

**CPS**<sup>®</sup>

**TOOLS, INSTRUMENTS AND EQUIPMENT  
FOR THE HVAC/R INDUSTRY**

**2016 PRODUCT CATALOG**  
*2<sup>nd</sup> Edition*

**HVAC/R  
Specialist**



**BLACKMAX**<sup>®</sup>

**Pro-Set**<sup>®</sup>

**Tech-Set**<sup>™</sup>

**5-2-1**<sup>®</sup>  
COMPRESSOR SAVER<sup>®</sup>

**COMPUTE-A-CHARGE**<sup>®</sup>

**OPTIMA**<sup>™</sup>

1.800.561.8187

www.**itm**.com

information@itm.com



Leak Detection..... 4-9



AC/R Chemical Tools ..... 10-11



Refrigerant Charging Scales..... 12-15



Charging Stations..... 16-17



Recovery Equipment ..... 18-25



Vacuum Pumps ..... 26-32



Vacuum Gauges ..... 33-34



Electrical and Specialty Meters..... 35-38



Temperature & System Measurement..... 39-44



Service Manifolds and Gauges..... 45-61



Charging Hoses..... 62-65



Adapters, Fittings, Valves & Valve Core Tools ..... 66-71



Tubing Tools ..... 72-83



Specialty Hand Tools ..... 84-95



5-2-1 Products ..... 96-99

Every effort has been made to ensure the accuracy of the information contained within this catalog. CPS Products, Inc. reserves the right to make changes or discontinue any product identified in this publication without notice. CPS advises customers to ensure they have obtained the most current and relevant information before placing any orders. © CPS Products, Inc. All rights reserved.

# LEAK DETECTION

INDUSTRY LEADING SENSITIVITY



# Revolutionary E\_MOS<sup>®</sup> Technology developed by CPS is more sensitive, stable and accurate than any other detection method on the market.

\*U.S. Patent # 8,555,701

- Microprocessor controlled sensor improves sensitivity and reduces false alarms
- Detects refrigerants including those with hydrocarbon components (CFC, CH<sub>2</sub>F<sub>2</sub>, HCFC, HFC, HFO, NH<sub>3</sub>, HC. Hydrogen trace gas in 95% N<sub>2</sub>, 5% H<sub>2</sub> mixture A2L refrigerants)
- Visual tachometer-like bar graph display with 8 high intensity LEDs
- Optimal leak-finding performance under a broad range of conditions
- Meets or exceeds all U.S. and international standards for automotive and commercial use
- Ergonomic, high-impact housing

## LEAK SEEKER<sup>®</sup> I

### Progressive Alarm Mode:

Alarm pitch and number of lighted LEDs progressively increase as the leak source is approached. Allows searching for a broad range of leak sizes.

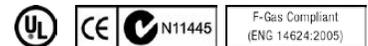
### Threshold Alarm Mode:

Provides a quick go, no/go verifying a leak has been found and approximate size.

## LEAK SEEKER<sup>®</sup> II

### Simply Turn It On And Pinpoint The Leak.

- Simple, intuitive bar graph LED display
- 56 levels of sensitivity automatically selected by proprietary Powershift™ software with 2 user selectable alarm ranges
- The world's only leak detector with fully automatic sensitivity selection and control



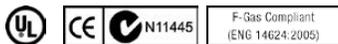
## REPLACEMENT PARTS

EMOS2		E_MOS Technology Sensor
LS2XF		E_MOS Technology Sensor Filters (T0-Pk)
LS2XVF		Vapor Filter Sensing Tip
LSXC3		Molded Carrying Case

Item	LS1 Leak-Seeker <sup>®</sup> I	LS2 Leak-Seeker <sup>®</sup> II
Sensitivity	Better than 0.1 oz (3g) / year	
Sensitivity Selection	Manual	Fully automatic
Operating Temperature	0 to 140°F (-18 to 60°C)	
Auto-Off	Yes, after 10 minutes of inactivity	
Power (Battery Life)	3 "C" batteries (>50 hr continuous use)	
Low Battery Indication	Green (middle) LED turns off when batteries at 10% capacity	Rightmost (No Battery) LED stays on when batteries at 10% capacity
Sensor Life	>500 hr continuous use	
Weight	18 oz (500g)	
Warranty	1 year	2 years

## LEAK-SEEKER® ELECTRONIC REFRIGERANT LEAK DETECTORS WITH ION-PUMP® SENSOR TECHNOLOGY

Combines microcomputer circuitry with field-proven Ion-Pump® sensor technology creating a highly sensitive and accurate electronic refrigerant leak detector. 128 computer-generated tones and display alerts the user to varying halogen concentrations. Leak-Seekers are designed and manufactured in the USA with U.S. and globally sourced components.



### REPLACEMENT PARTS FOR LS780A\* LS780B\* LS780C LS790A\* LS790B LS3000\* LS3000B\*

LSXSF 	Selective Filter Housing
LSXBMK 	Maintenance Kit: (1) LSXS + (1) LSXSF (replaces LSXMK)
LSXS 	Ion-Pump Sensor
LSXBC 	Battery Compartment Cover (Yellow)
LSXC 	Fabric Carrying Case
LSXE 	Earphone

\* Discontinued model

Item	Tech-Set™ LS780C	Leak-Seeker® LS790B
Detector Type	Proprietary Ion-Pump sensor with built-in selective filter housing	
Sensitivity	Better than 0.25 oz (7g) / year leak rate of HFC	
Sensitivity Selection	Manual	
Refrigerant Sensitivity	All, including those with hydrocarbon components (CFC, HCFC, HFC, HFO, NH3, HC)	
Visual Alarm	High intensity LED (Varies in brightness)	High intensity bar graph display
Flex Probe	18" long metal flex probe	
Operating Temperature	0 to 140°F (-18 to 60°C)	
Controls	OFF, LO & HI sensitivity modes	6 button keypad
Power (Battery Life)	(4) AA alkaline batteries (>40 hr continuous use)	
Weight	18 oz (500g)	
Audible Alarms	128 computer generated tones to precisely guide user to the source of the leak	
Lock-Out Mode	N/A	Yes
Low Battery Indication	Center LED above "★" lights during operation	
Auto-Off	No	Yes, after 15 minutes of inactivity
Sensor Life	Replace seasonally	
Warranty	1 year	2 years

## GS40 GAS-SEEKER® PORTABLE COMBUSTIBLE GAS DETECTOR

The **GS40** is a low maintenance, easy-to-use portable combustible gas leak detector engineered to pinpoint leaks in residential, commercial and industrial appliances. Advanced semiconductor sensor and electronic control package enables detection of gases commonly found in service applications including; carbon monoxide, natural gas, propane, ammonia, methane, acetone, hydrogen and iso-butane, with a virtually instantaneous alarm response period. Applications include the inspection of furnaces, valves, regulators, pipelines, meters and other devices associated with combustible gases. The **GS40** is designed and manufactured in USA with U.S. and globally sourced components.



GS40 Specifications	
Detecting Range	0 - 100% LEL referenced to methane.
Alarm Indication	Both visual and audible (>40db) alarm indicators
Low Level Alarm	Preset at 10% Methane LEL
High Level Alarm	Preset at 30% Methane LEL
Operating Conditions	0°F to 140°F (-20°C to +40°C) at less than 98% RH (non-condensing)
Power	3VDC working voltage using four 1.5V AA batteries
Battery Life/Indicator	20 hr continuous use. Orange LED constant on when low battery
Sampling	Natural diffusion
Dimensions	7.2" x 0.71" (183 x 18 mm)
Weight	18 oz (500g) including battery

### REPLACEMENT PARTS

RMX12 	Replacement Sensor
LSXC 	Fabric Carrying Case
LSXE 	Earphone

## RM SERIES REFRIGERANT MONITORS

Compact, highly reliable, yet economical refrigerant leak monitoring system designed to monitor a single refrigerant in a single zone. Provides early audible and visual warning of refrigerant leakage with adjustable sensitivity settings between 100 to 1000 PPM with an auxiliary 1/2 HP N.O. and N.C. dry contact control function for operating an additional alarm or other safety device. Replacement sensors are interchangeable enabling the replacement of a failed sensor directly in the field without recalibration, minimizing downtime.



**RM**  
Refrigerant Monitor  
Control Box and  
Sensor Housing



RM SERIES Specifications	
Sensitivity	100 to 1,000 ppm
Accuracy	±3% of setting (or ± 25 ppm)
Visual Alarms	High intensity LED display
Audible Alarm	85 dB @ 12"
Operating Temperature (Control Module & Sensor)	14 to 150°F (-10 to 65°C)
Relative Humidity Range (Control Model & Sensor)	10 to 95% (Non-condensing)
Power	12 to 24V AC or DC
Sensor Failure Indicator	Visual indication in control module
Weight	18 oz (500 g)
Warranty	1 year

Refrigerant Monitor	Detects Refrigerant	Replacement Sensor
RM134	R-134	RMX12
RM22	R-22	RMX11
RM404	R-404	RMX12
RM407	R-407	RMX11
RM407a	R-407A	RMX12
RM410	R-410A	RMX12
RM502	R-502	RMX12
RM507	R-507A	RMX12

## UV55 TECH-SET™ DYE BASED REFRIGERANT LEAK DETECTION KIT

**Refrigerant leaks are the number one cause of poor A/C cooling.** Having the correct amount of refrigerant in an A/C system is critical to achieve proper cooling. Any loss of refrigerant will reduce a system's ability to transfer heat, causing the compressor to work harder and the system to cool less efficiently. Therefore, finding and fixing refrigerant leaks is more important than ever before.

The Tech-Set™ **UV55** Leak Detection Kit enables you to conduct a fast, easy, mess-free air conditioning "leakdown" test whereby an orange, universal dye is injected into a closed (sealed) A/C system under full pressure. The orange dye will be visible under a "correctly tuned" ultraviolet light at the point of a leak anywhere in the system. Included in this detection kit are the following:

- MoonLight™ flashlight with 9 true ultraviolet LEDs
- Operates 8 hr (continuous on)
- Instant "ON" with no heat produced
- Compact, durable, anodized aluminum flashlight body
- Works with all common dye additives
- 3 AAA batteries
- MoonShine™ blue light-blocking glasses
- Mess-free and easy-to-use Squeeze Gun™ injector
- **UVS2** universal (orange) OEM approved dye cartridge
- R-34a 90° low side snap coupler
- Molded carrying case with internal padding
- Operating instructions



## UVPRO KIT INCLUDES BOTH MOONLIGHT™ FLASHLIGHT AND MOONSHINE™ GLASSES

Our MoonLight flashlight is the most compact and efficient ultraviolet light we have ever designed. It contains nine high intensity, true ultraviolet LEDs engineered to maximize the fluorescing capabilities of today's most commonly used detection dyes in AC systems, while reducing the amount of "nuisance" background blue light emitted.

MoonLight components are housed in a rugged, anodized aluminum body with an o-ring sealed battery compartment that will stand up to harsh field conditions.

- MoonLight flashlight with 9, true ultraviolet emitting LEDs
- Operates 8 hr (continuous on)
- Inspection range up to 3' (0.9 m)
- 100,000 hour LED life
- Instant "ON" with no heat produced
- Compact, durable, anodized, lightweight aluminum flashlight body
- Works with all common dye additives
- 3 AAA batteries

## MOONSHINE™ BLUE-LIGHT BLOCKING GLASSES (included with UVPRO kit)

MoonShine glasses, when used in conjunction with the MoonLight flashlight, block the remaining amount of visible blue light, which provides an ideal means of viewing a fluorescing dye that might leak from a closed, pressurized AC system, indicating where a repair is needed.



UVPRO

### ACCESSORIES FOR UV LEAK DETECTION

UVXG	UV Enhancing Safety Glasses
UVS5	Squeeze-Injector Universal Automotive Dye-Cartridges (4 Pk), (1 cartridge = 5 Applications)
UVAL	50W 90° Auto Swivel Light w/ Battery Clips
UVMINI	Clip-on UV light
UVXB	12V Rechargeable Battery Pack for 50W or 100W Light
UVXBC	Battery Carrying Case
UVXBLB	UV Bulb for 50W Light
UVXC	110V Battery Charger



### UVUDS MOONSHINE™ UNIVERSAL REFRIGERANT DYE

- 1 oz (30 ml)
- Works with alkyl benzene, PAG, ester and mineral oil
- Lowest cost per application



### UVUD6 MOONSHINE™ UNIVERSAL REFRIGERANT DYE

- 8 oz (237 ml)
- Works with alkyl benzene, PAG, ester and mineral oil
- Lowest cost per application
- Excellent for large systems



### UVCLNR MOONSHINE™ DYE CLEANER

- 32 oz (946 ml)

## MOONSHINE™ PREFILLED/ DISPOSABLE REFRIGERANT DYE CAPSULES AND CARTRIDGES

- Universal OEM approved dye formula
- Cleanest, easiest and fastest method of injection
- 4 sizes to match capacity of system
- Eliminate air entering system
- Eliminates over-injection of dye
- All dyes include I.D. labels
- All MoonShine dye meets SAE J2297 standard

AC System Size	For Refrigerant Charge Size	Refrigerant Oil	MoonShine™ Capsule (Qty. 6)	MoonShine™ Squeeze Cartridges (Qty. 6)
<b>SMALL</b> Ice machines, window AC units, autos, refrigerators	Up to 2.9 lb (1.3 kg)	Up to 15 oz (.44 L)	 UV101	 UVS101 (Gold)
<b>MEDIUM</b> Residential systems	3 to 4.9 lb (1.4 to 2.2 kg)	16 oz to 1.6 qt. (.45 to 1.8 L)	 UV1	 UVS1 (Purple)
<b>MEDIUM-LARGE</b> Light commercial and large residential systems	5 to 9.9 lb (2.3 to 4.5 kg)	1.7qt. to 3.2 qt. (1.9 to 3.7 L)	 UV2	 UVS2 (Orange)
<b>LARGE</b> Commercial and light industrial, including all split systems	10 to 25 lb (4.6 to 11.4 kg)	3.3 qt. to 2 gal. (3.8 to 9.1 L)	 UV3	 UVS3 (Green)

## SQUEEZE GUN UNIVERSAL DYE INJECTORS

The squeeze gun injection system is the easiest, cleanest and fastest method of injecting dye into a system. Simply match the appropriate pre-filled, pre-measured universal dye cartridge with the size of the system being serviced place it into the squeeze injector system, make your connection and inject the dye. It's that simple.



### UVNJS SQUEEZE GUN DYE INJECTOR

- Refillable and expandable universal dye injector (dye cartridges sold separately)
- 1/4" F BV Hose
- 1/2 oz. capacity

**UVXSGA** Adapter Hose



### UVNJ SQUEEZE GUN DYE INJECTOR

- Refillable and expandable universal dye injector (dye cartridges sold separately)
- In-Line AC&R 1/4"
- 1/4 to 1/2oz. - 7.5 to 14ml



### TLJ2 SQUEEZE GUN DYE INJECTOR

- Refillable and expandable universal dye injector (dye cartridges sold separately)
- 1/4 oz. / 7.5 ml to 2 oz. / 60 ml capacity
- R-12 1/4" SAE Oil Dye Injector

**TLJX2H** Replacement Oil Injector Hose



**Step 1:** Load cartridge.



**Step 2:** Connect and bleed hose.



**Step 3:** Inject, then discard empty cartridge.

# OPTIMA™

## AC/R CHEMICAL TOOLS

### DETECT, PROTECT, REPAIR AND ENHANCE



# OPTIMA™

## eBOOST™ Professional AC/R Chemical Tools

### eBOOST™ Injectors

- Treat up to 6 tons
- Contains 1/4" & 5/16" clear hose adapters
- Safe and effective for all systems
- Color coded, trilingual (English, French, Spanish) sealed clamshell packaging
- Fast results, easy to use



#### eBOOST™ AC/R Performance Enhancer

- Boosts cold air output
- For a cooler, quieter, longer running compressor
- Restores older AC/R systems to original efficiencies
- Increases lubricity of compressor oil
- Reduces compressor friction, vibration and noise

**OPEB6S**



#### eBOOST™ AC/R De-Icer

- Resolves frozen AC/R systems
- Compatible with all refrigerant gases (including CFC, HFC and HCFC)
- Won't affect performance of refrigerant gas
- Neutralizes and prevents formation of acids

**OPEBF6S**



#### eBOOST™ Moisture Remover

- Eliminates system moisture
- Compatible with all AB, mineral, PEI and PAG oils in refrigeration systems
- Won't break down or leave behind particulate matter, including acids, gels or polymers

**OPEBA6S**



#### eBOOST™ AC/R Acid Neutralizer

- Neutralizes and prevents acids from forming in AC/R systems due to refrigerant or refrigerant oil break down, compressor burnout or moisture.
- Excellent for preventing or treating acid build up, or after compressor burnout and before a new compressor is installed

**OPEBM6S**



#### eBOOST™ AC/R Acid Detection Kit

Fast, easy, reliable way to determine relative pH of any lubricant used in AC/R compressors. Identifies acid levels in POE oils ahead of time

- Kit Contents :
- 4 Vials (blue liquid) Lubricant pH Detect
- 4 Pipettes
- 1 Plastic Carrying Case

**OPEBAK**

#### AVAILABILITY:

OPEB6S	AC/R Performance Enhancer	1 oz/30ml	15/per
OPEBF6S	AC/R De-Icer	1 oz/30ml	15/per
OPEBA6S	AC/R Acid Neutralizer	1 oz/30ml	15/per
OPEBM6S	AC/R Moisture Remover	1 oz/30ml	15/per
OPEBAK	AC/R Acid Test Kit	Enough for 4 tests	19/per

**COMPUTE-A-CHARGE®**

# REFRIGERANT CHARGING SCALES

**WORTH THEIR WEIGHT IN COLD**





**COMPUTE-A-CHARGE®**  
**CC220W WIRELESS REFRIGERANT CHARGING SCALE**

- 220 lb (100 kg) capacity / 0.25 oz (5 g) resolution
- 8.75" platform
- For use with CPS Link™ app and Android or iOS mobile device
- Weigh, charge and recover refrigerants
- Comes with soft carrying case
- Battery operated

**CCXSC** Soft Carrying Case



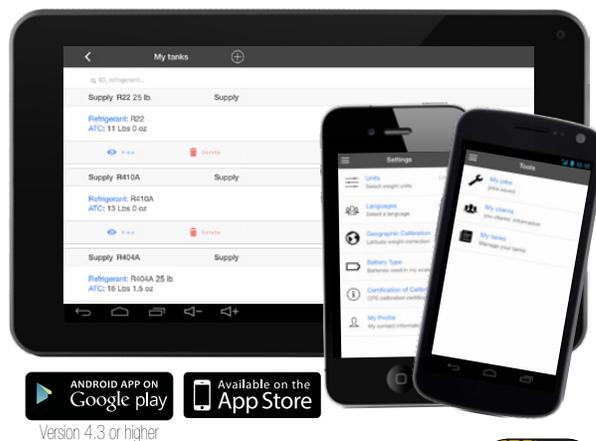
**COMPUTE-A-CHARGE®**  
**CC240W WIRELESS HIGH CAPACITY SCALE**

- 240 lb (108 kg) capacity / 0.25 oz (5 g) resolution
- 10" platform
- For use with CPS Link™ app and Android or iOS mobile device
- Weigh, charge and recover refrigerants
- Includes protective carrying case
- Battery operated



**COMPUTE-A-CHARGE®**  
**CC840W PROGRAMMABLE WIRELESS HIGH CAPACITY SCALE**

- 240 lb (108 kg) capacity / 0.25 oz (5 g) resolution
- 10" platform
- For use with CPS Link™ app and Android or iOS mobile device
- Programmable for automatic charging or recovery via integrated solenoid valves
- Weigh, charge and recover refrigerants
- Includes protective carrying case
- Battery operated



Version 4.3 or higher

**CPS Link™ App** U.S. Patent No. 9,043,161

Easily input or access:

- Job data (name, client, invoice #)
- Client list (name, address, e-mail, phone)
- Tank Tracker™ tank and refrigerant management system
- Optional cloud storage
- Custom alarms for weight set-points
- E-mail customer and job information
- Operates in ISM band for international use





## COMPUTE-A-CHARGE® CC50 HIGH RESOLUTION SCALE

- 55 lb (25 kg) capacity / 0.05 oz / 1 g resolution
- Ideal for critical charge, small volume systems
- Removable 8.75" platform for operation in or out of protective case
- Easy to read, fast response measurement
- Visual and mechanical overload protection

**CCXC** Protective carrying case

**CCX220BC** Battery door with magnet



## COMPUTE-A-CHARGE® CC110 STANDARD SCALE

- 110 lb (25 kg) capacity / 0.20 oz (5 g) resolution
- Best in class value and accuracy
- Accommodates 30 & 50 lb cylinders
- Removable 8.75" platform for operation in or out of protective case
- Easy to read, fast response measurement
- Visual and mechanical overload protection

**CCXC** Protective carrying case

**CCX220BC** Battery door with magnet



## COMPUTE-A-CHARGE® CC220 HIGH CAPACITY SCALE

- 220 lb (100 kg) capacity / 0.25 oz (10 g) resolution
- Our most versatile unit with best-in-class accuracy and enlarged capacity
- Accommodates 30, 50, 90 & 125 lb cylinders
- Removable 8.75" platform for operation in or out of protective case
- Easy to read, fast response measurement
- Visual and mechanical overload protection

**CCXC** Protective carrying case

**CCX220BC** Battery door with magnet



## COMPUTE-A-CHARGE® CC800A AUTOMATIC PROGRAMMABLE CHARGING/ RECOVERY SCALES HIGH CAPACITY SCALE

- 220 lb (100 kg) capacity / 0.25 oz (1 g) resolution
- Programmable for automatic charging or recovery via built-in solenoid valve
- Accommodates 30, 50, 90 & 125 lb cylinders
- Removable 8.75" platform for operation in or out of protective case
- Easy to read, fast response measurement
- Visual and mechanical overload protection

**CCX220BC** Battery door with magnet

# COMPUTE-A-CHARGE®

## THE MOST TRUSTED BRAND OF CHARGING/ RECOVERY SCALES ON THE PLANET

Recommended by OEMs and professional service technicians for over 30 years, the Compute-A-Charge series of scales have become the preferred tool for accurate, reliable charging of today's advanced AC/R systems. The range consists of fully automatic programmable or manually operated units, with or without wireless remote hand held controls. Models include variations in capacity and resolution specifications to meet all your job specific needs.

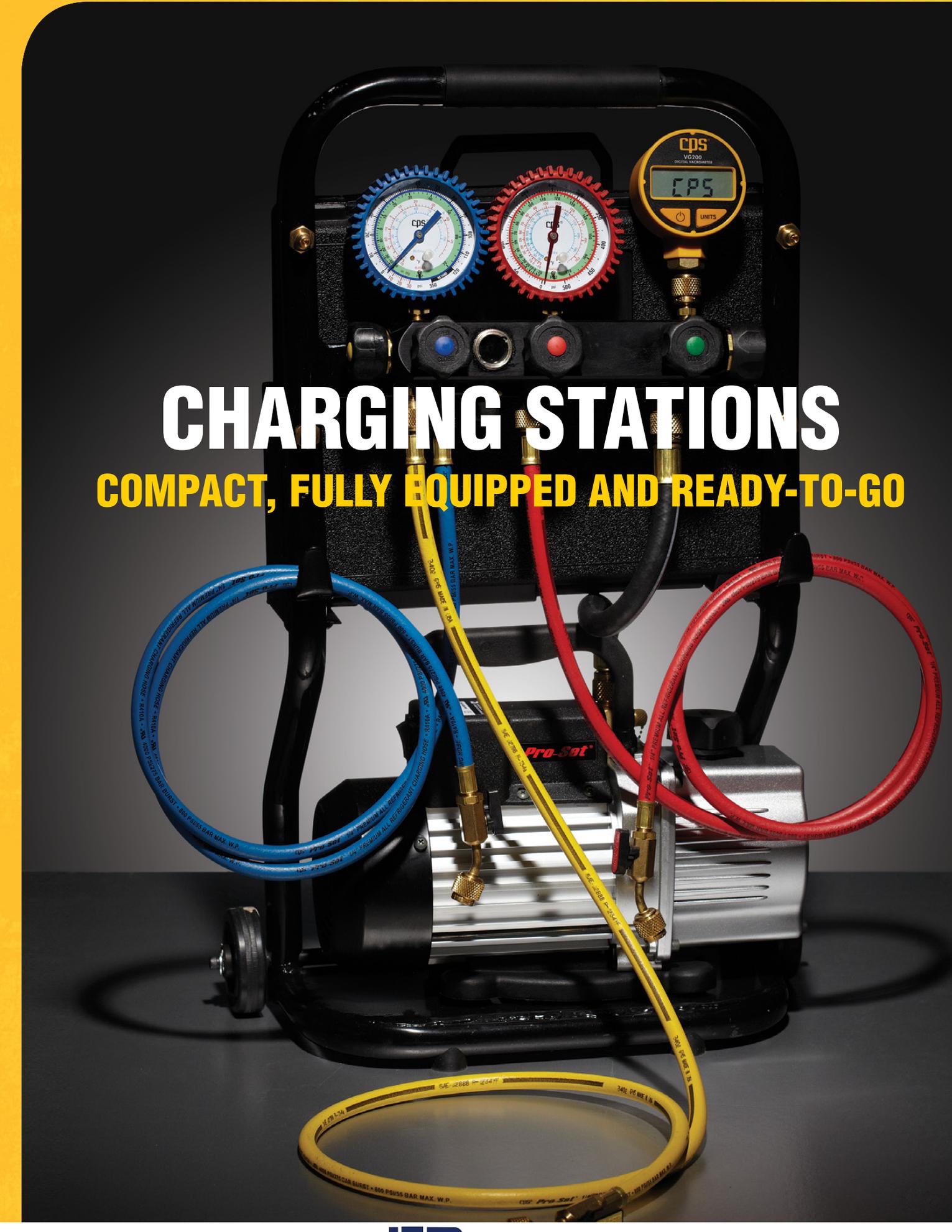
### FEATURES AND BENEFITS (ALL UNITS)

- The world's most advanced strain gage bridge load cell technology
- Unparalleled accuracy, precision and reliability
- Calibrated to strict NIST (National Institute of Standards & Technology) standards
- Ergonomic hand held remote controls with large, high contrast wide angle LCD displays
- Rugged cast aluminum platform and base assemblies for stability and long life

- Electronic and mechanical overload protected to withstand 150% of capacity
- Environmentally sealed and temperature compensated for reliable operation in extreme environments
- Automatic tare upon start up and manual zero function
- Magnetic backing on hand held display for mounting to metal services or 360° swivel hanging hook
- Durable protective transport case enables operation of scale in or out of enclosure
- Ideal for critical charging of systems large or small and all refrigerant recovery applications
- The widest range of programmable, manual, or wireless/hand-held configurations
- Declaration of Conformity available at cpsproducts.com  
CPS scales are in conformity with the following standards or other normative documents:
  - **EN 61326:2006** (Electrical equipment for measurement, control and laboratory use – EMC Requirements)
  - **IEC 61000-4-2:2001** (Electrostatic Discharge Immunity Test)
  - **IEC 61000-4-3:2008** (Radiated, radio-frequency, electromagnetic field immunity test)
- Designed and manufactured in the USA with U.S. and globally sourced components

### COMPUTE-A-CHARGE® SCALE SPECIFICATIONS

Model #	CC220W	CC240W	CC840W	CC50	CC110	CC220	CC800A
Type	Wireless for use with mobile device			Corded Handheld (with LCD Display)			
Programmable Solenoids	No	No	Yes	No	No	No	Yes
Maximum Load	220 lb (100 kg)	240 lb (108 kg)		55 lb (25 kg)	110 lb (50 kg)	220 lb (100 kg)	
Platform Dimensions	8.75" x 8.75" (22.3 x 2.3 cm)	10" x 10" (25.4 cm x 25.4 cm)		8.75" x 8.75" (22.3 x 22.3 cm)			
Display to Scale Connection	Patented Wireless CPS Link™ Technology			Flexcord			
Auto-Off	Automatic shut-off after 10 minutes of inactivity						
Smart Awake	n/a			Scale displays last weight present at time of Auto-Off			
Transmission Range	30' (9.1 m)			n/a			
Frequency Range	2.4 GHz, ISM Band (Worldwide)			n/a			
Power Source	<b>Scale Platform:</b> (4) AA Alkaline (Included)			<b>Remote:</b> (2) 9V Alkaline (Included)			
Continuous Battery Life	75 hr			60 hr		30 hr	
Display Resolution, oz (gm) Increments	.25 oz /5 gm			.05 oz /1 gm	.20 oz /5 gm	.25 oz /10 gm	
Weight Accuracy	0.05% of reading, or ± 0.25 oz/10 gm (whichever greater)			0.05% of reading, or ± 0.05 oz/1 gm (whichever greater)	0.05% of reading, or ± 0.20 oz/5 gm (whichever greater)	0.05% of reading, or ± 0.25 oz/10 gm (whichever greater)	
Unit Weight	5.35 lb (2.4 kg)	8.64 lb (4 kg)		6.0 lb (2.72 kg)			8.5 lb (3.9 kg)
Display Flex Cord Length	n/a			6' Extended			
Maximum Working Pressure	n/a	500 Psig 34,5 Bar		n/a	n/a	n/a	500 Psig 34,5 Bar
Maximum Operating Differential	n/a	485 Psig 33,5 Bar		n/a	n/a	n/a	485 Psig 33,5 Bar
Rubber Platform Cover	Yes	Yes	Yes	n/a	n/a	No	No
Weight Readout	lb & oz, or kg & gm						
Protective Case	Soft Case	Molded Carrying Case					
Tare (Empty) Weight Mode	Yes						
Overload Protection	Mechanical (Internal Overload Stop)						
Battery Status Indicator	via CPS Link™ app			3 Segment Symbol (Display)			
Remote Control Mount	n/a			Magnetic Back and 360° Swivel Hook			
Operating Temperature Range	14°F to 122°F (-10°C to 50°C)						
Operating Humidity Range	0% to 95% (Non-Condensing)						
Approvals	FCC, CE			CE, C-Tick			



# CHARGING STATIONS

COMPACT, FULLY EQUIPPED AND READY-TO-GO

1.800.561.8187

www.**itm**.com

information@itm.com



**CS16DMV5D2P5E**

## PRO-SET® PORTABLE VACUUM CHARGING STATIONS

Pro-Set charging stations combine all the necessary tools required to perform a full system evacuation and subsequent charging in a single, compact, mobile unit. Each station includes a Vortech™ or BlackMax® service manifold, a Pro-Set vacuum pump, a Compute-A-Charge® refrigerant scale, and premium charging hoses. The lightweight tubular steel frame incorporates rear wheels for easy transport to and from the job site with integrated storage areas for all components.

- Unsurpassed charging accuracy of ± 0.05% of reading
- Hanging ports and hooks for hose storage
- Rear wheels on frame for ease of mobility
- Contains all tools needed for charging and evacuation
- All components store easily on cart



*Hard mounted manifolds*



*All components store easily on cart*

Model #	CS12 SMBDS5E	CS12 SMBHP5E	CS12 DMV4TP6Q	CS14 CMBHP5E	CS16 SMV4H2P5E	CS16 DMV4D2P5E	CS16 DMV5H2P5E	CS16 DMV5D2P5E
Application	Appliance, Light Refrigeration	Air Conditioning	Air Conditioning, Refrigeration	Air Conditioning		Refrigeration	Air Conditioning	Refrigeration
Manifold Type	2 Valve (BlackMax®)		4 Valve (Vortech™)	2 Valve (BlackMax®)	4 Valve (Vortech™)	4 Valve (Vortech™)	5 Valve (Vortech™)	5 Valve (Vortech™)
Refrigerant	R22, R134A, R404A	R22, R404A, R410A	R22, R134A, R404A	R22, R404A, R410A	R22, R134A, R404A, 410A	R22, R134A, R404A	R22, R134A, R404, 410A	R22, R134A, R404A
Gauge Diameter	2.5" (68 mm)				3-1/8" (80 mm)			
Pressure Temperature Scales	Psi / °F		kPa / Psi / °C	Psi / °F				
Charging Hoses	3-Pk, Standard 5' Blue, Red Yellow (Ball Valve)		3-Pk Premium 6' Blue, Red, Yellow Hoses & Cplrs.	3-Pk, Premium 5' Blue, Red, Yellow (Ball Valve)				
Vacuum Pump	One Stage, 2 CFM, Dual Voltage (VP2S)		Two Stage 2 CFM, Dual Voltage (VP2D)	One Stage, 4 CFM, Single Voltage (VPC4SU)	One Stage 6 CFM, Dual Voltage (VP6S)	Two Stage, 6CFM, Dual Voltage (VP6D)		
Vacuum Gauge	n/a						VG200	n/a
Charging, Recovery Scale	Compute-A-Charge® (Display Maximum Load: 220 Lb; 100 kg)							

# RECOVERY EQUIPMENT

RECOVER REFRIGERANTS  
QUICKLY & EFFICIENTLY



# Pro-Set®

## PRO-SET® TR600 SERIES REFRIGERANT RECOVERY MACHINES

### Fast. Compact. Reliable.

The Pro-Set TR600 is a lightweight, efficient and reliable refrigerant recovery machine in a compact, rugged, contemporary housing. The TR600 offers the ideal combination of form and function to make refrigerant recovery fast and easy!

We took six competing recovery machines and their \*verified recovery rates (shown on page 21).

Pro-Set TR600 was the undisputed hands-down leader for fastest recovery of R410a, and fastest overall for R22, R134a and R407c.

- Powerful 2/3 HP oil-less 2 cylinder reciprocating recovery compressor
- Exceptional compressor, condensing and cooling systems allow fast recovery in high temperature environments
- R-410a ready with fastest R-410A flow rates in its class!
- 550 psi high pressure shut-off switch
- Durable inlet and outlet ball valve construction with 1/4 turn gauges
- Integrated component moorings for quiet operation
- High impact injection molded housing
- Ergonomic well balanced design for easy transport
- No tool access suction housing for easy filter clean/change
- Less parts provides greater reliability
- Worldwide patents pending

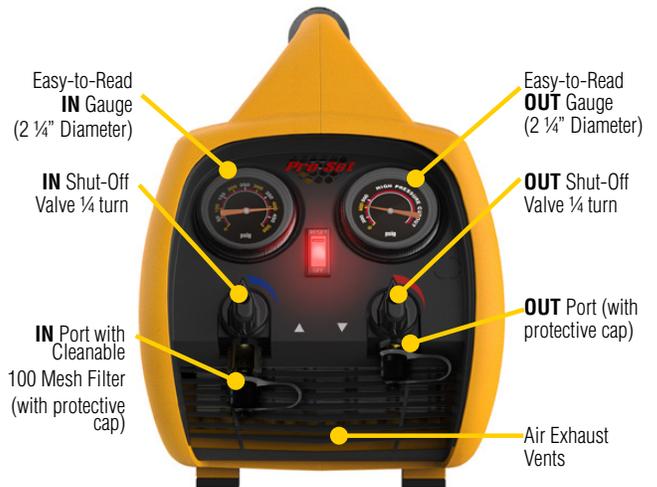
**TR21X1** Valve Rebuild Kit

**TR21X3** Piston/Connecting Rod Replacement

**TR21X2** Complete Rebuild Kit

**TR700X1** Head Replacement

**CRXF3** (6) Suction Filters



Designed and assembled in USA with US and globally sourced components

# BLACKMAX<sup>®</sup>

PREMIUM RECOVERY MACHINES

## BLACKMAX<sup>®</sup> TR700 SERIES REFRIGERANT RECOVERY MACHINES

The ultimate in dependability.

Designed for servicing residential and commercial refrigeration systems, the BlackMax TR700 is the industry's best-looking and best-performing refrigerant recovery machine incorporating non-restrictive piston manifold valves, a powerful two cylinder oil-less reciprocating compressor and twin fans. The resulting system provides superior airflow and condensing, which maximizes speed in both direct liquid and direct vapor recovery.



- Powerful 2 cylinder, 2/3 HP oil-less reciprocating compressor
- Exceptional compressor, condensing and cooling systems allow fast recovery in high temperature environments
- Automatic low pressure shut-off feature turns unit off when recovery is complete
- Rugged high density, double-wall, contemporary plastic housing with easy-view top mounted controls
- R-410a ready with 550 psi high pressure shut-off switch
- Ergonomic well balanced design for easy transport (includes shoulder strap)
- Built-in, removable, replaceable suction filter located under suction port
- Compact design with easy 4 bolt access
- Externally serviceable valves and gauges
- Integrated component mounts for quiet operation
- Less parts provide greater reliability
- Worldwide patents pending



- TR21X1** Valve Rebuild Kit
- TR21X3** Piston/Connecting Rod Replacement
- TR21X2** Complete Rebuild Kit
- TR21X5** Eccentric Crank Set
- TR700X1** Head Replacement
- CRXF3** (6) Suction Filters



Designed and assembled in USA with US and globally sourced components

**\*CERTIFIED REFRIGERANT RECOVERY RATES (LB/MIN.)**

Competing Brands		REFCO Powermax*	Robinair RG3*	Yellow Jacket YJ-LTE*	Bacharach ECO-2020**	Inficon Vortex Dual**	Appion G5 Twin*	BLACKMAX TR700*	Pro-Set TR600*
R410A	Vapor Rate	0.53	0.14	0.35	0.55	0.55	0.55	<b>0.703</b> (0.319 kg/min)	<b>0.703</b> (0.319 kg/min)
	Liquid Rate	4.99	3.57	9.25	5.71	3.55	3.48	<b>11.95</b> (5.42 kg/min)	<b>11.95</b> (5.42 kg/min)
	Liquid Push-Pull	17.56	12.69	10.91	15.85	16.82	10.20	<b>31.7</b> (14.38 kg/min)	<b>31.7</b> (14.38 kg/min)
R22	Vapor Rate	0.50	0.20	0.37	0.55	0.53	0.61	<b>0.597</b> (0.271 kg/min)	<b>0.597</b> (0.271 kg/min)
	High Temp Vapor Rate	NA	0.22	NA	0.60	0.57	0.41	<b>0.86</b> (0.39 kg/min)	<b>0.86</b> (0.39 kg/min)
	Liquid Rate	4.50	6.39	6.83	6.35	5.97	6.21	<b>8.86</b> (4.02 kg/min)	<b>8.86</b> (4.02 kg/min)
	Liquid Push-Pull	11.81	11.83	9.17	11.40	11.0	16.62	<b>31.53</b> (14.3 kg/min)	<b>31.53</b> (14.3 kg/min)
R134A	Vapor Rate	0.50	0.18	0.35	0.46	0.42	0.41	<b>0.503</b> (.228 kg/min)	<b>0.503</b> (.228 kg/min)
	Liquid Rate	4.25	5.48	5.35	4.52	4.03	4.34	<b>7.8</b> (3.54 kg/min)	<b>7.8</b> (3.54 kg/min)
	Liquid Push-Pull	12.06	8.86	6.94	10.89	11.64	11.08	<b>25.66</b> (11.64 kg/min)	<b>25.66</b> (11.64 kg/min)
R407C	Vapor Rate	NA	0.18	0.30	NA	0.55	0.55	<b>0.536</b> (.243 kg/min)	<b>0.536</b> (.243 kg/min)
	Liquid Rate	NA	5.48	7.53	NA	5.49	7.01	<b>9.5</b> (4.31 kg/min)	<b>9.5</b> (4.31 kg/min)
	Liquid Push-Pull	NA	11.68	10.05	NA	14.0	17.61	<b>29.14</b> (13.22 kg/min)	<b>29.14</b> (13.22 kg/min)

DISCLAIMER: The information found within this chart is not reflective of all competitors. All trademarks and copyrights on this page are owned by their respective owners. Data collected is based on technical specification literature available through the worldwide web and other publicly available marketing literature.

Recovery Equipment

Model#	PRO-SET® TR600 SERIES SPECIFICATIONS						BLACKMAX® TR700 SERIES SPECIFICATIONS						
	TR600	TR610	TR600C	TR610C	TR600K	TR600S	TR700	TR710	TR700C	TR710C	TR700S	TR710S	
<b>Voltage (Hz)</b>	115V (60 Hz)				220V (50 Hz) 230V (60 Hz)	220-240V (50 Hz)	115V (60 Hz)				220-240V (50 Hz)		
<b>Motor Size</b>	2/3 HP						2/3 HP						
<b>Motor Thermally Protected</b>	✓						✓						
<b>Compressor Type</b>	Two cylinder, oilless						Two cylinder, oilless						
<b>Overload Protection</b>	15 Amp	13 Amp		10 Amp			15 Amp	13 Amp		10 Amp			
<b>Power Consumption</b>	1000 W						1000 W						
<b>Tank Overfill Sensor Cord</b>	✗	✓	✗	✓	✗		✗	✓	✗	✓	✗	✓	
<b>Suction Pressure Gauge</b>	Outer Scale	-30~Hg to 500 psig						-30~Hg to 500 psig					
	Inner Scale	-76 cm Hg to 35 kg/cm						-76 cm Hg to 35 kg/cm					
<b>Discharge Pressure Gauge</b>	Outer Scale	0-550 psig						0 to 1000 psig					
	Inner Scale	0-550 psig						0 to 70 kg/cm					
<b>High Pressure Shut-Off</b>	550 psig (38 bar)	450 psig (31 bar)		550 psig (38 bar)			550 psig (38 bar)	450 psig (31 bar)		550 psig (38 bar)			
<b>AHRI 740 Class Refrigerants</b>	Class III	R-12, R-134A, R-401C, R-406A, R-500						R-12, R-134A, R-401C, R-406A, R-500					
	Class IV	R-22, R-401A/B, R-402B, R-407/C/D/E/F, R-408A, R-409A, R-411A/B, R-412A, R-502, R-509A						R-22, R-401A/B, R-402B, R-407/C/D/E/F, R-408A, R-409A, R-411A/B, R-412A, R-502, R-509A					
	Class V	R-402A, R-404A, R-407A/B, R-410A/B, R-507A						R-402A, R-404A, R-407A/B, R-410A/B, R-507A					
<b>Operating Temperature Range</b>	32°F to 120°F (0°C to 49°C)						32°F to 120° (0°C to 49° C)						
<b>Power Cord Length</b>	3.5 ft (1.06 m)						6' (1.82 m) Detachable						
<b>Dimensions</b>	Inch: 8.5" x 16.7" x 12.3" (cm: 21.6 x 42.4 x 31.2)						Inch: 9.75" x 21" x 14.0" (Cm: 24.7x 53.3x 35.6)						
<b>Weight</b>	28 Lb (12.7 Kg)						32 Lb (14.5 kg)						
<b>Approvals</b>	*UL, CE		*UL, CE, CSA		*UL, CE	*UL, CE, TUV	*UL, CE		*UL, CE, CSA		*UL, CE	*UL, CE, TUV	
<b>Warranty (Years)</b>	1						1						

\* Evaluated for performance rated at 60Hz in accordance with Sec. 608 of the Clean Air Act (Feb. 29, 1996) using AHRI-740-98 test methods.

## PRO-SET® TR21 SERIES REFRIGERANT RECOVERY MACHINES

- Weighs only 25 pounds!
- Fastest ARI recovery rates in its class, best speed-to-weight ratio in the industry!
- Revolutionary “vacuum pump” style design
- Five unique patented and patent pending design elements
- Vapor or liquid recovery, including R-410A
- Extremely compact and easy to carry



**TR21 SERIES**

- TR21X1** Valve Rebuild Kit
- TR21X3** Piston/Connecting Rod Replacement
- TR19X2** Eccentric Crank Set
- TR21X5** Eccentric Set
- TR21X4** Complete Head Replacement
- TR21X2** Complete Rebuild Kit

\*Verified UL Flow Rate @ 60Hz (Reduce 15% for all 50Hz models)

### TR21 SERIES REFRIGERANT RECOVERY RATES

Refrigerant	Direct Vapor	Direct Liquid	Push - Pull Liquid	High Temp Vapor Rate
<b>R410a</b>	.703 lb/min (0.319 kg/min)	11.95 lb/min (5.42 kg/min)	31.7 lb/min (14.38 kg/min)	0.816 lb/min (.37 kg/min)
<b>R22</b>	.597 lb/min (0.271 kg/min)	8.86 lb/min (4.02 kg/min)	31.53 lb/min (14.3 kg/min)	0.86 lb/min (0.39 kg/min)
<b>R134a</b>	.503 lb/min (0.228 kg/min)	7.8 lb/min (3.54 kg/min)	25.66 lb/min (11.64 kg/min)	n/a
<b>R407c</b>	.536 lb/min (0.243 kg/min)	9.50 lb/min (4.31 kg/min)	29.14 lb/min (13.22 kg/min)	n/a

\*Evaluated for performance in accordance with Sec. 608 of the Clean Air Act (Feb 29, 1996) using AHRI-740-98 test methods.

## PRO-SET® TRS21 SERIES IGNITION PROOF REFRIGERANT RECOVERY MACHINES

- Designed and tested to meet ANSI 12:12.01 Ignition Proof standards
- For use on refrigeration systems utilizing:
  - Class A1** (nontoxic, nonflammable),
  - Class A2L** (nontoxic, low flammability)
  - Class A2** (nontoxic, flammable) and
  - Class A3** (nontoxic, flammable)
- Maintenance free oilless compressor
- Permanently lubricated and sealed main bearings
- Improved piston seal design for less leakage and deeper vacuums
- 550 Psig high pressure cutoff switch with LED indicator
- Cleanable 100 mesh inlet filter
- Fastest recovery rates in its class
- Ignition proof ON-OFF switch
- Sealed start relay

- TR21X1** Valve Rebuild Kit
- TR21X3** Piston/Connecting Rod Replacement



**TRS21 SERIES**

## TECH-SET® TR19 SERIES REFRIGERANT RECOVERY MACHINES

- Critical oilless compressor components use high temperature resistant materials
- Main bearing is completely sealed and isolated from refrigerant contact.
- Maintenance free oilless compressor design
- Precision machined from aluminum and steel components
- Permanently lubricated and sealed main bearings
- Improved piston seal design for less leakage and deeper vacuums
- Weighs less than 19 pounds
- Special cooling system design improves compressor longevity
- Efficient suction and discharge valve design for faster recovery
- Durable crankshaft design for improved reliability
- Unique head design for superior performance

**TR21X1** Valve Rebuild Kit

**TR21X3** Piston/Connecting Rod Replacement

**TR19X1** Complete Rebuilt Kit

**TR19X2** Eccentric Crank Set

**TR21X4** Complete Head Replacement



**TR19 SERIES**

Recovery Equipment

PRO-SET® TR21 & TRS21 and TECH-SET™ TR19 SERIES SPECIFICATIONS										
Model #	TR19	TR19C	TR19S	TR21	TR21C	TR21S	TR21E	TRS21	TR22	TR22C
<b>Voltage</b>	115V (60Hz)		220-240V (50 Hz)	115V (60Hz)		230 V (50Hz)	220-240 V (50Hz)		115V (60Hz)	
<b>Motor Size (Horsepower)</b>	1/2 HP			1			1			
<b>Motor thermally protected</b>							✓			
<b>Power Consumption</b>	550W			1000W			850W			
<b>Two Cylinder, Oil-less Reciprocating Compressor</b>							✓			
<b>ON-Off Power Switch</b>							✓			
<b>Spark Proof Starting Components</b>	✗			✗			✓	✗		
<b>High Pressure Shut-Off</b>	550 Psig (38 bar)	450 Psig (31 Bar)	550 Psig (38 bar)	550 psig	450 psig	550 psig	525 psig (38 bar)	550 Psig (38 bar)	550 Psig (38 bar)	450 Psig (31 Bar)
<b>Selectable Manual OR Automatic Shut-Off Mode Settings</b>	Auto Reset High Pressure Switch			Auto Reset High Pressure Switch			Manual Reset	Auto Reset High Pressure Switch		
<b>Tank Overfill Switch Kit</b>	✗			Optional			✗	✗	✓	✗
<b>Maximum Flow Rate @ 60 Hz (Reduce 15% for 50 Hz)</b>	<b>Direct Vapor</b>	Up to 1.2 lb/min (33 kg/hr)				Up to 2.5 lb/min (67 kg/hr)				
	<b>Direct Liquid</b>	Up to 9.5 lb/min (260 kg/hr)				Up to 12 lb/min (271 kg/hr)				
	<b>Push-Pull Liquid</b>	Up to 20.3 lb/min (550 kg/hr)				Up to 34 lb/min (922 kg/hr)				
<b>AHRI 740 Class Refrigerants</b>	<b>Class III</b>	R-12, R-134A, R-401C, R-406A, R-500								
	<b>Class IV</b>	R-22, R-401A/B, R-402B, R-407/C/D/E/F, R-408A, R-409A, R-411A/B, R-412A, R-502, R-509A								
	<b>Class V</b>	R-402A, R-404A, R-407A/B, R-410A/B, R-507A								
<b>ASHRAE/ISO Class A2, A2L and A3</b>	✗						R1234yf, R32, R290, R600, R601, R1276	✗		
<b>Operating Temperature Range</b>	32°F to 120°F (0°C to 49°C)									
<b>Cleanable, 100-Mesh Screen Filtration (Into Suction Port)</b>							✓			
<b>High Pressure Cutout LED</b>							✓			
<b>Heavy Gauge Aluminum Chassis</b>							✓			
<b>Skid Resistant Rubber Feet</b>							✓			
<b>Power Cord Length, Type</b>	6 Ft.									
<b>Dimensions (W x L x H)</b>	6" x 12" x 9" (15cm x 30cm x 23cm)									
<b>Weight</b>	18.7 lb (8.5 kg)			24.3 lb (11.0 kg)						
<b>Approvals</b>	UL, CE, CSA, TUV									
<b>Warranty (Years)</b>	1									

# TRANSFORM YOUR BOTTOM LINE WITH THE MT69 MOLECULAR TRANSFORMATOR. IT DRAMATICALLY INCREASES THE SPEED OF ANY RECOVERY MACHINE.

## CUT YOUR RECOVERY TIME IN HALF.

The MT69 is the *only* commercialized recovery sub-cooler manufactured for the professional A/C & R technician. It transforms molecules of hot refrigerant gas into molecules of refrigerant liquid and also transforms molecules of cold refrigerant liquid into a warm refrigerant gas. Use the MT69 in-line with the discharge line of any recovery machine to dramatically increase the speed of recovery.

- Dramatically increases the speed and performance of your recovery machine- **(up to 95% increase in recovery speed!)**



COMPARATIVE DATA		
Time needed to recover 15 lb of R22 at 120° F:	WITH MT69	WITHOUT MT69
	17 minutes	32 minutes

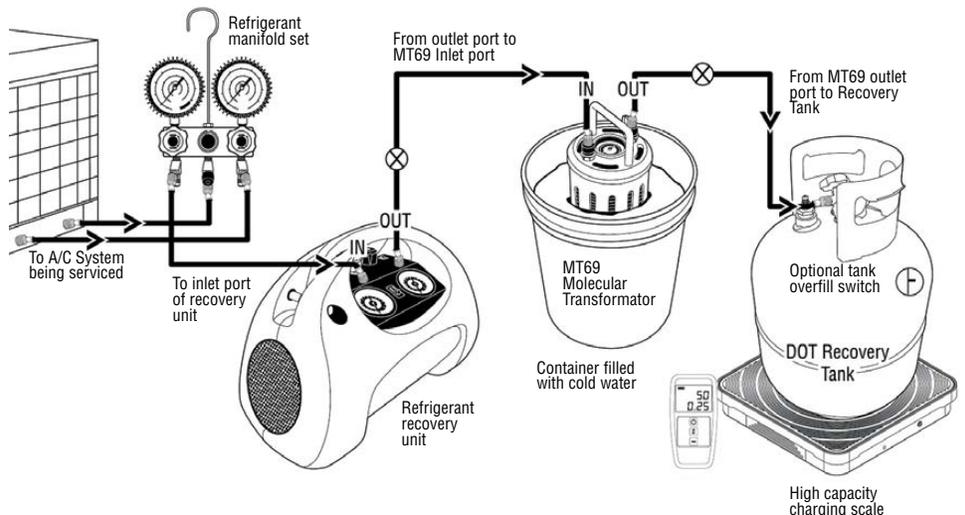
- Functions as a submersible condenser or evaporator
- Rugged, compact and easy to use
- Eliminates the need to change tanks when recovering R410A
- Eliminates annoying shutdown due to high pressure switch limit
- Essential for recovering R410A on hot days
- The hotter it is, the better it works
- Essential for recovering liquid refrigerant on cold days
- Eliminates liquid slugging at colder temperatures
- Patents Pending
- Designed and manufactured in USA with U.S. and globally source components

MT69 SPECIFICATIONS	
Dimensions	4.25" x 9" (10.9 cm x 22.9 cm)
Weight	3.6 lb (1.6 kg)
Maximum Operation Pressure	500 Psig
Discharge Pressure Gauge	0 to 600 Psig
Inlet/Outlet Connections	1/4" SAE male
Refrigerant Compatibility	All

Item	Description
MT69	MT69 Molecular Transformator
TR21MT69KIT	TR21 & MT69 kit

## HOW THE MT69 MOLECULAR TRANSFORMATOR WORKS:

The effects of ambient temperature and elevated tank pressures on the speed of the refrigerant recovery process are in many cases more important than the speed of the recovery machine itself. As ambient temperature increases, pressure in the recovery cylinder increases, reducing the recovery speed and in many cases can lead to a high pressure shutdown as the recovery equipment and tank pressure limits are reached. The Molecular Transformator reduces the temperature and pressure of recovered refrigerant during the recovery process, dramatically improving the recovery speed and high ambient temperature performance of all commercially available recovery machines in addition to extending the life of the equipment.



## HEATER STRAPS

Charge faster in cold weather! Ideal for use on portable refrigerant charging or recovery tanks, especially in cold weather when transfer times increase, or when a tank is low on refrigerant. These durable straps create a positive pressure between the refrigerant tank and an A/C or refrigeration system, thereby reducing refrigerant transfer time.



**CCXHB** (120V)



**CCXHBV** (220V/240V)

Model	CCXHB	CCXHBV
Voltage (Hz)	120 VAC (50/60 Hz)	240 VAC (50/60 Hz)
Watts	340 W	
Amps	2.8	1.4
For Cylinder Sizes	From 8" (20 cm) to 14" (35 cm) Diameter Tanks	
Control (Overheat Protection)	Automatic Thermal Cutoff (Encapsulated Thermostat)	
Minimum Surface Temperature Of Tank	115°F (46°C)	
Maximum Thermostat Temperature	130°F (55°C)	
Power Cord Length	20" (0.50 m)	
Adjustable Velcro Strap Max Length	19" (0.48 m)	
Heater Strap Width	3" (76 mm)	
Heater Strap Length	24" (.60 m)	
Heater Strap Color	Dark Orange	
Electrical Connection Type	Nema 5-15P	IEC320 Inlet
Packaging	Header Card + Clear Poly Bag	



**30 lb**

**CRX430T**  
**CRX430TS** with overfill sensor  
1/4" SAE Male



**50 lb**

**CRX400T**  
**CRX400TS** with overfill sensor  
1/4" SAE Male



**50 lb**

(Automotive use)  
**ARX134T**  
**ARX134TS** with overfill sensor  
1/2" ACME Male fitting



**90 lb**

**CRX390T**  
**CRX390TS** with overfill sensor  
1/4" SAE Male fitting

## REFRIGERANT RECOVERY TANKS

- DOT Certified for refrigerant storage
- Refrigerant compatible sealant used on all mechanical connection points
- Auxillary port for optional overfill sensor
- Liquid and Vapor UL listed Y-valve
- Powder coated for maximum rust protection

		Weight Of Empty Tank		Tank Water Capacity		Total Weight (Tank & Refrigerant)		Tank Foot Ring Diameter		Tank Outside Diameter		Tank Height		Max. Pressure Rating (psig)
		lb	kg	lb	kg	lb	kg	in	mm	in	mm	in	mm	
<b>For HVAC/R Use</b>														
<b>30 Lb</b>	<b>CRX430T</b>	17.5	7.9	26.2	11.9	43.7	19.8	7.8	198.1	9.5	241.3	18.1	459.7	400
	<b>CRX430TS</b>	17.5	7.9	26.2	11.9	43.7	19.8	7.8	198.1	9.5	241.3	18.1	459.7	400
<b>50 Lb</b>	<b>CRX400T</b>	28.3	12.8	47.4	21.5	75.7	34.3	8	203.2	12.5	317.5	19.75	501.7	400
	<b>CRX400TS</b>	28.3	12.8	47.4	21.5	75.7	34.3	8	203.2	12.5	317.5	19.75	501.7	400
<b>90 Lb</b>	<b>CRX390T</b>	49.5	22.5	92.5	42	142.0	64.4	9.5	241.3	12	304.8	31.75	806.5	350
	<b>CRX390TS</b>	49.5	22.5	92.5	42	142.0	64.4	9.5	241.3	12	304.8	31.75	806.5	350
<b>For Automotive Use</b>														
<b>50 Lb</b>	<b>ARX134T</b>	28.3	12.8	47.4	21.5	75.7	34.3	8	203.2	12.5	317.5	19.75	501.7	400
	<b>ARX134TS</b>	28.3	12.8	47.4	21.5	75.7	34.3	8	203.2	12.5	317.5	19.75	501.7	400

# VACUUM PUMPS

**LIGHT WEIGHT DESIGN  
HEAVY WEIGHT PERFORMANCE**



# Pro-Set®

## PRO-SET® VACUUM PUMPS

There are good pumps, better pumps, then Pro-Set Vacuum Pumps! Innovative changes in vacuum cartridge design, materials, lubrication and cooling enable Pro-Set vacuum pumps to achieve incredibly deep vacuum performance ratings that are unmatched in the industry. Pro-Set has the product line breadth and depth to suit just about any HVAC/R job or fit any job site requirement you might have!

Pro-Set vacuum pumps are offered in a variety of single and dual stage models with numerous voltage, horsepower and free air displacement (CFM) options, while contained in either standard size or compact size housings to suit your work environment. All Pro-Set vacuum pumps boast the same high quality, high value features engineered into all of our products, providing years of reliable performance while servicing air conditioning and refrigeration equipment.

## PRO-SET® VACUUM PUMP KEY FEATURES

- All models are for use with class A1 (non-toxic, non-flammable), class A2 (non-toxic, low-flammable) refrigerants
- Air cooled, thermally protected motors encased in a durable aluminum housing
- Oil filled rotary vacuum pump cartridge construction
- Large oil-fill port with proprietary, mist-free exhaust cap
- Easily accessible oil drain port
- Large oil sight glass
- Multiple SAE and ACME intake fittings with check valve
- On/Off power switch
- Rubber lined handle, skid resistant rubber feet
- Gas ballast valve

**SMALL SIZE,  
BIG  
PERFORMANCE**



### PRO-SET® DUAL STAGE VACUUM PUMPS

Pro-Set dual stage vacuum pumps are your premium solution for obtaining the deepest ultimate vacuum (10 to 25 microns, depending on model), the greatest range of horsepower (1/3 to 1) and free air displacement (from 2 CFM to 12 CFM) within the Pro-Set line. These pumps also include a gas ballast valve which speeds attainment of deep vacuum and are offered in both single and dual voltage models. All models are for use with Class A1 (non-toxic, non-flammable) and A2 (non-toxic, low flammable) refrigerants. The VPS Series with its sealed components is also for use with Class A3 (non-toxic, explosive) refrigerants and ammonia systems.

### PRO-SET® DUAL OR SINGLE STAGE COMPACT VACUUM PUMPS

The Pro-Set line of dual or single stage compact vacuum pumps provide an ultimate vacuum ranging from 15 to 100 microns, horsepower ratings from 1/5 to 1/4, and free air displacement from 2 CFM to 4 CFM. These pumps offer dedicated 115VAC or 220-240VAC operation and are hardwired with either NEMA 115VAC or 220-240VAC plugs. Best of all, these pumps feature some the smallest, lightest and most compact aluminum housings in the industry.

### PRO-SET® SINGLE STAGE VACUUM PUMPS

Pro-Set single stage standard size vacuum pumps provide a deep vacuum (down to 50 microns), with horsepower ratings from 1/3 to 1, and free air displacement from 2 CFM to 12 CFM. These pumps include a gas ballast valve and are offered in both single and dual voltage and have a voltage selector switch.



# Pro-Set® DUAL STAGE VACUUM PUMPS

Pro-Set® dual stage vacuum pumps are your premium solution for obtaining the deepest ultimate vacuum (10 or 25 microns, depending on model) and provide the greatest range of horsepower (1/3 to 1) and free air displacement (from 2 CFM to 12 CFM) within the Pro-Set line. These pumps also include a gas ballast valve which speeds attainment of deep vacuum and are offered in both single and dual voltage models. All models are for use with Class A1 (non-toxic, non-flammable) and A2 (non-toxic, flammable) refrigerants. Model VPS6DU with its sealed components is also for use with Class A3 (non-toxic, explosive) refrigerants and ammonia systems.

Vacuum Pumps

Model	VP2D	VP2DE	VP4D	VP4DE	VP6D	VP6DE	VPS6DE	VPS6DU
Stage	2							
Ultimate Vacuum	10 Microns							
Refrigerant Class	A1, A2						A1, A2, A3	
Dimensions (Inches)	12.2" x 5" x 9.6"		13.1" x 5.5" x 10"					
Weight	17.7 lb (8.0 kg)		22.1 lb (10.0 kg)			22.5 lb (10.2 kg)		
Free Air Displacement	2 CFM @ 60Hz (48 l/m @ 50Hz)		4 CFM @ 60Hz (96 l/m @ 50Hz)			6 CFM @ 60 Hz (144 l/m @ 50 Hz)		
Motor Size (HP), RPM @ 50/60Hz	1/3 HP (1440, 1720 RPM)		1/2 HP (2880, 3440 RPM)					
Voltage	110-120V Or 220-240V @ 50/60Hz	220-240V, 50 Hz	110-120V Or 220-240V @ 50/60Hz	220-240V, 50 Hz	110-120V Or 220-240V @ 50/60Hz	220-240V, 50 Hz	220-240V, 50Hz	115V 60Hz
Power Cord Connection to Pump	Universal IEC Socket & Voltage Selector Switch	Universal IEC Socket	Universal IEC Socket & Voltage Selector Switch	Universal IEC Socket	Universal IEC Socket & Voltage Selector Switch	Universal IEC Socket	Hard Wired Schuko Plug	Hard Wired
On/Off Power Switch	Yes						Yes (Ignition-proof sealed starting components)	
Operating Temperature Range	32°F to 125°F (0°C to 52°C)							
Pro-Set® Vacuum Pump Oil Capacity	11.5 oz (330 ml)		15.5 oz (450 ml)			16 oz (470 ml)		
Gas Ballast Valve	Yes							
Intake Fittings	SAE: 1/4", 3/8", ACME: 1/2"						SAE 1/4", 3/8", 1/2"	
Warranty (Years)	2	1	2	1	2	1		

**Legend:** VP= Vacuum Pump, VPS = Ignition Proof VP; **2,4,6,8,10,12** = CFM; **D** = Dual stage; **A or E** = 220-240VAC 50 Hz; **J** = 100VAC 50/60 Hz; **U**=115VAC 60Hz, **No Consonant After "D"** =Dual Voltage 110-120VAC or 220-240VAC 50/60Hz. **Refrigerant Classes: A1** (non-toxic, non-flammable); **A2** (non-toxic, flammable); **A3** (non-toxic, explosive)



VPO12



VPO12



VPO66

### PRO-SET® PREMIUM VACUUM PUMP OIL

Pro-Set Premium Vacuum Pump Oil is an extremely high quality, severely hydro-treated vacuum pump oil. The oil is compatible for use in pumps made by most manufacturers. Pro-Set Premium Vacuum Pump Oil should always be clean and free of contaminants such as moisture, acids, vapors, dirt etc. It is strongly recommended that the vacuum pump oil be changed after each use to improve service and the life of the pump.

Vacuum Pumps

Model	VP8D	VP8DE	VP10D	VP10DE	VP12D	VP12DE	VPS12DE	VPS12DU
Stage	2							
Ultimate Vacuum	25 Microns							
Refrigerant Class	A1, A2							
Dimensions (Inches)	14.9" x 5.7" x 10.6"							
Weight	29.8 lb (13.5 kg)		30.3 lb (13.7 kg)			30.9 lb (14.0 kg)		
Free Air Displacement	8 CFM @ 60 Hz (192 l/m @ 50 Hz)		10 CFM @ 60Hz (240 l/m @ 50Hz)			12 CFM @ 60Hz (288 l/m @ 50Hz)		
Motor Size (HP), RPM @ 50/60Hz	2/3 HP (2880, 3440 RPM)		3/4 HP (2880, 3440 RPM)			1 HP (2880, 3440 RPM)		
Voltage	110-120V Or 220-240V @ 50/60Hz	220-240V, 50 Hz	110-120V Or 220-240V @ 50/60Hz	220-240V, 50 Hz	110-120V Or 220-240V @ 50/60Hz	220-240V, 50 Hz		115V 60Hz
Power Cord Connection to Pump	Universal IEC Socket, Voltage Selector Switch	Universal IEC Socket	Universal IEC Socket, Voltage Selector Switch	Universal IEC Socket	Universal IEC Socket, Voltage Selector Switch	Universal IEC Socket	Hard Wired Schuko Plug	Hard wired
On/Off Power Switch	Yes						Yes (Ignition-proof sealed starting components)	
Operating Temperature Range	32°F to 125°F (0°C to 52°C)							
Pro-Set® Vacuum Pump Oil Capacity	29 oz (860 ml)		28 oz (830 ml)			27 oz (800 ml)		
Gas Ballast Valve	Yes							
Intake Fittings	SAE 1/4", 3/8", 1/2"							
Warranty (Years)	2	1	2	1	2	1		





# Pro-Set<sup>®</sup> DUAL OR SINGLE STAGE COMPACT VACUUM PUMPS

The Pro-Set<sup>®</sup> line of dual or single stage, compact vacuum pumps provide an ultimate vacuum ranging from 15 to 100 microns, horsepower ratings from 1/5 to 1/4, and free air displacement from 2 CFM to 4 CFM. These pumps offer dedicated 115VAC or 220-240VAC operation and are hardwired with either NEMA 115VAC or 220-240VAC plugs. Best of all, these pumps feature some the smallest, lightest, most compact aluminum housings in the industry.

Model	VPC2DU	VPC2DE	VPC2SU	VPC2SE	VPC4SU	VPC4SE
Stage	2			1		
Ultimate Vacuum	15 Microns			100 Microns		
Refrigerant Class	A1, A2					
Dimensions (Inches)	11.3" x 4.5" x 8.0"			9.1" x 4.5" x 8.0"		11.3" x 4.5" x 8.0"
Weight	12.1 lb (5.5 kg)			9.3 lb (4.2 kg)		11.0 lb (5 kg)
Free Air Displacement	2 CFM @ 60Hz (48 l/m @ 50Hz)				4 CFM @ 60 Hz (96 l/m @ 50 Hz)	
Motor Size (HP) RPM @ 50/60Hz	1/4 HP (2880, 3440 RPM)			1/5 HP (2880, 3440 RPM)		1/4 HP (2880, 3440 RPM)
Voltage	115V @ 60 Hz	220-240V @ 50 Hz		115V @ 60 Hz	220-240V @ 50 Hz	115V @ 60 Hz, 220-240V @ 50 Hz
Power Cord Connection to Pump (& Plug Type)	Hardwired, Nema 115V Plug	Universal IEC, Schuko Plug		Hardwired, Nema 115V Plug	Universal IEC, Schuko Plug	Hardwired, Nema 115V Plug, Universal IEC, Schuko Plug
On/Off Power Switch	Yes					
Operating Temperature Range	32°F to 125°F (0°C to 52°C)					
Oil Capacity	9 oz (250 ml)	9 oz (250 ml)			10 oz (300 ml)	
Gas Ballast	No					
Intake Fittings	SAE: 1/4", ACME: 1/2"					
Warranty (Years)	1					

**Legend:** VP= Vacuum Pump; C = Compact; 2,4 = CFM; E = 220-240VAC 50 Hz; S = Single Stage; U = 115VAC, 50/60 Hz.  
**Refrigerant Classes:** A1 (non-toxic, non-flammable); A2 (non-toxic, flammable)



**VPAS4 ANTI-SIPHON VALVE KIT**  
1/4" SAE female knurl nut



**VPAS8 ANTI-SIPHON VALVE KIT**  
3/8" SAE female knurl nut



**VPASU ANTI-SIPHON VALVE KIT**  
1/4" SAE, 3/8" SAE, 1/2"-20 UNF female knurl nut

## ANTI-SIPHON VALVE KITS

The CPS anti-siphon valve is an essential accessory to any vacuum pump application. The anti-siphon valve prevents the cross-contamination of vacuum pump oil and the compressor oil in the A/C or refrigeration system being serviced. Mixing of vacuum pump oil and compressor oil can cause premature failure in the A/C or refrigeration system. CPS makes three models that fit all CPS and other brands of vacuum pumps.



# Pro-Set® SINGLE STAGE VACUUM PUMPS

Pro-Set® single stage, standard size vacuum pumps provide a deep vacuum (down to 50 microns), with horsepower ratings from 1/3 to 1, and free air displacement from 2 CFM to 12 CFM. These pumps include a gas ballast valve and are offered in both single and dual voltage and have a voltage selector switch.

Model	VP2S	VP4S	VP6S
Stage	1		
Ultimate Vacuum	50 Microns		
Refrigerant Class	A1, A2		
Dimensions (Inches)	12.2" x 5" x 9.6"		13.1" x 5.5" x 10"
Weight	13.7 lb (6.2 kg)	15.0 lb (6.8 kg)	18.3 lb (8.3 kg)
Free Air Displacement	2 CFM @ 60Hz (48 l/m @ 50Hz)	4 CFM @ 60Hz (96 l/m @ 50Hz)	6 CFM @ 60 Hz (144 l/m @ 50 Hz)
Motor Size (HP), RPM @ 50/60Hz	1/4 HP (1440 1720 RPM)	1/3 (HP) 2880/3440	1/2 HP (2880, 3440 RPM)
Voltage	Dual (110-120V Or 220-240V @ 50/60Hz)		
Power Cord Connection to Pump (& Plug Type)	Universal IEC Socket, Voltage Selector Switch, Nema 15 Plug		
On/Off Power Switch	Yes		
Operating Temperature Range	32°F to 125°F (0°C to 52°C)		
Oil Capacity	16 oz (470 ml)	19 oz (540 ml)	
Gas Ballast	No		
Intake Fittings	SAE: 1/4" & 3/8", ACME: 1/2"		
Warranty (Years)	2		

**Legend:** VP= Vacuum Pump; 2,4,6 = CFM; S = Single Stage; **Dual Voltage:** 110-120VAC or 220-240VAC 50/60 Hz.  
**Refrigerant Classes:** A1 (non-toxic, non-flammable); A2 (non-toxic, flammable)



### AVCVAC VACUUM PUMP CAP KIT

Vacuum pump cap kit with chains on one common ring



Vacuum Pumps

# Tech-Set™

## SINGLE STAGE, COMPACT VACUUM PUMPS

The Tech-Set line of vacuum pumps are designed for the working HVAC technician, and feature a core, essential line of good value vacuum pumps that provide affordable, reliable and dependable service. All models are single stage and feature small, lightweight and compact housings with dedicated 115VAC or 220VAC IEC plug configurations. Models range from 1.5, 3 or 5 CFM, 1/5 to 1/3 horsepower, and ultimate vacuum ratings from 50 to 100 microns.



Model	TAVPC48SU	TAVPC48SE	TAVPC96SU	TAVPC96SE	TAVP144SU	TAVP144SE
Stage	1					
Ultimate Vacuum	100 Microns			50 Microns		
Refrigerant Class	A1, A2					
Dimensions (Inches)	8.75" x 4.1" x 9.25"		11.25" x 4.1" x 9.25"		12.62" x 4.8" x 9.62"	
Weight	9.5 lb (4.3 kg)		11 lb (5.0 kg)		14.8 lb (6.7 kg)	
Free Air Displacement	1.5 CFM @ 60 Hz (48 l/m @ 50 Hz)		3 CFM @ 60 Hz (96 l/m @ 50 Hz)		5 CFM @ 60 Hz (144 l/m @ 50 Hz)	
Motor Size (HP) RPM @ 50/60Hz	1/5 HP (2880, 3440 RPM)		1/4 HP (2880, 3440 RPM)		1/3 HP (2880, 3440 RPM)	
Voltage	115V @ 50/60 Hz	220-240V @ 50 Hz	115V @ 50/60 Hz	220-240V @ 50 Hz	115V @ 50/60 Hz	220-240V @ 50 Hz
Power Cord Connection to Pump (& Plug Type)	Hardwired, Nema 115V Plug	Universal IEC, Schuko Plug	Hardwired, Nema 115V Plug	Universal IEC, Schuko Plug	Hardwired, Nema 115V Plug	Universal IEC, Schuko Plug
On/Off Power Switch	Yes					
Operating Temperature Range	32°F to 125°F (0°C to 52°C)					
Oil Capacity	9 oz (250 ml)			14 oz (400 ml)		
Gas Ballast	No					
Intake Fittings	SAE: 1/4", ACME: 1/2"					
Warranty (Years)	1					

**Legend:** **T** = Tech-Set; **VP** = Vacuum Pump; **C** = Compact; 48, 96 or 144 = lpm; **E** = 220-240VAC 50 Hz; **S** = Single Stage; **U** = 115VAC, 50/60 Hz  
Refrigerant Classes: **A1** (non-toxic, non-flammable); **A2** (non-toxic, flammable)

### PORT CAPS

Oil mist preventer exhaust port.

**VPXOMP** for 2-6 CFM Models

**VPXOMP2** for 8-12 CFM Models



### VPXJ220 JUMPER CORD KIT

220 VAC jumper power cord for locations where 110 voltage is not available.



VPXJ220

# VACUUM GAUGES

PERFORMANCE THAT CAN BE MEASURED



## VG100A & VG200 VACROMETER DIGITAL VACUUM GAUGES

### VG100A & VG200:

- Advanced sensor design with self-heated thermistor bridge and automatic temperature compensation
- Field cleanable sensor designed to withstand 400 Psi of positive pressure
- Brass T adapter (AVT45), hanging hook (VGXH) and carrying case (VGXC) included with VG200, VG100A
- Calibrated to strict NIST standards for best-in-class accuracy and reliability
- Designed and manufactured in the USA with U.S. and globally sourced components

### VG200, VG201:

- Continual digital readout of evacuation process on large, easy to read 5 digit LCD display
- User selectable units: Microns, Torr, in/Hg or mBar

### VG100A, VG101:

- Vacuum level indication at Atm (Atmosphere), 5000, 2000, 1000, 500, 250, 100, 50 & 25 microns



Model	VG200	VG201	VG100A	VG101
Sensor Type	Self - heated thermistor bridge [with integral temperature compensation from 32 to 122° F (0 to 50° C)]			
Field Cleanable Sensor	Yes			
Accuracy	+/- 10% Of Reading		+/- 10% Value Of Lighted LED	
Display Type	5 Digit LCD		9 High Intensity LEDs	
Display Auto-Off	After 5 Minutes Of Operation			
Operating Vacuum Range	Atmospheric pressure to 0 microns		Atmospheric pressure to 25 microns	
Maximum Working Pressure	400 Psig			
Operating Temp Range	Compensated (accuracy as stated): 32°F - 122°F (0°C - 50°C) Non-compensated: Add +/- 0.5% error for every °C outside compensated range			
Storage Temperature	-22° F to 185° F (-30° C to 85° C)			
Operating & Storage Humidity	0 - 95%, Non-condensing			
Power Source	One 9V Alkaline Battery (ANSI 1604AC – IEC 6LR61), included			
Battery Life	20 hr continuous use		18 hr continuous use	
Battery Indicator	Battery symbol with 3 segment Power Level Bar Graph		Symbol for 500 Microns Glows	
Weight (Excluding Battery)	5.5 oz (156 g)		4.8 oz (136 g)	
Dimensions	2.7" dia. by 1.6" Dp x 5" H (68 mm Dia. x 40 mm Dp x 124 H)			
Mechanical Connection	Standard 1/4" female SAE refrigerant hose w/core depressor	1/8" NPT thread connection	Standard 1/4" female SAE refrigerant hose w/core depressor	1/8" NPT thread connection

### GAUGE ADAPTERS

The **AVT45/48/87** are premium built brass adapters. The **AVT45** is included for use with the **VG100A & VG200** (purchased separately for **VG201 & VG101**) and has a 1/4" SAE male to 1/4" SAE male to 1/4" SAE swivel female tee.



AVT45

AVT48

AVT87

### VACUUM GAUGE ACCESSORIES & SPARE PARTS FOR VG200, VG201, 100A, VG101

AVT44	1/4" SAE female hex nut x 1/4" SAE male x 1/4" SAE male w/cap & core
AVT45	1/4" SAE female knurl nut x 1/4" SAE male x 1/4" SAE male w/cap & core
AVT87	1/4" SAE male x 1/2-20" SAE female x 1/2-20" SAE male tee adapter
VGXC	Carrying case for VG Series (Included with VG100A & VG200)
VGXH	Hanging hook for VG Series (Included with VG100A & VG200)

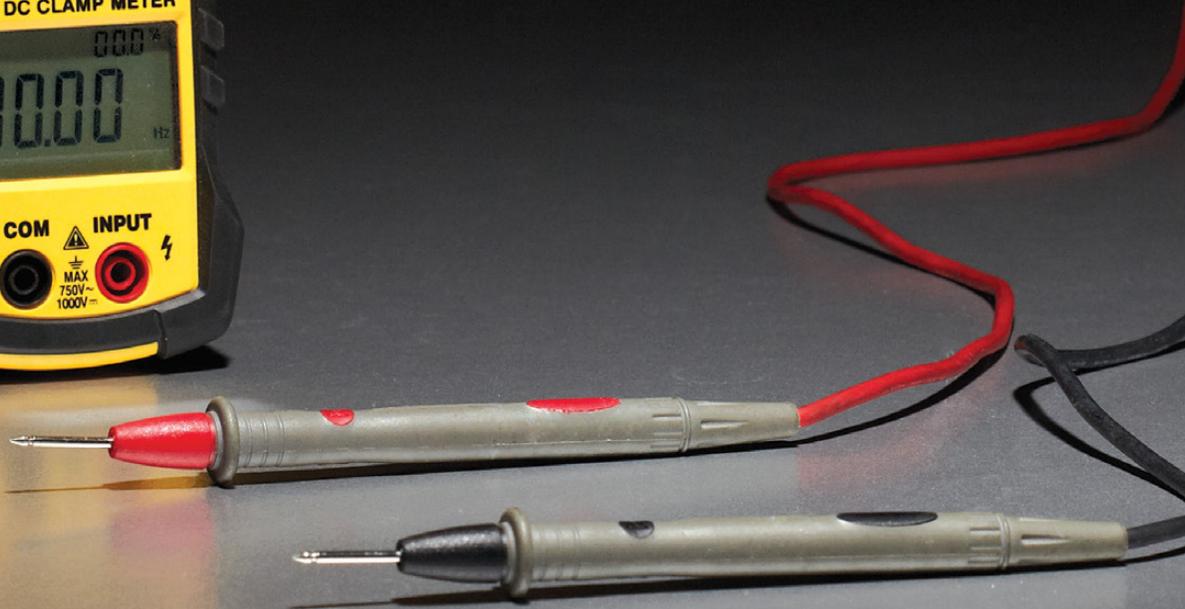


VGXH

VGXC

# ELECTRICAL & SPECIALTY METERS

MEASURE WITH CONFIDENCE



## AC750 DIGITAL CLAMP METER

The **AC750** is a multi-functional AC/DC clamp meter and hosts an array of enhanced features such as ability to capture true In-Rush measurements, non-contact voltage detection, and data logging of output readings to a PC (USB connection cable included).

- Versatile for testing AC/DC voltage, AC/DC current, resistance and frequency
- True RMS AC measurement
- Max/min value measurement
- Audible continuity and diode test
- Non-contact voltage detection
- Integrated clamp light and LCD backlight
- Auto zero key for DCA measurement
- Auto/Manual range, auto power off
- Secondary injection molded case, safety as per IEC1010 1000V CAT III
- Includes **DMXTL** CAT 3, 1000V test leads (shown below)



**AC750**



USB data connection



Extra strength grip clamp



Built-in flashlight



Back view

Display	6000 count dual display
Range Control	Auto range mode
Battery	9V battery (one piece)
Dimensions (W,H,D)	8.8" x 3.4" x 1.3" (225 mm x 86 mm x 33 mm)
Weight	0.70 lb (320 g)

### DMXTL 1000V CAT 3 TEST LEADS



*Captures True  
Motor In-Rush Current*



*Includes Built-in Data  
Logging with Software*

**DMXTL (Replacement  
Probes For AC750)**



### AM50 VELOCITOR™ AIR VELOCITY METER

A professional grade, precision, hand held, detached vane anemometer that provides fast, accurate air velocity measurements for balancing HVAC systems or determining CFM calculations. Includes large 3/4" display digits and low battery indicator, as well as Data Hold, Max Hold (°F,°C); Function Selection (°F,°C, Anemometer); Units Selection (m/s, ft/min, Knots, Km/Hr). Kit also includes a convenient K Type thermocouple integrated into the remote vane providing quick measurement of grill/duct outflow temperatures from 32° to 122°F (0° to 50°C). An easy-to-read chart allows quick conversion of air velocity measurements into CFM data. Also included is an instruction manual, CFM Chart (Grill Size, Free Air), 9 V battery, molded carrying case. Factory calibrated.

Temperature Sensor	K-type thermocouple			
Average Period (Seconds) for Wind Speed Measurement	Feet/Minute	~1.2		
	Meters/Second	~0.6		
	Knots	~1.2		
	Km/Hr	~2.2		
Flex Cord	5'			
Power Consumption	Approx 6 mA			
Battery Life	9V			
Battery Type	50 hr (for 300 mA-hr battery)			
Operating Pressure	500 mb ~ 2 Bar			
Operating Temperature Range (Meter)	32°F to 122°F (0°C to 50°C)			
Operating Temperature Range (Vane)	32°F to 140°F (0°C to 60°C)			
Operating Humidity for Thermocouple	<80% RH			
Storage Temperature Range	-40°F to 140°F (-40°C to 60°C)			
Bearing	Ultra-low friction sapphire jewel			
Weight	12.3 oz (350 g)			
Mounting Nut	1/4" x 20			
Dimensions (L x W x H)	6.6" x 3.5" x 1"; (168 mm x 88 mm x 26 mm)			
Units	Range	Threshold	Resolution	Accuracy
Feet/Minute	0 to 8,800	60	0.1	±3% or 0.1
Meters/Second	0 to 45	0.3		
Kilometers/Hour	0 to 140	1.0		
Knots	0 to 88	0.6		

### DM350 TECH-SET™ AUTO-RANGING DIGITAL MULTIMETER CAT III 600V

The **DM350** is a Multi-Functional Meter and is designed to international safety standard IEC1010 CAT III 600V. The **DM350** is encased in a secondary injection mold and supports such features as auto ranging, data hold and maximum value measurement.

Display	4 digit large character LCD
Range Control	Auto range mode
Battery	(2) 1.5V AA batteries
Dimensions	158 x 74 x 31mm
Weight	Approx. 220g (including batteries)
DC Voltage	200m / 2 / 20 / 200 / 600V ±0.7%
AC Voltage	200m / 2 / 20 / 200 / 600V ±0.7%
DC Current	200μ / 2000 μ / 20m / 200mA ±1.2%, 2/10A±2.0%
(with optional clamp)	200/2000A (0.1mV/0.1A) ±1.2%
AC Current	200 μ / 2000 μ / 20m / 200mA ±1.5%, 2/10A±3.0%
(with optional clamp)	200/2000A (0.1mV/0.1A) ±1.5%
Resistance	200 / 2k / 20k / 200k / 2M ± 1.2%; 20M ± 2.0%
Temperature	-20°C - 1000°C ± 3.0%, 0°F ~ 1800°F ± 3.0%
Capacitance	20n / 200n / 2μ / 20μ / 200μ / 2000μF ± 4.0%



CE N11445 DM350



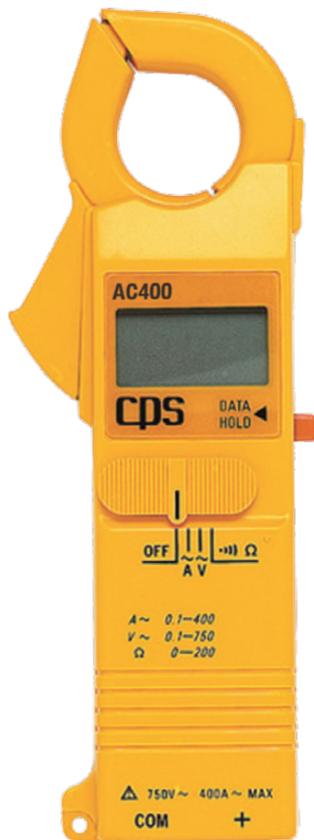
**SM150**

### SM150 SOUND LEVEL METER

A professional grade, hand held, lightweight sound level meter for measuring noise levels from 35 to 130dB. Common applications include monitoring sound output from HVAC/R compressors, blowers, health and safety requirements, offices, factory machinery, airports, auditoriums, studio acoustics, etc. Features switches for Hi/Lo dB, slow/fast/impulse, and A & C Weighting. Includes a large, 4 digit LCD display, maximum hold (captures & holds maximum noise level), Over/under range indicator, peak and average response settings. Includes a 3.5 mm output jack for downloading AC or DC signals to a frequency analyzer, level recorder, FFT analyzer, graphic recorder, etc. Kit includes instruction manual, foam windscreen, 3.5 mm plug, calibration screwdriver, 9 V battery, foam padded carrying case. Factory calibrated. CE approved. Meets or exceeds ANSI S1.4 Type 2; IEC 61672-1 Class 2.

### AC400 TECH-SET™ DIGITAL CLAMP METER

The **AC400** is a auto-ranging clamp on meter. The **AC400** is designed to international safety standard IEC1010 CAT III 600V. The **AC400** is encased in a secondary injection mold and supports such features as auto ranging, data hold and maximum value measurement.



**AC400**

### SM150 SOUND LEVEL METER SPECIFICATIONS

Frequency Range	20 Hz ~ 8KHz
Measuring Level Range	35~ 130 dB
Frequency Weighting	A/C
Time Weighting	Fast (125 mS), Slow (1 sec.) Impulse (35 mS)
Microphone	1/2" Electret Condenser
Display	LCD (4 Digits)
Resolution	0.1 dB
Display Period	0.5 sec.
Level Ranges	Lo (35-95dB); Hi (65-130dB)
Accuracy	±1.4dB (Under Reference Conditions)
Dynamic Range	65 dB
Alarm Function	"OVER" displays when input out of range
Weight	12.3 oz (350 g)
Mounting Nut	1/4" x 20
Dimensions (LxWxH)	Inch: 6.6" x 3.5" x 1"; mm: 168 x 88 x 26
Maximum Hold	Hold readings, with decay , 1 dB/3 minutes
Calibration	Electrical calibration via internal oscillator (1 KHz) sine wave
AC Output	0.6 Vrms at FS (full scale), output impedance approx. 5KΩ
DC Output	10mV/dB, output impedance approx. 5KΩ
Power Supply	One 9V battery
Power Life	Approx 50 hr (alkaline)
Operating Temperature Range	32° F to 104°F (0°C to 40°C)
Operating Humidity Range	25% to 90% RH
Storage Temperature	14°F to 140°F (-10°C to 60°C)
Storage Humidity	10% to 70% RH
Dimensions (L x W x H)	Inch: 9.4" x 2.7" x 0.98" mm: 240 x 68 x 25
Weight	7.5 oz (215 g)

# TEMPERATURE & SYSTEM MEASUREMENT

## INNOVATIVE SYSTEM ANALYSIS INSTRUMENTATION





## TM360 SERIES, 4 STATION THERMO-PSYCHROMETER

TM360 Series are professional grade instruments that can accommodate all your temperature, humidity, dry/wet bulb and dew point measurements. TM360 incorporates 4 discrete temperature ports capable of min/max and memory functions including temperature differential between any 2 of the 4 available ports. Display and alternate between four ports to continuously monitor multiple probes during system diagnosis.

A dedicated special purpose port accommodates an optional state-of-the-art silicon humidity transducer probe for fast and accurate measurements during superheat calculations. Housed in a rugged polyethylene case, the TM360 is engineered to provide laboratory accuracy in rough field conditions. A generous probe storage area is provided to contain all your job specific probes.



TM360 & TM360C

### TM360 KEY FEATURES:

- Four discrete temperature channels
- High accuracy silicon humidity transducer probe port
- Large 4-digit, easy-to-read, backlit display
- Min/Max and memory functions
- Temperature differential between any 2 of the 4 temperature ports
- Direct relative humidity and wet bulb measurements
- Calibrated to NIST traceable standards
- Auto-off after 10 minutes of non-use or continuous ON mode
- Operates 30 continuous hr on (1) 9V alkaline battery
- Integrated battery eliminator jack
- Rugged polyethylene carrying case
- Large probe storage area
- Switchable °C/°F
- TM360 includes accessory probes **TMX2A, TMX2G, TMX2S**
- TM360C includes accessory probes **TMX2A, TMX2S, TMX3C**

Temperature Resolution	±0.1°F or °C
Temperature	±0.4°F / ±0.2°C from 14.0 to 158°F -10.0 to 70°C; 0.6°F / 0.3°C elsewhere in the range
RH Range	0 to 100%RH
RH Accuracy (TMX3RH)	±1.8% RH from 10 to 90%RH; ± 3% elsewhere in the range
DB Accuracy (TMX3RH)	±1.2% of reading ± 1.0°F from -40°F to 200°F (± 1.2% of reading ± 0.5°C from -40°C to 90°C)
Power Source	9V alkaline battery or optional TMX3PS AC adapter for 100 to 240VAC (40 to 60 Hz)
Battery Life	30hr continuous use
Automatic Power	Off After 10 minutes of non-use, or user selectable continuous ON mode
Backlight	15 seconds

**ACCESSORIES & SPECIFICATIONS  
FOR USE WITH SH450, TM360 AND TM360C**

For use with



**TMX2A**



**TMX2G**



**TMX2GA**



**TMX2P**



**TMX2S**



**TMX3C**



**TMX2RH**



**TMX3RH**



**TMX3WB**



**TMX3PS**

Item	Description	Common Uses	Qty	Operating Temperature Range	For use with		
					TM360	TM360C	SH450
TMX2A	Moving Air Probe, 15' (4.5 m) Lead	Air: Ducting, registers, air movement across condensers, ambient air	1	-40°F to 221°F (-40C to +105°C)	Yes*	Yes*	Yes
TMX2G	General Purpose Probe, 15' (4.5 m) Lead	Surface, Air, Liquids: Copper pipe, ambient air, RH wet sock method	1	-40°F to 257°F (-40C to +125°C)	Yes*	n/a	Yes*
TMX2GA	General Purpose Air Probe, 15' (4.5 m) Lead	Air, Surface, Liquids: Ambient air, ducting, registers, air movement across condensers.	1	-40°F to 257°F (-40C to +125°C)	n/a	n/a	Yes
TMX2P	Puncture Probe, 15' (4.5 m) Lead	Surface, Liquids (Shaft Only): Internal temperatures of frozen materials, air ducts	1	-40°F to 257°F (-40C to +125°C)	Yes	n/a	Yes
TMX2S	Velcro Strap Pipe Probe, 15' (4.5 m) Lead	Surface: temperatures of copper tubing	1	-40°F to 257°F / -40°C to +125°C	Yes*	Yes*	Yes
TMX3C	Clamp-On Surface Probe, 15' (4.5 m) Lead	Surface: temperatures of copper tubing	1	-40°F to 221°F (-40C to +105°C)	Yes	Yes*	Yes*
TMX2RH	Relative Humidity / Dewpoint Probe	Specialty RH Probe: Measure indoor air quality, set/troubleshoot humidity devices	1	-40°F to 194°F (-40C to +90°C)	For use with TM150 and TM250		
TMX3RH	Relative Humidity / Dry Bulb / Wet Bulb / Dew Point Probe	Specialty RH Probe: Measure indoor air quality, set/troubleshoot humidity devices	1	-40°F to 194°F (-40C to +90°C)	Yes	Yes	Yes
TMX3WB	Wet Bulb Socks	for Use With TM360	6	-40°F to 194°F (-40C to +90°C)	Yes	Yes	n/a
TMX3PS	AC Adapter for 100 to 240V (40-60 Hz)- USA Plug	for TM360, SH450	1	32°F to 140°F (0 C to +60°C)	Yes	Yes	Yes

\*Indicates accessory is included with the model

## TMINI12 NON-CONTACT THERMOMETER

The **TMINI12** infrared thermometer provides easy, instant temperature measurement over a wide range of applications. **TMINI12** offers convenient one-hand operation, laser point sighting, a backlit LCD display, °F/°C selection, automatic power off feature, built-in LED light, K-Type input for use with optional accessory temperature probes.

Use the **TMINI12** to quickly and easily measure temperatures of registers, ductwork, furnaces, evaporators, condensers, compressors, relays, manifolds, radiators, exhaust systems, thermostats, bearings and more. Includes carrying case and 9V alkaline battery.



Built in LED Light



Temperature Range	-76°F to 932°F (-60°C to 500°C)
D:S (Distance to Spot Size)	12:1
Emissivity	Pre-set at 0.95 - adjustable
Accuracy	±2°C (±4°F) or ±2% of reading
Display	Digital Backlit LCD
Resolution	1°C/°F
Batteries	2 AAA
Warranty	1 year



## TMXSK90 K-TYPE TEMPERATURE PROBE

The **TMXSK** is the fastest and most accurate handheld K-type surface probe providing accurate readings in less than 5 seconds. The sensor is made from flat-spring ribbons of thermocouple material for contact on uneven surfaces. A square, ribbed handle for grip and a 3' coiled lead for durability and long reach. The exposed junction provides for fast response and is compatible with any other instrument with a K-type input.

- K-Type Surface Probe (Angled, 90 Degree Head)
- Max Temp: 752°F (400°C)



Coiled lead



Flat-spring ribbons



K-type accessory probe



Used as seen above on the CPS **TMINI12** and is compatible with any other instrument with a K Type input.



### TMXSK TEMPERATURE PROBE

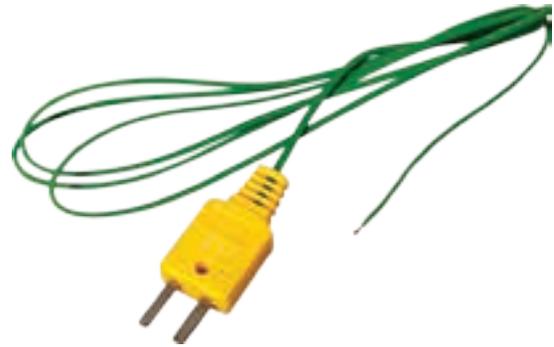
Identical to the **TMXSK90**, but with a straight probe and round, ribbed handle.

- K-Type Surface Probe (Straight Head)
- Max Temp: 752°F (400°C)

### TMXKBEAD TEMPERATURE PROBE

The **TMXKBEAD** is a standard K-type bead probe ideally suited for getting fast results when measuring temperature in a variety of media. This 36" long (1 m) probe provides accurate readings in less than 5 seconds.

- K-Type Flexible 36" (1 m) Probe
- Max Temp: 400°F (204°C) Min Temp: -58°F (-50°C)



### TMAP ANALOG POCKET THERMOMETER

- Fahrenheit scale
- 1" dial and stainless steel probe and pocket clip
- 0°F to 220°F
- 5" (127 mm)

### TMAPC ANALOG POCKET THERMOMETER

- Celsius scale
- 1" dial and stainless steel probe and pocket clip
- -40°C to 80°C
- 5" (127 mm)



### TMDP DIGITAL POCKET THERMOMETER

- Celsius scale
- -58° to 302°F (-50° to 150°C)
- 5" (127 mm)

# BLACKMAX<sup>®</sup>

## DIGITAL MANIFOLDS

INDUSTRY LEADING ACCURACY



1.800.561.8187

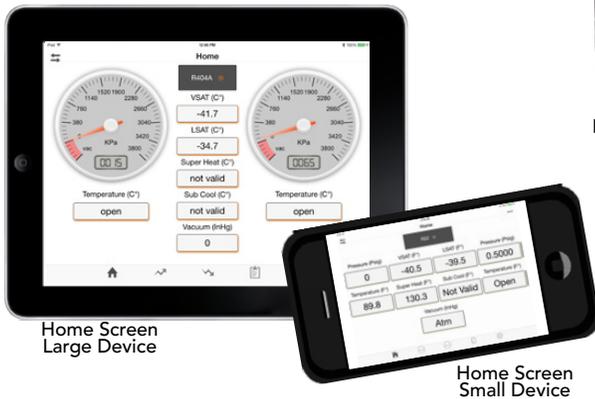
www.itm.com

information@itm.com

## BLACKMAX® WIRELESS DIGITAL MANIFOLDS WITH CPS LINK™ APP

Our digital manifolds combine the latest design and electronic measurement features into one easy-to-use, accurate and water resistant product in a rugged nylon plastic housing, incorporating a durable elastomeric keypad and large backlit LCD display. Two and four valve manifolds are designed and manufactured in the USA with U.S. and globally sourced components.

CPS Link™ is patented technology for iOS and Android mobile applications (APPS), designed to communicate with and control select functions of BlackMax Digital Wireless Manifolds.



Home Screen Large Device

Home Screen Small Device

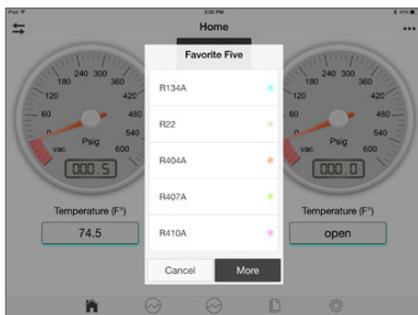
### CPS LINK™ APP

CPS Link allows HVAC/R technicians the convenience of running and monitoring a BlackMax digital manifold (from up to 300 feet away), while also providing additional capabilities not found in non-wireless versions.

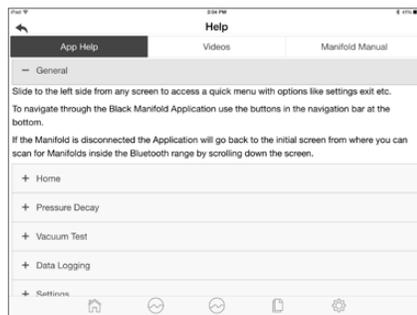
- Fast, convenient touch screen control
- Comprehensive views of system measurements
- Graphical depictions of test functions
- Data logging
- Geolocation data and more
- If your mobile device is not available, your wireless manifold may be operated as a stand alone device using the yellow keypad.



- Perform and monitor select system measurements—in real time without the need to physically touch the manifold
- Alternate views for smaller mobile devices
- Color scheme change according to refrigerant
- Pressure hold or vacuum hold tests can be viewed, saved, stored or emailed as a graph
- Supports over 100 common refrigerants, with quick access to your favorite five
- APP updates for new refrigerants
- Change manifold units; (Pressure, Temperature, Vacuum)
- Multi-language



Access Favorite Five Refrigerants



Help Screen



Vacuum Hold Test



**MD100WVHEC  
BLACKMAX® LIMITED  
EDITION CAMO FINISH  
WIRELESS DIGITAL  
MANIFOLD**



**BLACKMAX® DIGITAL MANIFOLDS  
BEST-IN-CLASS ACCURACY**

- Pressure: 1% of reading pressure
- Temperature: superior thermistor sensors for +/- 0.2°C (+/- 0.4°F) accuracy
- Vacuum: direct system attachment achieves +/- 10 microns from 0 to 25,000 microns

**SIMPLICITY AND VERSATILITY**

- One key ON/OFF and function select
- Preloaded with over 100 refrigerants
- Compatible with R744 subcritical CO2 refrigerants
- One-touch access to your favorite five refrigerants
- Performs pressure decay and vacuum rise tests
- Uses 4AA alkaline or rechargeable batteries
- 25 hours of continuous battery life with backlight; 40 hours without

**FULL SYSTEM MEASUREMENT**

- 2 Pressures, 2 temperatures and vacuum (using MDXVG accessory)
- Vacuum rise and pressure decay test functions
- Simultaneously displays:
  - HI & LO Pressures, Superheat & Subcooling
  - HI & LO Pressures, T1 & T2
  - HI & LO Pressures, Saturation T1 & Saturation T2
  - HI & LO Pressures, Displays T1, T2 & Delta T

**RUGGED DESIGN**

- Rain-proof, high strength glass-filled nylon housing
- Precision machined anodized aluminum manifold body
- Proprietary Vortech™ valve systems (certified to 15 microns)
- High-impact polycarbonate LCD window
- Advanced sight glass design



**MD100**  
Non-wireless 4 valve series



**MD50**  
Non-wireless 2 valve series



BLACKMAX® Digital Manifolds	Number Of Valves	5' Black & Chrome Ball Valve Charging Hoses 3 Pk (HP5BKEZ)	5' Heavy Duty Black & Chrome Vacuum Hose (1) (HV5Z)	Thermistor Sensor with 6' leads (MDXCP) x 2	Vacuum Gauge Accessory Kit* (MDXVG)	Rechargeable NiMH Battery and Universal Plug Kit** (MDXBK)	Soft Case For All MD Series (MDXSC)
MD50	2			✓	Optional	Optional	Optional
MD50W Wireless				✓	Optional	Optional	Optional
MD50HE		✓		✓	Optional	Optional	Optional
MD50WHE Wireless		✓		✓	Optional	Optional	Optional
MD50VHE		✓		✓	✓	Optional	Optional
MD50VVHE Wireless		✓		✓	✓	Optional	Optional
MD100	4	Optional		✓	Optional	Optional	Optional
MD100W Wireless				✓	Optional	Optional	Optional
MD100HE		✓	✓	✓	Optional	Optional	Optional
MD100WHE Wireless		✓	✓	✓	Optional	Optional	Optional
MD100VHE		✓	✓	✓	✓	Optional	Optional
MD100VVHE Wireless		✓	✓	✓	✓	Optional	Optional
MD100VVHEC Wireless NEW! CAMO Limited Edition		✓	✓	✓	✓	Optional	Optional

\*Includes Vacuum Accessory & 1 AVT45 1/4" SAE Brass Tee Connector. \*\*Includes 1 Universal Charger With 5' Cord; 4 rechargeable NiMH batteries, 1 U.S. Plug, 1 Euro Plug, 1 Australia/New Zealand/China Plug, 1 UK/Ireland/Singapore/Hong Kong Plug.

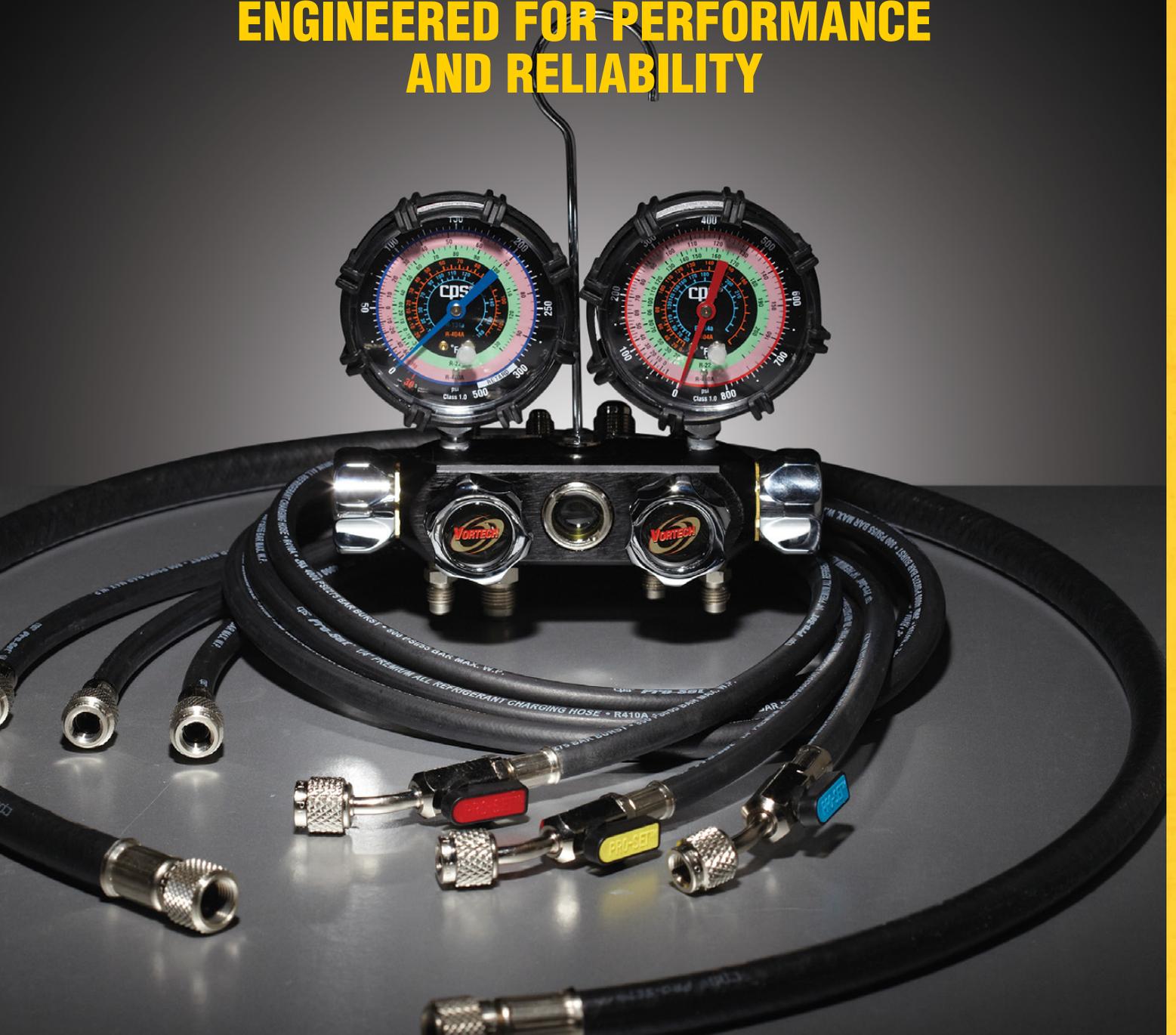


Manifolds and Gauges

# BLACKMAX<sup>®</sup>

## BLACK & CHROME MANIFOLDS

ENGINEERED FOR PERFORMANCE  
AND RELIABILITY



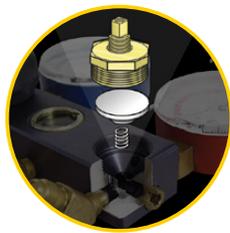
1.800.561.8187

www.itm.com

information@itm.com

## BLACKMAX® BLACK & CHROME MANIFOLDS WITH VORTECH™ VALVES

- Two and four valve manifolds designed and manufactured in USA with U.S. and globally sourced components
- Proprietary Vortech™ valves (certified to 15 microns)
- Black anodized aluminum body with large sight glass
- Heavy duty nickel plated metal handles
- Auxiliary center access port with Schrader valve (2 valve units)
- Protective gauge boots and packaged in display tin
- Superior refrigerant metering and control



MV4H4P5EZ



### BLACKMAX® BLACK & CHROME VORTECH™ VALVE MANIFOLDS

Specifications		3-1/8" (80 mm)	
		North America	South America
Gauge Description	Refrigerant Scales	R134a, R22, R404a, R410a	R410a, R22, R407c
	Gauge Size / Type	Class 1.0 accuracy * Gauges built with internal silicon dampening cup for flutter-free operation	
	Pressure Scales	Psi	bar / Psi
	Temperature Scales	°F	°C
Fittings	Manifold & Hose fittings	1/4" SAE 45° fittings	
Two Valve Manifolds	3 Premium 5' Pro-Set® Black & Chrome Hoses	MV2H4P5Z	MV2O4P5Z
	3 Premium 5' Pro-Set® Black & Chrome BV Hoses	MV2H4P5EZ	MV2O4P5EZ
Four Valve Manifolds	3 Premium 5' Pro-Set® Black & Chrome Hoses	MV4H4P5Z	MV4O4P5Z
	3 Premium 5' Pro-Set® Black & Chrome BV Hoses	MV4H4P5EZ	MV4O4P5EZ
Replacement Gauges	Low Side Gauge	RGH4L	RG04L
	High Side Gauge	RGH4H	RG04H
	Gauge Boot	RGX80B	RGX80B



RGH4L



RGH4H



MV4H4Z

## BLACKMAX® BLACK & CHROME BARRIER CHARGING HOSES



HP5BKEZ

5' premium barrier ball valve chrome charging hoses (black)



HP5BKZ

5' premium Black & Chrome™ charging hose

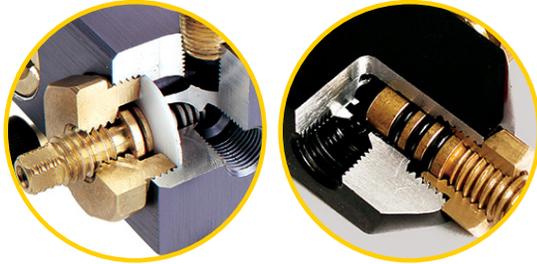


HV5Z

5' premium Black & Chrome™ 3/8" charging hose

## BLACKMAX® BLACK & CHROME MANIFOLDS WITH TRIPLE-SEAL VALVES

- Proprietary Triple Seal valve systems



- 2 valve units designed and manufactured in USA with U.S. and globally sourced components
- Black anodized aluminum block body
- No flutter gauges with protective boots and rugged metal housings
- Nickel plated 1/4" SAE 45 fittings
- Auxiliary center access port with Schrader valve
- Heavy duty nickel plated metal handles
- Protective gauge boots and packaged in display tin
- Proprietary Vortech™ valves



MBH4P5EZ



RGH5L



RGH5H



RGX681B  
(Spider Design)



RGX801B  
(Ribbed Design)

### BLACKMAX® BLACK & CHROME TRIPLE SEAL VALVE MANIFOLDS

Specifications		3-1/8" (80 mm)		2-1/2" (68 mm)	
		North America	South America	North America	South America
Gauge Description	Refrigerant Scales	R134a, R22, R404a, R410a	R410A, R22, R407C	R410a	R134a, R22, R404a, R410a
	Gauge Size / Type	Class 1.0 accuracy		Class 1.6 accuracy	
	Pressure Scales	Psi	bar / Psi	Psi / kPa	Psi
	Temperature Scales	°F	°C	°F / °C	°F
Fittings	Manifold and Hose Fittings	1/4" SAE 45° fittings			
Two Valve Manifolds	Manifold & Gauges Only	MBH4Z	MBO4Z	MBB5Z	MBH5Z
	3 Premium 5' Pro-Set® Black & Chrome Hoses	MBH4P5Z	MBO4P5Z	MBB5P5Z	MBH5P5Z
	3 Premium 5' Pro-Set® Black & Chrome BV Hoses	MBH4P5EZ	MBO4P5EZ	MBB5P5EZ	MBH5P5EZ
Replacement Gauges	Low Side Gauge	RGH4L	RG04L	RGB5L	RGH5L
	High Side Gauge	RGH4H	RG04H	RGB5H	RGH5H
	Gauge Boot	RGX801B Ribbed	RGX801B Ribbed	RGX681B Spider	RGX68SB Spider

Manifolds and Gauges

# *Pro-Set*<sup>®</sup>

## PREMIUM PISTON SERIES

**PROPRIETARY TRIPLE SEAL VALVES  
BEST IN CLASS 1% MEASUREMENT ACCURACY**



1.800.561.8187

www.**itm**.com

information@itm.com

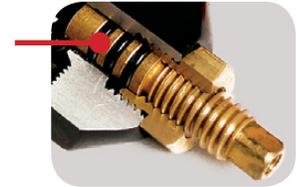


## PRO-SET® THE WORKSMAN'S CHOICE PREMIUM PISTON SERIES

The Workingman's Choice series 2 valve anodized aluminum block body with 1/4" SAE 45° fittings, Triple Seal piston valves, sure grip rubber over metal valve handles, easy-to-read 3 1/8" (80 mm) Class 1.0 accuracy gauges, protective gauge boots, extra access port in center with Schrader valve and hanging hook.

### TRIPLE SEAL™ VALVES

- 3 super Neoprene o-ring design
- Back-seating o-ring seals valve nut when fully open
- Floating nylon sealing disk
- Valve stems retract fully to provide maximum flow
- Mirror-like port finish for smooth valve movement



Durable, protective gauge boots



RGH7L



RGH7H

### PRO-SET® WORKSMAN'S CHOICE 2 VALVE MANIFOLDS

Specifications		3-1/8" (80 mm)	
		North America	South America
Gauge Description	Refrigerant Scales	R134a, R22, R404a, R410a	R410a, R22, R407c
	Gauge Size / Type	Class 1.0 accuracy * Gauges built with internal silicon dampening cup for flutter-free operation	
	Pressure Scales	Psi	bar / Psi
	Temperature Scales	°F	°C
Fittings	Manifold and Hose fittings	1/4" SAE 45° fittings	
Two Valve Manifolds	Manifold & Gauges Only	MT2H7	MT207
	3 Premium 5' Pro-Set® Hoses	MT2H7P5	MT207P5
	3 Premium 5' Pro-Set® AB Hoses	MT2H7P5A	MT207P5A
	3 Premium 5' Pro-Set® BV Hoses	MT2H7P5E	MT207P5E
Replacement Gauges	Low Side Gauge	RGH7L	RG07L
	High Side Gauge	RGH7H	RG07H
	Replacement Gauge Boot	RGXBW	RGXBW

## PRO-SET® BLACK BODY TRIPLE SEAL™ PISTON 2 VALVE SERIES

- 2 valve anodized aluminum block body
- 1/4" SAE 45° fittings
- 2-1/2" (68 mm) Class 1.6 accuracy gauges
- Extra access port in center with Schrader valve and hanging hook



### TRIPLE SEAL™ VALVES

- 3 super Neoprene o-ring design
- Back-seating o-ring seals valve nut when fully open
- Floating nylon sealing disk
- Valve stems retract fully to provide maximum flow
- Mirror-like port finish for smooth valve movement



MBDP5E



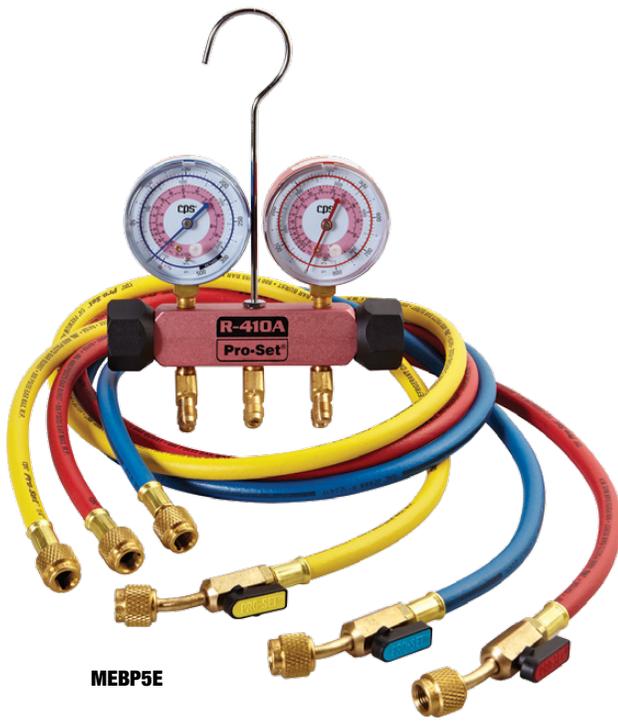
MBH

MBC

MBD

### TRIPLE SEAL™ PISTON 2 VALVE BLACK BODY MANIFOLDS

Specifications		2-1/2" (68 mm)					
		North America			South America	South America	South America
					Asia	Australia	South America
Gauge Description	Refrigerant Scales	R12, R22, R502	R134a, R22, R404a	R22, R404a, R410a,	R12, R134a, R22	R134a, R22, R404a	R410a, R22, R407c
	Gauge Size / Type	Class 1.6 accuracy					
	Pressure Scales	Psi			Psi / kPa	Psi / kPa	
	Temperature Scales	°F			°F / °C	°C	
Fittings	Manifold & Gauges Only	1/4" SAE 45° fittings					
Two Valve Manifolds	Manifold & Gauges Only	MBC	MBD	MBH	MBZ	MBT	MBO
	Three 3' Pro-Set® Hoses	MBCS3	MBDP3	MBHP3	MBZS3	MBTP3	MBOP3
	Three 5' Pro-Set® Hoses	MBCS5	MBDP5	MBHP5	MBZS5	MBTP5	MBOP5
	Three 5' Pro-Set® AB Hoses	NA	MBDP5A	MBHP5A	NA	MBTP5A	MBOP5A
	Three 5' Pro-Set® BV Hoses	NA	MBDP5E	MBHP5E	NA	MBTP5E	MBOP5E
Replacement Gauges	Low Side Gauge	RGCL	RGDL	RGHL	RGZL	RGTL	RGOL
	High Side Gauge	RGCH	RGDH	RGHH	RGZH	RGTH	RGOH



## PRO-SET® PINK BODY PISTON MANIFOLD SERIES

Piston series 2 valve anodized aluminum block body with 1/4" SAE 45° fittings, Triple Seal piston valves, 2-1/2" (68 mm) Class 1.6 accuracy gauges, extra access port in center with Schrader valve and hanging hook.

### NON-FLUTTER GAUGE

Design with Rugged Metal Housing

### FRONT CALIBRATION Access Port

### ANODIZED ALUMINUM Block Body

### EASY-TO-GRAB Large Knob

### TRIPLE SEAL™ VALVES

- 3 super Neoprene o-ring design
- Back-seating o-ring seals valve nut when fully open
- Floating nylon sealing disk
- Valve stems retract fully to provide maximum flow
- Mirror-like port finish for smooth valve movement

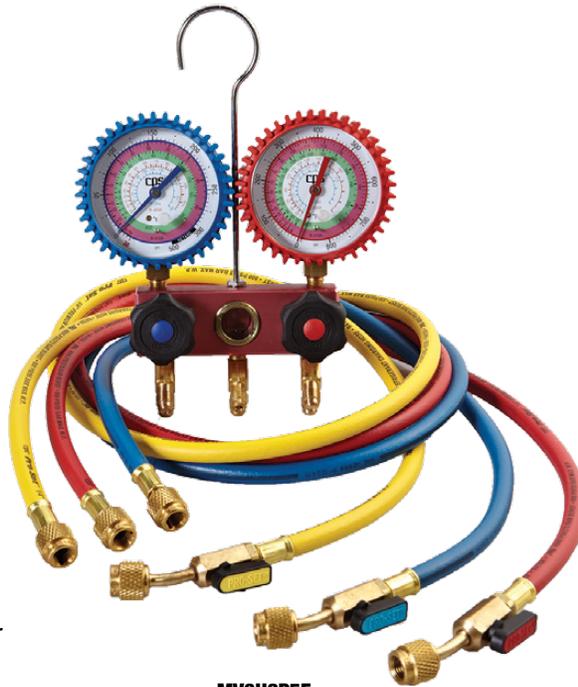


## TRIPLE SEAL™ PISTON 2 VALVE PINK BODY MANIFOLDS

Specifications		2 1/2" (68 mm)		
		North America		South America
				Australia
Gauge Description	Refrigerant Scales	R410a	R410a, R22, R404a	R410a
	Gauge Size / Type	Class 1.6 accuracy		
	Pressure Scales	Psi / kPa	Psi	Psi / kPa
	Temperature Scales	°F / °C	°F	°F / °C
Fittings	Manifold & Gauges Only	1/4" SAE 45° fittings		1/2" - 20 UNF
Two Valve Manifolds	Manifold & Gauges Only	MEB	MEH	MCB
	3 Premium 3' Pro-Set® Hoses	MEBP3	MEHP3	MCBJ3
	3 Premium 5' Pro-Set® Hoses	MEBP5	MEHP5	MCBJ5
	3 Premium 5' Pro-Set® AB Hoses	MEBP5A	MEHP5A	MCBJ5A
	3 Premium 5' Pro-Set® BV Hoses	MEBP5E	MEHP5E	MCBJ5E
Replacement Gauges	Low Side Gauge	RGBL	RGHL	RGBL
	High Side Gauge	RGBH	RGHH	RGBH

**PRO-SET® VORTECH™  
DEEP VACUUM  
MANIFOLD SERIES**

- Two-valve, r410A pink anodized aluminum block body
- 1/4" SAE 45° fittings
- Vortech™ deep vacuum valves
- Extra large sight glass
- Easy-to-read 3-1/8" (80 mm) Class 1.6 accuracy gauges
- Protective gauge boots
- Extra access port in center with Schrader valve and hanging hook



**MV3H2P5E**



**MV3H2**

**MV3H3**



**MV13H2**

**MV13H3**

**VORTECH™ DEEP VACUUM VALVE MANIFOLDS**

Specifications		3-1/8" (80 mm)			
		North America		South America	South America Australia
Gauge Description	Refrigerant Scales	R410a, R22, R404a, R134a		R410a, R22, R407c	R410a
	Gauge Size / Type	Class 1.6 accuracy			
		* Gauges built with internal silicon dampening cup for flutter-free operation			
			<b>*Oil-Filled</b>		<b>*Oil-Filled</b>
	Pressure Scales	Psi	Psi	Psi / bar	Psi / kPa
Temperature Scales	°F	°F	°C	°F / °C	
Fittings	Manifold & Gauges Only	1/4" SAE 45° fittings			
Two Valve Manifolds	Manifold & Gauges Only	MV3H2	MV3H3	MV302	MV3B3
	3 Premium 5' Pro-Set® Hoses	MV3H2P5	MV3H3P5	MV302P5	MV3B3P5
	3 Premium 5' Pro-Set® AB Hoses	MV3H2P5A	MV3H3P5A	MV302P5A	MV3B3P5A
	3 Premium 5' Pro-Set® BV Hoses	MV3H2P5E	MV3H3P5E	MV302P5E	MV3B3P5E
Four Valve Manifolds	Manifold & Gauges Only	MV13H2	MV13H3	MV1302	MV13B3
	3 Premium 5' Pro-Set® Hoses	MV13H2P5	MV13H3P5	MV1302P5	MV13B3P5
	3 Premium 5' Pro-Set® AB Hoses	MV13H2P5A	MV13H3P5A	MV1302P5A	MV13B3P5A
	3 Premium 5' Pro-Set® BV Hoses	MV13H2P5E	MV13H3P5E	MV1302P5E	MV13B3P5E
Replacement Gauges	Low Side Gauge	RGH2LB	RGH3L	RG02LB	RGB3L
	High Side Gauge	RGH2HB	RGH3H	RG02HB	RGB3H

Manifolds and Gauges

## PRO-SET® BALL VALVE BODY MANIFOLD SERIES

Ball Valve series 2 valve anodized aluminum block body with 1/4" SAE fittings, full flow ball valve design, 2-1/2" (68 mm) Class 1.6 accuracy gauges and hanging hook.



MGO



MGH



MGHP5E

Specifications		2-1/2" (68 mm)	
		North America	South America
Gauge Description	Refrigerant Scales	R410a, R22, R404a	R410a, R22, R407c
	Gauge Size / Type	Class 1.6 accuracy	
	Pressure Scales	Psi	bar / Psi
	Temperature Scales	°F	°C
Fittings	Manifold and Hose Fittings	1/4" SAE 45° fittings	
Two Valve Manifolds	Manifold & Gauges Only	MGH	MGO
	3 Premium 5' Barrier Hoses	MGHP5	MGOP5
	3 Premium 5' Barrier AB Hoses	MGHP5A	MGOP5A
	3 Premium 5' Barrier BV Hoses	MGHP5E	MGOP5E
Replacement Gauges	Low Side Gauge	RGHL	RGOL
	High Side Gauge	RGHH	RGOH

## MANIFOLD ACCESSORIES AND REPLACEMENT PARTS

A complete line of repair kits, parts and accessories to keep your manifolds in brand-new condition. If you are looking for something or are unsure of the part you need, give us a call and let our specialists assist you.



**MXC2**  
Rugged canvas carrying case for manifolds



**MXC**  
Plastic carrying case for manifolds



**MVXKC**  
Replacement Valve Handle for BlackMax® Series w/ Vortech™ Valves - Chrome Metal



**MVXK**  
Replacement valve handle w/ plugs for Vortech™ manifolds



**MXK**  
Replacement valve handle w/ labels for diaphragm manifolds



**MXPK**  
Replacement valve handle w/ labels for BlackMax® manifolds



**MXMH**  
Hanging hook for all manifolds



**M2XRK**  
Diaphragm valve repair kit: services 2 valves



**MXPV**  
Complete BlackMax® piston valve assembly



**M2XHA**  
2-way hose anchor bracket for Vortech™ & diaphragm



**MXPVO**  
BlackMax® piston valve seals repair kit: services 2 valves

### MISC. REPLACEMENT PARTS AND ACCESSORIES

4-way hose anchor bracket for Vortech™ & diaphragm	M4XHA
Diaphragm valve repair kit: services 4 valves	M4XRK
Diaphragm valve repair kit: services 5 valves	M5XRK
Vortech™ valve repair kit: services 2 valves	MV2XRK
Vortech™ valve repair kit: services 4 valves	MV4XRK
Vortech™ valve repair kit: services 5 valves	MV5XRK
Replacement valve handle for brass manifold	MXBK

# *Tech-Set*<sup>TM</sup>

## **BRASS BODY SERIES**

### **THE ORIGINAL MANIFOLD DESIGN**



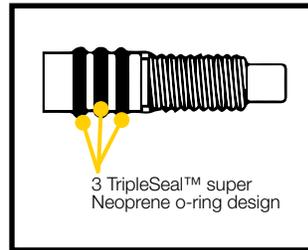
## TECH-SET™ BRASS BODY MANIFOLD SERIES

2 valve forged brass body with 1/4" SAE 45° fittings, TripleSeal™ piston valves and hanging hook.

- Quality forged brass body
- Full sized porting for maximum flow
- No flutter gauges with rugged molded housings
- Large easy-to-grip knobs

## TRIPLE SEAL™ VALVES

- 3 super Neoprene o-ring design
- Back-seating o-ring seals valve nut when fully open
- Floating nylon sealing disk
- Valve stems retract fully to provide maximum flow
- Mirror-like port finish for smooth valve movement



## TECH-SET™ BRASS BODY 2 VALVE MANIFOLDS & HOSE SETS

SPECIFICATIONS		N. America	S. America	N. America	S. America
Gauge Description	Refrigerant Scales	R410a, R22, R404a, R134a		R22, R134a, R404a, R507A	
	Gauge Size / Type Gauges built with internal silicon dampening cup for flutter-free operation	3-1/8" (80 mm) Class 1.6 accuracy		2-5/8" (68 mm) Class 1.6 accuracy	
	Pressure Scales	Psi/bar	bar/Psi	Psi/bar	bar/Psi
	Temperature Scales	°F	°C	°F	°C
Fittings	Manifold and Hose fittings	1/4" SAE 45° fittings			
Two Valve Manifolds	3 Standard 3' Hoses	NA	NA	M64G3	M63G3
	3 Prem-Flex 5' (1.52 m) Hoses	M62PF5	M61PF5	NA	NA
Replacement Hoses	3 Prem-Flex 3' (0.91 m) Hoses	HPF3			
	3 Prem-Flex 5' (1.52 m) Hoses	HPF5			
	3 Standard 3' (0.91 m) Hoses	HG3			
	3 Standard 5' (1.52 m) Hoses	HG5			



**GT1**

- 0-30 Psi (0-2 bar)
- 1 Psi (0.05 bar) increments
- 3/4" FPT Brass Bell



**GT2**

- 0-100 Psi (0-7 bar)
- 2 Psi (0.20 bar)
- 3/4" FPT Brass Bell



**GT4**

- 0-30 Psi (0-2 bar)
- 1 Psi (0.05 bar)
- 1" FPT Brass Bell

**GT SERIES GAS TEST GAUGES**

Test the integrity of new installations for pressure leaks by simply connecting the gauge, pressurize the system, using the supplied access port, and monitor the easy-to-read 3-1/2" (80 mm) gauge for potential pressure drops that would indicate a leak.



**GT3 FUEL OIL TEST KIT**

The **GT3** is a comprehensive test kit which includes the components necessary to test oil fuel pump performance while diagnosing related burner efficiency issues such as cleaner light-offs and coasting stops.

**INCLUDES:**

- 2-1/2" gauge, scale 30", 0-150 lbs
- 2-1/2" gauge, scale 30", 0-300 lb
- 12" hose 1/4" female swivel x 1/4" female 45° swivel
- 1/8 NPT x 1/4 Male SAE adapter
- 1/8 NPT x 1/4 Male SAE 90° adapter
- 1/4 NPT x 1/4 Male SAE adapter
- 1/4 NPT x 1/4 Male SAE 90° adapter
- Carrying Case

# CHARGING HOSES

OUR OFFERING IS AS FLEXIBLE AS OUR HOSES



1.800.561.8187

www.**itm**.com

information@itm.com

## PRO-SET® PREMIUM UL/SAE BARRIER REFRIGERANT SERVICE HOSES

- Nylon permeation barrier (Meets SAE J2196)
- Leak-proof 8-sided crimp
- 800 Psi working pressure (per UL1963)
- 4000 Psi burst pressure
- Extra deep knurling on nuts for easy grip
- Adjustable valve core depressor
- Blow off grooves preventing spray back
- R-410A compatible, as well as CFC, HCFC and HFC refrigerants and blends

\* UL listed, File SA11622

## PRO-SET® STANDARD REFRIGERANT SERVICE HOSES

- All-weather flexibility and strength
- Leak-proof 8-sided crimp
- 750 Psi working pressure
- 3000 Psi burst pressure
- Extra deep knurling on nuts for easy grip
- Adjustable valve core depressor
- Blow off grooves preventing spray back



Hose Length and Color	1/4" Hoses for all refrigerants		1/4" Hoses w/45° ball valve on end		1/4" Hoses w/Microseal™ anti-blowback valve on one end		1/4" In-line ball valve hoses		R-410A Hose w/ special 1/2"-20 Unf fittings	w/45° ball valve fitting in one end	
	Premium	Standard	Premium	Standard	Premium	Standard	Premium	Standard	Premium		
3' (90 cm)	Yellow	HP3Y	HS3Y*	HP3YE	HS3YE*	HP3YA*	HS3YA*	HP3YL*	HS3YL*	HJ3Y*	HJ3YE*
	Blue	HP3B	HS3B*	HP3BE	HS3BE*	HP3BA	HS3BA	HP3BL	HS3BL*	HJ3B*	HJ3BE*
	Red	HP3R*	HS3R	HP3RE*	HS3RE*	HP3RA	HS3RA*	HP3RL*	HS3RL*	HJ3R*	HJ3RE*
	3-Pack	HP3*	HS3	HP3E*	HS3E	HP3A*	HS3A	HP3L*	HS3L*	HJ3*	HJ3E*
4' (120 cm)	Yellow	na	HS4Y*	na	na	na	na	na	na	na	na
	Blue	na	HS4B*	na	na	na	na	na	na	na	na
	Red	na	HS4R*	na	na	na	na	na	na	na	na
	3-Pack	na	HS4*	na	na	na	na	na	na	na	na
5' (150 cm)	Yellow	HP5Y*	HS5Y*	HP5YE	HS5YE	HP5YA	HS5YA	HP5YL	HS5YL*	HJ5Y*	HJ5YE*
	Blue	HP5B	HS5B*	HP5BE	HS5BE*	HP5BA	HS5BA	HP5BL	HS5BL*	HJ5B*	HJ5BE*
	Red	HP5R	HS5R	HP5RE*	HS5RE	HP5RA*	HS5RA	HP5RL	HS5RL*	HJ5R*	HJ5RE*
	3-Pack	HP5*	HS5*	HP5E	HS5E*	HP5A*	HS5A	HP5L*	HS5L	HJ5*	HJ5E*
6' (180 cm)	Yellow	HP6Y*	HS6Y*	HP6YE	HS6YE*	HP6YA*	HS6YA*	HP6YL*	HS6YL*	na	na
	Blue	HP6B	HS6B*	HP6BE	HS6BE	HP6BA	HS6BA	HP6BL	HS6BL*	na	na
	Red	HP6R	HS6R	HP6RE*	HS6RE*	HP6RA*	HS6RA*	HP6RL*	HS6RL*	na	na
	3-Pack	HP6*	HS6	HP6E	HS6E*	HP6A*	HS6A	HP6L*	HS6L*	na	na
8' (240 cm)	Yellow	na	HS8Y*	na	HS8YE*	na	HS8YA*	na	HS8YL*	na	na
	Blue	na	HS8B*	na	HS8BE*	na	HS8BA*	na	HS8BL*	na	na
	Red	na	HS8R*	na	HS8RE*	na	HS8RA*	na	HS8RL*	na	na
	3-Pack	na	HS8*	na	HS8E*	na	HS8A*	na	HS8L*	na	na
10' (300 cm)	Yellow	na	HS10Y*	na	na	na	na	na	na	na	na
	Blue	na	HS10B*	na	na	na	na	na	na	na	na
	Red	na	HS10R*	na	na	na	na	na	na	na	na
	3-Pack	na	HS10*	na	na	na	na	na	na	na	na

\*Non-stock item (made to order).

# SPECIALTY HOSES

## PRO-SET® PREMIUM 6" to 12" BALL VALVE HOSE EXTENSIONS

- Nylon permeation barrier (Meets SAE J2196)
- Leak-proof 8-sided crimp
- 800 Psi working pressure
- 4000 Psi burst pressure
- Extra deep knurling on nuts for easy grip
- Adjustable valve core depressor
- Blow off grooves (prevents spray back)
- R-410A compatible, as well as CFC, HCFC and HFC refrigerants and blends



Length	Description	Yellow	Blue	Red	3-Pack
6" (15.2 cm)	1/4" SAE	HTYE	HTBE	HTRE	HTE
12" (30.5 cm)	1/4" SAE	HT1YE	HT1BE	HT1RE	HT1E
6" (15.2 cm)	1/2" - 20 SAE	HT410YEJ*	HT410BEJ*	HT410REJ*	HT410EJ

## PRO-SET® PREMIUM PRESSURE CONTROL HOSES

Pro-Set pressure control hoses are constructed with a thermoplastic polymer inner tube and cover to eliminate the vibration failures of copper capillary tube installations. The higher temperature ratings of the thermoplastic (to 266° F) eliminates failures caused by maximum load conditions on rubber type pressure control hoses.

Length	90° x 90°	Straight x 90°	Straight x Straight	Fitting	Operating Temperature Range	Minimum Bend Radius
2' (60 cm)	HHC2*	HHC2S	HHC2SS*	1/4" SAE Hex Style Straight & 90°, With Copper Gaskets	-49° F to 266°F (-45° to 130°C)	4" 102 mm
3' (90 cm)	HHC3*	HHC3S	HHC3SS*			
4' (120 cm)	HHC4*	HHC4S*	HHC4SS*			

\*Non-stock item (made to order).



## PRO-SET® PREMIUM 3/8" VACUUM/CHARGING HOSES (HEAVY DUTY)

- 5/16" I.D. heavy duty hose
- Permeation resistant barrier
- 460 Psi working pressure; 2300 Psi burst

Length	Without Ball Valve	With In-Line Ball Valve	Nylon Permeation Barrier	Leak Proof 8 Sided Crimp	Working Pressure	Burst Pressure	Deep Knurl Brass Fittings
3' (90 cm)	HV3*	na	Yes	3/8" SAE	460 Psi	2300 Psi	Yes
5' (150 cm)	HV5	HV5E					
6' (180 cm)	HV6*	na					
8' (240 cm)	HV8*	na					

\*Non-stock item (made to order).



## TECH-SET™ 1/4" CHARGING HOSES

Tech-Set™ charging hoses are available in Standard or Prem-Flex grades and 3' & 5' lengths.

- All-weather resistant
- Rugged flexibility and durability
- Extra deep knurling on nuts for easy grip



Length	3 Pack (Red, Yellow, Blue)	Hose Type	Working Pressure	Burst Pressure	Adjustable Valve Core Depressor	Leak-Proof 8 Sided Crimp	Blow Off Grooves (Prevents Spray Back)	Refrigerant Compatibility
3 Ft. (90 cm)	<b>HG3</b>	Standard	750 PSI (51 bar)	3000 PSI (206 bar)	✓	✓	✓	Compatible With CFC, HCFC, HFC refrigerants and blends
5 Ft (150 cm)	<b>HG5</b>							
3 Ft. (90 cm)	<b>HPF3</b>	Prem-Flex	800 PSI (55 bar)	4000 PSI (275 bar)				
5 Ft (150 cm)	<b>HPF5</b>							

## CHARGING HOSE REPLACEMENT PARTS



### HXG

(10) Hose 1/4" SAE Neoprene Gaskets



### HXGD

(10) Hose 1/4" SAE Neoprene Gasket & (10) Core Depressor



### HXGD2

(6) 1/2" ACME, 1/2"-20 UNF Gaskets & (6) Core Depressors



### HX38G

(10) Hose Gaskets, 3/8" SAE Neoprene



### HXG2

(10) 1/2" ACME, 1/2"-20 UNF Replacement Hose Gaskets



### HXGA

(6) Hose Gaskets, 1/4" SAE Microseal Antiblowback



### HXGA410

(10) Replacement Gaskets for 1/2"-20 UNF ABB Fittings



### HXTG

(10) Hose Gaskets, 1/4" SAE Teflon®

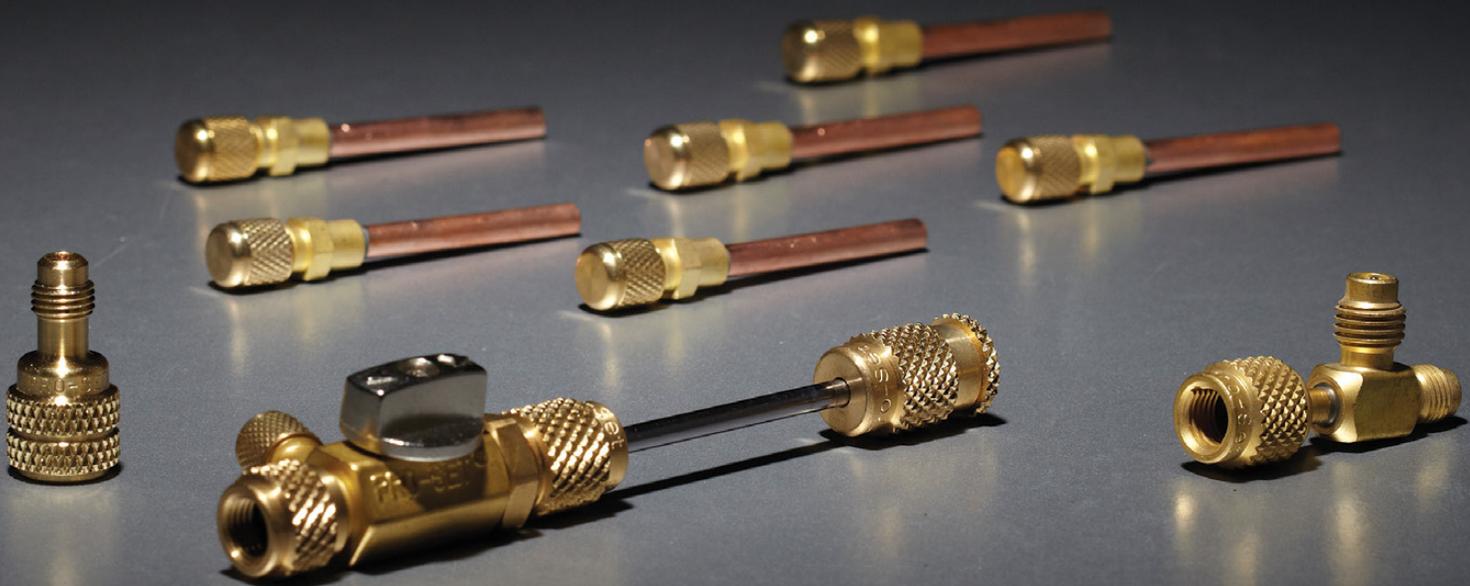


### HXTG2

(10) Hose Gaskets, 1/2"-20 UNF & 1/2" ACME Teflon®

# ADAPTERS, FITTINGS, VALVES & VALVE CORE TOOLS

MANUFACTURED TO STRINGENT  
INDUSTRY STANDARDS





AD12



AD14



AD149C



AD18C



AD24/AD24B



AD36C



AD41/AD41B



AD44/AD44B



AD47/AD47B



AD48/AD48B



AD61/AD61B



AD68



AD68V



AD71



AD78/AD78B



AD81/AD81B



AD84/AD84B



AD84C



AD87/AD87B



AD87S



AD369C



AD849C



ADXFW

**ADAPTERS**

Female	Male	Description	Application	Qty / Pk	Item
3/16" SAE	1/4" SAE	no valve core	TLVC Valve Core Tool for R-12 Auto. HI-side	1	<b>AD36</b>
		with valve core	Automotive adapter	1	<b>AD36C</b>
	1/4" SAE 90°	w/ valve core		1	<b>AD369C</b>
1/4" SAE	1/8" SAE	w/ valve core	Manifolds, compressors	1	<b>AD18C</b>
	1/4" SAE 90°		Automotive adapter	1	<b>AD149C</b>
	1/2" ACME		Vacuum pumps/manifolds/recovery/tanks	3	<b>AD48</b>
	3/8" SAE	w/core & depressor	Vacuum pumps	50	<b>AD48B</b>
	5/16" SAE	w/ valve core	R-410A International	1	<b>AD64</b>
5/16" SAE	1/4" SAE	w/ valve core	R-410A International	1	<b>AD78</b>
5/16" (Swivel)	1/4" SAE 55°			100	<b>AD78B</b>
1/2" ACME	3/8" SAE	w/core & depressor	Vacuum pumps	1	<b>AD87</b>
	Low side R-134a	-	R-134a automotive tanks	100	<b>AD87B</b>
	1/4" SAE	no valve core	Vacuum pumps/manifolds/recovery/tanks	3	<b>AD84</b>
1/2" ACME (90°)	1/4" SAE	w/ valve core		100	<b>AD84B</b>
		w/ valve core		3	<b>AD84C</b>
1/2" SAE	3/8" SAE	w/core & depressor	Automotive adapter	3	<b>AD849C</b>
3/4" -14	3/8" SAE	w/ gasket	Large 125 lb tank adapters	1	<b>AD61</b>
	1/4" SAE			100	<b>AD61B</b>
	5/16" SAE			1	<b>AD41</b>
	1/2" ACME			100	<b>AD41B</b>
					1
-	1/4" SAE x 1/8" MNPT	w/ cap and valve core	Manifolds, compressors	1	<b>AD81</b>
	1/4" SAE x 1/4" MNPT	w/ cap and valve core	Vacuum Pumps, compressors	6	<b>AD24</b>
	14 mm x 1/4" SAE	-	R-134a automotive couplers	100	<b>AD24B</b>
	1/4" SAE x 1/4" SAE Union	-	1/4" Hose union	6	<b>AD44</b>
21.8 Whitworth	3/8" SAE	w/ gasket	Large cylinder adapter	1	<b>AD44B</b>
				100	<b>AD44B</b>
				1	<b>AD14</b>
				1	<b>AD47</b>
				100	<b>AD47B</b>
				1	<b>AD91</b>
				100	<b>AD91B</b>
Replacement fiber washer for AD41 /61 /71 /81 tank adapters				1	<b>ADXFW</b>

Fittings



### ADAPTERS -TEES CONNECTORS

Description		Qty/ Pk	Item	
1/4" SAE M (with cap and core)	x 1/4" SAE M	x 1/4" SAE FM hex	3 100	<b>AVT64</b> <b>AVT64B</b>
		x 1/8" MNPT	3	<b>AVT2P</b>
		x 1/4" MNPT	3	<b>AVT4P</b>
		x 1/4" SAE FM, no depressors	1	<b>AVT64Z</b>
		x 1/8" MNPT	3	<b>AVT4</b>
1/4" SAE M	x 1/4" SAE female knurl	x 1/4" SAE Male	3	<b>AVT45</b>
		x 1/2" ACME M	1	<b>AVT48</b>
	x 1/8" MNPT	x 1/4" SAE M w/ Core	3	<b>AVT4M</b>
	x 5/16" SAE female knurl	x 1/2"-20 M Adapter Fitting	1	<b>AVT87</b>
1/4" SAE Female Hex	x 1/4" SAE M	x 1/4" SAE M with cap and core	3	<b>AVT44</b>



### COPPER TUBE EXTENSION VALVES

Description		Standard Cap		Wrench Cap	
Outer Diameter	Inner Diameter	6pk	100pk	6pk	100pk
1/8"	1/16"	<b>AV2</b>	<b>AV2B</b>	<b>AV2R</b>	<b>AV2RB*</b>
3/16"	1/8"	<b>AV3</b>	<b>AV3B</b>	<b>AV3R</b>	<b>AV3RB</b>
1/4"	3/16"	<b>AV4</b>	<b>AV4B</b>	<b>AV4R</b>	<b>AV4RB*</b>
	3/16" W/4" COP-TB EXT	<b>AV4L</b>	<b>AV4LB*</b>	<b>AV4LR</b>	<b>AV4LRB</b>
5/16"	1/4"	<b>AV5</b>	<b>AV5B*</b>	<b>AV5R</b>	<b>AV5RB*</b>
5/16" (1/2"-20) ACCES, 1/4"	3/16"	<b>AV4410</b>	<b>AV4410B</b>	N/A	N/A
3/8"	5/16"	<b>AV6</b>	<b>AV6B</b>	<b>AV6R</b>	<b>AV6RB*</b>
6 mm	5 mm	<b>AV6MM</b>	<b>AV6MB</b>	<b>AV6MR</b>	<b>AV6MRB</b>

\*Non-stock item.



AVB34



AVB46



AVB346



AVB6



AVB456

### MULTI-STEP BODIES

Inner Diameter	Outer Diameter	Notes	ITEM	
			6pk	100pk
1/8"	3/16", 1/4", 5/16" SLDR		AVB456	AVB456B
3/16"	1/4" SLDR		AVB34	AVB34B
	1/4" x 3/8" SLDR	(assembled)	AVB346 (assembled)	AVB346B
		(unassembled)		AVB346BU
(cap w/core tool)	AVB346RB			
				AVB346BO
1/4"	3/8" SLDR		AVB46	AVB46B
	6-8-10mm SLDR	(w/caps)	AVB6	AVB6B
		(w/o caps)		AVB6BC



AVC134C



AVC8C



AVC4/ AVC425/ AVC4B



AVC4C/ AVC4CB



AVC4P/ AVC4PB



AVC4PS



AVC4R/ AVC4RB



AVC410/ AVC410B



AVC410C/ AVC410CB



AVC6C/ AVC6CB



AVC6P



AVCVAC

### QUICK SEAL O-RING CAPS

Thread	Description	Qty / Pk	ITEM
1/2"	ACME brass cap w/chain tether	2	AVC134C
	ACME plastic cap w/ straps	2	AVC134PS
	SAE brass cap w/chain tether	2	AVC8C
1/4"	SAE brass caps	10	AVC4
		25	AVC425
		100	AVC4B
	SAE brass cap w/chain tether	2	AVC4C
		100	AVC4CB
	SAE plastic caps	6	AVC4P
		100	AVC4PB
		6	AVC4PS
SAE brass cap w/core remover	6	AVC4R	
	100	AVC4RB	
5/16"	R-410A brass cap	10	AVC410
		100	AVC410B
	brass cap w/chain tether	2	AVC410C
		100	AVC410CB
3/8"	SAE brass cap w/chain tether	2	AVC6C
		100	AVC6CB
	SAE plastic caps	3	AVC6P
na	R-134a hi side caps	10	AVC134H
	R-134a low side caps	10	AVC134L
1/4", 1/2", 3/8"	SAE Vacuum pump brass cap kit w/chain	1 each	AVCVAC

### COPPER TUBE TEES

Description	Outer Diameter	Qty / Pk	ITEM
1/4" SAE	5/16"	3	AVCT5
	3/8"	3	AVCT6
	1/4"	3	AVCT4
	1-1/8"	1	AVCT18
1/4"	5/8"	1	AVCT10
	1/2"	3	AVCT8
	3/4"	1	AVCT12
	7/8"	1	AVCT14



### VALVE CORES

Description	Qty / Pk	Item
Valve cores	10	<b>AVS1</b>
	25	<b>AVS125</b>
	100	<b>AVS1B</b>
	1000	<b>AVS1BC</b>
Tech-Set valve cores w/1 cap in vial	1	<b>AVS1V</b>
1/4" SAE x 1/4" F swivel	3	<b>AVS44</b>



**AVS1/ AVS125/  
AVS1B/ AVS1BC**



**AVS1V**



**AVS44**

### VALVE CORE TOOLS

Description	Qty / Pk	Item
1/4" SAE Core Remover / Installer Tool	1	<b>TLVC</b>
Pocket Valve Core Tool w/ 4 Spare Cores	1	<b>TLVC1</b>
Dual Valve Core Tool (1/4" SAE Valves & Auto R-134a Valves)	1	<b>TLVC2</b>
	100	<b>TLVC2B</b>
4-Way 1/4" & 3/16" SAE Valve Core / Thread Chaser	1	<b>TLVC4</b>
5/16" SAE Valve Core Remover / Installer Tool	1	<b>TLVC410</b>
Mini-Split 5/16" F x 1/4" M Valve Core Tool	1	<b>TLVC410A</b>
1/4" SAE Valve Core Remover / Installer Tool w/ Side Port	1	<b>TLVCS</b>
5/16" FM x 5/16" Male Valve Core Remover / Installer Tool w/ 5/16" Side Port	1	<b>TLVCS410</b>
5/16" FM x 1/4" SAE Male Valve Core Remover / Installer Tool w/ 1/4" Male Side Port	1	<b>TLVCS410A</b>



**TLVC**



**TLVC1**



**TLVC2/TLVC2B**



**TLVC4**



**TLVC410**



**TLVC410A**



**TLVCS**



**TLVCS410**

### BACK-SEATING CONTROL VALVES

Description	Qty / Pk	Item
1/4" SAE M X 1/4" SAE FM Back-Seating Valve	1	<b>TLVCD1</b>
5/16" SAE M X 5/16" SAE FM Back-Seating Valve	1	<b>TLVCD2</b>
1/4" SAE M X 5/16" SAE FM Back-Seating Valve	1	<b>TLVCD3</b>



**TLVCD3**

MICROSEAL™ QUICK COUPLERS				
Female	Male	Description	Qty / Pk	Item
1/4" SAE	1/4" SAE	Straight	1	AB
			3	AB3
		45° female	1	AB45
			90° female	1
	3	AB903		
	1/8"	FPT Adapter	1	ABG18
5/16" SAE	5/16" SAE		1	AB410
			3	AB4103
	1/4" SAE	90° female	1	AB41090A
		Straight	1	AB410A
1/2" ACME	1/2" ACME	Straight	1	AB12



COMPACT BALL VALVES				
Female	Male	Other	Qty / Pk	ITEM
1/8" MPT	5/16"	MPT	1	BV41018
3/8" SAE	3/8" SAE	Straight	1	BV38
	1/4" SAE		1	BVAD38
1/4" SAE	1/4" SAE	Straight	1	BV
			3	BV3
		45° female	1	BV45
			3	BV453
		90° female	1	BV90
			3	BV903
1/2" ACME	1/2" ACME		1	BV12
	1/4" SAE			BVAD24
5/16"	5/16"	Straight	1	BV410
	1/4" SAE	for R-410A systems w/neoprene gaskets	1	BV410A
		for R-410A Systems w/Teflon® gaskets	1	BV410AJ
	90° female	1	BV41090A	
	1/4" SAE x 1/4" SAE	Straight	1	BVM
			3	BVM3
Replacement Ball Valve Handle w/Yellow, Blue, Red inserts ( 1/each)			3	BVXH



# TUBING TOOLS

ERGONOMIC TOOLS FOR CUTTING,  
FORMING and BENDING





Set N Cut™

### BTC200 BLACKMAX® MINI TUBE CUTTER

- Cutting Range: 1/8" - 7/8" (3-22 mm) O.D.
- Quick release pin for fast replacement of cutting wheels
- Chromed, hardened cutting wheel
- Patented Set-N-Cut™ spring-loaded center groove rollers for fast, automatic cuts
- Provides a smooth cut, even for slightly deformed tube
- Soft/Hard cutting settings
- Durable aluminum and rubber knob

**BTCXC1** Chrome Plated Cutting Wheel

**BTCXCT1** Titanium Coated Cutting Wheel

**BTCXP1** Quick Release Pin



Set N Cut™

### BTC200R BLACKMAX® MINI RATCHET TUBE CUTTER

- Cutting Range: 1/8" - 7/8" (3-22 mm) O.D.
- Excellent for small tube, confined spaces
- Use with or without ratchet handle
- Quick release pin for fast replacement of cutting wheels
- Chromed, hardened cutting wheel
- Patented Set-N-Cut™ spring-loaded center groove rollers for fast, automatic cuts.
- Provides a smooth cut, even for slightly deformed tube
- Soft/Hard cutting settings
- Durable aluminum and rubber knob

**BTCXR** Plastic Ratchet

**BTCXP1** Quick Release Pin



Set N Cut™

### BTC300 BLACKMAX® TUBE CUTTER

- Cutting Range: 3/16" - 1-1/4" (5 - 32 mm) O.D.
- Two quick-change, chromed, hardened cutting wheels
- Enclosed feed screw eliminates clogging, jamming
- Set-N-Cut™ spring-loaded cutting wheel for a perfect cut every time

**BTCXC1** Chrome Plated Cutting Wheel

**BTCXCT1** Titanium Coated Cutting Wheel

**BTCXP1** Quick Release Pin



Set N Cut™

### BTC400 BLACKMAX® HEAVY DUTY TUBE CUTTER

- Cutting Range: 1/4" - 1-1/4" (6 - 32 mm) O.D.
- For brass, copper, aluminum, stainless tube and electrical conduit
- Patented Set-N-Cut™ technology for the perfect cut every time
- Spring-loaded rollers for easy, precision cut
- Heavy duty performance from lightweight aluminum forged body
- Quick change cutting wheel
- Titanium finish cutting wheel included

**BTCXB** Cutting Wheel Bearing

**BTCXC2** Chrome Plated Cutting Wheel

**BTCXCT2** Titanium Coated Cutting Wheel

**BTCXP2** Quick Release Pin

### BTC500 BLACKMAX® LARGE TUBE CUTTER

- Cutting Range: 3/8" - 2-5/8" (10 - 67 mm) O.D.
- Patented Set-N-Cut™ Technology for the perfect cut every time
- Two hardened cutting wheels with quick-change pin design
- Enclosed feed screw eliminates clogging and jamming
- Four grooved rollers for precise tube rotation
- Rapid adjustment with quick-slide feed mechanism
- Durable aluminum/rubber knob

**BTCXB** Optional Cutting Wheel Bearing

**BTCXC2** Chrome Plated Cutting Wheel

**BTCXCT2** Titanium Coated Cutting Wheel

**BTCXP3** Quick Release Pin



Set N Cut™

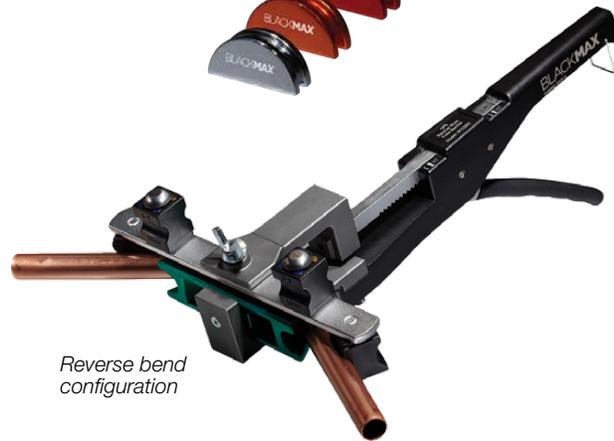


### BTB300/ BTB300M BLACKMAX® PREMIUM TUBE BENDERS

- Imperial or metric kit
- For soft copper and aluminum tube
- Solid aluminum, color-coded mandrels
- Forward or reverse bends from 0° to 90°
- Reverse bend mechanism for tight quarters
- Rugged carrying case
- Packaging: Color box



Forward bend configuration



Reverse bend configuration

#### BLACKMAX® TUBE BENDERS (IMPERIAL)

Item	Description		
BTB300	Tube Bender Set includes 7 mandrels and all parts listed below:		
REPLACEMENT PARTS			
Item	Tube I.D.	Mandrel Color	
BTBX14	1/4" O.D.	Chrome	Mandrels
BTBX516	5/16" O.D.	Copper	
BTBX38	3/8" O.D.	Red	
BTBX12	1/2" O.D.	Yellow-Orange	
BTBX58	5/8" O.D.	Blue	
BTBX34	3/4" O.D.	Green	
BTBX78	7/8" O.D.	Red-Violet	
BTBXH	Ratchet Tool		
BTBXA1	1/4"-3/8" Shoe Arm		
BTBXA2	1/2"-7/8" Shoe Arm		
BTBXR1	Reverse Bender Mandrel Arm		
BTBXR2	Reverse Bender Shoe Arm		

"O.D." = Outside Diameter (of tube)

#### BLACKMAX® TUBE BENDERS (METRIC)

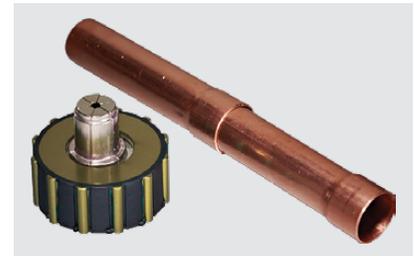
Item	Description			
BTB300M	Tube Bender Set includes 7 mandrels and all parts listed below: (excluding BTBX16M)			
REPLACEMENT PARTS				
Item	Tube I.D.	Mandrel Color		
BTBX6M	6 mm O.D.	Chrome	Mandrels	
BTBX8M	8 mm O.D.	Copper		
BTBX10M	10 mm O.D.	Red		
BTBX12M	12 mm O.D.	Yellow-Orange		
BTBX15M	15 mm O.D.	Yellow-Green		
BTBX16M	16 mm O.D. (Optional for BTB300M)	Blue		
BTBX18M	18 mm O.D.	Titanium		
BTBX22M	22 mm O.D.	Red-Violet		
BTBXHM	Ratchet Tool, Metric			
BTBXA1	6-10 mm Shoe Arm			
BTBXA2	12 - 22 mm Shoe Arm			
BTBXR1	Reverse Bender Mandrel Arm			
BTBXR2	Reverse Bender Shoe Arm			

"O.D." = Outside Diameter (of tube)



## BTLE9/ BTLE9M BLACKMAX® TUBE EXPANDERS

- Imperial or metric
- For soft copper and aluminum tube
- Nine quick-change tube expanders
- Durable, color-coded, aluminum heads
- Compact, professional, patented design
- Strong carrying case
- Packaging: Color box



### BLACKMAX® TUBE EXPANDERS (IMPERIAL)

Imperial	Description		Item
	Tube Expander Set includes 9 heads		BTLE9
	Tube Expander (Replacement Tool)		BTLEXH
Size	Replacement Heads		Blades (6)
	Color	Item	Item
1/4"	Chrome	BTLEX14	BTLEX14B
5/16"	Copper	BTLEX516	BTLEX516B
3/8"	Red	BTLEX38	BTLEX38B
1/2"	Yellow-Orange	BTLEX12	BTLEX12B
5/8"	Blue	BTLEX58	BTLEX58B
3/4"	Green	BTLEX34	BTLEX34B
7/8"	Red-Violet	BTLEX78	BTLEX78B
1"	Black	BTLEX1	BTLEX1B
1-1/8"	Pink	BTLEX118	BTLEX118B

### BLACKMAX® TUBE EXPANDERS (METRIC)

Metric	Description		Item
	Tube Expander Set includes 9 heads		BTLE9M
	Tube Expander (Replacement Tool)		BTLEXH
Size	Replacement Heads		Blades (6)
	Color	Item	Item
6 mm	Chrome	BTLEX6M	BTLEX6MB
8 mm	Copper	BTLEX8M	BTLEX8MB
10 mm	Red	BTLEX10M	BTLEX10MB
12 mm	Yellow-Orange	BTLEX12M	BTLEX12MB
15 mm	Yellow-Green	BTLEX15M	BTLEX15MB
18 mm	Titanium	BTLEX18M	BTLEX18MB
22 mm	Red-Violet	BTLEX22M	BTLEX22MB
28 mm	Red-Orange	BTLEX28M	BTLEX28MB
32 mm	Black - Chrome	BTLEX32M	Not Available



**BFT850D BLACKMAX®  
DRILL POWERED FLARING TOOL**

- Dramatically reduces the amount of time to create a precise flare
- Seven quick change positions for flaring soft copper and aluminum tube
- Aluminum body- 50% lighter than steel designs
- Slide gauge sets tube at exact position
- Eccentric cone forms precise 45° flared ends
- For 3/16", 1/4" 5/16", 3/8", 1/2", 5/8", 3/4" O.D. tube
- Built-in clutch prevents over-compression
- Compact, professional, patented design
- Packaging: Color box



*Seven quick change positions*



*Slide gauge for perfect tube alignment before flaring*



*Eccentric flaring cone for precision flares*



*Rugged carrying case for all items*



### BFT850/ BFT850M BLACKMAX® FLARING TOOL

- Aluminum body is 50% lighter than steel designs
- Internal clutch indicates when formed flare is complete
- Seven quick-change positions for flaring soft copper and aluminum tube
- Compact, professional, patented design
- Eccentric cone forms precise 45° flared ends
- Strong carrying case
- Imperial tool for 3/16", 1/4" 5/16", 3/8", 1/2", 5/8", 3/4" O.D.
- Metric tool for 6, 8, 10, 12, 15, 16, 18 mm O.D.
- Built in slide gauge for tube height adjustment
- Packaging: Color box



### BFT850K BLACKMAX® IMPERIAL FLARING TOOL KIT

- BFT850 Flaring Tool
- FTXSG Reversible R410A Flare Size Gauge
- BTLDB3 Deburring Tool
- BTC300 Premium Tube Cutter
- Packaging: Color box

BTLDB3

FTXSG

BTC300

BFT850

## BLACKMAX® LEVER TUBE BENDERS

- Patented 2-position handle
- Imperial or metric
- For soft copper, aluminum tube
- Double hinged bending arms for tight quarters
- Two pull points for smooth, easy bends
- Bends from 0° to 180°
- Packaging: Color box



**BTB06** Imperial for 3/8" O.D. Tube  
**BTB10MM** Metric for 10 mm O.D. Tube



**BTB08** Imperial for 1/2" O.D. Tube  
**BTB12MM** Metric for 12 mm O.D. Tube



**BTB10** Imperial for 5/8" O.D. Tube  
**BTB15MM** Metric for 15 mm O.D. Tube



**BTB12** Imperial for 3/4" O.D. Tube  
**BTB16MM** Metric for 16 mm O.D. Tube



**BTB14** Imperial for 7/8" O.D. Tube  
**BTB18MM** Metric for 18 mm O.D. Tube



**BTLDB3 BLACKMAX® DEBURRING TOOL**  
Thick aluminum construction. For soft copper and aluminum tube. Includes (2) spare blades in handle.  
**TLDB2X** Replacement Blade



**TLDB2 POCKET DEBURRING TOOL**  
Remove burrs and surface defects from inner/outer straight and hole edges.  
**TLDB2X** Replacement Blade



**FTXSG R410A FLARE SIZE GAUGE**  
6.4 mm, 1/4"  
9.5 mm, 3/8"  
12.7 mm, 1/2"  
15.9 mm, 5/8"  
19.1 mm, 3/4"



**TLRM REAMING AND DEBURRING TOOL**

- Constructed of rugged die cast metal for long life
- Removes burrs from both inside and outside edges of tube
- Ergonomically shaped to fit comfortably in your hand



**TLDB POCKET DEBURRING TOOL (WITH BLADE STORAGE)**

- For soft copper and aluminum tubing
- Remove burrs and surface defects from inner/outer straight and hole edges

**TLDBX** Replacement blade

## PRO-SET® HEAVY DUTY TITANIUM TUBE CUTTERS

- All cutter wheels are precision machined from high grade chromium steel and plated with titanium nitride to extend life—up to 5 times longer!
- Precision machined rollers feature cut-off groove to reduce tube loss in damaged flare removal
- Durable metal handle with industrial grade rubber boot provides comfortable grip
- Enclosed hardened steel, thrust bearing feed mechanism for smooth cutting action and trouble free operation
- Packaging: Clamshell



### TCT174 PRO-SET® MINI TITANIUM TUBE CUTTER

Cutting Range: 1/8" to 1-1/8", (3 to 30 mm)

**TCXT174C** (1) Titanium Nitride Cutting Wheel & (1) Screw



### TCT127 PRO-SET® MINI TITANIUM TUBE CUTTER

Cutting Range: 1/8" to 5/8", (3 to 16 mm)

**TCXT127C** (1) Titanium Nitride Cutting Wheel & (1) Screw



### TCT206 PRO-SET® HEAVY DUTY TITANIUM SLIDING TUBE CUTTER

Cutting Range: 1/4" to 2-5/8" (6 to 68 mm)

**TCXT206C** (1) Titanium Nitride Cutting Wheel & (1) Screw  
**TCXT206R** (1) Reamer blade



### TCT274 PRO-SET® TITANIUM TUBE CUTTER

Cutting Range: 1/8" to 1-3/8" (3 to 35 mm)

**TCX4CTS** Titanium Cutting Wheel and Screw  
**TCXT274C** (1) Titanium Nitride Cutting Wheel & (1) Screw Assembly  
**TCXT274RB** (1) Reamer blade



### TCT312 PRO-SET® HEAVY DUTY TITANIUM TUBE CUTTER

Cutting Range: 1/8" to 1-3/4", (3 to 45 mm)

**TCX4CTS** Titanium Cutting Wheel and Screw  
**TCXT312C** (1) Titanium Nitride Cutting Wheel & (1) Screw Assembly



### TCPVC PRO-SET® HEAVY DUTY TITANIUM PVC TUBE CUTTER

Cutting Range: 1/4" to 2-5/8" (6 to 68 mm)

## PRO-SET® TUBE CUTTERS

- Easy grip knobs with rubber boot over solid metal core
- Advanced tracking system will not walk while cutting
- Rollers feature flare cut-off groove to reduce tube loss
- Integrated retractable rotary deburring tool
- Durable metal handle with industrial grade rubber boot provides sure comfortable grip
- Produces clean right angle cuts every time
- Precision machined rollers feature cut-off groove to reduce tube loss in damaged flare removal



### TC174 PRO-SET® MINI TUBE CUTTER

Cutting Range: 3/8" - 1-1/8" (10 - 29 mm)



### TC100 PRO-SET® TIGHT SPACES RATCHETING TUBE CUTTER

Cutting Range: 1/4" - 7/8" (6 - 22 mm)

**TCX100CS** Cutting Wheel (1) & Screw (1)

## PRO-SET® LEVER TUBE BENDERS

- Constructed of high strength steel for durability and long life
- Create smooth, tight radius bends up to 180° with minimal effort
- Bends without scoring or flattening of tubing
- Calibrated to show angle of bend
- Wide hook grips tubing securely



**TB04** 1/4" O.D.



**TB05** 5/16" O.D.



**TB06** 3/8" O.D.



**TB08** 1/2" O.D.



**TB10** 3/4" O.D.

**TB10XH** Replacement Hook with Screw



**TB12** 5/8" O.D.

**TB12XH** Replacement Hook with Screw



**TB14** 7/8" O.D.



**TB6MM** 6 mm O.D.



**TB10MM** 10 mm O.D.



**TB12MM** 12 mm O.D.



**TB15MM** 15 mm O.D.



**TB16MM** 16 mm O.D.



### TB250 PRO-SET® UNIVERSAL RATCHET TUBE BENDER SET

- Universal kit bends tube from 1/4" to 7/8" and 6mm to 22mm
- Metal ratcheting system built for long life
- Seven durable molded plastic mandrels
- Includes TC274 Tube Cutter
- Includes TLRM Reaming and Deburring Tool

#### REPLACEMENT PARTS

TBXM6	Molded Plastic Mandrel 1/4" (6 mm)
TBXM8	Molded Plastic Mandrel 5/16" (8 mm)
TBXM10	Molded Plastic Mandrel 3/8" (10 mm)
TBXM14	Molded Plastic Mandrel 1/2" (14 mm)
TBXM16	Molded Plastic Mandrel 5/8" (16 mm)
TBXM19	Molded Plastic Mandrel 3/4" (19 mm)
TBXM22	Molded Plastic Mandrel 7/8" (22 mm)
TBXR	Ratchet Mechanism
TBXB1	Small bending bar replacement
TBXB2	Large bending bar replacement



**FT800FN PRO-SET® R-410A  
IMPERIAL CONCENTRIC FLARING  
TOOL & RATCHET**

- Imperial clutch driven flaring tool with ratchet and case for 3/16", 1/4", 5/16", 3/8", 1/2", 5/8", 3/4" O.D. tubing
- Unique clutch driven feed screw and eccentrically mounted cone produces uniform, clean flare walls without galling
- Engineered specifically to create stronger flare joints for higher pressure R-410A systems
- Innovative 3/8" square drive incorporated directly in yoke handle for use of ratchet
- Rugged polyethylene storage case included

**FTX800B410** R-410A flaring bar  
**FTX800R** Ratchet  
**FTX800Y** Yoke assembly



**FT806M PRO-SET® METRIC  
FLARING TOOL & RATCHET**

- Metric clutch driven flaring tool with ratchet and case for 6, 8, 10, 12, 15, 16 & 18mm O.D. tubing
- Unique clutch driven feed screw and faceted cone produce uniform, clean flare walls without thin spots or galling
- Innovative 3/8" square drive incorporated directly in yoke handle for use of ratchet
- Rugged polyethylene storage case included.

**FTX800BM** Metric flaring bar  
**FTX800R** Ratchet  
**FTX800Y** Yoke assembly



**FT806A PRO-SET® IMPERIAL  
ECCENTRIC FLARING TOOL &  
RATCHET**

- Standard imperial clutch driven flaring tool with ratchet and case for 3/16", 1/4", 5/16", 3/8", 1/2", 5/8" & 3/4" O.D. tubing
- Unique clutch driven feed screw and faceted cone produce uniform, clean flare walls without thin spots or galling
- Provides an exact amount of flaring torque with break away clutch system
- Innovative 3/8" square drive incorporated directly in yoke handle for use of ratchet
- Rugged polyethylene storage case included.

**FTX800BA** Imperial flaring bar  
**FTX800R** Ratchet  
**FTX800Y** Yoke assembly



**TECH-SET® 45° FLARING & SWAGING KIT**

- **FS275** Imperial kit for 1/8" to 3/4"
- **FS275M** Metric kit for 4 mm to 22 mm
- Rugged forged steel slip-on yoke and hardened flaring bar
- Chrome finished flaring cone forms better flares with less effort
- Positive grip flaring bar eliminates tube movement
- Easy operation with professional results

REPLACEMENT PARTS		
FS275 Imperial	FS275	45° Flaring & Swaging Kit 1/8" - 3/4"
	FSX501	FS275 Long Bar (7/16", 1/4", 1/8", 3/16", 5/16", 3/8")
	FSX502	FS275 Short Bar (3/4", 1/2", 5/8")
	FSX503	FS275 5/16" Swaging Adapter
	FSX504	FS275 3/16" Swaging Adapter
	FSX505	FS275 1/2" Swaging Adapter
	FSX506	FS275 5/8" Swaging Adapter
	FSX508	FS275 3/4" Swaging Adapter
	FSX509	FS275 Yoke Assembly
FSX513	FS275 Compressor Cone	
FS275 Metric	FS275M	45° Flaring & Swaging Kit, Metric
	FSX507	FS275M 8, 12, 14, 16, 22 mm Swaging Adapter



**TC127 TECH-SET™ MINI TUBE CUTTER**

Cutting Range: 1/8" to 5/8"  
(3 to 16 mm)

- Ideal for cutting pipe in limited access areas
- Precision machined chromium steel cutting wheels

**TCX7C** (10) Cutting wheels

**TCX7S** (10) Cutting Wheel Screws

**TCX7CTS** (1) Titanium Cutting Wheel & (1) Screw

**TCX7CS** (1) Cutting Wheel and (1) Screw



**TC274 TECH-SET™ TUBE CUTTER**

Cutting Range: 1/8" to 1-1/8"  
(3 to 29 mm)

- Hardened steel thrust bearing feed mechanisms for smooth operation
- Precision machined chromium steel cutting wheels
- Foldaway hardened steel reamers for deburring

**TCX4R** (1) Reamer Blade

**TCX4RS** (1) Reamer Blade Screw

**TCX4C** (10) Cutting Wheels

**TCX4CS** (1) Cutting Wheel and Screw

**TCX4S** (10) Cutting Wheels and Screws



**TC312 TECH-SET™ HEAVY DUTY TUBE CUTTER**

Cutting Range: 1/4" to 1-5/8"  
(6 to 41 mm)

- Spare cutting wheel located under retractable locking reamer

**TCX4R** (1) Reamer Blade

**TCX4RS** (1) Reamer Blade Screw

**TCX4C** (10) Cutting Wheels

**TCX4CS** (1) Cutting Wheel and Screw

**TCX4S** (10) Cutting Wheels and Screws



**TC206 TECH-SET™ SLIDING TUBE CUTTER**

Cutting Range: 3/8" to 2-5/8"  
(10 to 67 mm)

- Ratchet feed mechanism speeds up cutting operation

**TCX6CTS** (1) Titanium Cutting Wheel & (1) Screw



**TCSET TECH-SET™ TUBE CUTTER COMBO PACK**

Cutting Range: 1/8" to 1-1/8"  
(3 to 29 mm)

- Includes TC127 & TC274



**TCX4C**

**TCX4S**

**TCX4R**



**TCAP TECH-SET™ CAPILLARY TUBE CUTTER**



**TECH-SET™ SPRING TYPE TUBE BENDERS**

- For soft copper and aluminum tubing
- Special spring steel with zinc finish
- Hand bend tubing to any shape without collapsing walls
- End bell design for quick removal of tubing

**TBS04** 1/4" Spring Tube Bender

**TBS05** 5/16" Spring Tube Bender

**TBS06** 3/8" Spring Tube Bender

**TBS08** 1/2" Spring Tube Bender

**TBS10** 5/8" Spring Tube Bender

**TBS12** 3/4" Spring Tube Bender



**TB368 TECH-SET™ UNIVERSAL TUBE BENDER**

- Triple head lever type tube bender 1/4", 5/16", 3/8" (6, 8, 10 mm)
- For soft copper, aluminum and thin wall steel tubing



**FT525 TECH-SET™ 45° UNIVERSAL ADJUSTABLE FLARING TOOL**

- Flares from 3/16" to 5/8" (5 to 16 mm)
- Unique faceted flaring cone automatically burnishes flare face during operation
- Produces perfect 45° flares while maintaining thickness at base of flare
- Rugged forged steel slip-on yoke
- Compact design ideal for use in tight quarters

FTX516 Yoke assembly  
 FTX517 Tube holding assembly  
 FTX518 Flaring cone



**FT195 TECH-SET™ 45° IMPERIAL FLARING TOOL**

- Flares 7 of the most common sizes of tubing from 3/16" to 5/8" (5 to 16 mm)
- Rugged forged steel slip-on yoke and hardened flaring bar
- Chrome finished flaring cone forms better flares with less effort
- Positive grip flaring bar eliminates tube movement

FTX500 Yoke assembly  
 FTX501 Flaring bar  
 FTX509 Compressor cone  
 FTX510 Wing nut



**FT203 TECH-SET™ 45° IMPERIAL FLARING TOOL**

- Flares 4 sizes of tubing - 5/8", 3/4", 7/8" & 1-1/8"
- Rugged forged steel slip-on yoke and hardened flaring bar
- Chrome finished flaring cone forms better flares with less effort
- Positive grip flaring bar eliminates tube movement
- Easy operation with professional results



**FT500/FT500M TECH-SET™ 45° FLARING/BURNISHING TOOL**

- FT500 Imperial tool for 3/16", 1/4", 5/16", 3/8", 1/2" & 5/8"
- FT500M Metric tool for (6 - 16 mm)
- Heat treated sliding dies with lever clamping action hold tubing firmly in place
- Rugged forged steel slip-on yoke with large handle for ease of use

FTX500 Yoke assembly  
 FTX501 Imperial Flaring bar  
 FTX509 Compressor cone  
 FTX510 Wing nut  
 FTX514 FT500 Die Holder Assembly  
 FTX515 FT500M Die Holder Assembly



**PRO-SET® TUBE EXPANDER/SWAGING SET**

- Create professional grade one seam pipe unions in the field.
- Multi-faceted interchangeable heads ensure equal linear expansion of tubing and uniformed wall thickness.
- Extended handle length provides added leverage for ease of operation.
- Re-round deformed tubing and fabricate couplings.
- Components are heat treated for durability.
- Ideal for copper, aluminum and soft steel tubing.
- Includes storage case for long-term protection.

**TLE6 IMPERIAL WRENCH SET**

- Includes:**  
 TLE601 Expander Tool  
 TLRM Reaming and Deburring Tool  
 TLH06 3/8" Expander Head  
 TLH08 1/2" Expander Head  
 TLH10 5/8" Expander Head  
 TLH12 3/4" Expander Head  
 TLH14 7/8" Expander Head  
 TLH18 1-1/8" Expander Head
- Optional:**  
 TLH16 1" Expander Head  
 TLH22 1-3/8" Expander Head  
 TLH26 1-5/8" Expander Head

**TLE6M METRIC WRENCH SET**

- Includes:**  
 TLE601 Expander Tool  
 TLRM Reaming and Deburring Tool  
 TLHM10 10 mm Expander Head  
 TLHM12 12 mm Expander Head  
 TLHM15 15 mm Expander Head  
 TLHM18 18 mm Expander Head  
 TLHM22 22 mm Expander Head  
 TLHM28 28 mm Expander Head
- Optional:**  
 TLHM16 16 mm Expander Head  
 TLHM20 20 mm Expander Head  
 TLHM35 35 mm Expander Head  
 TLHM42 42 mm Expander Head

Tubing Tools

# SPECIALTY HAND TOOLS

COMPLETE TOOL KITS FOR FAST,  
CONVENIENT REPAIRS



1.800.561.8187

www.itm.com

information@itm.com

## R-410A MINI-SPLIT TOOL KITS

Our tool kits contain everything you need to service ductless mini-split and central A/C systems with 1/4" & 5/16" service ports including the following components:



TLB410A



**Two Valve Service Manifold**  
(Varies by kit. See chart below)

- R-410A/R-22/R404A gauges
- 1/4" SAE fittings
- Triple seal valve system



**Premium 3-Pack 5' Hoses**  
(Varies by kit. See chart below)

- 1/4" SAE 45° fittings
- 800Psi working pressure
- 4000Psi burst pressure



**Flaring Tool**

- Clutch driven feed screw
- Eccentrically mounted cone
- Creates perfect, strong flares
- Ratchet drive in yoke
- 3/16", 1/4", 1/16", 3/8", 1/2" 1/8", 3/4"



**Torque Wrench Sets;**

- Metric Set: 12, 22, 24, 26, 27, 29 mm and 13/16" jaw sizes
- or-
- Imperial Set: 5/8", 11/16", 13/16", 15/16", 1-1/16", 1-5/16"



**(1) Imperial and (1) Metric Hex Key Set**

- Metric Set: 1.5, 2, 2.5, 3, 4, 5, 6, 8 mm
- Imperial Set: 3/32", 7/64", 1/8", 9/64", 5/32", 3/16", 7/32", 1/4"



**Valve Core Tool**

- 5/16" female fitting allows direct connection to mini-split service ports
- 5/16" female x 1/4" SAE male



**Brass Adapters and Caps**

- (10) 1/2"-20 UNF Caps, (2) Male: 1/4" SAE 55D; female; 1/2"-20 UNF SWVL, and (2) Male: 1/4" SAE female; 1/2"-20 UNF



**10" x 10" Square Tool Organizer**

- 24 separate compartments for quick, easy-access
- Molded handle for durability and comfort

Kit Contents	Qty	MINI-SPLIT TOOL KITS					
		TLB410A	TLB410SAE	TLB410KIT	TLB410AC	TLB410ACE	TLB410M
<b>1</b> 2 Valve Manifold	1	Pro-Set® Piston Pink Body 1/4" SAE 45° fittings "H" Gauge (MEHP5E)		Pro-Set® Premium Piston Series Manifold (#MT2HP)	BlackMax® Black & Chrome 1/4" SAE 45° fittings "H5" Gauge (MBH5P5Z)	BlackMax® Black & Chrome 1/4" SAE 45° fittings "H5" Gauge (MBH5P5EZ)	No Manifold
<b>2</b> Hoses	1	Pro-Set® Premium (3) 5' red/blue/yellow ball valve hoses			Pro-Set® Premium (3) 5' Black & Chrome hoses	Pro-Set® Premium (3) 5' Black & Chrome ball valve hoses	No Hoses
<b>3</b> Flaring Tool	1	FT800N		BFT850	FT800N		
<b>4</b> Torque Wrench Set	1	Metric TLTWSM	SAE/Imperial TLTWSAE	Universal Handle with SAE/Imperial & Metric Heads	Metric TLTWSM		
<b>5a</b> Hex Wrench Set (Metric)	1	TLSWHM					
<b>5b</b> Hex Wrench Set (Imperial)	1	TLSWH					
<b>6</b> Valve Core Tool	1	TLVC410A					
<b>7</b> Brass Adapters and Brass Caps	14	Includes; (10) AVC410 1/2"-20 UNF SAE Brass Caps, (2) AD87 Brass Adapter Male: 1/4" SAE 55D; female; 1/2"-20 UNF SWVL w/ Valve Core Tool, and (2) AD87S Brass Adapter (Male: 1/4" SAE; female; 1/2"-20 UNF) w/Valve Core Tool					
<b>8</b> 10" x 10" Tool Organizer	1	TLBAG1					



TLB410KIT



## R-410A MINI-SPLIT PREMIUM TOOL KIT

### Tool kit includes:

- Pro-Set® Premium Piston Series Manifold
- 5' Premium Pro-Set® Charging Hoses
- Imperial and Metric Hex Key Sets
- Valve Core Tool
- Brass Adapters and Caps
- Large, 9" x 16" Rubber Bottom Tool Organizer
- Imperial and Metric Torque Wrench Set and Instructions
- BlackMax® Tube Cutter 1/8" to 1-1/4"
- BlackMax® Tube Flaring Tool
- BlackMax® Deburring Tool with extra blade
- R410A Flare Size Gauge



### Pro-Set® Premium Piston Series Manifold #MT2HP

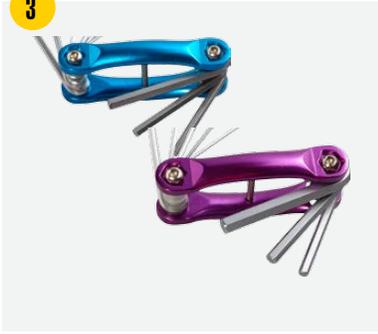
- 2 valve anodized aluminum block body
- 1/4" SAE 45° fittings
- Triple Seal piston valves
- Sure grip rubber over metal valve handles
- 3-1/8" (80 mm) Class 1.0 accuracy gauges
- Protective gauge boots
- Extra access port in center with Schrader valve and hanging hook



### 5' Premium Charging Hoses

- #HP5BE - Blue, #HP5RE - Red, #HP5YE - Yellow
- 1/4" hoses with SAE fittings, 45° ball valve on one end
- 800PSI working pressure
- 4000PSI burst pressure
- Leak-proof 8-sided crimp
- Extra deep knurling
- Adjustable valve core depressor
- Blow off grooves preventing spray back

3



**Hex Key Sets**

**(1) Imperial #TLSWH**

5/64", 3/32", 7/64", 1/8", 9/64", 5/32", 3/16", 7/32", 1/4"

**(1) Metric #TLWHM**

1.5, 2, 2.5, 3, 4, 5, 6, 8mm

4



**Valve Core Tool #TLVCS410A**

Unique configuration of tool enables use of standard 1/4" SAE manifold/hose sets with R-410A systems incorporating 5/16" (1/2"-20UNF) service ports.

- Designed to remove and install valve core without losing system charge
- Increases evacuation and charging speed by creating unrestricted access

5



**Large, 9' x 16' Rubber Bottom Tool Organizer #TLBAG2**

- Separate compartments for quick, easy-access
- Molded handle for durability and comfort
- Rubber bottom
- Durable fabric and construction

7



**BlackMax® Tube Cutter 1/8" to 1-1/4" #BTC300**

- Two quick-change, chromed, hardened cutting wheels
- Enclosed feed screw eliminates clogging, jamming
- Set-N-Cut™ spring-loaded cutting wheel for a perfect cut every time

8



**BlackMax® Tube Flaring Tool #BFT850**

- Aluminum body is 50% lighter than steel designs
- Internal clutch indicates when formed flare is complete
- Eccentric cone forms precise 45° flared ends
- Creates perfect, strong flares
- For 3/16", 1/4" 5/16", 3/8", 1/2", 5/8", 3/4" O.D. soft copper, aluminum tube

9



**Torque Wrench Set with (1) Universal Handle #TLWSAE and (6) Imperial and (6) Metric wrenches**

(part numbers below) and instructions

Heads			
	Metric		Imperial
17mm	#TLXTWM17	5/8"	#TLXTW58
22mm	#TLXTWM22	11/16"	#TLXTW1116
24mm	#TLXTWM24	13/16"	#TLXTW1316
26mm	#TLXTWM26	15/16"	#TLXTW1516
27mm	#TLXTWM27	1-1/16"	#TLXTW1L116
29mm	#TLXTWM29	1-5/16"	#TLXTW1L516

10



**Brass Adapters and Caps**

- (10) 1/2"-20 UNF Caps #AVC410
- (2) Male: 1/4" SAE 55D; Female; 1/2"-20 UNF SWVL, #AD87S and
- (2) Male: 1/4" SAE Female; 1/2"-20 UNF #AD87

11



**BlackMax® Deburring Tool #BTLDB3** with extra blade inside handle

- Quick-change blade
- Solid aluminum body

12



**R410A Flare Size Gauge #FTXSG**

- 6.4 mm, 1/4"
- 9.5 mm, 3/8"
- 12.7 mm, 1/2"
- 15.9 mm, 5/8"
- 19.1 mm, 3/4"

## CPS® EXTRA DURABLE TOOL ORGANIZERS

Organize your tools with care with this extra strong, premium built series of tool organizers from CPS.



**TLBAG1**  
10" x 10" Square Tool Organizer



**TLBAG2**  
9" x 16" Rubber Bottom Tool Organizer



**TLBAG3**  
Tool Belt Tool Organizer

## PRO-SET® ADJUSTABLE HANDLE WRENCHES

- Patented light weight composite handle design
- Wide jaw opening with 45% more torque
- Precision machined for smooth operation
- Ergonomic, comfortable grip reduces fatigue
- Durable and environment-resistant
- Packed in clear clamshell with printed display card
- One year warranty



**TLWA08**  
Size: 8"  
Jaw Capacity:  
1-1/8" / 29 mm



**TLWA10**  
Size: 10"  
Jaw Capacity:  
1-5/16" / 33 mm

## PRO-SET® SERVICE WRENCHES

- Metal construction
- Embossed fractions and logo
- Polished chrome finish



**TLSWL**

- Large, straight. Square & hex drive
- 3/16", 1/4" Square Drive
- 1/2", 9/16" Hex Drive

**TLSWLB** In Bulk (100 pcs)



**TLSWO**

- Small, offset. Square drive.
- 3/16", 1/4", 5/16", 3/8" Square Drive
- Offset ends

**TLSWOB** In Bulk (100 pcs)  
**TLSWOA** Wrench plus 3/16" & 5/16" Hex Driver Bit

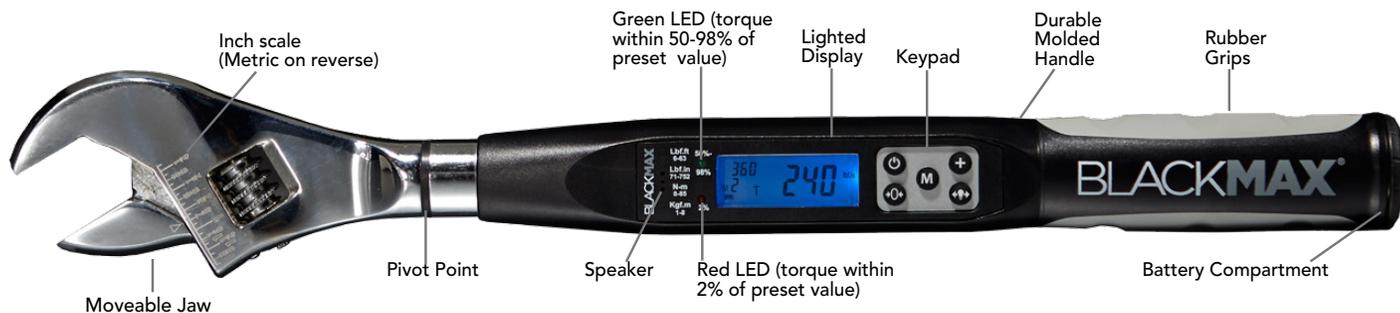


**TLWSW**

- Small, straight. Square drive
- 3/16", 1/4", 5/16", 3/8" Square Drive

**TLWSWB** In Bulk (100 pcs)  
**TLWSWA** Wrench plus 3/16" & 5/16" Hex Driver Bit

Specialty Tools



## BTLDTW BLACKMAX® DIGITAL TORQUE WRENCH

Ideal for HVAC mini-split installations or where OEM-specified torque settings are critical, the BlackMax digital torque wrench exceeds the capabilities of mechanical-only torque wrenches by offering a variety of user-friendly features in a lightweight, durable and ergonomic housing.

The BTLDTW stores 5 factory and 5 user-defined presets, and is able to simultaneously display stored vs. actual torque values. Large display numbers prevent misreading torque data, a common problem when using wrenches without digital displays. View “Peak” and “Track” torque data with audible (tone), visual (LED) and tactile (vibration) “torque alerts” to prevent over-tightening by providing advance warning when approaching or exceeding predefined torque settings.



## KEY FEATURES

- Ensures OEM torque setting compliance
- Ideal for HVAC mini-split installations
- **Jaw opening:** 3/16” to 1-7/16” (5 to 35mm)
- **Torque settings:** Lbf.ft, Lbf.in, N-m, Kgf.m
- **Pre-set and actual torque values:-** View both same time
- **LED Torque Alerts:** Green= within 50-98%, Red= within 2%
- **Memory Presets:** 5 common, 5 open for custom torque values
- **Track mode:** View real-time torque value reached during use
- **Peak mode:** Maximum torque value reached is stored temporarily
- **Auto-Off (Selectable):** Conserves battery life
- Display light key

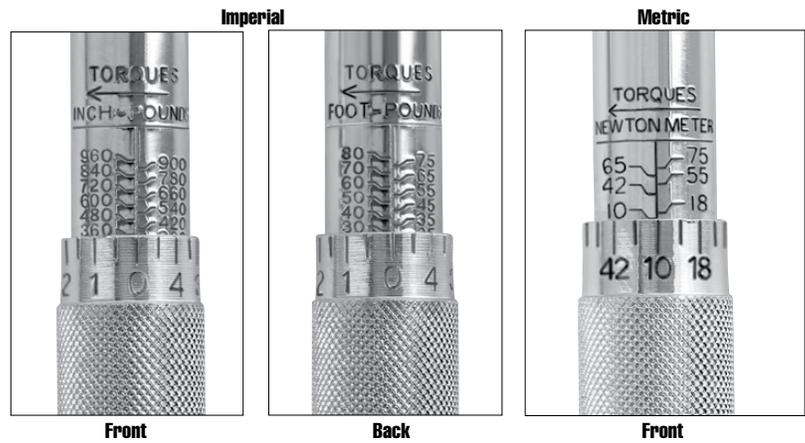


<b>Torque Units (Selectable)</b>	N-m	Kgf.m	Lbf.ft	Lbf.in
<b>Torque Measurement Range</b>	8-85	1-8	6-63	71-752
<b>Display Resolution</b>	0.1 N-m	0.1 Kgf.m	0.1 Lbf.ft	1.0 Lbf.in
<b>Accuracy</b>	± 2% clockwise and counter-clockwise of reading, 10% to 100% of full scale			
<b>Jaw Opening</b>	3/16” – 1-7/16” (5 - 35 mm)			
<b>Operating Voltage</b>	3V (2 x AAA batteries, supplied)			
<b>Operating Temperature</b>	32°F~104°F (0°C ~ 40°C)			
<b>Storage Temperature</b>	-4°F ~113°F (-20°C ~ 45°C)			
<b>Wrench (+ Case) Weight</b>	2.79 lb (1.27 kg)			
<b>Wrench Length</b>	15.25” (0.387 m)			
<b>Green LED Flashes</b>	Within 50% to 98% of programmed torque (in Peak or Track mode)			
<b>Intermittent Tone</b>	Within ±5N-m of programmed torque value			
<b>Red LED On</b>	Within 2% of programmed torque value			
<b>Faster Tone</b>	Within ± 2 N-m of programmed torque value			
<b>Continuous Tone + Constant Green LED &amp; Handle Vibrates</b>	When >2% over programmed torque value			
<b>Display Constant On:</b>	Battery life = approx. 120 hours			
<b>Display &amp; Backlight Constant On:</b>	Battery life = approx. 96 hours			
<b>Replacement Battery Cap</b>	BTLDTWCX			

## PRO-SET® TORQUE WRENCHES

Professional interchangeable jaw torque wrench set ensures compliance with OEM torque settings for high pressure systems.

- SAE (Inch) or Metric Sets: Both include 6 sizes of interchangeable ends
- Polished chrome finish
- Provides consistently accurate readings and rugged, trouble-free performance
- Includes instruction sheet and molded storage case



### TLTWSAE IMPERIAL WRENCH SET

- **Inch Wrench Settings** in Inch-Pounds (60-960) or Foot-Pounds (5-80)

**Includes:** SAE Multi-Head Torque Wrench Set with handle, heads and case (5/8", 11/16", 13/16", 15/16", 1-1/16", 1-5/16")

#### Replacement Parts:

<b>TLXTWSAE</b>	Complete Set of (6) SAE Wrench Heads
<b>TLXTWSAEW</b>	SAE Torque Wrench Handle
<b>TLXTW58</b>	5/8" Head
<b>TLXTW1116</b>	11/16" Head
<b>TLXTW1316</b>	13/16" Head
<b>TLXTW1516</b>	15/16" Head
<b>TLXTW1L116</b>	1-1/16" Head
<b>TLXTW1L516</b>	1-5/16" Head

### TLTWSM METRIC WRENCH SET

- **Metric Wrench Settings** in Newton-Meters (10-75)

**Includes:** Metric Multi-Head Torque Wrench Set with handle, heads and case (17, 22, 24, 26, 27, 29 mm)

#### Replacement Parts:

<b>TLXTWM</b>	Complete Set of (6) Metric Wrench Heads
<b>TLXTWMW</b>	Metric Torque Wrench Handle
<b>TLXTWM17</b>	17mm
<b>TLXTWM22</b>	22mm
<b>TLXTWM24</b>	24mm
<b>TLXTWM26</b>	26mm
<b>TLXTWM27</b>	27mm
<b>TLXTWM29</b>	29mm



◆ **TLSWH PRO-SET®  
HEX**

- Hex ends (Inch)
- Nickel Plated
- 5/64", 7/64", 1/8", 9/64", 5/32", 3/16", 7/32", 1/4"
- Clamshell packaging with display card



◆ **TLSWB PRO-SET®  
HEX BALL POINT**

- Ball point ends (Inch)
- Nickel Plated
- 5/64", 7/64", 1/8", 9/64", 5/32", 3/16", 7/32", 1/4"
- Clamshell packaging with display card



◆ **TLSWT PRO-SET®  
TORX**

- Torx ends
- Nickel Plated



◆ **TLSWHM PRO-SET®  
HEX**

- Hex ends (Metric)
- Nickel Plated
- 1.5, 2, 2.5, 3, 4, 5, 6, 8 mm
- Clamshell packaging with display card



**TLSWHB PRO-SET® COMBO SET**

Inch Hex Wrench Combo Set: Includes TLSWH (Inch Hex Key) & TLSWB (Inch Ball Point Key Set)



**TLPK PRO-SET® SWAGE  
PUNCH SET**

5 Punches (1/4", 5/16", 3/8", 1/2", 5/8")



**TLMSP PRO-SET® 6-in-1 SWAGING  
PUNCH**

- (3/16", 1/4", 5/16", 3/8", 1/2", 5/8")
- Swages six sizes of tubing
- Chrome plated for strength and durability



**TLPORR PRO-SET®  
PINCH-OFF & RE-ROUND  
TOOL**

Pinch-Off tool & rerounds 1/4", 5/16", 3/8", and 1/2" copper and tubing



**TLFC1 PRO-SET®  
UNIVERSAL METAL FIN  
COMB**



**TLFC6 PRO-SET® UNIVERSAL  
6-SIDED FIN COMB  
STRAIGHTENING TOOL**  
Repair bent condenser fins



**TLFC2 PRO-SET® FIN  
STRAIGHTENER**  
Large durable, easy grip handle



**TSWS TECH-SET™ SMALL  
STRAIGHT SERVICE WRENCH**

- Square Drive: 3/16", 1/4", 5/16", 3/8"
- Metal handles with frosted finish and blister card packaging



**TSWSO TECH-SET™ SMALL  
OFFSET SERVICE WRENCH**

- Square Drive: 3/16", 1/4", 5/16", 3/8"
- Metal handles with frosted finish and blister card packaging



**TSWSH TECH-SET™ LARGE  
STRAIGHT SERVICE WRENCH**

- Square Drive: 3/16 & 1/4
- Hex Drive: 1/2 & 9/16
- Metal handles with frosted finish and blister card packaging

## TECH-SET™ INSPECTION MIRRORS

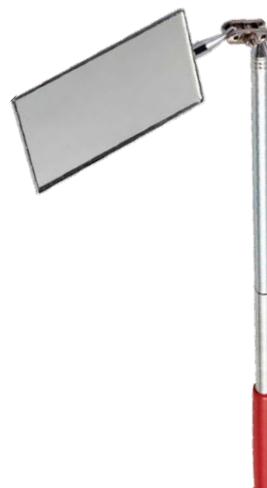
For fast, accurate inspection of any hidden area.  
Universal ball joints hold mirrors firmly at any angle.



**TLMIR1**  
Circular  
Telescoping Mirror  
1-1/4" diameter



**TLMIR2**  
Circular  
Telescoping Mirror  
2-1/4" diameter



**TLMIR3**  
Rectangular  
Telescoping Mirror  
3-1/2" x 2"

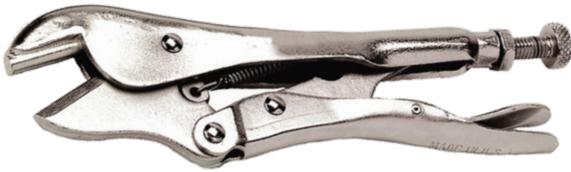
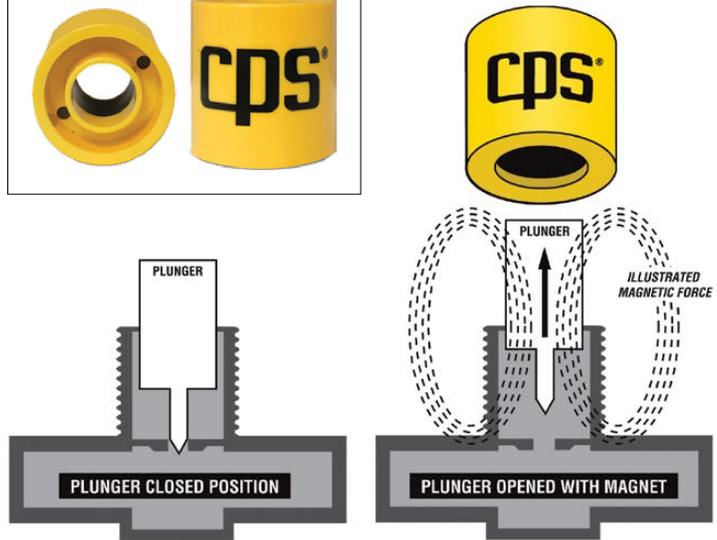


**TLMIR4**  
Oval Pocket Mirror  
1" x 2"

### TLMKC18 SOLENOID MAGNET

The **TLMKC18** is designed to manually open solenoid valves by magnetically lifting the stem assembly and plunger. Simply slide the **TLMKC18** over the valve's enclosing tube and the industrial grade magnets incorporated inside the rugged ABS plastic housing does the rest. It is an ideal tool for trouble shooting/servicing both direct connected or pilot operated 2-way solenoid, 3-way reclaim or 4-way reversing valves.

- 0.75"/18 mm opening fits all common manufactured valves



### TLPO PRO-SET® PINCH-OFF PLIERS

- Tool locks onto tubing to prevent loss of refrigerant during service
- Rounded jaws to avoid cutting tubing
- Fast release mechanism
- 1 year warranty



### TLPP PRO-SET® TUBE PIERCING PLIERS

Tube Piercing Pliers 1/4"  
TLPPX Replacement Tip



### TLDWH WOOD DUCT KNIFE

Used to fabricate fiberglass duct board. Stainless steel 6" double edge resharpenable blade facilitates easy piercing for inside cuts. The double edge is also ideal for tapping into and trimming flex duct.



### TLDKRH RUBBER DUCT KNIFE

Used to fabricate fiberglass duct board. Stainless steel 6" double edge resharpenable blade facilitates easy piercing for inside cuts. The double edge is also ideal for tapping into and trimming flex duct.



### TLMAG1 COMPACT MAGNETIZER/DEMAGNETIZER

Use the **TLMAG1** to magnetize tools in order to keep small screws and nuts in position, especially helpful when working in confined spaces, or demagnetize tools when working on or near electronic circuit boards. Simply insert a screwdriver or nut driver into the (+) opening, slowly draw it out and it's magnetized. Leave the magnetizer on the tool for extra strength. To demagnetize, slowly draw the tool through the smallest area of the (-) opening.

- Instantly magnetize or demagnetize steel tools & parts
- Incorporates two C5 industrial strength magnets
- Impact resistant ABS molded plastic
- No batteries or electricity required
- Compact design: 2" x 2" x 1"

### BLACKMAX® GEAR & PULLEY REMOVERS

- Quick-change: 2 or 3 reversible jaw
- Internal/external pull
- Forged chrome, vanadium steel
- Patented design enables fast configuration of two or three puller arms for inward or outward gripping positions.



#### BTLGP4

- Remover 3"-4" (76-102 mm)
- 3.75" Reach
- 11.5" Spread

Center point prevents slippage



#### BTLGP7

- Remover 3"-7" (76-178 mm)
- 5.5" Reach
- 17" Spread



**BRRN1 PRO-SET® NITROGEN REGULATOR**

- UL Listed
- Delivery Pressure 0-400 PSI
- Easy-to-read gauges with protective rubber gauge boots



**BRHT2 PRO-SET® POWER TORCH**

- Auto-ignite torch
- Adjustable flame control
- For use with propylene (MAPPRO), MAPP and Propane
- CGA600 Inlet Connection
- Reinforced plastic and stainless steel burn tube
- 3 changeable tips with space for 2 cylinders
- Molded case



**BRHT1 PRO-SET® HAND TORCH**

- Auto-ignite torch
- Adjustable flame control
- For use with propylene (MAPPRO), MAPP and Propane
- CGA600 Inlet Connection
- Cast aluminum and stainless steel burn tube construction
- Flame lock button, precise flame adjustment
- Clamshell packaging

**BRXHTST1** Replacement Torch Tip



**BRHT5 PRO-SET® HAND TORCH WITH 5' HOSE & VALVE**

- Auto-ignite torch
- Adjustable flame control
- For use with propylene (MAPPRO), MAPP and Propane
- CGA600 Inlet Connection
- Brass regulator, composite handle & stainless steel burn tube
- New brass regulator with 5 ft hose and valve
- Clamshell packaging



**BRHTS1A PRO-SET® SWIVEL HAND TORCH**

- Auto-ignite torch
- Adjustable flame control
- For use with propylene (MAPPRO), MAPP and Propane
- CGA600 Inlet Connection
- Brass regulator & stainless steel burn tube
- Torch tube swivels 360 degrees, operates in any position
- Clamshell packaging

**BRXHTST1** Replacement Torch Tip



**BRHTS1 TECH-SET® SWIVEL HAND TORCH**

- Manual Ignition
- Adjustable flame control
- For use with propylene (MAPPRO), MAPP and Propane
- CGA600 Inlet Connection
- Clamshell packaging

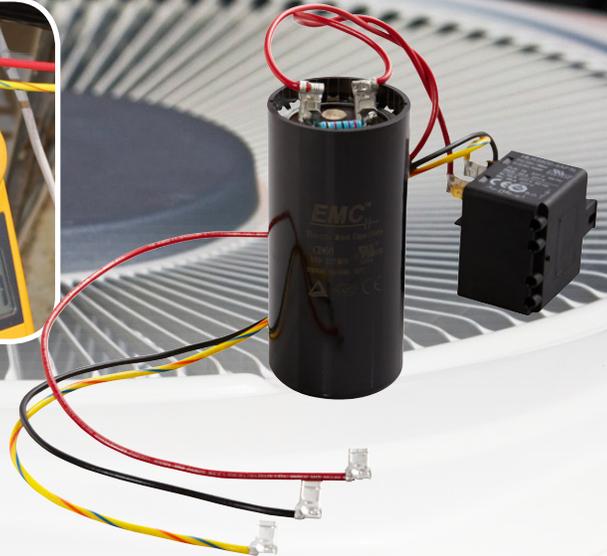
**BRXHTS1** Replacement Torch Burner Tube Assembly

# 5-2-1<sup>®</sup>

COMPRESSOR SAVER<sup>®</sup>

**PROTECT YOUR CUSTOMERS  
WHILE EARNING ADDITIONAL PROFITS**





## REDUCES DAMAGING IN-RUSH CURRENT BY UP TO 50%!

### 5-2-1® COMPRESSOR SAVER®

Start-up is the most punishing task for any type of electrical equipment due to the surge of current when power is first applied. A/C compressors can consume up to 45,000 watts!

The 5-2-1 Compressor Saver significantly reduces the time the compressor draws high amperage at start-up by combining a powerful multi-layer starting capacitor with a smart switch to safely give the compressor the burst it needs to start up quickly and reliably, while drawing less power. Less power means lower energy bills, too.

- Perfect add-on service for HVAC technicians—high profit, easy and fast to install, and easy to sell.
- Customers experience immediate results.
- Adds years to the life of your compressor and other electrical components associated with your A/C system.
- Reduce damaging in-rush current by up to 50%.



**CSRU1**  
For 1 to 3 Ton units



**CSRU2**  
For 3-1/2 to 5 Ton units



**CSRU3**  
For 4 to 5 Ton units

# MAXIMUM SURGE PROTECTION

## 5-2-1® SURGE PROTECTOR

The 5-2-1 Surge Protection device incorporates the latest in patented surge protection technology providing up to **70% MORE PROTECTION** than similar value priced alternatives\*. Plus, no other brand has a separate visible alarm that indicates when the unit has suffered significant damage and needs to be replaced.

### Professionally Installed Surge Protection

- Protects against power surges
- Protects against lightning strike surges
- Protects against utility grid "Spikes"
- Protects vital system components

### Dual Visual Indicators

Home owners and contractors alike love our dual indicator lights. No more wasting time or money dealing with a single indicator light. Our products come with two lights - a red light to indicate if power is present and a green light to indicate that the product is providing protection. With two lights on, you can rest assured knowing that the system is properly protected.

### Features:

- Device built with patented MOV parts
- Green LED indicates surge protection is present
- Red LED indicates that power is present *independent* of the surge protection status
- TUV Certified UL 1449 3rd Edition
- Type 4X enclosure IP67 rated
- Easy installation
- Low cost, high performance

### Contractor Benefits:

- Promote additional profits
- Marketing materials available FREE of charge
- Protect your customer's equipment
- Reduce callbacks
- Increase customer referrals

### Single Phase Surge Protection

- Circuit Boards
- Air Conditioners
- Furnaces
- Heat Pumps
- Refrigeration Systems



**SPD60**  
Rated up to 60,000 amps



**SPD150**  
Rated up to 100,000 amps



\*Based on maximum energy dissipation (Joule) rating

# QUICKEST AND EASIEST WAY TO BRING NEW LIFE TO OLD REFRIGERATION SYSTEMS!

## 5-2-1® QUIKSTART® COMPRESSOR START KIT

The 5-2-1 QUIKSTART is an easy-to-install 115V combination starter, pre-wired to work with or without a run capacitor. The 5-2-1 QUIKSTART works by administering essential power boosts to the compressor.

The 5-2-1 QUIKSTART is designed to replace all three electrical components on all domestic and commercial refrigerators and freezers using CSIR or CSCR type compressors (relay, overload and start capacitor) and comes pre-wired, complete installation instructions and extra wiring nuts.

### Features:

- 3-in-1 product: replaces relay, start capacitor and overload
- Provides a boost for hard start and unbalanced systems
- Start assist in low voltage conditions
- UL recognized



5-2-1® QUIKSTART® COMPRESSOR START KITS			
ITEM		HP	Maximum Volts
QRUC0410	For Systems <b>With</b> Run Capacitors	1/4 - 1/3	115V
QRUC0810		1/12 - 1/5	115V
QRUC0410	For Systems <b>Without</b> Run Capacitors	1/4 - 1/3	115V
QRUC0810		1/12 - 1/5	115V