION	ı
RT59060	1/2" PlastiCut PEX cutter	٦
RT59070	3/4" PlastiCut PEX cutter	ı
RT59080	1" PlastiCut PEX cutter	1
RT59000	Replacement Blades for 1/2" and 3/4"	ı
RT59001	Replacement Blades for 1"	1

Steel Pipe Cutters

The easy pressure control of our pipe cutters yields optimum force transmission onto the tube. The burr-free external cutting action makes it possible to thread without

deburring. Wide rollers securely guide the cutter wheel on the tube. For 1/8" to 4" OD steel pipe.



PART NO.	DESCRIPTION
RT70045	1/8" to 2" OD steel pipe cutter
RT70060	2" to 4" OD steel pipe cutter
RT70051D	Replacement cutter wheel RT70045 (3 pack)
RT70061D	Replacement cutter wheel RT70060 (2 pack)

ROCUT 63 Pipe shears

For precise cutting of PVC, PP, PE, PEX, PB, CPVC, and PVDF, our pipe shears are the finest you can find. The rugged precision shears for effortless cutting



of plastic pipes. The double-sided blade and ratchet support apply precise force transfer as well as precise guided cutter feed. The shears feature a stainless steel blade with a v-edge that offers pin-point precision without deformation of pipe. The ideally meshed cutting curve allows for minimum effort. The shear arms lock for transport.

PART NO.	DESCRIPTION
RT52030	For 2" PVC Max OD 2-1/2"
RT50063	Replacement blade for RT52030

Pipe Shears

For precise cutting of PVC, PP, PE, PEX, PB, CPVC and PVDF, our pipe shears are the finest you can find. The quick release lever provides automatic opening of the blade at the push of a button. A double-sided stainless steel blade with v-shaped edges pierce the pipe to prevent deformation. The wide pipe rest ensures a square cut every time. A locking lever secures the blade during transport.



PART NO.	DESCRIPTION
RT52000	Max. OD 1-5/8", Sched. 40 PVC 1-1/4"
RT52010	Max. OD 2", Sched. 40 PVC 1-1/2"
RT52011	Replacement blade for RT52010
RT52042	Replacement blade for RT52000

Deburring Tools

Internal/External deburring tools for copper and plastic tubes.







PART NO.	DESCRIPTION
RT11006	Copper and stainless steel internal/external reamer 1/8" to 1-5/8" OD
RT70075	Copper and stainless steel internal/external reamer 1/8" to 2" OD
RT21660	Deburring tool (blade non-replaceable)
RT21655	Deburring tool
RT21652B	Replacement deburring blade for RT21655 (10 pack)

RO-GRIP

RT70558

With a perfect grip and better leverage, our self-adjusting pliers offer many advantages over conventional pliers. Made of drop forged chrome vanadium steel, the rhombus-shaped jaws securely grab round, hex, sheets, and other shapes up to 1-5/8" OD.



ROLOCK

Professional-grade water pump pliers with a jaw locking system providing a secure grip on round, square, or hex-shaped items with a push of a button. The ROLOCK has 14 groove opening

positions with an opening capacity of 2-1/3".



PART NO.	DESCRIPTION
RT70531	ROLOCK 7"
RT70532	ROLOCK 9"
RT70533	ROLOCK 12"

WATER PUMP PLIERS

Complies with DIN 5321 D, these pliers are made with heavy-duty box joint, chrome vanadium steel, drop forged, tempered, and polished head and joint. The longer, thinner pliers with measurements for corners are ideal for hard to reach places. The self-clamping jaws will not slip, even on smooth surfaces.



		ш
PART NO.	DESCRIPTION	ì
RT70521	7" Pliers Max. 1" OD	
RT70522	10" Pliers Max. 1-1/4" OD	Ì
RT70523	12" Pliers Max. 1-1/2" OD	ì
		П

Pipe Wrenches

Monoblock cast body with high strength, double T profile, these wrenches feature a forged jaw and hook, fine-polished teeth set against turning direction, anti-slip adjustment screw and spring supported hook. With features similar to the Heavy-duty style, the aluminum wrenches are made of high strength alloy and 40% lighter. Both styles conform to US Standard GGG-W-651 Type 1 Class A (Class B for Aluminum).



1	PART NO.	DESCRIPTION
2	RT70150	8" Heavy-duty Wrench Max. 1" OD
	RT70151	10" Heavy-duty Wrench Max. 1-1/2" OD
ä	RT70152	12" Heavy-duty Wrench Max. 2" OD
	RT70153	14" Heavy-duty Wrench 2" OD
đ	RT70154	18" Heavy Duty Wrench Max. 2-1/2" OD
j	RT70159	10" Aluminum Wrench Max. 1-1/2" OD
1	RT70160	14" Aluminum Wrench Max. 2" OD
g	RT70161	18" Aluminum Wrench Max. 2-1/2" OD

Chain Pipe Wrench

With a double-sided teeth surface set against turning direction, this

chain pipe wrench works in both directions without re-inserting. The wrench is 12" with a maximum OD of 4".



Hand Tube Bender

RT90614

This universal hand bender provides bending of 1/2", 5/8",

3/4" and 7/8" OD soft copper, aluminum, and light grade stainless steel tubing.



ROBEND® H+W PLUS

For exact cold bending up to 180° of soft and hard copper, thin-walled coated copper, aluminum and brass, precision steel, and coated, seamless stainless steel tubes. Unique bending design provides



without deforming the pipe. Guide shoes and formers are anti-stick for less friction and bending effort. Base plate can be attached to vice for easy, free-hand bending. Set includes bending spray, 1/2", 5/8", 7/8" formers and steel carry case.

MINIBEND® Tube Bender

For exact, two-handed bending up to 180° for tubes made out of soft copper, brass, aluminum, and precision steel. 1/4", 5/16", and 3/8" OD.



Standard Tube Bender

For exact bending radius up to 180° for tubes made up of soft copper, aluminum, and precision steel. The light construction results in fatigue-free hand operation. The clamp mechanism better holds the tube and enables the bending of even the

shortest of tube pieces. The Tube Bender Pro is for 1/2" and 3/4" semi-hard and hard copper pipes and features a case iron body for longer life along with self adjusting shoe.



PART NO.	DESCRIPTION	I
RT25140	1/4" OD Radius (0.71")	ı
RT25131	5/16" OD Radius (0.95")	١
RT25141	3/8" OD Radius (1.18")	ł
RT25913	Tube Bender Pro 1/2" OD Radius	ı
RT25914	Tube Bender Pro 3/4" OD Radius	ĺ
RT25142	3/4" OD Radius	į
RT25136	5/8" OD Radius (2.28")	١
		- 1

Tube Bender Set

The ratchet feed of this tube bender is ideal for rapid, exact bending of small diameter soft copper and aluminum up to 90°. Designed for one hand operation, the compact design fits in even the tightest spaces. The open bending frame allows for the production of repeated alternate angled bends. Set includes bending tool, formers for ODs of 1/4", 5/16", 3/8", 1/2", and steel case.





MAXI Tube Bender Set

The smooth-running feed lever of this tube bender makes it ideal in restricted spaces and one-handed operations. The side lever allows for quick release and reset of bending former. The pliers feature a bayonet catch to easily change bending formers. The open bending frame makes it possible to repeatedly produce alternate angled bends. The set consists of the basic tool, bending support, bending formers, and steel case. For use on copper and soft aluminum 3/8", 1/2", 5/8", 3/4", and 7/8" OD.



Pinch-Off Tool

T21294

This plier-type pinch-off tool temporarily closes off line while making repairs. The quick release



trigger and rounded jaws prevent cutting while allowing for reopening and rounding using a standard flare bar. For 1/8" to 5/8" OD (1/8" to 1/2" Nominal).

Spring Type Tube Bender

Ideal for irregular bends, these spring type benders are available in single springs and packaged sets. Used for soft copper, aluminum, brass, and steel.



Packaged sets

PART NO.	DESCRIPTION
BS-55	1/4", 5/16", 3/8", 1/2", and 5/8" in pouch
BS-77	All seven sizes in pouch

Single springs

PART NO.	TUBE O.D.	МОМ
BS-4	1/4"	1/8"
BS-5	5/16"	
BS-6	3/8"	1/4"
BS-7	7/16"	
BS-8	1/2"	3/8"
BS-10	5/8"	1/2"
BS-12	3/4"	5/8"

Single Size Swage Size stamped OD and Nominal





PART NO.	TUBE O.D.
T21002	1/8"
T21003	3/16"
T21004	1/4" Nom. 1/8"
T21005	5/16"
T21006	3/8" Nom. 1/4"
T21007	7/16"
T21008	1/2" Nom. 3/8"
T21010	5/8" Nom. 1/2"
T21012	3/4" Nom. 5/8"
T21014	7/8" Nom. 3/4"
T21018	1-1/8" Nom. 1"

Packaged Set

Packaged swage set. Tube OD 1/4", 3/8", 1/2", and 5/8". The nominals are 1/8", 1/4", 3/8", and 1/2".

REPAIR PARTS

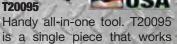
TUBING TOOLS

Multi-Swage T21000

T21000 consists of three pieces that work with OD sizes including 3/16", 3/4", and 7/8" producing perfect solder cups for 9 OD tube sizes. OD sizes are 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", 5/8", 3/4", and 7/8". Nominal 1/8", 1/4", 3/8", 1/2", 5/8", and 3/4".



Multi-Swage





is a single piece that works with 1/4", 5/16", 3/8", 7/16", 1/2", and 5/8" OD.

45° Flare / Swage T20275

Heavy-duty wide-range bar type flaring tool. The rugged, forged steel slip-on self centering yoke has a hardened chrome plate swivel type cone to form quality flares with minimal effort. Hardened bars provide positive clamping action with minimum distortion and are fully hinged with king-sized forged steel wing nuts for easy use. The second bar extends our flaring tool to 9 OD tube sizes.



PART NO.	TUBE O.D.	NOM
T20275	Flare: 1/8", 3/16", 1/4", 5/16", 3/8", 7/16", and 3/4"	Nominal Flare: 1/8", 1/4", 1/2", 5/8"
	Swage: 3/16", 1/4", 5/16", 3/8" 1/2", 5/8", and 3/4"	Nominal Swage: 1/8", 1/4", 3/8", 1/2", and 5/8"

Flaring Tools







PART NO.	TUBE O.D.
T20195	3/16", 1/4", 5/16", 3/8", 7/16", (nom. 1/8", 1/4", 3/8", and 1/2")
T20203	5/8", 3/4", 7/8", and 1-1/8" OD
T20500	3/16", 1/4", 5/16", 3/8", 1/2", and 5/8" OD
RT222402	1/8", 1/16", 1/4", 5/16", 3/8", 1/2", 5/8", 3/4" OD
RT222601	Adjustable from 3/16" to 5/8" OD

45° Flaring Tool

RT26036 SINGLE FLARE



For making precise 45° flares on copper, brass, aluminum, and precision steel tubes up to 0.04" (1 mm) in wall thickness. The special screw thread allows proper, efficient

handling of material. The "Multiblock" multi-clamping calipers provide a firm, quick off-center clamping of the tube and automatic selfcentering. Flares 3/16", 1/4", 5/16", 3/8", 1/2", and 5/8".



Swaging Kit RT26715

For precise 45° single flares and sockets on copper, brass, aluminum, and steel tubes. Set includes flaring tool, 45° cone, expander internal/external deburrer, tube cutter, and plastic case. Includes swages for 3/16", 1/4", 5/16", 3/8", 1/2", and 5/8".



Tee Extractor Set

RT22124

Extract your own tees on soft, semi-hard and hard copper or aluminum and save time and money saved on T-pieces. The ergonomic, compact design fits into the tightest spaces. The set includes tee-extractors for 1/2", 5/8", 7/8" and 1-1/8", ratchet handle, cam pincer, high-speed drill, and steel case.



Tube Expander Kit

RT12318

The high strength, forged aluminum body make for lower weight and easy handling of our expander set. The longer lever arms reduce effort and the automatic pin guide retracts for faster operation. The set includes expander with riveted expander heads in 3/8", 1/2", 5/8", 3/4", 7/8", and 1-1/8", internal/external deburring tool, steel case. Replacement heads are interchangeable with Yellow Jacket and Ridgid tube expanders.





PEX Crimper combo

RT12428

Constructed of hardened steel with Ultra-Lite fiberglass reinforced handle, this PEX crimper is ideal for making copper crimp ring connections in potable water and radiant heating applications. Each tool is supplied with a go/no go gauge. The crimp cavity does not skive the copper ring or cause it to fishtail during crimping process. Glass-filled composite handles reduce

fatigue especially when working overhead. Minimal calibration adjustments. Meets ASTM F1807 Specifications. 1/2" and 3/4".



SUPER CUT ratchet Hand Threader

RT70905X

Precision thread cutting 1/4" to 2" diameter to approved standards. Slim and compact shape with excellent overall size requiring an angle of 22.5° to reach those difficult positions. The quick change die heads have a positive octagonal universal drive for a secure hold. The long pipe guide results in perfect centering. Set includes ratchet handle, die heads for 1/2", 3/4", 1", 1-1/4", 1-1/2", and 2" NPT for steel pipe, and plastic case.



SUPERTRONIC 1250

This power threader features a heavy-duty helicoidal power transmission for 50% longer life. The Supertronic 12500 is constructed of durable, lightweight aluminum body and heavy-duty fiberglass reinforced plastic motor covers. Our electrical reverse reduces weight and increases portability. Maximum threading capacity of 1-1/4" is perfect for maintenance, repair, gas lines, and boiler installations. The set includes 1/2", 3/4", 1", and 1-1/4" die heads.



Ropress press tools

CORDED AND CORDLESS PRESS TOOL

Redesigned for 2010, the ROPRESS is a 12-ton dieless stateof-the-art crimping tool. The dieless tool greatly simplifies the crimping of color coded lugs and splices. There are no dies to select. Featuring a 24,000 pound crimp force and weighing 15 pounds, both the corded and cordless versions offer maximum force with minimal effort. The Cordless ROPRESS has a 18 volt Lithium-Ion battery that lasts longer than NiMH batteries and weighs less. Interchangeable crimping jawss are flexible and cost effective. The LED display shows tool information while the sleek lightweight pistol design offers effortless repeated crimping. The Corded ROPRESS requires no batteries and delivers the same quality crimping as the cordless version. Both tools are compatible with Viega, Elkhart and NIBCO press fittings. Please see Information Sheets under the Technical section at www.jbind.com to view compatibility statements from each company. Press rings are available in 2-1/2", 3", and 4" upon request.



PART NO.	DESCRIPTION
RT16101	Cordless Tool only NO jaws
RT16102	Cordless Tool, 6 copper jaws 1/2", 3/4", 1", 1-1/4", 1-1/2", and 2", battery and charger
RT16201	Corded Tool, NO jaws
RT16202	Corded Tool, 6 copper jaws 1/2", 3/4", 1", 1-1/4", 1-1/2", and 2"
RT15222X	Press Jaw 1/2" copper
RT15223X	Press Jaw 3/4" copper
RT15224X	Press Jaw 1" copper
RT15225X	Press Jaw 1-1/4" copper
RT15226X	Press Jaw 1-1/2" copper
RT15227X	Press Jaw 2" copper
RT52176	18V Lithium Battery, 3 amp
RT52178	18V Lithium Battery Charger 120 V

ROPRESS COMPACT

COMPACT CORDLESS PRESS TOOL

The ROPRESS Compact light-weight, battery-powered press tool weighs only 5.4 lbs and connects 1/2", 3/4", and 1" copper tube and fittings in about 6 seconds. The slim profile allows one hand operation of the tool leaving the other hand free to hold and position the fitting. The 350° rotation of the jaw fixture and slim design easily reaches into tight spaces. When a press is complete, the jaws automatically

release signaling the tool is ready for the next press. The ROMAX Pressliner is compatible with Viega, Elkhart, and NIBCO press Please fittings. Information Sheets under the Technical section at www.jbind.com to view compatibility statements from each company.



PART NO.	DESCRIPTION
RT16001	Compact Tool only NO jaws
RT16002	Compact Press Tool, 3 copper jaws 1/2", 3/4", 1", battery, charger
RT15031V	Compact Press Jaw 1/2" copper
RT15032V	Compact Press Jaw 3/4" copper
RT15033V	Compact Press Jaw 1" copper
RT52176	18V Lithium Battery, 3 amp
RT52178	18V Lithium Battery Charger, 120V

Fin Straighteners

T20352 Stainless steel fin straightener.

T20351 For 8, 9, 10, 12, 14, and 15 spacings per inch.

T20353 Stainless steel fin straightener with larger, easy to grip handle.



Braze-Rite Adapter



Nitrogen purging adapter for ACR pipe. Quickly connects to manifold gauge hose, and slips easily and securely into pipe. Allows for bleed of



nitrogen through pipe being brazed, keeping the pipes clean and oxide-free. Stepped to fit most common ACR pipe sizes, making it fast to go from one tube to the next. Saves time and money and helps maintain equipment manufacturer's system performance and installation guidelines. No more duct taping your hose to the pipe!

Oil Transfer Pump T30251

Designed to pump oil into the system while unit is operating without shutting down for charging. Smoothly pumps oil into the compressor on the down stroke while system is under pressure resulting in easier pumping on the positive stroke. The universal tapered rubber adapter is designed to fit all 1, 2-1/2, and 5 gallon containers without additional adapters. Works against 200 psi of pressure and is compatible with all oil types including synthetic, mineral, and polyol ester. Pumps 2.6 ounces (78 ml) per stroke.



T30251

Gas Pressure Test Kit

This diaphragm gauge scale comes complete in case with hose and hook-up fitting.





PART NO.	DESCRIPTION
29435	Natural and LP gases. Scales 0-20 oz/sq. in; 0-35" of water column
29436	Natural gas only. Scales 0-6 oz/sq. in; 0-10" of water column

gas test gauge

To test system pressure for leaks in new installs, use these 3" easy to read test gauges. Fits 3/4" and 1" pipes.





PART NO.	DESCRIPTION
GTBG-12	3-1/2" Test gauge 0-30 lb. 3/4" end
GTBG-16	3-1/2"Test gauge 0-30 lb. 1" end

Service wrenches

Double end reversible ratchet wrenches feature accurately broached multiple openings and offer the greatest number of uses in a single unit. Choose offset or hex and square ends. Items ending in "U" deonote Made in the USA



PART NO	DESCRIPTION
T21124	3/16", 1/4" square end and 1/2", 9/16" hex port end
T21127	3/16", 1/4", 5/16", and 3/8"
T21127U	1/2", 3/16" on one end 3/8", 5/16" on other end
T21126U	Offset 1/2", 3/16" on one end 3/8", 5/16" on other end
T21125U	3/8" square end and 1/2" square end

HEX KEY ADAPTER

T2-HKA

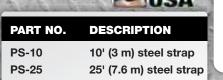
Heat treated black oxide plated hex key adapter for accessing liquid and suction based valves. Works for 3/16" and 5/16" hex valves.



Steel Strap

PS-50

Our Steel Straps are zinc plated and alternate between nail and bolt holes.



50' (15 m) steel strap

CAP TUBES

Acid Brushes

Our acid brushes are ideal for thread sealant, flux, and past solders. Made of 100% long and stiff horsehair bristles that are evenly placed and securely crimped into tinned handles.

PART NO.	DESCRIPTION
C33804	1/4" flux brush (12 pack)
C33808	1/2" flux brush (10 pack)
C33808-CTN	1/2" flux brush (144 bulk)





Capillary Tubing

Short coils are boxed with application charts. Cut from 100' (30.5 m) sealed and dehydrated tube.

S/B 100' (30.5 m) Coils are boxed with conversion and application charts.



Available in cartons of 10. Add suffix -101 to part number.



Gauge File and Cutting Tool A10971 cap tube and file in pouch

A10972 cap tube file

Precision engineered with stainless steel wire plugs. Features a specially designed file to cut and open tubes. The numbers are etched in black for better legibility. Fourteen ID sizes from 0.026 to 0.090 and Twenty-two OD sizes from 0.072" to 7/16" (5 to 12 mm). Use both the ID and OD calibrations to correctly determine tube size. Place tube in "V" slot to measure OD. Pin gauge measures ID. The cap tube file is designed to cut and open the tube by filling a notch around the tubing at desired cutting point. Snap tube by bending at the notch and clean burrs by reaming out with the special file tip.



Cap Tube Cutting Tool

The sturdy design of our cap tube cutter results in no collapsing of the tube, clean cuts, and no chips.



TC-26-16 TC-26-100 0.026 ID x 0.072 OD x 16' (BC-5, GC-5)			
TC-31-12 TC-31-100 (BC-5, GC-5) (D-31 ID x 0.083 OD x 12' (BC-1, GC-1) (D-36-12 TC-36-100 0.036 ID x 0.087 OD x 12' (GC-6) (D-42-12 TC-42-100 0.042 ID x 0.093 OD x 12' (BC-2, GC-2) (D-44-12 TC-44-100 0.044 ID x 0.109 OD x 12' (BC-3, GC-3, GC-7) (D-49-11 TC-49-100 0.049 ID x 0.099 OD x 11' (BC-3, GC-3, GC-7) (D-50-11 TC-50-100 0.050 ID x 0.114 OD x 11' (GC-8) (D-54-10 TC-54-100 0.054 ID x 0.106 OD x 11' (GC-8) (GC-9) (D-64-100 0.064 ID x 0.125 OD x 10' (BC-4, GC-4) (GC-9) (GC-9) (GC-10) (GC-10) (GC-11) (GC-85-9) (GC-11) (GC-85-100 0.085 ID x 0.145 OD x 9' (GC-11) (GC-11) (GC-85-9) (GC-11) (GC-85-9) (GC-11) (GC-11) (GC-85-9) (GC-10) (GC-11) (GC-111) (GC-111)	SHORT COIL	100' COILS	DESCRIPTION
TC-31-12 TC-31-100 0.031 ID x 0.083 OD x 12' (BC-1, GC-1) TC-36-12 TC-36-100 0.036 ID x 0.087 OD x 12' (GC-6) TC-42-12 TC-42-100 0.042 ID x 0.093 OD x 12' (BC-2, GC-2) TC-44-12 TC-44-100 0.044 ID x 0.109 OD x 12' (BC-3, GC-3, GC-7) TC-49-11 TC-49-100 0.050 ID x 0.099 OD x 11' (BC-3, GC-3, GC-7) TC-50-11 TC-54-100 0.054 ID x 0.106 OD x 11' (GC-8) TC-55-11 TC-55-100 0.055 ID x 0.125 OD x 11' (GC-8) TC-59-10 TC-59-100 0.064 ID x 0.125 OD x 10' (BC-4, GC-4) TC-70-12 TC-70-100 0.070 ID x 0.125 OD x 12' (GC-9) TC-75-9 TC-75-100 0.075 ID x 0.125 OD x 9' (GC-10) TC-80-10 TC-80-100 0.080 ID x 0.145 OD x 9' (GC-11) TC-85-9 TC-85-100 0.085 ID x 0.145 OD x 9'	TC-26-16	TC-26-100	0.026 ID x 0.072 OD x 16'
TC-36-12 TC-36-100			(BC-5, GC-5)
TC-36-12 TC-36-100 0.036 ID x 0.087 OD x 12' (GC-6) TC-42-12 TC-42-100 0.042 ID x 0.093 OD x 12' (BC-2, GC-2) TC-44-12 TC-44-100 0.044 ID x 0.109 OD x 12' (BC-3, GC-3, GC-7) TC-49-11 TC-49-100 0.050 ID x 0.114 OD x 11' (BC-3, GC-3, GC-7) TC-50-11 TC-54-100 0.054 ID x 0.106 OD x 11' (GC-8) TC-55-11 TC-55-100 0.055 ID x 0.125 OD x 11' (GC-8) TC-59-10 TC-59-100 0.059 ID x 0.112 OD x 10' (BC-4, GC-4) TC-70-12 TC-70-100 0.070 ID x 0.125 OD x 12' (GC-9) TC-75-9 TC-75-100 0.075 ID x 0.125 OD x 9' (GC-10) TC-80-10 TC-80-100 0.080ID x 0.145 OD x 9'	TC-31-12	TC-31-100	0.031 ID x 0.083 OD x 12'
TC-42-12 TC-42-100 (GC-6) TC-44-12 TC-44-100 0.042 ID x 0.093 OD x 12' (BC-2, GC-2) TC-49-11 TC-49-100 0.044 ID x 0.109 OD x 12' (BC-3, GC-3, GC-7) TC-50-11 TC-50-100 0.050 ID x 0.114 OD x 11' (GC-8) TC-55-11 TC-54-100 0.054 ID x 0.106 OD x 11' (GC-8) TC-59-10 TC-59-100 0.055 ID x 0.125 OD x 11' TC-64-10 TC-64-100 0.064 ID x 0.125 OD x 10' TC-64-10 TC-64-100 0.064 ID x 0.125 OD x 10' (BC-4, GC-4) TC-70-12 TC-70-100 0.075 ID x 0.125 OD x 12' (GC-9) TC-75-9 TC-75-100 0.075 ID x 0.125 OD x 9' (GC-10) TC-80-10 TC-80-100 0.080ID x 0.145 OD x 10' (GC-11) TC-85-9 TC-85-100 0.085 ID x 0.145 OD x 9'			(BC-1, GC-1)
TC-42-12	TC-36-12	TC-36-100	0.036 ID x 0.087 OD x 12'
TC-44-12 TC-44-100 0.044 ID x 0.109 OD x 12' TC-49-11 TC-49-100 0.049 ID x 0.099 OD x 11' (BC-3, GC-3, GC-7) TC-50-11 TC-50-100 0.050 ID x 0.114 OD x 11' TC-54-11 TC-54-100 0.054 ID x 0.106 OD x 11' (GC-8) TC-55-11 TC-55-100 0.055 ID x 0.125 OD x 11' TC-59-10 TC-59-100 0.059 ID x 0.112 OD x 10' TC-64-10 TC-64-100 0.064 ID x 0.125 OD x 10' (BC-4, GC-4) TC-70-12 TC-70-100 0.070 ID x 0.125 OD x 12' (GC-9) TC-75-9 TC-75-100 0.075 ID x 0.125 OD x 9' (GC-10) TC-80-10 TC-80-100 0.080ID x 0.145 OD x 10' (GC-11) TC-85-9 TC-85-100 0.085 ID x 0.145 OD x 9'			(GC-6)
TC-44-12 TC-44-100 0.044 ID x 0.109 OD x 12' TC-49-11 TC-49-100 0.049 ID x 0.099 OD x 11' (BC-3, GC-3, GC-7) 0.050 ID x 0.114 OD x 11' TC-50-11 TC-50-100 0.050 ID x 0.114 OD x 11' TC-54-11 TC-54-100 0.054 ID x 0.106 OD x 11' (GC-8) 0.055 ID x 0.125 OD x 11' TC-59-10 TC-59-100 0.059 ID x 0.112 OD x 10' TC-64-10 TC-64-100 0.064 ID x 0.125 OD x 10' (BC-4, GC-4) 0.070 ID x 0.125 OD x 12' (GC-9) TC-75-100 0.075 ID x 0.125 OD x 9' (GC-10) 0.080ID x 0.145 OD x 10' TC-80-10 TC-85-100 0.085 ID x 0.145 OD x 9'	TC-42-12	TC-42-100	0.042 ID x 0.093 OD x 12'
TC-49-11			(BC-2, GC-2)
Company	TC-44-12	TC-44-100	0.044 ID x 0.109 OD x 12'
TC-50-11 TC-50-100 0.050 ID x 0.114 OD x 11' TC-54-11 TC-54-100 0.054 ID x 0.106 OD x 11' GC-8 0.055 ID x 0.125 OD x 11' TC-55-10 0.059 ID x 0.112 OD x 10' TC-64-10 TC-64-100 0.064 ID x 0.125 OD x 10' GC-9 0.070 ID x 0.125 OD x 12' GC-9 0.075 ID x 0.125 OD x 9' TC-80-10 TC-80-100 0.080ID x 0.145 OD x 10' TC-85-9 TC-85-100 0.085 ID x 0.145 OD x 9'	TC-49-11	TC-49-100	0.049 ID x 0.099 OD x 11'
TC-54-11			(BC-3, GC-3, GC-7)
TC-55-11 TC-55-100	TC-50-11	TC-50-100	0.050 ID x 0.114 OD x 11'
TC-55-11 TC-55-100 0.055 ID x 0.125 OD x 11' TC-59-10 TC-59-100 0.059 ID x 0.112 OD x 10' TC-64-10 TC-64-100 0.064 ID x 0.125 OD x 10' (BC-4, GC-4) 0.070 ID x 0.125 OD x 12' (GC-9) TC-75-9 TC-75-100 TC-80-10 TC-80-100 0.080ID x 0.145 OD x 10' TC-85-9 TC-85-100 0.085 ID x 0.145 OD x 9'	TC-54-11	TC-54-100	0.054 ID x 0.106 OD x 11'
TC-59-10 TC-59-100 0.059 ID x 0.112 OD x 10' TC-64-10 TC-64-100 0.064 ID x 0.125 OD x 10' (BC-4, GC-4) TC-70-12 TC-70-100 0.070 ID x 0.125 OD x 12' (GC-9) TC-75-9 TC-75-100 0.075 ID x 0.125 OD x 9' (GC-10) TC-80-10 TC-80-100 0.080ID x 0.145 OD x 10' (GC-11) TC-85-9 TC-85-100 0.085 ID x 0.145 OD x 9'			(GC-8)
TC-64-10	TC-55-11	TC-55-100	0.055 ID x 0.125 OD x 11'
TC-70-12 TC-70-100 (BC-4, GC-4) TC-75-9 TC-75-100 0.070 ID x 0.125 OD x 12' (GC-9) TC-80-10 TC-80-100 0.080 ID x 0.145 OD x 10' (GC-11) TC-85-9 TC-85-100 0.085 ID x 0.145 OD x 9'	TC-59-10	TC-59-100	0.059 ID x 0.112 OD x 10'
TC-70-12	TC-64-10	TC-64-100	0.064 ID x 0.125 OD x 10'
TC-75-9 TC-75-100 (GC-9) TC-80-10 TC-80-100 0.080ID x 0.145 OD x 10' (GC-11) TC-85-9 TC-85-100 0.085 ID x 0.145 OD x 9'			(BC-4, GC-4)
TC-75-9 TC-75-100 0.075 ID x 0.125 OD x 9' (GC-10) TC-80-10 TC-80-100 0.080ID x 0.145 OD x 10' (GC-11) TC-85-9 TC-85-100 0.085 ID x 0.145 OD x 9'	TC-70-12	TC-70-100	0.070 ID x 0.125 OD x 12'
TC-80-10 TC-80-100 (GC-10) TC-85-9 TC-85-100 0.080ID x 0.145 OD x 10' (GC-11) 0.085 ID x 0.145 OD x 9'			(GC-9)
TC-80-10	TC-75-9	TC-75-100	0.075 ID x 0.125 OD x 9'
(GC-11) TC-85-9 TC-85-100 0.085 ID x 0.145 OD x 9'			(GC-10)
TC-85-9 TC-85-100 0.085 ID x 0.145 OD x 9'	TC-80-10	TC-80-100	0.080ID x 0.145 OD x 10'
			(GC-11)
(GC-12)	TC-85-9	TC-85-100	0.085 ID x 0.145 OD x 9'
			(GC-12)
TC-90-7 TC-90-100 0.090 ID x 0.145 OD x 7'	TC-90-7	TC-90-100	0.090 ID x 0.145 OD x 7'
TC-100-10 TC-100-100 0.100 ID x 0.156 OD x 10'	TC-100-10	TC-100-100	0.100 ID x 0.156 OD x 10'

Pressure/Temperature charts can be found on our website at www.jbind.com under Instruction Sheets. Please see the Copper Capillary Tubing section for the conversion charts.

0.064

0.080

0.095 0.100

CAP TUBE



art No.	TC-26	TC-31	TC-36	TC-42	TC-44	TC-49	TC-50	TC-54	TC-55	TC-59	TC-64	TC-70	TC-75	TC-80	TC-85	TC-90
ube ID	0.026 ID	0.031 ID	0.036 ID	0.042 ID	0.044 ID	0.049 ID	0.050 ID	0.054 ID	0.055 ID	0.059 ID	0.064 ID	0.070 ID	0.075 ID	0.080 ID	0.085 ID	0.090 ID
0224 025 026 028 030 031 0322 0331 0322 0333 0334 0355 036 037 037 039 040 041 044 044 045 046 047 046 047 0551 0552 0559	1.44 1.20 1.00 0.72 0.52 0.45	2.24 1.59 1.16 1.00 0.86 0.50 0.65 0.58 0.50 0.31 0.28 0.25 0.23 0.20	2.00 1.75 1.54 1.35 1.16 1.00 0.71 0.62 0.50 0.45 0.35 0.32	2.31 2.10 1.79 1.59 1.41 1.25 1.12 1.00 0.87 0.67 0.59 0.54 0.49 0.45 0.41	2.22 1.92 1.75 1.55 1.38 1.24 1.11 1.00 0.82 0.74 0.67 0.61 0.51 0.47 0.47 0.43 0.39 0.36	2.51 2.26 2.03 1.83 1.62 1.10 1.10 0.91 0.84 0.76 0.65 0.59 0.54 0.50 0.42	2.50 2.23 1.98 1.79 1.60 1.47 1.31 1.20 1.09 1.00 0.30 0.85 0.70 0.60 0.55 0.51	2.32 2.08 1.89 1.72 1.55 1.43 1.19 1.00 0.92 0.85 0.79 0.73		1. Loca column 2. Read under 3. Mult the d 4. The	n d acrose er copp iply the convers resultar	s and fi er cap f given I ion fact nt length	nd contube sizength contoring the contuber t	version te of the ca cap tu teristics	D in left factor ap tube be will as as the	by give

EXAMPLE: Locate 0.040 in left hand column and reading across gives the following conversion factor: No. TC-36 cap tube (0.036 ID) -0.62 and No. TC-42 cap tube (0.042 ID) -1.25. Multiply the recommended cap tube length of 9' by the conversion factor gives the following results: 5.5' - 0.036 ID and 11.25 - 0.042 ID. Either of these two cap tubes will give the same results as the original cap tube of 9' -0.40 ID.

0.47

1.50 1.00 0.73 0.54 2.07 1.37 1.00 0.74 0.57

1.84 1.37 1.00 0.76 0.62

1.75 1.32 1.00 0.76

0.48

1.71 1.29 1.00 0.79 0.62

Every precaution should be taken to prevent chips, dirt, flux, moisture, etc., from entering the system when changing the cap tube. Most cap tube has very small holes that do not require much debris to plug flow.

The size of the cap tube is critical to its application. While some variation from the ideal can be tolerated, it is important to understand those factors which the service engineer can control. Unlike orifices such as expansion valve seats, capillary tubing depends on its length as well as its diameter to determine the total restriction. A change in diameter on a percentage basis, can change the flow more than an equal change in length. For example, changing the diameter by 0.005" as between 0.026" ID and 0.031" ID can double the flow.

The length of the cap tube is the one factor over which the service engineer has the easiest and most immediate control. The best known method of changing the restriction of a cap tube is to change its length. Cut off a piece and its restriction is reduced. Substitute a longer tube and increase the restriction. However, there are factors that are not generally understood that limit the amount of lengthening or shortening.

As a general rule, keep the cap tube no shorter than 5 feet and no longer than 16 feet to eliminate many problems. Only plug drawn capillary tubing should be used in refrigeration and air conditioning application. JB capillary tubing is drawn to a plus or minus 0.001" on the ID, the finest attainable. Therefore, we recommend using JB cap tubing and the application charts included in the packaging.

The "Capillary Tubing Length Conversion Chart" was developed to enable users of capillary tubing to use standard tubing sizes which are widely available. While many OEMs recommend specific lengths and diameters of cap tube for their units, these tube sizes are not always readily available and may have to be special ordered.

This conversion chart enables the user to translate the recommended length into that of a tube diameter that can be quickly obtained. In using the chart, it is recommended that conversions be made using factors within the shaded area. In addition, it is highly recommended that the minimum length of capillary tubing used by 5 feet.

LA-CO PRODUCTS

Cool Gel™ Heat Dissipating Spray

11509

Heat dissipating spray helps prevent heat damage to components and surrounding materials during soldering, brazing, and welding. It protects painted and finished surfaces from discoloration due to adjacent torch operations. This product also reduces the danger of fire to surrounding surfaces such as studs, drywall, and insulation. The unique non-staining gelled formula sticks to surfaces without dripping or running off and leaves no residue. Safe, nontoxic, and odorless spray liberally on adjacent surfaces needing protection. The spray pattern is adjustable from stream to mist. One quart spray bottles sold in cases of 12.



Valve Action™ Paint Marker

96822 Red 96823 Black





JSA

This long-lasting, weather-, water-, and UV-resistant paint marker dries in 3 minutes. Marks on all surfaces including metal, wood, glass, plastic, rubber, cardboard, and paper. Lead-free paint meets California VOC regulations. Marking range is -50° F to 150° F (- 46° C to 66° C). Sold in bulk cases of 12.

Slic-Tite® Paste with PTFE 42019

Premium thread sealant for sealing water, air, steam, natural gas, LP gas, refrigerants, ammonia, gasoline, and oil. For use on metal, PVC, CPVC, and ABS plastic threads. Do not use on Oxygen service, use PTFE tape or LA-CO Oxytite®. Sealing temperature -50° F to 500° F (-46° C to 260° C). Pressures 3,000 psi (204 bar) for gas, 10,000 psi (680 bar) for liquid. NSF, UPC, CSA, cULus, FGG/BM/CZ approved. 1/2 pints sold in cases of 12.



Pipetite-Stik®





Non-toxic and lead-free, the Pipetite Stik is for use for water, steam, air, natural gas, and LP gas. Use on metal threads. Do not use on Oxygen service; use PTFE tape or LA-CO Oxytite®. Sealing temperature is up to 350° F (177° C) and pressures to 2,000 psi (136 bar) for liquids and 350 psi (24 bar) for gasses. Certified by NSF to meet ANSI/NSF Standard 61 for use on potable water. 1-1/4 Oz. sticks sold in cases of 12.

Heat-Seal Stik® Premixed Epoxy Sealer



Ideal for use on high and low side of refrigeration systems, the Heat-Seal Stik can be used on aluminum, copper, other metals, glass, and ceramics. Works on R-410A based systems. Sticks, melts, seals, and cures in one 90 second operation. One part epoxy, there is no mixing or measuring needed. Sealing temperature is up to 350° F (177° C) and pressures to 450 psi (31 bar). 3/8 Oz. sticks sold in cases of 12.

Bloc-It® Heat Absorbing Paste

Heavy paste effectively absorbs surface heat and protects adjoining surfaces that may be damaged by excessive heat. Typically used to protect rubber, plastic, distortion, painted and finished surfaces during soldering, brazing or welding. Safe to use, Bloc-It is nontoxic, harmless to skin, odorless, and does not contain asbestos. Wipe off with cloth or wash with water, Bloc-It will not leave stains. 10 oz. tubes sold in cases of 24.



JB's American-made brass SAE 45° flared tube fittings may be used with copper, brass, aluminum, steel, and plastic tube provided an acceptable flare could be generated with the material.

Vacuum and pressures of 5,000 psi can be handled depending upon the size, material, and conditions. Using a 4:1 safety factor, the following general rule (excluding plastic tube) is used:

3,000 psi to 1/4" 2,000 psi to 1/2" 1,500 psi to 1"



Long nuts are recommended when vibration is a factor. Tubing should be double flared in extreme applications to minimize flare thinning on over-tightening.

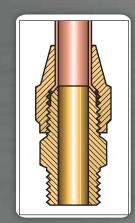
Fittings listed generally comply with SAE, ASA, ASME, and MS standards, however when design makes dimensions critical, please contact us at 800-323-0811 for samples and/or prints for testing and evaluation.

Tube sizes listed are OD (outside diameter). To determine nominal (water tube) size, subtract 1/8", thus 5/8" OD =1/2" nominal.

Pipe sizes listed are standard nominal pipe size and threads are to Dryseal Taper Pipe Standards.

JB will provide flare fitting to SAE Standard J513 whenever possible. In some cases, slight deviations will occur when full compliance fittings are not available.

- Make and break
- Good vibration resistance (improved by using long nuts)
- Low cost
- Easy assembly
- Wide selection



Heavy-duty ACR tube fittings generally conform to SAE, ASA, and ARI Standards for hydraulic, marine, and refrigeration service. Long dryseal pipe threads minimize leakage and provide more clearance for tightening flare nuts. Shapes, elbows, tees, etc., are made from brass forgings to maximize strength and eliminate cracks.

Assembly Instructions

- 1. Cut tube square and remove cut-off burr
- 2. Slide nut on tube, threaded end facing end of tube
- 3. Flare tube following flaring tool manufacturers instructions (check flare quality)
- 4. Thread nut on to fitting body "hand tight"
- 5. With proper wrench, tighten to a solid feel

CAUTION: Over tightening and dirt can damage fittings and/or tube causing leaks.

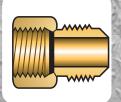
NOTE: Lubrication of flare faces and threads is recommended when practical.

Thread size of tube ends

O.D. TUBE	SAE/FLARE	O.D. TUBE	SAE/FLARE
1/8"	5/16–24	1/2"	3/4–16
3/16"	3/8-24	5/8"	7/8–14
1/4"	7/16–20	3/4"	1 -1/16–14
5/16"	1/2–20	7/8"	1 -1/4–12
3/8"	5/8–18	1"	1 -3/8–12
7/16"	11/16–16		

Torque pounds for flare fitting (dry thread)

		`
SIZE	FT. LBS. (MIN.)	FT. LBS.
1/4"	8	10
3/8"	15	25
1/2"	25	35
5/8"	40	55
3/4"	50	60



Copper Seal gaskets (B2) series furnished with all female flares



Fiber gaskets (K1 and D/E) furnished with all drum adapters (K1-1 through 8)

Copper Flare Bonnet

Use with Flare nut to cap a fitting







PART NO.	SIZE	PKG
B1-3	3/16"	5
B1-4	1/4"	25
B1-6	3/8"	5
B1-8	1/2"	5
B1-10	5/8"	10
B1-12	3/4"	5

Copper Flare Gasket

Used on brass to brass or brass to steel connections to prevent leaks





PART NO.	SIZE	PKG
B2-3	3/16"	5
B2-4	1/4"	25
B2-5	5/16"	5
B2-6	3/8"	25
B2-8	1/2"	25
B2-10	5/8"	10
B2-12	3/4"	10



Cross





PART NO.	SIZE	PKG
C1-4	1/4"	2
C1-6	3/8"	2

Flare x Male Pipe Ell



USA

PART NO.	SIZE	PKG
E1-2A	1/8" x 1/8"	5
E1-3A	3/16" x 1/8"	2
E1-4A	1/4" x 1/8"	10
E1-4B	1/4" x 1/4"	10
E1-4C	1/4" x 3/8"	5
E1-5A	5/16" x 1/8"	5
E1-5B	5/16" x 1/4"	5
E1-5C	5/16" x 3/8"	5
E1-6A	3/8" x 1/8"	5
E1-6B	3/8" x 1/4"	10
E1-6C	3/8" x 3/8"	10
E1-6D	3/8" x 1/2"	5
E1-6E	3/8" x 3/4"	2
E1-8B	1/2" x 1/4"	5
E1-8C	1/2" x 3/8"	5
E1-8D	1/2" x 1/2"	10
E1-8E	1/2" x 3/4"	2
E1-10C	5/8" x 3/8"	2
E1-10D	5/8" x 1/2"	2
E1-10E	5/8" x 3/4"	2
E1-12D	3/4" x 1/2"	2
E1-12E	3/4" x 3/4"	2

Flare EII



USA

PART NO.	SIZE	PKG
E2-2	1/8"	5
E2-3	3/16"	5
E2-4	1/4"	5
E2-5	5/16"	5
E2-6	3/8"	5
E2-8	1/2"	5
E2-10	5/8"	2
E2-12	3/4"	2



PART NO.	SIZE	PKG
ER2-64	3/8" x 1/4"	5
ER2-84	1/2" x 1/4"	2
ER2-86	1/2" x 3/8"	5
ER2-108	5/8" x 1/2"	2

Flare x Female Solder Ell WADE IN USA



PART NO.	SIZE P	KG
ES2-44	1/4" x 1/4"	5
ES2-66	3/8" x 3/8"	5
ES2-68	3/8" x 1/2"	2
ES2-88	1/2" x 1/2"	2

Flare x Female Pipe Ell WADE IN USA



PART NO.	SIZE	PKG
E3-4A	1/4" x 1/8"	5
E3-4B	1/4" x 1/4"	2
E3-5B	5/16" x 1/4"	2
E3-6A	3/8" x 1/8"	5
E3-6B	3/8" x 1/4"	2
E3-6C	3/8" x 3/8"	2
E3-6D	3/8" x 1/2"	2
E3-8C	1/2" x 3/8"	2
E3-8D	1/2" x 1/2"	2
E3-8E	1/2" x 3/4"	2
E3-10D	5/8" x 1/2"	2
E3-10E	5/8" x 3/4"	2

Female Flare x Flare Ell



Includes copper USA gasket

PART NO.	SIZE	PKG
E4-44	1/4" x 1/4"	5
E4-66	3/8" x 3/8"	2
E4-88	1/2" x 1/2"	2

Swivel Female Flare x Flare Ell





PART NO.	SIZE P	KG
ES4-44	1/4" x 1/4"	2
ES4-66	3/8" x 3/8"	2
ES4-88	1/2" x 1/2"	2
ES4-1010	5/8" x 5/8"	2
ES4-1212	3/4" x 3/4"	2

Fusible Pipe Plug







PART NO.	SIZE	PKG
168° F		
FP-A-168	1/8"	5
FP-B-168	1/4"	5
FP-C-168	3/8"	2
210° F		
FP-A-210	1/8"	5
FP-B-210	1/4"	5
FP-C-210	3/8"	2
283° F		
FP-A-283	1/8"	5
FP-B-283	1/4"	2
FP-C-283	3/8"	2

Refrigerant Drum Adapter WADE IN USA

NPS CYLINDER X MALE FLARE. FURNISHED WITH FIBER GASKET.



PART NO.	SIZE	PKG
K1-1	3/4" x 1/4"	10
K1-3	3/4" x 3/8"	2
K1-5	3/4" x 1/2"	2
K1-8	1/2" x 1/4"	2

Fiber Drum Adapter Seal Gasket





PART NO.	SIZE	PKG
K1-D	1/2"	10
K1-E	3/4"	10

Fusible Flare x Pipe Adapter





PART NO.	SIZE PK	G
168° F		
FU-4B-168	1/4" x 1/4"	2
FU-4C-168	1/4" x 3/8"	2
FU-6C-168	3/8" x 3/8"	2
210° F		
FU-4B-210	1/4" x 1/4"	2
FU-4C-210	1/4" x 3/8"	2
FU-6C-210	3/8" x 3/8"	2
283° F		
FU-4B-283	1/4" x 1/4"	2
FU-4C-283	1/4" x 3/8"	2

3/8" x 3/8" 2

Long Forged Refrigeration Nut

FU-6C-283



INCREASE VIRRATION RESISTANCE

		SWILLIAM
PART NO.	SIZE	PKG
N4-4	1/4"	10
N4-5	5/16"	5
N4-6	3/8"	10
N4-8	1/2"	5
N4-10	5/8"	5
N4-12	3/4"	2

Flare Cap





PART NO.	SIZE	PKG
N5-3	3/16"	5
N5-4	1/4"	25
N5-5	5/16"	5
N5-6	3/8"	25
N5-8	1/2"	10
N5-10	5/8"	10
N5-12	3/4"	2

Finger Tight Flare Cap



NEOPRENE SEAL. SEE PAGE 45 FOR SINGLE INFORMATION.

PART NO.	SIZE	PKG
NFT5-4-101	1/4"	1000
NFT5-6-101	3/8"	500

Short Forged Refrigeration



	-	
PART NO.	SIZE	PKG
NS4-3	3/16"	10
NS4-4	1/4"	25
NS4-4-CS	1/4"	1000
NS4-5	5/16"	10
NS4-6	3/8"	25
NS4-6-CS	3/8"	500
NS4-8	1/2"	25
NS4-8-CS	1/2"	350
NS4-10	5/8"	10
NS4-10-CS	5/8"	200
NS4-12	3/4"	5
NS4-12-CS	3/4"	100
NS4-14	7/8"	2

Reducing Sausa



Old Style Extra Heavy Pre-1968 Nut



USA

PART NO.	SIZE P	(G
HNS4-4	1/4"(3/4" hex)	25
HNS4-6	3/8"(7/8" hex)	25
HNS4-8	1/2"(1" hex)	10
HNS4-10	5/8"(1 1/8" hex)	10
HNS4-12	3/4"(1 3/8" hex)	2

Frost-Proof Forged Refrigeration Nut HOLES RELIEVE FROST IN THREAD AREA





PART NO.	SIZE	PKG
NST4-4	1/4"	5
NST4-6	3/8"	5
NST4-8	1/2"	10
NST4-10	5/8"	2





13		AND THE PERSON NAMED IN	***
PA	RT NO.	SIZE	PKG
P2	-3	3/16"	5
P2-	-4	1/4"	10
P2-	-5	5/16"	5
P2-	-6	3/8"	10
P2-	-8	1/2"	10
P2-	-10	5/8"	5
P2-	-12	3/4"	2

Flare x Flare x Male Pipe Tee WSA USA

PART NO.	SIZE	PKG
T1-4A	1/4" x 1/4"	10
	x 1/8"	
T1-4B	1/4" x 1/4"	10
	x 1/4"	
T1-4C	1/4" x 1/4"	2
	x 3/8"	
T1-5B	5/16"x5/16"	2
	x 1/4"	
T1-6B	3/8"x 3/8"	5
	x 1/4"	
T1-6C	3/8" x 3/8"	5
	x 3/8"	
T1-6D	3/8" x 3/8"	2
	x 1/2"	
T1-8B	1/2" x 1/2"	2
	x 1/4"	
T1-8C	1/2" x 1/2"	2
	x 3/8"	
T1-8D	1/2" x 1/2" x 1/2"	2
T1-10C	5/8" x 5/8" x 3/8"	2
T1-10D	5/8" x 5/8" x 1/2"	2

Flare Tee



USA

PART NO.	SIZE	PKG
T2-3	3/16"	5
T2-4	1/4"	10
T2-5	5/16"	5
T2-6	3/8"	10
T2-8	1/2"	5
T2-10	5/8"	2
T2-12	3/4"	2

Reducing



PART NO.	SIZE	PKG
TR2-446	1/4" x 1/4"	5
	x 3/8"	
TR2-664	3/8" x 3/8"	5
	x 1/4"	
TR2-668	3/8" x 3/8"	2
	x 1/2"	
TR2-886	1/2" x 1/2"	2
	x 3/8"	

Flare x Male Pipe x Flare Tee



PART NO	. SIZE	PKG
T3-4A	1/4" x 1/8"	5
	x 1/4"	
T3-4B	1/4" x 1/4"	5
	x 1/4"	
T3-5B	5/16" x 1/4"	2
1	x 5/16"	
T3-6B	3/8" x 1/4"	5
	x 3/8"	
T3-6C	3/8" x 3/8"	2
3	x 3/8"	
T3-6D	3/8" x 1/2"	2
	x 3/8"	
T3-8C	1/2" x 3/8"	2

Flare x Flare x Female Flare Tee

x 1/2"

x 1/2"

1/2" x 1/2"

5/8" x 1/2" x 5/8"



T3-8D

T3-10D



PART NO.	SIZE	PKG
T6-4	1/4"	2

Flare x Male Pipe Adapter



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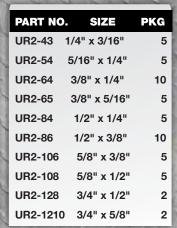
PART NO.	SIZE	PKG
U1-2A	1/8" x 1/8"	5
U1-3A	3/16" x 1/8"	5
U1-3B	3/16" x 1/4"	5
U1-4A	1/4" x 1/8"	25
U1-4B	1/4" x 1/4"	25
U1-4C	1/4" x 3/8"	10
U1-4D	1/4" x 1/2"	10
U1-5A	5/16" x 1/8"	5
U1-5B	5/16" x 1/4"	5
U1-5C	5/16" x 3/8"	5
U1-6A	3/8" x 1/8"	10
U1-6B	3/8" x 1/4"	10
U1-6C	3/8" x 3/8"	10
U1-6D	3/8" x 1/2"	10
U1-6E	3/8" x 3/4"	5
U1-8A	1/2" x 1/8"	2
U1-8B	1/2" x 1/4"	5
U1-8C	1/2" x 3/8"	10
U1-8D	1/2" x 1/2"	10
U1-8E	1/2" x 3/4"	5
U1-10B	5/8" x 1/4"	5
U1-10C	5/8" x 3/8"	5
U1-10D	5/8" x 1/2"	10
U1-10E	5/8" x 3/4"	5
U1-12C	3/4" x 3/8"	2
U1-12D	3/4" x 1/2"	2
U1-12E	3/4" x 3/4"	2
U1-14E	7/8" x 3/4"	2

Flare Union



		`
PART NO.	SIZE	PKG
U2-2	1/8"	5
U2-3	3/16"	5
U2-4	1/4"	25
U2-5	5/16"	10
U2-6	3/8"	25
U2-8	1/2"	10
U2-10	5/8"	10
U2-12	3/4"	2
U2-14	7/8"	2

Reducing



Flare x Female Pipe Adapter



WSA WSA

ĺ	PART NO.	SIZE	PKG
Š	U3-2A	1/8" x 1/8"	5
	U3-3A	3/16" x 1/8"	5
	U3-4A	1/4" x 1/8"	10
Š	U3-4B	1/4" x 1/4"	10
	U3-4C	1/4" x 3/8"	5
S	U3-5A	5/16" x 1/8"	5
	U3-5B	5/16" x 1/4"	5
	U3-6A	3/8" x 1/8"	5
Š	U3-6B	3/8" x 1/4"	5
	U3-6C	3/8" x 3/8"	5
Š	U3-6D	3/8" x 1/2"	5
	U3-8B	1/2" x 1/4"	5
	U3-8C	1/2" x 3/8"	5
ğ	U3-8D	1/2" x 1/2"	5
3	U3-8E	1/2" x 3/4"	2
ì	U3-10C	5/8" x 3/8"	5
į	U3-10D	5/8" x 1/2"	5
,	U3-10E	5/8" x 3/4"	2

Female Flare x Flare Adapter



INCLUDES COPPER GASKET

PART NO.	SIZE	PKG
UR3-43	1/4" x 3/16"	2
UR3-46	1/4" x 3/8"	10
UR3-48	1/4" x 1/2"	5
UR3-64	3/8" x 1/4"	20
UR3-68	3/8" x 1/2"	10
UR3-84	1/2" x 1/4"	10
UR3-86	1/2" x 3/8"	10
UR3-810	1/2" x 5/8"	10
UR3-108	5/8" x 1/2"	5
UR3-1012	5/8" x 3/4"	2
UR3-1210	3/4" x 5/8"	2

Flare x Solder Adapter

FURNISHED WITH COPPER GASKET





U3	A	
PART NO.	SIZE P	KG
US3-44	1/4" x 1/4"	10
US3-45	1/4" x 5/16"	5
US3-46	1/4" x 3/8"	5
US3-64	3/8" x 1/4"	5
US3-65	3/8" x 5/16"	5
US3-66	3/8" x 3/8"	10
US3-68	3/8" x 1/2"	5
US3-610	3/8" x 5/8"	5
US3-86	1/2" x 3/8"	2
US3-88	1/2" x 1/2"	5
US3-810	1/2" x 5/8"	2
US3-108	5/8" x 1/2"	2
US3-1010	5/8" x 5/8"	5
US3-1012	5/8" x 3/4"	2
US3-1014	5/8" x 7/8"	2
US3-1212	3/4" x 3/4"	5
US3-1214	3/4" x 7/8"	2

Female Flare x Female Flare Connector

INCLUDES TWO COPPER GASKET





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		-
PART NO.	SIZE	PKG
U4-4	1/4"	10
U4-6	3/8"	10
U4-8	1/2"	2
U4-10	5/8"	2
U4-12	3/4"	2

Swivel Female Flare

USA

Connector

Swivel Female Flare x Solder Adapter

A32700 SERIES PG 45





PART NO.	SIZE	PKG
US5-44	1/4" x 1/4"	5
US5-66	3/8" x 3/8"	5
US5-88	1/2" x 1/2"	5
US5-1010	5/8" x 5/8"	5
US5-1212	3/4" x 3/4"	2

Female Flare x Female Pipe Adapter

INCLUDES COPPER





PART NO.	SIZE	PKG
U6-4A	1/4" x 1/8"	2
U6-4B	1/4" x 1/4"	2
कि मार्जा	11	0/16

Extra Long Flare x Male Pipe Adapter

Female Flare x Male Pipe Adapter INCLUDES COPPER **SEAL GASKET**

USA



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		1
PART NO.	SIZE	PKG
U5-4A	1/4" x 1/8"	5
U5-4B	1/4" x 1/4"	10
U5-6B	3/8" x 1/4"	5
U5-8C	1/2" x 3/8"	2
U5-8D	1/2" x 1/2"	2

PART NO.	SIZE	PKG
UX1-4A	1/4" x 1/8"	2
UX1-4B	1/4" x 1/4"	5

Extra Long Flare Union



PART NO.	SIZE	PKG
UX2-4	1/4"	5

Brass Pipe Fittings

JB's American made forged brass pipe fittings are manufactured from CA 377 alloy and are threaded to Dryseal Taper Pipe Standards to generally comply with SAE, ASA, ASME, and MS Standards. Forgings can be used on vacuums to pressures of 5,000 psi depending on size, material, and conditions.

Features:

- Good vibration resistance (improved by using long nuts)
- Easy assembly
- American made quality
- Wide selection

JB recommends the use of a compatible thread sealant and tightening 2 1/2 full turns past hand tight.

Vacuum and pressures of 5,000 psi can be handled depending upon the size, material, and conditions.

Caution: Over-tightening and dirt can damage fittings

JB brass fittings are sold in box quantities only. For more information, please contact sales@jbind.com or 800.323.0811.

Nominal Pipe Size Threads

		NOM. PIPE	
1/16"	27	2"	11.5
1/8"	27	2-1/2"	8
1/4"	18	3"	8
3/8"	18	3-1/2"	8
1/2"	14	4"	8
3/4"	14	5"	8
1"	11.5	6"	8
1-1/4"	11.5	8"	8
1-1/2"	11.5		







SIZE	PKG
1/8"	5
1/4"	10
3/8"	5
1/2"	2
3/4"	2
	1/8" 1/4" 3/8" 1/2"

FIL



PART NO.	SIZE	PKG
100-A	1/8"	5
100-B	1/4"	5
100-C	3/8"	5
100-D	1/2"	2
100-E	3/4"	2





PART NO.	SIZE	PKG
1103-A	1/8"	5
103-B	1/4"	10
103-C	3/8"	5
103-D	1/2"	5
103-E	3/4"	5

BRASS FITTINGS









Street Ell





PART NO.	SIZE	PKG
110-BA	1/4" x 1/8"	10
110-CA	3/8" x 1/8"	5
110-CB	3/8" x 1/4"	10
110-DA	1/2" x 1/8"	5
110-DB	1/2" x 1/4"	10
110-DC	1/2" x 3/8"	10
110-EA	3/4" x 1/8"	2
110-EB	3/4" x 1/4"	5
110-EC	3/4" x 3/8"	5
110-ED	3/4" x 1/2"	5
110-FD	1" x 1/2"	2
110-FE	1" x 3/4"	2

CLOSE Nipple

SIZE

1/8"

1/4"

3/8"

1/2"

3/4"

PART NO.

112-A

112-B

112-C

112-D

112-E

G	
0	PART N
5	113-A15
10	113-A2
5	113-A25
10	113-A3
10	113-A35
2	113-B15
5	113-B2
5	113-B25
5	113-B3
2	113-B35
2	113-C15
180	113-C2
Ä	113-C25
**	113-C3
G	113-C35
5	113-D15

PART NO.	SIZE PI	KG
113-A15	1/8" x 1-1/2"	5
113-A2	1/8" x 2"	5
113-A25	1/8" x 2-1/2"	5
113-A3	1/8" x 3"	5
113-A35	1/8" x 3-1/2"	5
113-B15	1/4" x 1-1/2"	5
113-B2	1/4" x 2"	5
113-B25	1/4" x 2 -1/2"	5
113-B3	1/4" x 3"	5
113-B35	1/4" x 3-1/2"	5
113-C15	3/8" x 1- 1/2"	5
113-C2	3/8" x 2"	5
113-C25	3/8" x 2 -1/2"	5
113-C3	3/8" x 3"	5
113-C35	3/8" x 3 -1/2"	5
113-D15	1/2" x 1-1/2"	5
113-D2	1/2" x 2"	5
113-D25	1/2" x 2-1/2"	5
113-D3	1/2" x 3"	2
113-D35	1/2" x 3-1/2"	2

PART NO	. SIZE	PKG
116-A	1/8" forged	5
116-B	1/4" closed	5
	forged	
116-C	3/8" closed	5
	forged	
116-D	1/2" forged	2



and the same	1	
PART NO.	SIZE	PKG
121-A	1/8"	10
121-B	1/4"	10
121-C	3/8"	5
121-D	1/2"	5
121-E	3/4"	5
121-F	1"	2

PART NO.	SIZE	PKG
122-A	1/8"	5
122-B	1/4"	10
122-C	3/8"	5
122-D	1/2"	5
122-E	3/4"	5

Compression Break-Off Sleeve (Pilot) Nut





PART NO.	SIZE	PKG
81LB-4	1/4"	10

LIMITED WARRANTY

10

5

The entire limited warranty and OTC warranty can be found at www.jbind.com. Products sold by JB Industries, Inc. are warranted for a period of 12 months from the date of sale with the following exceptions:

- Vacuum pumps are warranted 24 months LIMITED over-the-counter. Not changing the oil will void the over the counter warranty.
- Digital gauges are warranted 12 months ATLAS scale 24 months
- · Rothenberger tools are warranted 24 months

JB limits this warranty to the repair, replacement or credit at invoice price (JB's option) of products that in JB's opinion are defective due to defects in workmanship and/or materials. Warranty claims resulting from obvious product abuse, misuse such as broken parts or lack of maintenance including failure to keep the vacuum pump filled with clean oil, abnormal use or normal wear and tear will not be honored as warranty repair and will be subject to JB's published repair costs. This express warranty is in lieu of and excludes all other warranties, guarantees and/or representations, express or implied, of JB and/or the manufacturer of such products that make NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. Technical information, recommendations and advice as to properties and usages of materials, design, installation and use of products, engineering and other matters are provided as an accommodation and are intended only as suggestions. Although they are believed to be accurate, based on JB's knowledge and experience, JB assumes no obligation or liability for any results obtained in their use or application, and they are not to be construed as establishing any warranty, express or implied. In no event shall JB be liable for claims for any damages whatsoever (whether direct, foreseeable, consequential or special) suffered by buyer or anyone else arising out of any breach by JB. JB makes no warranty to those defined as consumers in the Magnuson-Moss Warranty-Federal Trade Commission Improvement Act.

Disclaimers: All product items pictured, described, or otherwise displayed herein are subject to changes, alterations, and/or modifications at anytime by JB Industries, Inc. The terms and conditions for the purchase of JB Industries, Inc. products are subject to changes, alterations, and/or modifications at any time by JB Industries, Inc. and will be made available upon request to JB Industries and shall be provided to customers of JB Industries, Inc. at time of purchase

WARRANTY

VACUUM PUMPS: 24 MONTHS

CHANGE THE OIL!!! MOST PUMPS SIMPLY NEED AN OIL CHANGE!!!!!! NOT CHANGING OIL WILL VOID WARRANTY

Pumps that are in warranty are examined as soon as they arrive at the warehouse so that we may contact the wholesaler regarding our determination. The over-the-counter warranty applies only to the manufacturing defects and is VOID if the problem has been determined to be abuse.

Check for Signs of Abuse:

A. Bell back housing area

B. Side of trap

C. Base is broken or missing corners

D. Damage to protective fins and drain valve

E. Flat hit marks on top and bottom of corners

F. Handle bent down or broken
 G. Intake damaged or missing



Manifolds carry a lifetime warranty on the bar only and does not include coverage of any parts. The 12 month over-the-counter warranty covers manufacturing defects only, not abuse. Signs of abuse include lens cracked or missing, gauges that can be loosened by hand, and drop marks on manifolds or unions. Check calibration with the set screw on the gauge as well.

DIGITAL INSTRUMENTS (Gauges, Manifolds): 12 Months, Atlas Scale: 24 Months

Check the batteries. The product will provide a low battery warning with flashing dots at the bottom of the display. Plug in and toggle through the settings as well as the temperature setting to check if the sensors are working. If the sensors are working, push the on/ off button to auto cal to see if it will return to zero. If any of the readings are off, check to see what the temperature sensor is for both sensors. A few degrees difference between the two can cause a problem with the readings. Check for signs of abuse which include a cracked case, drop marks on fittings, display is dimmed or damaged, sensor is pinched or sliced, and the hook is bent or missing.

For our Digital Micron gauge, DV-22N, check the last recorded vacuum and then press twice to clear the last recorded vacuum to see if it resets (if the numbers are jumping around, it may be a cold pump or oil contaminant inside the thermistor). If the numbers are jumping around after you have disconnected the gauge from the vacuum and it will not return to one, wait until the gauge auto calibrates. Unit will display JB and turn off before it reads 1 if batteries are low. Check for signs of abuse which include a cracked case, the coupler is loose at the base of the case, the O-ring/gasket is chewed up or damaged or missing, there are pliers or channel locks on couplers, and the hook is broken or missing.

ROTHENBERGER TOOLS: 24 MONTHS

Check for signs of abuse

HOW TO RETURN PRODUCT

Prior to returning any product to JB, you are required to obtain a Return Goods Authorization number (RGA). Contact customer service at 800-323-0811 to obtain your RGA. Insure that all returned products are packed adequately to avoid damage during shipment as we will not honor warranty claims for items damaged in transit. The recommended packing procedure for pumps is detailed below. Paperwork should be placed in a separate plastic bag and should include your assigned RGA, a description of the problem, a copy of the invoice, and any customer assigned repair or purchase order number (if applicable). Please provide contact information of whom to inform of package receipt as well as the person authorized to accept repair charges should the warranty be void.

- 1. Completely drain oil and close all valves
- 2. Place pump in plastic bag and seal
- Cushion bottom of carton with packing paper or crumpled newspaper before placing pump in carton and fill in along sides and top. DO NOT USE PEANUTS
- Place paperwork in a separate plastic bag and seal. Include the RGA and detail of problem
- If estimate is required before repair, be certain this is highlighted and clearly specified
- Depending on time of year, allow 2-4 weeks for repair service

Ship repairs to: JB Industries

601 N. Farnsworth Ave.

Aurora, IL 60505

Merced Wholesale 805 S. Fremont

Alhambra, CA 91803 Phone 626-293-5710

Fax 626-289-1196

FOR VACUUM PUMPS ONLY:

AK, AZ, CA, ID, MT, NV, OR, UT, and WA customers have the option of also using Merced Wholesale for pump repair. For customers choosing the Merced facility, prices and terms of condition must be obtained from Merced.

POP MARKETING AND MERCHANDISI



Made in Chi-not t-shirts MKDS58 SHORT SLEEVE TEE SHIRT Available in sizes L-XXXL

KOBRA® Bottle opener MKSD56 \$7.50



Made in Chi-not t-shirts MKDS59 LONG SLEEVE TEE SHIRT Available in sizes L-XXXL \$16.50 (NOT SHOWN)

> JB Industries Ball CaP MKDS51 BLACK HAT MKDS52 WHITE HAT \$14.50



POSTFRS

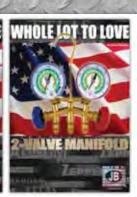
SAMPLING PLEASE REFER TO WEBSITE FOR ALL AVAILABLE POSTERES











JB has point of purchase material to highlight your show-room. From banners, to backing for pegboard and slatwall, to counter mats and headers, please refer to **www.jbind.com/marketing** for an order form or **call 800-323-0811** to place your order.



MKDS22 **BANNER 36" X 48" WITH GROMMETS.**



MKDS23 BANNER36" x 48" WITH **GROMMETS.**



MKDS27 COUNTER MAT 12" X 18" **LAMINATED WITH A DURABLE**



MKDS02 Header for end caps 12" X 36" with a 2" bend to attach to gondolas



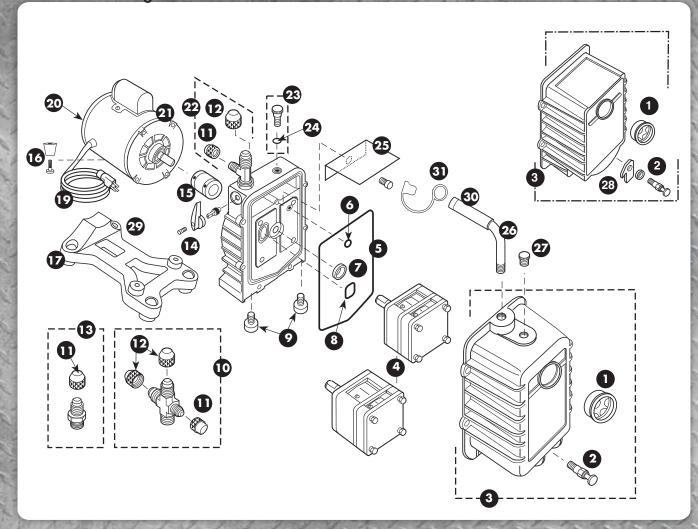
BACKING FOR PEGBOARD 2 PANELS 34.5" X 23.5" EACH.

MKDS05 **BACKING FOR SLATWALL 2 PANELS** 36" X 47.5" EACH.



VACUUM PUMP REPAIR

DV-42N through DV-285N Series



WHEN ORDERING, PLEASE PROVIDE THE FOLLOWING INFORMATION:

- MODEL NUMBER
- FOUR DIGIT SERIAL NUMBER
- PART NUMBER AND DESCRIPTION

FOR REPAIR PARTS FOR DV-42 AND DV-42N SERIES PUMPS MANUFACTURED PRIOR TO JANUARY 2001 SEE PAGE 70.

OPERATING INSTRUCTIONS FOR ALL PUMPS MANUFACTURED SINCE 1980 AVAILABLE UNDER "TECHNICAL INFORMATION" AT WWW.JBIND.COM.

new:

NOTE: ON FLEXIBLE COUPLER (15) FLEBIBLE SECTION IS AVALABLE AS PR-308

new:

PR-209 NOW INCLUDES STEM WITH 0-RINGS AND RETAINER

new:

PR-56 - ADAPTOR NUT WITH O-RING

PUMP REPAIR PARTS

REFERENCE	PART NO.	DESCRIPTION	REFERENCE	PART NO.	DESCRIPTION
1	PR-1	Sight Glass	16	PR-42	Motor Foot With Screw
2	PR-2	Drain Valve	17	PR-59	Base Foot
3	PR-300	DV-42N Through DV200N	19	PR-31	Line Cord (Emerson Motor)
		Cover Assy. w/ Sight Glass And Drain Valve	19	PR-58	Line Cord (Marathon Motor
3	PR-301	Dv-285N Cover Assy. w/ Sight Glass And Drain Valve	20	PR-35	Rocker Switch With Prongs (Marathon 1101-0105)
3	PR-200	No Longer Available. Can Substitute PR-201	20	PR-54	Rocker Switch With Wire Leads (Emerson)
3	PR-201	DV-142N & DV-200N Cover Assy. w/ Sight Glass, Drain	21	PR-206	1/2 Hp, 115v, 60 Hz Motor With Line Cord And Switch
4	PR-202	Valve & Guard Dv-85N Cartridge w/ O-Rings	21	PR-207	1/2 Hp, 115/230v, 50/60 Hz Motor W/ Line Cord And Switch
4	OBSOLETE	And Seal	22	PR-5	Intake Tee With Caps
1	PR-203 OBSOLETE	DV-142N Cartridge w/O- Rings And Cover Seal	22	PR-56	Adaptor Nut With O-Ring
4	PR-204 OBSOLETE	DV-200N Cartridge w/O-Rings And Cover Seal	23	PR-7	Gas Ballast Valve With O-Ring
4	PR-214	DV-285N Cartridge w/	24	P90009	O-Ring, Gas Ballast Valve
4	OBSOLETE PR-302	O-Rings And Cover Seal DV-85N Cartridge w/ O-Rings And Cover Seal	25	PR-40	Splash Guard And Screw (Excludes 3cfm Manufacture Before 1/01. Use PR-39.)
1	PR-303	DV-142N Cartridge w/ O-Rings And Cover Seal	26	PR-75	Cushioned Handle With Lift Ring 1/2" NPT And DV-EP-8 As Of 2008
4	PR-304	DV-200N Cartridge w/ O-Rings And Cover Seal	26	PR-205	Cushioned Handle 3/8" NP
ı.	PR-314	DV-285N Cartridge w/	27	PR-203	Oil Fill Plug With O-Ring
5	DD 046	O-Rings And Cover Seal Cover Seal	28	PR-55	Drain Valve Guard And
	PR-216	33333		OBSOLETE	Spacer
5	PR-311	Cover Seal	29	PR-62	Pump Base (Includes Feet)
6	PR-211	Trap O-Ring, Gas Ballast	30	PR-500	Cushion And Cap 3/8" NPT
7	PR-3	Shaft Seal	30	PR-501	Cushion And Cap 1/2" NPT
3	PR-215	Trap O-Ring, Intake	31	DV-EP6	Tethered Safety Cap 3/8"
9	PR-315 PR-4	Trap O-Ring, Intake Rubber Foot & Screw	31 Not Shown	DV-EP8 PR-18	Tethered Safety Cap 1/2" Cartridge Valve Repair Kit
		Assembly (1 Per Package)			(Includes DV-285N As Of
10	PR-24	Intake Caps With Cross	Net Ch	DD 50	2007 Models)
11	NFT5-4	1/4" O-Ring, Intake	Not Shown	PR-52	DV-285N Cartridge Valve Repair Kit Prior To 2007
12	NFT5-6	3/8" O-Ring Cap	Models		
13	PR-32	1/4" Intake With Cap	Not Shown	PR-45	Pump Repair Kit: PR-1, PR-2
14	PR-209	Plastic Isolation Valve Handle And Screw w/Stem and Retainer (Not Interchangeable	Pold hones	Plain type: A	e e
		w/ PR- 210)		•	ed beginning January 2001 cured before January 2001
14	PR-210	Metal Isolation Valve Handle And Screw	oaoi iii lea	ampo manadot	Soloto Galladi y 2001

Handle And Screw

Flexible Section Only

Flexible Coupler

15

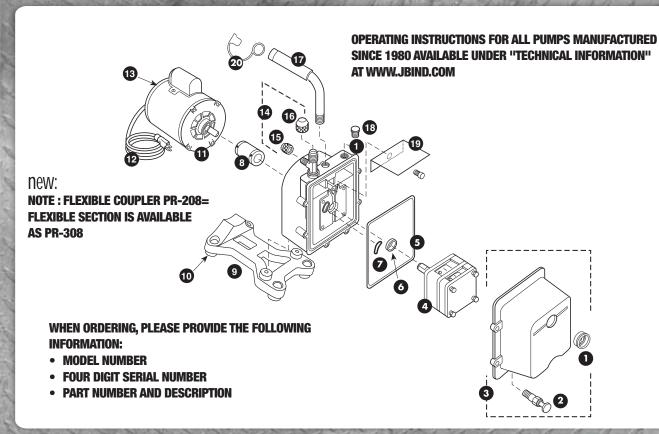
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PR-208

PR-308

PUMP REPAIR PARTS

DV-3E, DV-4E and DV-6E Eliminator® Series

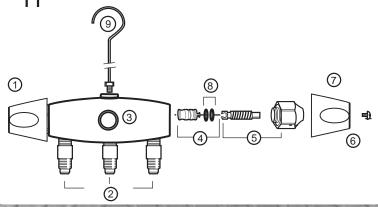


REFEREN	CE PART NO.	DESCRIPTION
1	PR-1	Sight glass
2	PR-2	Drain valve
3	PR-9	DV-3E Cover assembly includes sight glass and drain valve
3	PR-10	DV-4E and DV-6E Cover assembly includes sight glass and drain valve
4 NEW	PR-403	DV-3E Cartridge complete with O-rings and cover seal
4 NEW	PR-404	DV-4E Cartridge complete with O-rings and cover seal
4 NEW	PR-406	DV-6E Cartridge complete with O-rings and cover seal
5 NEW	PR-217	Cover seal
6	PR-3	Shaft seal
7	PR-315	Trap intake O-ring
8	PR-208	Flexible coupler
9	PR-62	Pump base (includes rubber feet)

REFERENCE	PART NO.	DESCRIPTION
10	PR-59	Rubber foot
11	PR-207	1/2 HP, 115/230 V, 50/60 HZ Motor with line cord and switch
11	PR-206	1/2 HP Motor with line cord and switch
12	PR-31	Line cord (Emerson motor)
12 NEW	PR-58	Line Cord (Marathon motor)
13	PR-54	Motor switch, rocker
14	PR-63	Intake tee with cap
15	NFT5-4	1/4" O-ring cap
16	NFT5-6	3/8" O-ring cap
17	PR-205	Cushioned handle with 3/8" NPT
18	PR-22	Oil fill plug with O-ring
19	PR-39	DV-3E splash guard with screw
19	PR-40	DV-4E and DV6E splash guard with screw
20	DV-EP6	Tethered safety cap 3/8"
Not shown	PR-18	Cartridge valve repair kit

MANIFOLD REPAIR PARTS

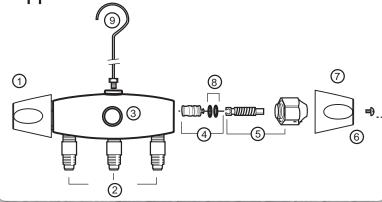
Zeppelin Brass Series Manifold



REFERENCE	PART NO.	DESCRIPTION
1	MR-601	Hand wheel and screw
2	U1-4A	1/4" Intake
3	MR-520	Sight glass
4	MR-505	Piston with seat and O-rings
5	MR-606	Stem and nut
6	MR-601	Hand wheel and screw
7	MR-503	Hand wheel screws (two)
8	MR-509	O-rings (two)
9	M2-102N	Hanging hook

SEE PAGE 39 FOR MANIFOLD REBUILD KITS

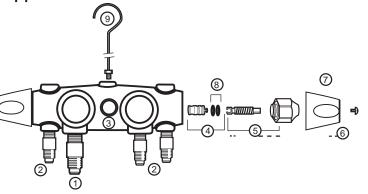
Zeppelin Aluminum Series Manifold



REFERENC	E PART NO.	DESCRIPTION
1	MR-601	Hand wheel and screw
2	U1-4A	1/4" Intake
3	MR-520	Sight glass
4	MR-505	Piston with seat and O-rings
5	MR-606	Stem and nut
6	MR-601	Hand wheel and screw
7	MR-503	Hand wheel screws (two)
8	MR-509	O-rings (two)
9	M2-102N	Hanging hook

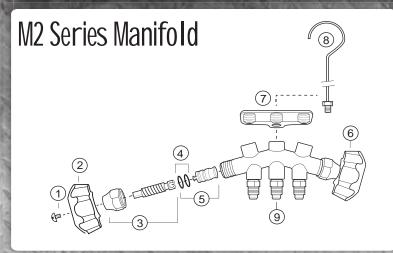
SEE PAGE 39 FOR MANIFOLD REBUILD KITS

Zeppelin 4-valve Aluminum Series Manifold



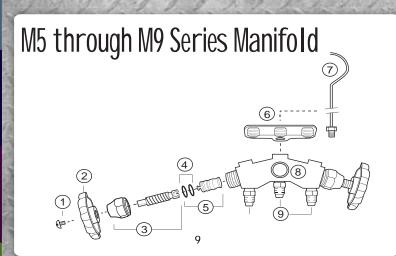
REFERENC	E PART NO.	DESCRIPTION
1	U1-6B	3/8" Intake
2	U1-4A	1/4" Intake
3	MR-520	Sight glass
4	MR-605	Piston with seat and O-rings
5	MR-607	Stem and nut
6	MR-601	Hand wheel and screw
7	MR-503	Hand wheel screws (two)
8	MR-409	O-rings (two)
9	M2-102N	Hanging hook

MANIFOLD REPAIR PARTS



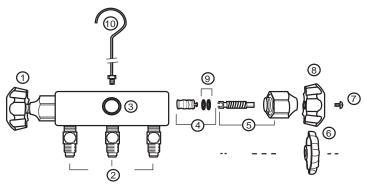
REFERENCE	PART NO.	DESCRIPTION
1	MR-503	Hand wheel screw (two)
2	MR-501B	Blue Hand wheel and screw
3	MR-516	Stem and nut
4	MR-509	O-ring (two)
5	MR-505	Piston with seat and O-rings
6	MR-501R	Red Hand wheel
7	M2-300	Hose holder
8	M2-102N	Hanging hook
9	U1-4A	Intake

SEE PAGE 39 FOR MANIFOLD REBUILD KITS FOR M2 ONLY



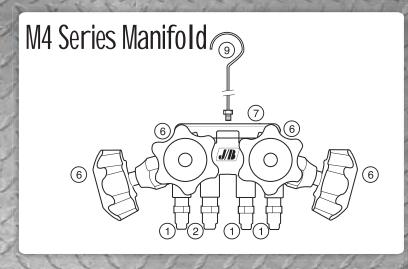
REFERENCE	PART NO.	DESCRIPTION
1	MR-503	Hand wheel screw (two)
2	MR-508	Metal hand wheel and screw
3	MR-516	Stem and nut
4	MR-509	O-ring (two)
5	MR-505	Piston with seat and O-rings
6	M2-300	Hose holder
6	MR-521	ACME thread hose holder
7	M2-102N	Hanging hook
8	MR-520	Sight glass
9	U1-4A	Intake
9	AF-13450	ACME Intake

M3 Series Manifold



r		
REFERENCE	PART NO.	DESCRIPTION
1	MR-501B	Blue Hand wheel and screws
2	MR-550	1/4" Intake and hose holder
3	MR-520	Sight glass
4	MR-505	Piston with seat and O-rings
5	MR-560	Stem and nut
6	MR-508	Metal hand wheel and screw
7	MR-503	Hand wheel screws (two)
8	MR-501R	Red Hand wheel
9	MR-509	O-rings (two)
10	M2-102N	Hanging hook

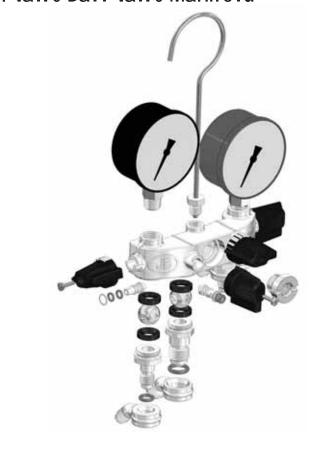
MANIFOLD REPAIR PARTS



REFERENCE	PART NO.	DESCRIPTION
1	U1-4A	1/4" Intake
2	U1-6A	3/8" Intake
3	MR-505	Piston with seat and O-rings
4	MR-516	Stem and nut
5	MR-503	Handwheel screws
6	MR-501B	Blue Hand wheel and screw
	MR-501Y	Yellow Handwheel and screw
	MR-504B	Black Handwheel and screw
	MR-501R	Red Handwheel and screw
7	MR-531	Hose holder
8	MR-509	O-ring (2)
9	M2-102N	Hanging hook

SEE PAGE 39 FOR MANIFOLD REBUILD KITS FOR M4 ONLY

4 Valve Ball Valve Manifold



REFERENCE PART NO. DESCRIPTION

26XXX Series Ball Valve Manifold Repair Parts

ZUXXX OCITICS	Dan varve mannola riepan i arts
M2-102N	Hanging Hook
MR-502	Handle & Screw
MR-BVK	Ball Valve Kit Including
	(2) Seals
	(1) Stem
	(2) O-rings
	(1) Washer
MR-444	1/4" Retainer Fitting
MR-446	3/8" Retainer Fitting
MR-610	Ball
MR-544	1/4" Hose Holder Sleeve with O-ring
MR-546	3/8" Hose Holder Sleeve with O-ring
MR-504	1/4" Hose Holder Sleeve O-ring
MR-506	3/8" Hose Holder Sleeve O-ring
MR-525	Sightglass with O-ring

PART #	PG PART #	PG PART #	PG PART #	PG PART#	PG PART#	PG
100-A	72 122-E	73 23540	23 25244	31 27976	34 28852	33
100-B	72 11175	67 23546	23 25250	31 27980	34 28854	33
100-C	72 11509	67 24000	25 25258	31 27982	34 28859	33
100-D	72 11511	67 24008	25 25265	31 27984	34 28870	33
100-E	72 11575	67 24025	25 25269	31 27986	34 28872	33
101-A	72 13493	51 24033	25 25325	31 27988	34 28874	33
101-B 101-C	72 13494 72 2VZR-P	51 24040 39 24044	25 25425 25 25500	31 28102 31 28105	32 28876 32 28880	33 33
101-C	72 2VZR-P	39 24044	25 25500 25 25508	31 28170	32 28882	33
101-E	72 23000	23 24058	25 25523	31 28172	32 28884	33
103-A	72 23004	23 24065	25 25525	31 28174	32 28886	33
103-B	72 23006	23 24069	25 25533	31 28176	32 28888	33
103-C	72 23013	23 24100	25 25548	31 28180	32 28932	33
103-D	72 23017	23 24108	25 25550	31 28182	32 28935	33
103-E	72 23025	23 24125	25 25558	31 28184	32 28952	33
110-BA	73 23029	23 24133	25 25573	31 28186	32 28954	33
110-CA	73 23031	23 24140	25 25708	31 28188	32 28959	33
110-CB	73 23033	23 24144	25 25713	31 28192	32 28970	33
110-DA	73 23038 73 23042	23 24150 23 24158	25 26000 25 26008	28 28196 28 28197	32 28972	33
110-DB 110-DC	73 23042 73 23050	23 24158	25 26008 25 26025	28 2819 <i>1</i> 28 28199	32 28974 32 28976	33 33
110-EA	73 23050 73 23056	23 24169	25 26025 25 26033	28 28205	32 28980	33
110-EB	73 23063	23 24200	25 26040	28 28270	32 28982	33
110-EC	73 23067	23 24208	25 26044	28 28272	32 28984	33
110-ED	73 23100	23 24225	25 26100	28 28274	32 28986	33
110-FD	73 23106	23 24233	25 26108	28 28276	32 28988	33
110-FE	73 23113	23 24240	25 26125	28 28280	32 29260	38
112-A	73 23117	23 24250	25 26133	28 28282	32 29263	38
112-B	73 23125	23 24258	25 26140	28 28284	32 29280	38
112-C	73 23131	23 24265	25 26144	28 28286	32 29285	38
112-D	73 23133	23 24325 23 24425	25 26200 25 26208	28 28288 28 28292	32 29290	38
112-E 113-A15	73 23138 73 23142	23 24425	25 26208 25 26225	28 28292	32 29291 32 29292	38 38
113-A15	73 23142	23 24508	25 26223 25 26233	28 28297	32 29292	38
113-A25	73 23156	23 24525	25 26240	28 28299	32 29296	38
113-A3	73 23163	23 24533	25 26244	28 28502	32 29297	38
113-A35	73 23167	23 24600	25 27752	34 28505	32 29310	38
113-B15	73 23200	23 24608	25 27754	34 28570	32 29311	38
113-B2	73 23206	23 24615	25 27759	34 28572	32 29312	38
113-B25	73 23213	23 25000	31 27770	34 28574	32 29315	38
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	RT59001 RT59060		SK-40410A SK-40502	14 T6-4 14 TC-26-100	71	U1-14E U2-2	71 71	US3-68 US3-86		V34905 V34910	55 55
ğ	RT59070		SK-40507	14 TC-26-16		U2-3		US3-88	71	¥34910	33
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	RT70007X		SK-50134A	14 TC-31-12		U2-5		US3-610	71		i
	RT70015 RT70017B		SK-50404A SK-50410A	14 TC-36-100 14 TC-36-12		U2-6 U2-8		US3-810 US3-1010	71 71		
5	RT70017B	,	SK-50502	14 TC-36-12		U2-8 U2-10		US3-1010	71		
3	RT70020	, ,	SK-50507	14 TC-42-12		U2-12		US3-1014	71		
g	RT70021		T1-4A	70 TC-44-100		U2-14		US3-1212	71		
-	RT70027		T1-4B	70 TC-44-12 70 TC-49-100		U3-2A		US3-1214	71		
	RT70029 RT70030		T1-4C T1-5B	70 TC-49-100		U3-3A U3-4A		US4-4 US4-5	72 72		
ø	RT70045		T1-6B	70 TC-50-100		U3-4B		US4-6	72		
6	RT70051D		T1-6C	70 TC-50-11		U3-4C		US4-8	72		
9	RT70056D		T1-6D	70 TC-54-100		U3-5A		US4-10	72		
B	RT70057D RT70060		T1-8B T1-8C	70 TC-54-11 70 TC-55-100		U3-5B U3-6A		US5-1010 US5-1212	72 72		
Ó	RT70061D		T1-8D	70 TC-55-11		U3-6B		US5-44	72		
8	RT70075	58	T1-10C	70 TC-59-10	65	U3-6C		US5-66	72		
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