



**cps**<sup>®</sup>

**HVAC/R**  
Product Catalog

**BLACKMAX<sup>®</sup> Pro-Set<sup>®</sup>**  
**COMPUTE-A-CHARGE<sup>®</sup>**  
**5-2-1<sup>®</sup> Leak-Seeker<sup>®</sup>**

CPS® designs and manufactures QUALITY PRODUCTS that enable service technicians to WORK EFFICIENTLY, SMARTER, and win more business.

Our goal is to achieve this mission every day by CONTINUOUS SELF IMPROVEMENT and GROWTH in our operations; while ensuring PROFITABILITY for our CUSTOMERS.

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# FEATURE PRODUCTS

IAQPRO

## INDOOR AIR QUALITY METER

The Standard for Professional Indoor Air Quality Meters ...

Quickly measure 9 key Indoor Air Quality & Comfort Factors in conditioned spaces to identify issues, present solutions and win more business.

**CPS® link™**

Paired with the **NEW** CPS Link™ app, a technician can generate customized reports of products and prices to improve any air quality issue.

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Bluetooth®

CPS® link™



BFT850DR

## BLACKMAX® RATCHET OR DRILL- POWERED FLARING TOOL

For 3/16", 1/4", 5/16", 3/8", 1/2", 5/8", 3/4" O.D. tube

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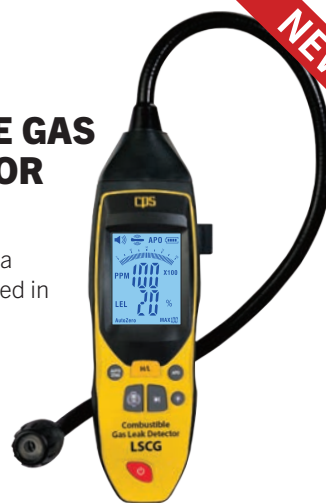
NEW

LSCG

## COMBUSTIBLE GAS LEAK DETECTOR

Detects a wide range of combustible gases, with a methane component, used in HVAC/R applications.

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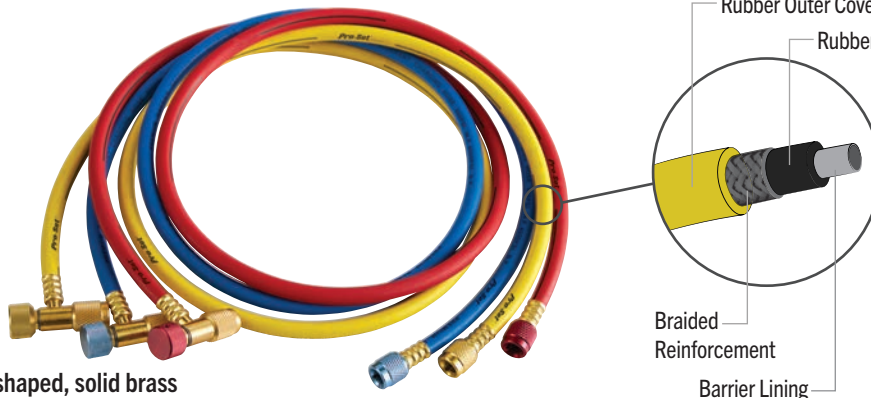


NEW

## PRO-SET® PREMIUM REFRIGERANT SERVICE HOSES WITH SAFEMATE™ VALVES

A three-pack of 5 ft **barrier hoses** in red, yellow and blue for safely and efficiently charging, recovering and evacuating refrigerants in residential and commercial HVAC/R systems.

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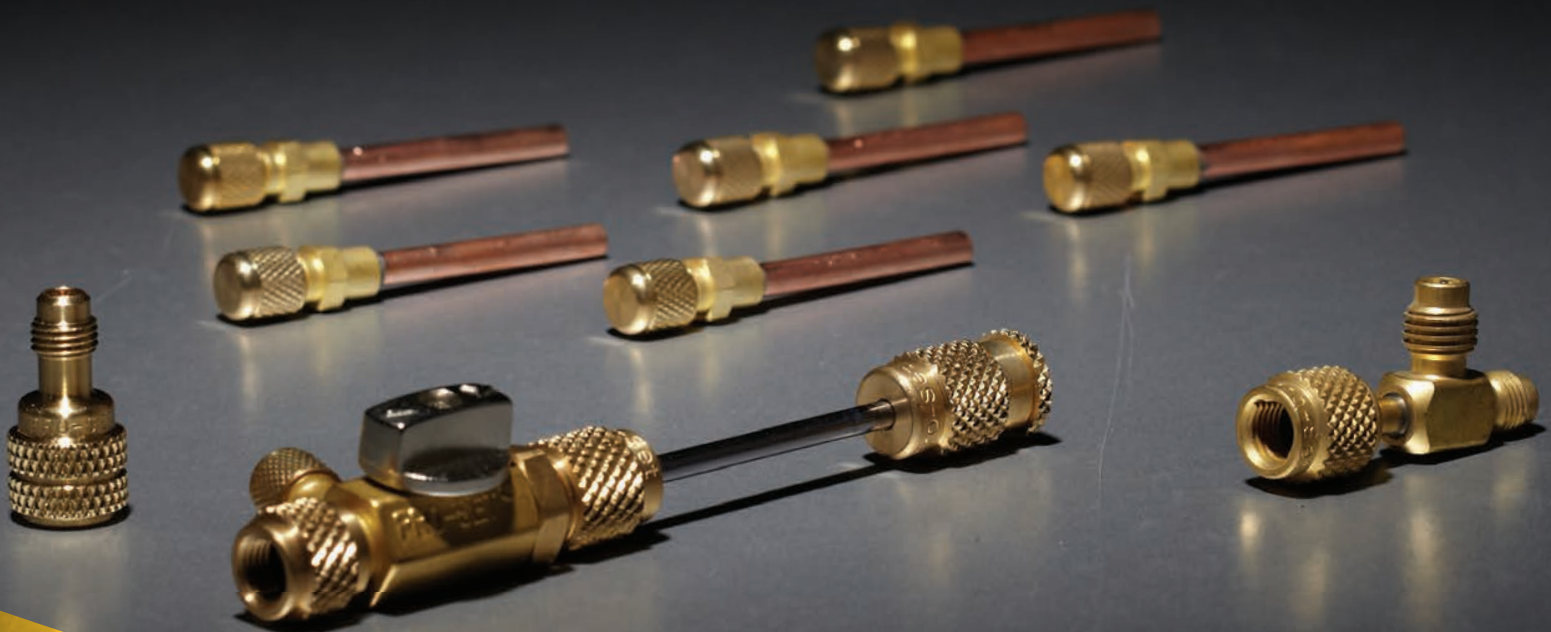


Patented, "T" shaped, solid brass "SafeMate" female valves.

NEW



# ADAPTERS, FITTINGS & VALVE CORE TOOLS



# ADAPTERS

AD14

**14mm x  
1/4" SAE**



AD24 & AD24B

**Manifold  
Fitting**



AD41

**Large  
Cylinder**



AD44 & AD44B

**With Core  
& Cap**



AD47

**1/4" SAE  
Union**



AD48

**1/4" SAE x  
1/2" ACME**



AD64

**1/4" SAE x  
3/8" SAE**



AD78 & AD78B

**1/4" SAE x  
5/16" SAE**



AD84 & AD84B

**1/2" ACME x  
1/4" SAE**



AD87, AD873 & AD87B

**R-410A Straight  
w/ Core**



AD87S, AD87S3 & AD87SB

**R-410A 55°  
Bend & Core**



- Precision machined from C360 alloy brass
- Adheres to strict AHRI specifications
- Cores for use with all refrigerants
- Deep knurling for sure grip

Part No.	Qty	Female	Male
AD14	1	-	1/4" SAE w/ Cap & Core x 1/4" MNPT
AD24	6	-	1/4" SAE M x 1/8" MNPT w/ Cap & Core
AD24B	100 Bulk	-	
AD41	1	-	125 lb. Tank Adapter, 3/4"-14 x 1/4" SAE M
AD44	6	-	1/4" SAE M w/ Cap & Core x 1/4" MNTP
AD44B	100 Bulk	-	
AD47	1	-	1/4" SAE M x 1/4" SAE M SAE Union
AD48	1	1/4" SAE	1/2" ACME
AD64	1		3/8" SAE
AD78	1		5/16" SAE (1/2" - 20 UNF) M
AD78B	100 Bulk	1/2" ACME	1/4" SAE
AD84	3		
AD84B	100 Bulk	5/16" SAE (1/2"-20 UNF Angle/Swivel)	1/4" SAE x 5/16" (1/2"-20 UNF) Angle /Swivel
AD87	1		
AD873	3		
AD87B	100 Bulk		
AD87S	1		
AD87SB	100 Bulk		
AD873S	3	1/4" SAE Hex	1/4" SAE M x 1/4" SAE w/ cap & Core
AVS44	3		

## ADAPTERS - TEE CONNECTORS

AVT2P  
**14 MNPT  
on Run**



AVT4  
**Manifold  
Tee**



AVT44  
**1/4" Swivel  
Hex Nut**



AVT45  
**With Core  
& Cap**



AVT48  
**1/4" SAE  
Union**



AVT64 & AVT64B  
**1/4" SAE x  
3/8" SAE**



AVT87  
**1/2" ACME x  
1/4" SAE**



Part No.	Qty	Side 1	Fitting 2	Run (Tee)
AVT2P	3	1/4" SAE Male w/ cap and core	1/4" SAE Male	1/8" MNPT
AVT4	3	1/4" SAE Male w/ cap & core	1/8" MNPT	1/4" SAE Male
AVT44	3	1/4" SAE Female Hex	1/4" SAE Male	1/4" SAE Male w/ cap & core
AVT45	3	1/4" SAE Male	1/4" SAE Female knurl	1/4" SAE Male
AVT48	1	1/4" SAE Male	1/4" SAE Female knurl	1/2" ACME Male
AVT64	3	1/4" SAE Male w/ cap and core	1/4" SAE Male	1/4" SAE Female Hex
AVT64B	100			
AVT87	1	1/4" SAE Male	5/16" SAE Female knurl	1/4" SAE Male adapter fitting

## CAPS



AVC4, AVC425 &  
AVC4B



AVC4PB



AVC4R



AVC410

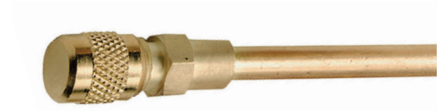


AVC6P

Part No.	Qty	Description
AVC4	10	1/4" SAE brass caps
AVC425	25	
AVC4B	100	
AVC4C	2	1/4" SAE brass caps w/chain tether
AVC4PB	100	1/4" SAE plastic caps (bulk)
AVC4R	6	1/4" SAE brass cap w/ core remover
AVC410	10	R-410A 5/16" (1/2"-20 UNF) brass caps
AVC6P	3	3/8" SAE plastic caps
AVCVAC	1	Vacuum Pump Brass cap & chain kit: 1/4", 1/2", 3/8" SAE



## COPPER TUBE EXTENSIONS



Available with Standard or Wrench Caps

Part No.	Qty	Outer Diameter	Inner Diameter	
AV2	6	1/8"	1/16"	
AV2R	6	1/8"	1/16"	w/ RMVR Cap
AV3	6	3/16"	1/8"	
AV3B	100	3/16"	1/8"	Bulk
AV3R	6	3/16"	1/8"	w/ RMVR Cap
AV4	6	1/4"	3/16"	
AV4B	100	1/4"	3/16"	Bulk
AV4R	6	1/4"	1/4"	w/ RMVR Cap
AV4410B	100	5/16" (1/2"-20) ACCS, 1/4" O.D.	3/16"	Bulk
AV5	6	5/16"	1/4"	
AV5B	100	5/16"	1/4"	Bulk
AV5R	6	5/16"	1/4"	w/ RMVR Cap
AV6	6	3/8"	5/16"	
AVB46	6	1/4"	3/8" SLDR	

## COPPER TUBE BRAZE TEES



Core tool included

Core tool included

Part No.	Qty	Fitting	Tube Outside Diameter
AVCT4	3	1/4" SAE Male w/ Cap & Core Remover	1/4" SAE
AVCT5	3		5/16" SAE
AVCT6	3		3/8" SAE
AVCT8	3		1/2" SAE
AVCT10	1		5/8" SAE
AVCT12	1		3/4" SAE
AVCT14	1		7/8" SAE
AVCT18	1		1-1/8" SAE

## MULTI-STEP BODIES

Part No.	Qty	Inner Diameter	Outer Diameter
AVB34	6	3/16"	1/4" OD SLDR
AVB346	6	3/16"	1/4" x 3/8" OD SLDR
AVB456	6	1/8"	3/16", 1/4", 5/16" OD SLDR

Precision machined for exact fit



AVB34

AVB346

AVB456

## VALVE CORES

Part No.	Qty	Description
AVS1	10	6 pk of 1/8" cores
AVS125	25	25 pk of 1/8" cores
AVS1B	100	100 bulk pack of 1/8" cores
AVS1V	6	6 pk of 1/8" cores in plastic vile and SAE brass cap



AVS1/AVS1B



AVS1V

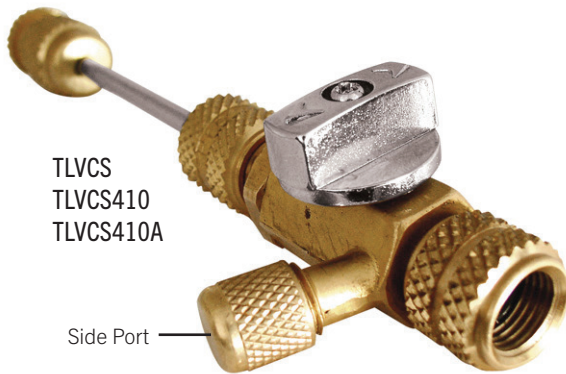
Compatible with all refrigerants



# VALVE CORE TOOLS

## Premium Valve Core Tools

- Remove and replace damaged valve cores in systems under pressure
- Fully remove valve cores to increase speed of evacuation and/or charging process
- Precision machined from high quality materials to ensure long life and leak free service
- Available with or without side access port



## Benefits Benefits of a Side Port

- Enables connection of a vacuum gauge directly at the system
- Close ball valve to isolate the vacuum gauge and system from all service hoses, manifold & pump connections while performing a pressure rise test
- Eliminates possibility of introducing air into a system when transitioning from evacuation to charging process

Part No.	Qty	Description
TLVC	1	1/4" Female x 1/4" Male SAE Core Remover & Installer Tool
TLVC1	1	Pocket Valve Core Tool w/ 4 Spare Cores
TLVC2	1	Dual Valve Core Tool (1/4" SAE Valves & Auto R-134a Valves)
TLVC410	1	1/2-20" Valve Core Core Remover Tool
TLVC410A	1	5/16" Female x 1/4" Male Mini-Split Valve Core Tool
TLVCS	1	1/4" SAE Valve Core Remover Tool w/ /Side Port
TLVCS410	1	1/2-20 Valve Core Remover Tool w/ Side Port
TLVCS410A	1	5/16 Female x 1/4 Male Core Tool, 1/4 Male Side Port



# CHEMICALS



# UV LEAK DETECTION ADDITIVES

## Moonshine™ DYE CARTRIDGE

- Use with UVNJS Squeeze Gun Injector
- Cleanest, easiest and fastest method of injection
- 4 sizes to match capacity of system
- Locates source of air entering system
- Eliminates over-injection of dye
- All dyes include I.D. labels

Part No.	Qty/Px	Equipment Type	Refrigerant Charge Size
UVS101	6	Small Ice machines window units, appliances	Up to 2.9 lb (1.3 kg)
UVS1	6	Medium Residential Systems	3 to 4.9 lb (1.4 to 2.2 kg)
UVS2	6	Medium – Large Light commercial and large residential systems	5 to 9.9 lb (2.3 to 4.5 kg)
UVS3	6	Large Commercial and light industrial	10 to 25 lb (4.6 to 11.4 kg)

UVS101  
**Small**  
6 pack



UVS1  
**Medium**  
6 pack



UVS2  
**Medium - Large**  
6 pack



UVS3  
**Large**  
6 pack



UVUD6  
**Moonshine™ Bottled  
Universal Refrigerant  
Dye**  
6 pack

- Built-in measuring cap
- 8 oz (237 ml)
- Lowest cost per application
- Excellent for large systems



UVUDS  
**Moonshine™ Universal  
Refrigerant Dye**  
6 pack

- 1 oz (30 ml) bottles
- Lowest cost per application



UVCLNR  
**Moonshine™ Dye  
Cleaner**  
1 pack

- 32 oz (946 ml)

# UV LIGHTS, KITS & ACCESSORIES

UV55

## Refrigerant UV Dye Leak Detection Kit

Conduct a fast, easy, mess-free air conditioning leak test with our ultra-fluorescent universal dye.

### KIT INCLUDES

- MoonLight™ flashlight with 9, true ultraviolet LEDs and 3 AAA batteries
- MoonShine™ blue light-blocking glasses
- UVNJS Mess-free and easy-to-use squeeze injector
- UVS2 universal (orange) OEM approved dye cartridge
- R-34a 90° low side snap coupler
- Carrying case and instructions



Step 1: Load cartridge.

Step 2: Connect and bleed hose.

Step 3: Inject, then discard empty cartridge.



UVPRO

## 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 LED engineered to maximize the fluorescing capabilities of today's most commonly used detection dyes used in AC systems, while greatly reducing the amount of "nuisance" background blue light emitted.

- Operates 8 hr (continuous on)
- Inspection range up to 3' (0.9 m)
- 100,000 hour LED life
- Instant "ON" with no heat produced
- Works with all common dye additives

### REPLACEMENT PARTS

UVXG UV Enhancing Safety Glasses



UVNJ

## Anodized Aluminum Flow Through 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

## Anodized Aluminum 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



# MIST FLEET CABIN SANITIZING SOLUTIONS



**NEW**

## MiST® X-Treme Is Here!

Combine the MiST Service with the new X-Treme Sanitizing Solution for a complete and safe restoration of the interior air quality.

MiST X-Treme Sanitizing Kits are designed to disinfect and sanitize vehicle interior touch points while treating the entire HVAC system and interior air spaces for sources of mold, mildew and bacteria.



590275

### MiST® X-Treme Sanitizing Spray

12 pack

- EPA registered and effective against bacteria, including MRSA and viruses such as Covid-19
- Allow sprayed on solution to remain in place during the entire MiST service then wipe away any excess
- One bottle will treat up to 12 passenger cars/light trucks
- Sold in cases of 12 – 32 oz. bottles w/ sprayer

## Award-winning Complete Vehicle Service

MiST™ penetrates the entire ventilation system and passenger compartment surfaces to restore interior air quality. MiST is a safe, simple and effective service that targets the health of the driver. MiST is the perfect preventive maintenance (PM) service because it can be run on any vehicle, leased or owned that comes into your shop, regardless of year, make, model or mileage.



**NEW**

590250SK

### MiST® X-Treme Sanitizing Kit

- 1 Qt (590275) MiST X-Treme w/sprayer
- 12 Bottles (590250) MiST Cleaning Solution
- MiST Ultrasonic Machine sold separately
- 12 MiST X-Treme Service Vent Tags
- 24 MiST X-Treme Point of Sales Brochures



**NEW**

590260SK

### MiST® X-Treme Sanitizing and Scented Kit

- 1 Qt (590275) MiST X-Treme w/sprayer
- 12 Bottles (590260) MiST Remarketing Solution
- MiST Ultrasonic Machine sold separately
- 12 MiST X-Treme Service Vent Tags
- 24 MiST X-Treme Point of Sales Brochures



590160

**MiST® Ultrasonic Cleaning Unit**

- Portable 12V DC ultrasonic machine
- Nano-droplet delivery system of a specially formulated cleaning solution
- Fast service time
- Unattended operation
- Automatic shut-off upon completion



590160P

**MiST® Starter Pack**

- MiST Ultrasonic Cleaning Unit
- (2) Cases of 12 MiST Ultrasonic Cleaning Solution



590155

**MiST® Adapter**

- 12V Battery Extension Cord with accessory outlet (12ft)

**MIST CLEANING SOLUTIONS**



590250

**MiST® Cleaning Solution**

12 pack

- MiST service for vehicle interiors and ventilation system
- Designed for exclusive use with MiST Ultrasonic unit (Single application)



590260

**MiST® Auto Remarketing**

12 pack

- Specially designed for used cars to treat mold, mildew and bacteria in the HVAC system and cabin of a vehicle
- Designed for exclusive use with MiST Ultrasonic unit (Single application)



400-0501

**MiST® Ultrasonic Solution**

- Fresh scent! Cleans and restores the vehicle's HVAC system and cabin
- Designed to work with the CarClean™ System

**MIST VENT CLIP AIR FRESHENERS**

Clip-on vent. Fragrance leaves vehicle smelling clean and fresh



590235

**Summer Breeze Air Freshener**

12 pack



590236

**Spicy Apple Air Freshener**

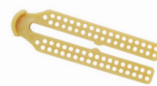
12 pack



590237

**Citrus Air Freshener**

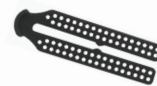
12 pack



590238

**Vanilla Air Freshener**

12 pack



590239

**Clean Car Air Freshener**

12 pack

# EQUIPMENT PROTECTION





# COMPRESSOR SAVERS

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

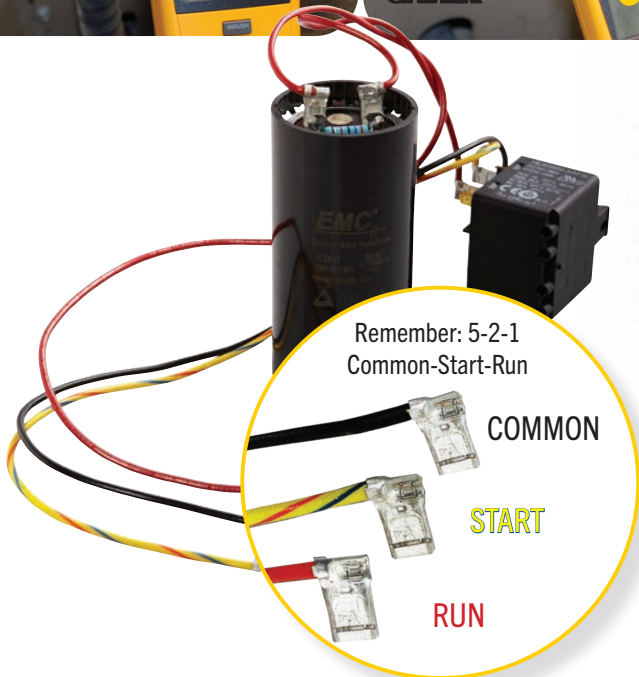


### 5-2-1® COMPRESSOR SAVER®

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.

- For scroll/reciprocating compressors
- Perfect add-on service for HVAC technicians—high profit, easy and fast to install, and easy to sell
- Customers experience immediate benefits
- 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%



Remember: 5-2-1  
Common-Start-Run

COMMON

START

RUN



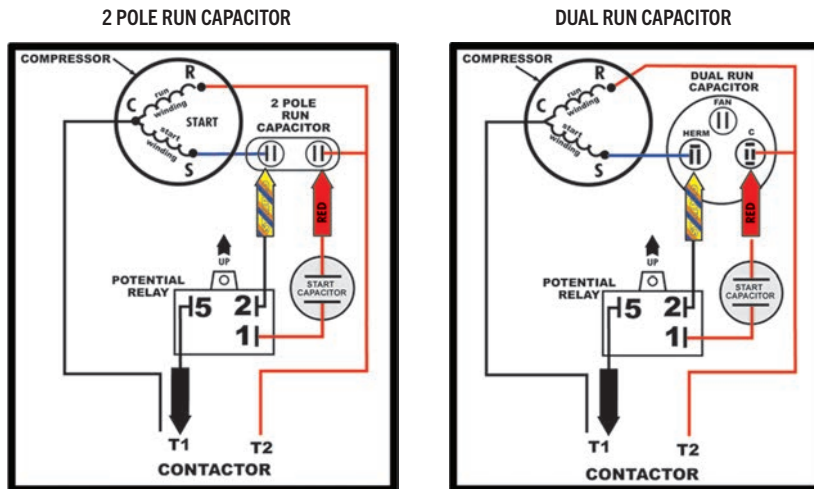
Scan for video installation

PROTECT YOUR CUSTOMERS WHILE EARNING ADDITIONAL PROFITS



The 5-2-1® Compressor Saver® has been pre-wired for your convenience. There are only 3 color coded wires which need to be connected. The Black wire connects to the Common side of the compressor. The Striped wire connects to the Start winding of the compressor and the Red wire connects to the Run winding of the compressor.

**REMEMBER – 5, 2, 1 = COMMON, START, RUN.**



# 5-2-1® COMPRESSOR SAVER®



## CSRU1 For 1 to 3 Ton units

- 208 to 240V
- Pre-assembled
- 3 year product warranty

## CSRU2 For 3½ to 5 Ton units

- 208 to 240V
- Pre-assembled
- 3 year product warranty

## CSRU3 For 4 to 5 Ton units

- 208 to 240V
- Pre-assembled
- 3 year product warranty

# SURGE PROTECTORS

## 5-2-1<sup>®</sup>

### SURGE PROTECTORS

5-2-1<sup>®</sup> Surge Protection devices are designed to protect HVAC equipment and other high-end appliances from damaging electrical surges produced by proximity lightning strikes and other power line transients. They are engineered using the latest in Thermally Protected Metal Oxide Varistor (MOV) technology, and are independently tested to ensure superior protection and reliability.

TPSPD

### Thermally Protected Surge Protection Device

- Proprietary Thermally Protected Metal Oxide Varistor technology
- Highest Short Circuit Rating (SCCR) in its class
- LED Indicator: Green ON = Surge protection device active. Green OFF = Replace surge protection device.
- NEMA Type 4X Enclosure- Watertight and dust tight. Weatherproof and suitable for indoor or outdoor use (including hot, dusty locations subject to wind abrasion, damp locations with lots of rainfall or cold environments with sleet and ice storms).
- Independently tested to ensure superior protection



Watch the video by scanning the QR Code.







**TSPD**

## Thermally Protected Surge Protection Device

Maximum Surge Current: 100,000 Amps

Service Voltage (VAC): 120/240 (Single - Split Phase), 50 or 60 Hz

Short Circuit Rating (SCCR): 200kA

Nominal Discharge Current Rating: 20kA

Maximum Continuous Operating Voltage (MCOV): 150VAC L-N 300VAC L-L

Voltage Protection Rating (VPR): 800VAC L-N/G 1200VAC L-L

Operating Temperature: 14 °F (-10 °C) to 122 °F (50 °C)

Approvals: UL 1449 4th Edition, ANSI, cUL

Packaging: Clamshell, with wiring instructions enclosed

Warranty: 3 years and a Connected Equipment warranty up to \$10,000

**SPD60**

## Surge Protection Device

Maximum Surge Current: 60,000 Amps

Service Voltage (VAC): 120/240 (Single-Split Phase), 50 or 60 Hz

Nominal Discharge Current Rating: 20kA

Short Circuit Rating (SCCR): 20kA

Diagnostic Indicators: Green LED indicates surge protection status, Red LED indicates power

Approvals: UL 1449 4th Edition

NEMA Type 4X Enclosure- Watertight and dust tight. Weatherproof and suitable for indoor or outdoor use (including hot, dusty locations subject to wind abrasion, damp locations with lots of rainfall or cold environments with sleet and ice storms).

Installation: Disconnect, Junction Box, Electrical Panel

Packaging: Clamshell, with wiring instructions enclosed

Warranty: 3 years and a Connected Equipment warranty up to \$10,000



# HAND TOOLS





# PRO-SET® BRAZING & SOLDERING



**BRHT1  
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

**REPLACEMENT PARTS**

BRXHTST1 Torch Tip



**BRHT5  
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



**BRHTS1  
Swivel Hand Torch**

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

**REPLACEMENT PARTS**

BRXHTS1 Torch Burner Tube Assembly



**BRHTS1A  
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

**REPLACEMENT PARTS**

BRXHTST1 Torch Tip



**BRRN1  
Nitrogen Regulator**

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

# BLACKMAX® GEAR/HUB PULLER



BTLGP4

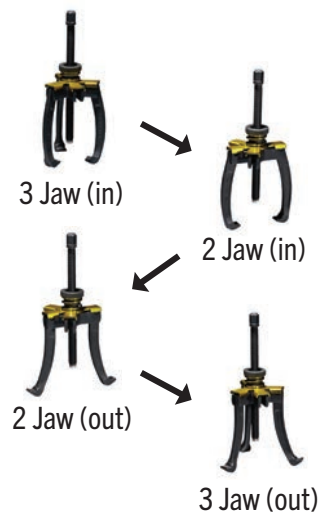
Description	3" to 4" (76 to 102mm)
Jaw Reach	3.75" (95mm)
Jaw Spread	11.5" (292mm)
Max. Force	24,000 Lbs (106,500 N)
Removable and Reversible Jaws	2 or 3 (Quick Change, Spring Loaded)



BTLGP7

Description	3" to 7" (76 to 178mm)
Jaw Reach	5.5" (140mm)
Jaw Spread	17" (432mm)
Max. Force	42,000 Lbs (186,500 N)
Removable and Reversible Jaws	2 or 3 (Quick Change, Spring Loaded)

Loosen spring loaded collar to change from 3 to 2 jaw (facing in or out) in seconds



## PRO-SET® INSPECTION MIRRORS



**TLMIR1**  
**Circular Inspection Mirror**  
 • Diameter 1.25" (32 mm)  
 • Length 7"~19.5" (178 mm ~ 495 mm)



**TLMIR2**  
**Circular Telescoping Mirror**  
 • Diameter 2" (51 mm)  
 • Length 12"~18" (305 mm ~ 457 mm)



**TLMIR3**  
**Rectangular Telescoping Mirror**  
 • Mirror size 2" X 3-1/2" (51 mm X 90 mm)  
 • Length 13-1/4" ~ 19-3/8" (286 mm X 492 mm)



**TLMIR4**  
**Oval Telescoping Mirror**  
 • Mirror size 1" X 2" (25 mm X 51 mm)  
 • Length 9" X 18-1/8" (23 mm X 46 mm)

## PRO-SET® OIL HAND PUMP



**TLOP**  
**Hand Oil Pump**

- Removes oil from systems for recovery and conversion
- Adds oil to systems (2.6 oz /78 ml) per stroke against 200 psi pressure
- Universal stopper fits standard openings in 1, 2-1/2 and 5 gallon oil containers
- Automatic bleed valve equalizes pressure inside and outside of the oil container
- Use with alkyl-benzene, ester-based, polyol ester, mineral and synthetic oils. (not for use with ammonia laden oil)
- Suction transfer hose and fittings included

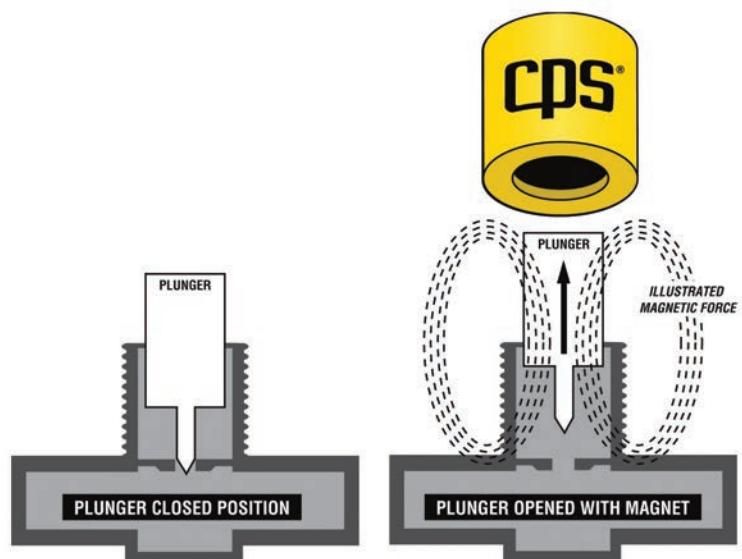
## SOLENOID VALVE TROUBLESHOOTING MAGNET



**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



## PRO-SET® FIN STRAIGHTENING TOOLS



TLFC6

### Universal 6-sided Fin Comb Straightening Tool

- Repair bent condenser fins
- For 8,9,10,12, 14 or 15 fins per inch



TLFC1

### Universal Metal Fin Comb



TLFC2

### Fin Straightener

- Large durable, easy grip handle

## PRO-SET® SPECIALTY TOOLS



TLMSP

### 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



TLPK

### Swage Punch Set

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



TLPORR

### PRO-SET Pinch-Off & Re-Round Tool

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



TLPP

### Tube Piercing Pliers

- Tube Piercing Pliers 1/4"
- TLPPX Replacement Tip
- Quick release handle



TLPO

### Pinch-Off Pliers

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



TCAP

### Capillary Tube Cutter

- Cleanly cuts all types of refrigerant capillary tubing without constricting, swaging or flattening

## CPS® TOOLS BAGS



TLBP68

### Tool Storage Pouch

Great for organizing small parts & tools, fasteners, adapters, fittings, wire nuts, cash, receipts, etc.

- Size: 6"V x 8.5"H
- Material: Made of durable, long lasting 600D polyester, black color
- Quantity: 3 pack of separate pouches, held together with 1 "D" ring
- Transparent Bottom: For easy contents identifications
- Internal Construction: Includes 1 internal divider panel and expandable gusset. Gusset: Allows pouch to "stand" while accessing contents
- Embroidered CPS logo
- Merchandising/UPC tag



TLBP712

### Tool Storage Pouch

Great for organizing larger parts and tools, electrical meters, fittings, etc.

- Size: 7"V x 12.5"H.
- Material: Made of durable, long lasting 600D polyester, black color
- Quantity: 3 pack of separate pouches, held together with 1 "D" ring
- Transparent Bottom: For easy contents identifications
- Internal Construction: Includes 1 internal divider panel and expandable gusset
- Gusset: Allows pouch to "stand" while accessing contents
- Embroidered CPS logo
- Merchandising/UPC tag



TLBAG1

### Square Tool Organizer

- 10" x 10" ( 25 x 25 cm )
- Self-standing square tool organizer
- Large "open mouth" design for easy access and visibility
- 15 external pockets and loops hold a wide variety of tools including 2 flap-covered pockets and 1 zipper pocket
- 7 internal loops with 2 sized for holding instruments
- Ergonomic carrying handle with adjustable shoulder strap



TLBAG2

### Rubber Bottom Tool Organizer (Open-Mouth)

- 9" x 16" (23 x 41 cm)
- Large "open mouth" design for easy access and visibility
- Protective rubber bottom keeps tools dry in damp field conditions
- 15 external pockets and loops hold a wide variety of tools
- Ergonomic carrying handle with adjustable shoulder strap



TLB410A

## Installer/Service Kit

- Pro-Set Piston Pink Body 1/4" SAE 45° fittings with "H" Gauge #MEHP5E-A1
- Pro-Set Premium (3) 5' red/blue/yellow ball valve charging hoses
- FT800N Flaring Tool
- Metric Handle and Metric Heads #TLTWSM (17, 22, 24, 26, 27, 29 mm)
- Hex Wrench Sets (1) # TLSWHM (Metric) and (1) #TLSWH (Imperial)
- #TLVC410A Valve Core Tool
- #TLBAG1 Square Tool Organizer
- #TLVC410A Valve Core Tool 5/16 FM x 1/4M, 1/4M Side Port
- (10) #AVC410, (2) #AD87, (2) #AD87S
- Assembled in USA



TLB410KIT

## Great Value Kit

- Pro-Set Premium Piston Series Manifold #MT2HP-A1
- Pro-Set Premium (3) 5' red/blue/yellow ball valve charging hoses
- #BFT850 Flaring Tool
- #FTXSG Flare Gauge
- Universal Handle with SAE Heads #TLTWSAE (5/8, 11/16, 13/16 15/16, 1-1/16, 1-5/16) and Metric Heads #TLTWSM (17,22,24,26,27,29mm)
- Hex Wrench Sets (1) # TLSWHM (Metric) and (1) #TLSWH (Imperial)
- #BTC300 Tube Cutter
- #BTLDB3 Deburring Tool
- #TLVC410A Valve Core Tool
- #TLBAG2 Rubber Bottom Tool Organizer
- #TLVC410A Valve Core Tool 5/16 FM x 1/4M, 1/4M Side Port
- (10) #AVC410, (2) #AD87, (2) #AD87S
- Assembled in USA



TLB410KIT2

**Premium Kit**

- BLACKMAX Black and Chrome Series Manifold #MV4HP410A
- BLACKMAX Black & Chrome Premium Charging Hose Set #HP5BKEZ and Vacuum Hose #HV5BK
- #BFT850 Flaring Tool
- #FTXSG Flare Gauge
- #BTLDTW Digital Torque Wrench
- #BTC300 Tube Cutter
- #BTLDB3 Deburring Tool
- Hex Wrench Set (1) # TLSWHM (Metric) and (1) # TLSWH (Imperial)
- #TLBAG2 Rubber Bottom Tool Organizer
- #TLVC410A, #TLVCS410 Valve Core Tool 1/2-20 Remover Tool With Side Port
- (10) #AVC410, (2) #AD87, (2) #AD87S
- Assembled in USA

MINI-SPLIT TOOL KITS	TLB410A Installer/Service Kit	TLB410KIT Great Value Kit	TLB410KIT2 Premium Kit
2 Valve Manifold	Pro-Set® Piston Pink Body 1/4" SAE 45° fittings with H" Gauge MEHP5E-A1	Pro-Set® Premium Piston Series Manifold MT2HP-A1	BLACKMAX® Black and Chrome Series Manifold MV4HP410A
Hoses	(3) Pro-Set® Premium 5' red/blue/yellow ball valve charging hoses HP5E	(3) Pro-Set® Premium 5' red/blue/yellow ball valve charging hoses HP5E	BLACKMAX® Black & Chrome Premium Charging Hose Set HP5BKEZ and Vacuum Hose HV5Z
Flaring Tool	FT800N	BFT850	BFT850
Flare Gauge	No	FTXSG	FTXSG
Torque Wrench Set	Metric Handle and Metric Heads TLTWSM (17,22,24,26,27,29mm)	Universal Handle with SAE Heads TLTWSAE (5/8, 11/16, 13/16 15/16, 1-1/16, 1-5/16) and Metric Heads TLTWSM (17,22,24,26,27,29mm)	BTLDTW Digital torque wrench
Tube Cutter	No	BTC300	BTC300
Deburring Tool	No	BTLDB3	BTLDB3
Hex Wrench Set	(1) TLSWHM (Metric) and (1) TLSWH (Imperial)	(1) TLSWHM (Metric) and (1) TLSWH (Imperial)	(1) TLSWHM (Metric) and (1) TLSWH (Imperial)
Valve Core Tool	TLVC410A (5/16 FM x 1/4M Core Tool, 1/4M Side Port)	TLVC410A (5/16 FM x 1/4M Core Tool, 1/4M Side Port)	TLVC410A, TLVCS410, (1/2-20 Valve Core Remover Tool With Side Port)
Tool Organizer	TLBAG1	TLBAG2	TLBAG2
Brass Adapters and Brass Caps	(10) #AVC410, (2) #AD87, (2) #AD87S		

# TUBING TOOLS

**NEW**



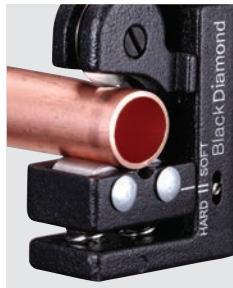
BTCK  
**BLACKMAX®**  
**Tube Cutter Kit**

All BLACKMAX® Tube Cutters  
**SetN Cut™**  
 Precision Cuts Every Time

**KEY FEATURES / BENEFITS**

- Patented SetN Cut™ spring loaded cutting wheel/rollers for smooth, easy cuts on soft or hard copper, aluminum or brass tube
- Smooth cuts even on irregular tube
- Quick release pins for fast cutting wheel replacement
- Durable die cast and machined aluminum bodies
- Solid aluminum turning knobs (with rubber overmold on BTC200 & BTC300)
- Chromed, hardened finish cutting wheels for long life
- Smaller cutters (BTC100 & BTC200) are ideal for confined spaces
- Packaging: Blister card

BTC100  
**Ultra Mini**



**TUBE CAPACITY**  
 1/8" ~ 5/8"  
 (3 MM ~ 16 MM)

BTC200  
**Mini**



**TUBE CAPACITY**  
 1/8" ~ 7/8"  
 (3 MM ~ 22 MM)

BTC350  
**Medium Large**



**TUBE CAPACITY**  
 1/8" ~ 1-5/8"  
 (3 MM ~ 41 MM)



**HOW TO USE SetN Cut™**

1. Insert tube into cutter throat.
2. Turn cutter knob until wheel touches tube.
3. Further tighten knob until **Wheel Alignment Mark** aligns with SOFT (tube) or HARD (tube) **Hardness Indicator Lines**.
4. Rotate cutter around tube, until cut completed.

Wheel Alignment Mark  
 Spring  
 Hardness Indicator Lines

Spring loaded rollers

Spring loaded cutting wheel



Featuring patented **SetN Cut™** technology, spring-loaded center groove rollers and cutting wheels for fast and smooth cuts on brass, copper and aluminum tube, even on slightly deformed tube.



# BLACKMAX® PREMIUM TUBE CUTTERS



**BTC100**  
**BLACKMAX® Ultra Mini Tube Cutter**

- Great for confined spaces
- Cutting Range: 1/8" to 5/8" (4-16 mm) O.D.
- Chromed, hardened cutting wheel
- Quick-release pin for fast cutting wheel replacement
- Soft/Hard cutting settings for copper, brass and aluminum tube
- Durable cast aluminum body
- Size (HWD) 1.9" x 1.5" x 0.6" (50 x 37 x 15 mm)

**REPLACEMENT PARTS**

- BTCXC3 Nickel Plated Cutting Wheel  
 BTCXP4 Quick Release Pin



**BTC200**  
**BLACKMAX® Mini Tube Cutter**

- Cutting Range: 1/8" to 7/8" (3-22 mm) O.D.
- Chromed, hardened cutting wheel
- Quick-release pin for fast cutting wheel replacement
- Soft/Hard cutting settings for copper, brass and aluminum tube
- Durable aluminum and rubber knob

**REPLACEMENT PARTS**

- BTCXC1 Zinc Plated Cutting Wheel  
 BTCXP1 Quick Release Pin

**OPTIONAL REPLACEMENTS**

- BTCXCT1 Titanium Coated Cutting Wheel



**BTC200R**  
**BLACKMAX® Mini Ratchet Tube Cutter**

- Cutting Range: 1/8" to 7/8" (3-22 mm) O.D.
- Excellent for small tube, confined spaces
- Use with or without ratchet handle
- Chromed, hardened cutting wheel
- Quick-release pin for fast cutting wheel replacement
- Soft/Hard cutting settings for copper, brass and aluminum tube
- Durable aluminum and rubber knob

**REPLACEMENT PARTS**

- BTCXC1 Zinc Plated Cutting Wheel  
 BTCXP1 Quick Release Pin  
 BTCXR Plastic Ratchet

**OPTIONAL REPLACEMENTS**

- BTCXCT1 Titanium Coated Cutting Wheel



**BTC300**  
**BLACKMAX® Tube Cutter**

- Cutting Range: 3/16" to 1-1/4" (5 - 32 mm) O.D.
- For soft/hard copper, brass or aluminum tube
- Two chromed, hardened cutting wheels
- Quick-release pin for fast cutting wheel replacement
- Enclosed feed screw eliminates clogging, jamming

**REPLACEMENT PARTS**

- BTCXC1 Zinc Plated Cutting Wheel  
 BTCXP1 Quick Release Pin

**OPTIONAL REPLACEMENTS**

- BTCXCT1 Titanium Coated Cutting Wheel



# BLACKMAX® PREMIUM TUBE CUTTERS



**NEW**

BTC350

## BLACKMAX® MEDIUM TUBE CUTTER

- Cutting Range: 1/8" to 1-5/8" (3~41mm) O.D.
- For soft/hard copper, brass or aluminum tube
- Lightweight aluminum forged body
- Quick-release pin for fast cutting wheel replacement
- Chromed, hardened finish cutting wheel included

### REPLACEMENT PARTS

BTCXC4 Nickel Plated Cutting Wheel



BTC400

## BLACKMAX® Heavy Duty Tube Cutter

- Cutting Range: 3/8" to 2-5/8" (10 - 67 mm) O.D.
- For soft/hard copper, brass, aluminum
- Stainless or steel conduit
- Two chromed, hardened cutting wheels
- Quick-release pin for fast cutting wheel replacement
- Enclosed feed screw eliminates clogging and jamming
- Four grooved rollers for precise tube rotation
- Also for stainless tube and electrical conduit
- Durable aluminum/rubber knob

### REPLACEMENT PARTS

BTCXCT2 Titanium Coated Cutting Wheel

BTCXP2 Quick Release Pin

### OPTIONAL REPLACEMENTS

BTCXC2 Chrome Plated Cutting Wheel



BTC500

## BLACKMAX® Large Tube Cutter

- Cutting Range: 3/8" to 2-5/8" (10 - 67 mm) O.D.
- For soft/hard copper, brass or aluminum tube
- Two chromed, hardened cutting wheels
- Quick-release pin for fast cutting wheel replacement
- 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

### REPLACEMENT PARTS

BTCXC2 Chrome Plated Cutting Wheel

BTCXP3 Quick Release Pin

### OPTIONAL REPLACEMENTS

BTCXCT2 Titanium Coated Cutting Wheel

# PRO-SET® PROFESSIONAL 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
- For soft/hard copper, brass and aluminum tube
- Packaging: Clamshell



TCT127  
**PRO-SET® Mini Tube Cutter**

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

**REPLACEMENT PARTS**

TCXT127C Titanium nitride coated cutting wheel/screw



TCT174  
**PRO-SET® Mini Tube Cutter**

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

**REPLACEMENT PARTS**

TCXT174C Cutting wheel/screw



TCT274  
**PRO-SET® Tube Cutter**

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

**REPLACEMENT PARTS**

TCX4CTS Cutting Wheels/Screw  
TCXT274C Cutting Wheels/Screw  
TCXT274RB Reamer Blade



TCT312  
**Heavy Duty Titanium Tube Cutter**

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

**REPLACEMENT PARTS**

TCX4CTS Cutting Wheels/Screw



TCPVC  
**PRO-SET® Heavy Duty PVC Tube Cutter**

- Cutting Range: 2-5/8" to 1-5/8" (68mm to 42 mm)

## TUBE CUTTERS



TC127

### Mini Tube Cutter

- Cutting Range: 1/8" to 5/8" (3 to 16 mm)
- Ideal for cutting in limited access areas
- Ratchet mechanism speeds precision machined chromium steel cutting wheels

#### REPLACEMENT PARTS

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

TCX7CS (1) Cutting Wheel and (1) Screw



TC174

### Mini Tube Cutter

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



TC274

### 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

#### REPLACEMENT PARTS

TCX4CS (1) Cutting Wheel and Screw



TC312

### Heavy Duty Tube Cutter

- Cutting Range: 1/4" to 1-5/8" (6 to 41 mm)
- Spare cutting wheel located under retractable locking reamer

#### REPLACEMENT PARTS

TCX4CS (1) Cutting Wheel and Screw

TCSET

### Tube Cutter Combo Pack

- Cutting Range: 1/8" to 1-1/8" (3 to 29 mm)
- Includes TC127 & TC274



TC274

TC127

## DEBURRING TOOL



TLRM

### Reaming And Deburring Tool

- For 3/16" to 1-1/2" (5mm ~ 38mm) for copper, aluminum and brass tube
- Removes burrs from inside and outside edges of tube
- Rugged 3 blade die cast metal for long life
- Ergonomic shape for clockwise or counterclockwise use



TLDB2

### Pocket Deburring Tool

- Remove burrs and surface defects from inner/outer straight and hole edges

#### REPLACEMENT PARTS

TLDB2X Replacement Blade



TLDB

### Pocket Deburring Tool

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

#### REPLACEMENT PARTS

TLDBX Reamer Blade & Screw



BTLDB3

### BLACKMAX® Deburring Tool

- Solid aluminum handle
- For soft copper and aluminum tube
- Includes (2) spare blades in handle

#### REPLACEMENT PARTS

BTLDBX3 Replacement Blade





# BLACKMAX® TUBE BENDING TOOLS



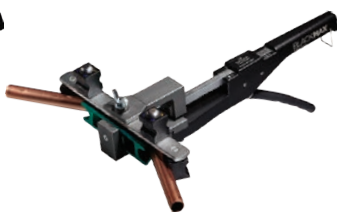
BTB300

## BLACKMAX® PREMIUM TUBE BENDER KIT

- Available in 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
- Durable molded carrying case
- Packaging: Color box



Forward bend configuration



Reverse bend configuration  
(Great For Confined Spaces)

### BTB300 BLACKMAX® IMPERIAL TUBE BENDER KIT

#### MANDRELS

CPS#	Description	Color	Inside Radius Of Bent Tube
BTBX14	Mandel 1/4" O.D.	Chrome	1-1/8"
BTBX516	Mandel 5/16" O.D.	Copper	1-1/4"
BTBX38	Mandel 3/8" O.D.	Red	1-1/4"
BTBX12	Mandel 1/2" O.D.	Yellow-Orange	1-3/8"
BTBX58	Mandel 5/8" O.D.	Blue	1-5/8"
BTBX34	Mandel 3/4" O.D.	Green	1-7/8"
BTBX78	Mandel 7/8" O.D.	Red-Violet	2"

#### OTHER

BTBXH	Ratchet Tool, Imperial
BTBXA1	1/4"-3/8" Shoe Arm
BTBXA2	1/2"-7/8" Shoe Arm
BTBXR1	Reverse Bender Mandrel Arm
BTBXR2	Reverse Bender Shoe Arm

## BLACKMAX® Imperial Lever Tube Benders

- Patented 2-position handle
- Available in 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



<b>BTB06</b>	Tube O.D.	3/8"
	Mandrel Color	Violet
	Inside Radius Of Bent Tube	15/16"
	Bender Overall Length	15"



<b>BTB08</b>	Tube O.D.	1/2"
	Mandrel Color	Gold
	Inside Radius Of Bent Tube	1-1/2"
	Bender Overall Length	20"



<b>BTB10</b>	Tube O.D.	5/8"
	Mandrel Color	Blue
	Inside Radius Of Bent Tube	2-1/4"
	Bender Overall Length	29"



<b>BTB12</b>	Tube O.D.	3/4"
	Mandrel Color	Green
	Inside Radius Of Bent Tube	3"
	Bender Overall Length	32"



<b>BTB14</b>	Tube O.D.	7/8"
	Mandrel Color	Purple
	Inside Radius Of Bent Tube	3-1/4"
	Bender Overall Length	32"

## CPS® TUBE BENDING TOOLS



TB368

### 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



### 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

## BLACKMAX® SWAGING TOOLS



BTLH5E

### BLACKMAX® Hydraulic Tube Expander Kit

- Hydraulic power- the easiest way to swage tubing!
- Includes hydraulic tool, plus 5 quick change, color coded expander heads and tube reamer
- Five heads for swaging 3/8", 1/2", 5/8", 3/4", 7/8" O.D. soft copper or aluminum tube
- Expander heads and replaceable blades are interchangeable with BLACKMAX BTLE9
- Cast aluminum body with durable, rubber grip handle.
- Extra storage for additional expander heads
- Packaging: Color box



BTLE9

### BLACKMAX® Tube Expander Kit

- Swaged ends means less couplings & less refrigerant leaks
- Imperial
- Soft copper and aluminum tube
- Nine heads for swaging
- Durable, color-coded, aluminum heads
- Compact, professional, patented design
- Expander heads are interchangeable with #BTLH5E
- Strong carrying case
- Packaging: Color box

#### REPLACEMENT PARTS

BTLEXH Tube Expander (Replacement Tool)



#### REPLACEMENT EXPANDER HEADS INCLUDED WITH BTLH5E AND BTLE9

Size	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	7/8"	1"	1-1/8"
Color	Chrome	Copper	Red	Yellow-Orange	Blue	Green	Red-Violet	Black	Pink
CPS#	BTLEX14	BTLEX516	BTLEX38	BTLEX12	BTLEX58	BTLEX34	BTLEX78	BTLEX1	BTLEX118

All heads are interchangeable with BLACKMAX BTLH5E and BTLE9

# BLACKMAX® FLARING TOOLS



BFT850

## BLACKMAX® Flaring Tool

- For 3/16", 1/4" 5/16", 3/8", 1/2", 5/8", 3/4" O.D. tube
- 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 hardened steel cone forms precise 45° flared ends
- Durable, molded carrying case
- Built in slide gauge for fast tube height adjustment
- Durable molded storage case
- Packaging: Color box



BFT850D

## BLACKMAX® Manual or Drill – Powered Flaring Tool

- Use with or without cordless drills
- For 3/16", 1/4" 5/16", 3/8", 1/2", 5/8", 3/4" O.D. tube
- Aluminum body is 50% lighter than steel designs
- Internal clutch indicates when formed flare is complete
- Quick change removable and interchangeable handles
- Dramatically reduces time to create a precise flare
- Seven quick change positions for flaring soft copper and aluminum tube
- Built in slide gauge for fast tube height adjustment
- Eccentric hardened steel cone forms precise 45° flared ends
- Built-in clutch prevents over-compression
- Compact, professional, patented design
- Includes 1/4" Driver Bit
- Durable molded storage case
- Packaging: Color box



Quick change



Sliding depth gauge sets tube at exact height



Eccentric forming cone for easier flaring



Molded Storage Case



BFT850DR

## BLACKMAX® Ratchet or Drill – Powered Flaring Tool

- Innovative ratchet handle dramatically reduces time to make flares
- Remove ratchet handle and use with cordless drill for fastest flaring
- Innovative sight gauge shows if formed flare is correct size
- Redesigned, stronger collar for longer tool life
- For 3/16", 1/4" 5/16", 3/8", 1/2", 5/8", 3/4" O.D. tube
- Aluminum body is 50% lighter than steel designs
- Quick change removable and interchangeable handles
- Seven quick change positions for flaring soft copper and aluminum tube
- Slide gauge set tube at exact position before flaring
- Eccentric hardened steel cone forms precise 45° flared ends
- Built-in clutch prevents over-compression
- Compact, professional, patented design
- Includes 1/4" Driver Bit
- Durable molded storage case
- Packaging: Color box



Ratchet handle with forward and reverse speeds flaring



Use with or without cordless drill for fastest flaring



Sliding depth gauge sets tube at exact height



Laser etched sight gauge verifies proper flare





BFTXR  
**BLACKMAX® Ratchet Handle  
 Accessory**

- Innovative ratchet handle dramatically reduces time to make flares
- Knurled forward/reverse thumbwheel selector
- Included with BFT850DR
- Optional accessory for use with BFT850D

BFT850K  
**BLACKMAX® Flaring Tool Kit**

- For 3/16", 1/4", 5/16", 3/8", 1/2", 5/8", 3/4" O.D. tube

**INCLUDES**

- #BFT850 Flaring Tool
- #FTXSG Reversible R410A Flare Size Gauge
- #BTLDB3 Deburring Tool
- #BTC300 Premium Tube Cutter
- Durable, molded carrying case
- Packaging: Color box



BFS300QC  
**BLACKMAX® Flaring &  
 Swaging Tool**

- Seven quick change positions for flaring soft copper and aluminum tube
- For flaring 3/16", 1/4", 5/16", 3/8", 1/2", 5/8", 3/4" O.D. tube
- Six quick change positions for swaging soft copper and aluminum tube
- For swaging 1/4", 5/16", 3/8", 1/2", 5/8", 3/4" O.D. tube
- Hardened, 12 sided cone forms precise 45 flared ends
- Slide gauge sets tube at exact position before flaring
- Aluminum body- 50% lighter than steel designs
- Compact, professional patented design
- Durable molded storage case
- Packaging- Color box

Swages and flares



Quick change flaring and swaging heads



12 sided flaring cone



Swaging head



# FLARING TOOLS

FT800FN

## PRO-SET® R-410A Imperial Concentric Flaring Tool & Ratchet

- 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



FT195

## 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



FT500

## 45° Flaring/Burnishing Tool

- FT500 Imperial tool for 3/16", 1/4", 5/16", 3/8", 1/2" & 5/8"



FT525

## PRO-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



FS275

## 45° Flaring & Swaging Kit

- 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

FTXSG

## CPS® R410A Flare Size Gauge

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



# WRENCHES

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.

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. Operates on 2 AAA batteries (included).

### FEATURES

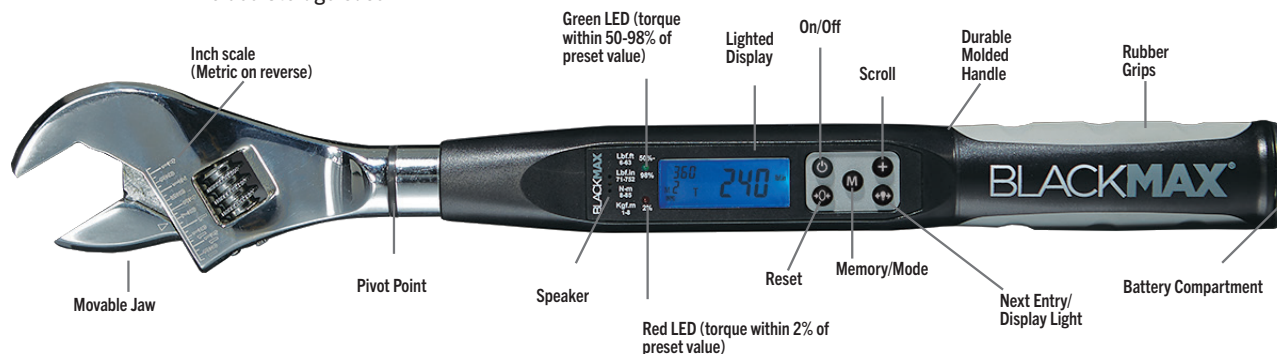
- Ensures OEM torque setting compliance
- Ideal for HVAC mini-split installations
- **Jaw opening:** 3/16” to 1-7/16” (5 to 35mm)
- **Torque settings:** Lbf.ft, Lbf.in, N-m, Kgf.m
- **Pre-set and actual torque values:** View both same time
- **LED Torque Alerts:** Green = within 50-98%, Red= within 2%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



Molded Storage Case



Color Box



### SPECIFICATIONS

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

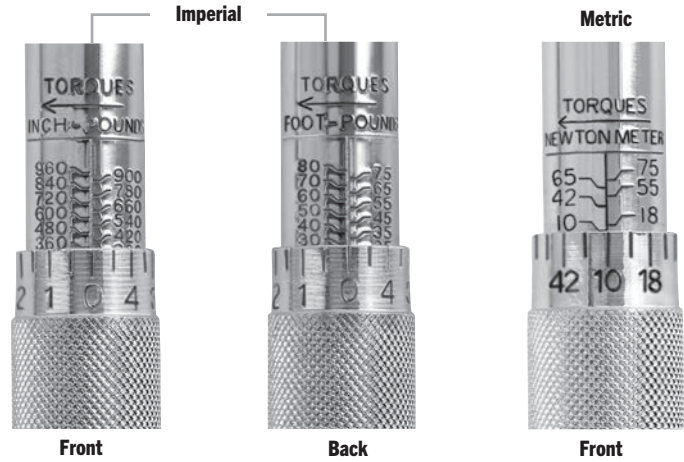
# PRO-SET® TORQUE WRENCHES



## PRO-SET® MECHANICAL TORQUE WRENCHES

Professional interchangeable jaw torque wrench sets ensure 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 easy instructions sheet and molded storage case



TLTWSAE

### Pro-Set® Imperial TORQUE 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

TLXTWSAEW SAE Torque Wrench Handle



TLTWSM

### Pro-Set® Metric TORQUE 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)



## PRO-SET® ADJUSTABLE WRENCHES

### PRO-SET® Adjustable Jaw Handle Wrenches

- Precision machined for smooth operation
- Comfortable grip, permanently molded rubber handles reduces fatigue
- Durable and environment-resistant
- With printed display card
- Packed in clear sealed clamshell
- One year warranty
- Jaw opening (inch marks) on front
- Packaging: Clamshell

	TLAW06	TLAW08	TLAW10	TLAW12
Size	6"	8"	10"	12"
Jaw capacity	1" (25 mm)	1-1/4" (30 mm)	1-3/8" (35 mm)	1-1/2" (40 mm)



## PRO-SET® SERVICE WRENCHES



TLSWL

### Drive Openings

- Large, straight. Box end & hex ratchet drive
- 3/16", 1/4" Square Drive
- 1/2", 9/16" Hex Drive
- Embossed fractions and logo
- Durable, high quality, polished chrome finish
- TLSWLB In Bulk (100 pcs)
- Packaging: Blister card



TLSWO

### Drive Openings

- Small, offset. Box end ratchet drive
- 3/16", 1/4", 5/16", 3/8" Square Drive
- Offset 25 degree ends
- Embossed fractions and logo
- Durable, high quality, polished chrome finish
- TLSWOB In Bulk (100 pcs)
- TLSWOA Wrench plus 3/16" & 5/16" Hex Driver Bit
- Packaging: Blister card



TLSWS

### Drive Openings

- Small, straight. Box end ratchet drive
- 3/16", 1/4", 5/16", 3/8" Square Drive
- Embossed fractions and logo
- Durable, high quality, polished chrome finish
- TLSWSB In Bulk (100 pcs)
- TLSWSA Wrench plus 3/16" & 5/16" Hex Driver Bit
- Packaging: Blister card

## PRO-SET® HEX, TORX END FOLDING WRENCHES



TLSWH

### Wrench

- 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



TLSWHM

### Wrench

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



TLSWT

### Wrench

- Torx ends
- Nickel Plated
- Clamshell packaging with display card



# HOSES, ADAPTERS & ACCESSORIES



# PRO-SET® SAFEMATE™ HOSES

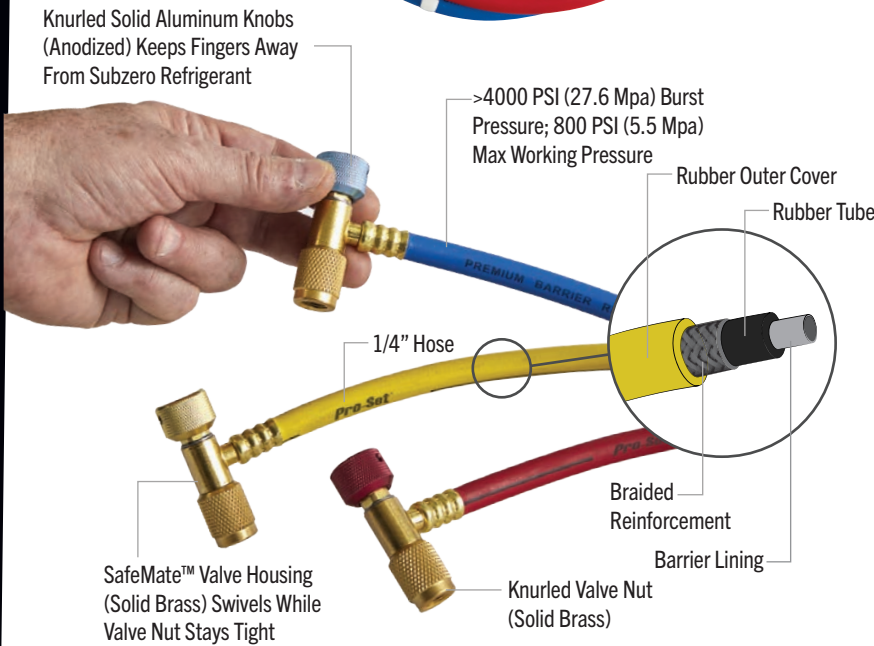


- **ALL HOSES FEATURE** – A solid brass “T” shaped SafeMate Valve on one end, and an open, straight Brass Valve Nut on the other.
- **SAFEMATE VALVES** – Have a screw down core depressor that activates refrigerant flow after the Brass Valve Nut has been fully tightened onto a service port. This prevents refrigerant from escaping into the atmosphere.
- **RED, YELLOW OR BLUE OFFSET KNOBS** – Keep hands away from the service port and help prevent refrigerant burns.
- **SWIVEL “T” VALVE** – Once attached, the innovative “T” valve swivels above the Brass Valve Nut so it won’t loosen if a hose is moved during use.
- **HOSE BARRIER LINING** – Minimizes refrigerant loss vs conventional hoses.

## SAE Female Fittings



SAE Female SafeMate™ Valves



HOSE SPECIFICATIONS	#HP5NG	#HK5NG	#HJ5NG
Straight Fitting (Solid Brass, Aluminum Knob)	1/4" SAE Female	1/4" SAE Female	5/16" SAE Female
SafeMate Fitting (Solid Brass, Aluminum Knob)	1/4" SAE Female	5/16" SAE Female	5/16" SAE Female
Hose Permeation Rate	≤1.01 Lbs/SqFt/Year (≤4.9 Kg/m2/Year)		
Burst Pressure	≥4000 psi (27.6 Mpa)		
Maximum Working Pressure	800 psi (5.51 Mpa)		
Tensile Pull (Per SAE J2196 and SAE J2888)	Minimum pull force to separate hose from coupling: 120 Lbs (≥534 N)		
Refrigerant Compatibility	CFC, H/CFC, HFC, HFO & R410a, R134a, R1234yf		
Patents	Taiwan: #1637133; Japan: #640222; China: #201710540651		
Replacement Gaskets for Straight End (10 Packs)	HX14G	HX14G	HX516G
Replacement Gaskets for Valve End (10 Packs)	HX14516G	HX14516G	HX14516G
Replacement O-Rings for Valve End (10 Packs)	HX14OR	HX516OR	HX516OR



# PRO-SET® REFRIGERANT SERVICE HOSES

## PREMIUM REFRIGERANT SERVICE HOSES

- UL recognized assemblies (File SA11622)
- Nylon permeation barrier (meets SAEJ2196 requirements for CFC, HCFC and HFC refrigerants)
- Rated for 4000 psi minimum burst and 800 psi maximum working pressure

- Extra deep knurling on nuts for easy grip
- Adjustable valve core depressor
- Made in USA

### 1/4" SAE Female SafeMate™ Valve & 1/4" SAE Female Straight Fittings



PREMIUM

#HP5NG

### 5/16" SAE Female SafeMate™ Valve & 1/4" SAE Female Straight Fittings



PREMIUM

#HK5NG

### 5/16" SAE Female SafeMate™ Valve & 5/16" SAE Female Straight Fittings



PREMIUM

#HJ5NG

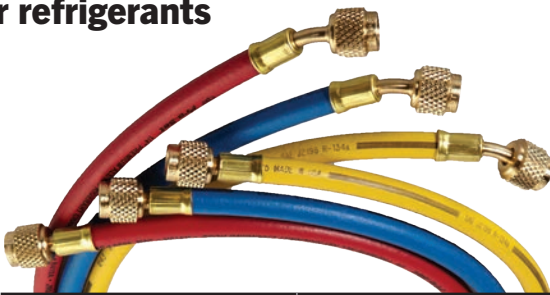
- **Hose Permeation Rate:**  $\leq 1.01$  Lbs/SqFt/Year ( $\leq 4.9$  Kg/m2/Year)
- **Burst Pressure:**  $\geq 4000$  psi (27.6 Mpa)
- **Maximum Working Pressure:** 800 psi (5.51 Mpa)

- **Tensile Pull (Per SAE J2196 and SAE J2888):** Minimum pull force to separate hose from coupling: 120 Lbs ( $\geq 534$  N)
- **Refrigerant Compatibility:** CFC, H/CFC, HFC, HFO & R410a, R134a, R1234yf

## STANDARD REFRIGERANT SERVICE HOSES

- Rated for 3000 psi minimum burst and 750 psi maximum working pressure

### 1/4" Hoses for refrigerants



	PREMIUM	STANDARD
3' (90 cm)		HS3Y*
		HS3B*
		HS3R*
	HP3	HS3
4' (120 cm)		HS4*
5' (150 cm)	HP5Y*	HS5Y*
	HP5B	HS5B*
		HS5R*
	HP5	HS5
6' (180 cm)	HP6Y	HS6Y*
	HP6B*	HS6B*
	HP6R*	HS6R*
	HP6	HS6

### 1/4" Hoses w/45° Ball Valve On End



	PREMIUM	STANDARD
	HP3YE*	
	HP3BE*	HS3BE*
	HP3RE*	HS3RE*
	HP3E	HS3E*
	HP5YE	HS5YE
	HP5BE	HS5BE
	HP5RE	HS5RE
	HP5E	HS5E
	HP6YE	HS6YE*
	HP6BE*	HS6BE*
	HP6RE*	HS6RE
	HP6E	HS6E*

\*Non-stock item (made to order). Call Customer Service for price and lead time.

### 1/4" Hoses w/ Microseal™ Anti-blowback Valve



	PREMIUM	STANDARD
5' (150 cm)	HP5YA*	
	HP5BA*	
	HP5RA*	
	HP5A	HS5A*
6' (180 cm)	HP6A	

### 1/4" In-line Ball Valve Hoses



	PREMIUM	STANDARD
	HP5YL*	
	HP5BL*	
	HP5RL*	HS5RL*
	HP5L	
	HP6L*	

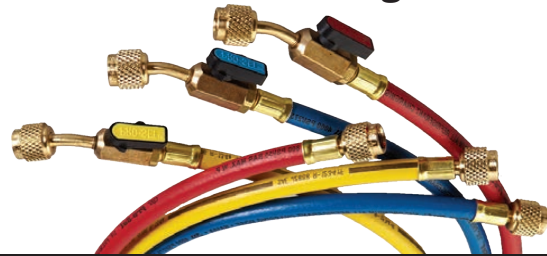
\*Non-stock item (made to order). Call Customer Service for price and lead time.

### R-410A Hose With Special 1/2"-20 UNF Fittings



	PREMIUM
3' (90 cm)	HJ3*
5' (150 cm)	HJ5Y*
	HJ5B*
	HJ5R*
	HJ5*

### With 45° Ball Valve Fitting



	PREMIUM
	HJ3E*
	HJ5YE*
	HJ5BE*
	HJ5RE*
	HJ5E*

\*Non-stock item (made to order). Call Customer Service for price and lead time.

## PRO-SET® HOSE EXTENSIONS

#### PREMIUM 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 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



	1/4" SAE	
	6" (15,2 cm)	12" (30,5 cm)
	HTYE*	HT1YE*
	HTBE*	-
	HTRE*	-
	HTE	-

\*Non-stock item (made to order). Call Customer Service for price and lead time.



## PRO-SET® PREMIUM BARRIER CHARGING HOSES

### 1/4" SAE with 45° ball valve



HP5BKEZ3



HP5BKZ3

	HP5BKEZ3 (set is red, yellow, blue)	HP5BKZ3* (Black)	HP5BKAZ3* (Black)	HP5BKEZ* (Black)	HP5BKZ (Black)
Length	5 ft.				
Hose Ends	Straight & BV (RYB)	Straight	Straight & ABB	Straight & BV	Straight
Qty Hoses	3	3	3	1	1
Neoprene Gaskets	✓				
Permeation Barrier	Nylon				
Working Pressure	800 psig				
Burst Rating	4000 psig				
Ferrule & Finish	1/4"x 1/4" SAE, Bright Nickel				
Crimp	8 Sided				
Qty/Pack	3	3	3	1	1

Notes: BV= Ball Valve; RYB = Red, Yellow, Blue; ABB = Anti-Blow Back

\*Non-stock item (made to order). Call Customer Service for price and lead time.

## PRO-SET® PREMIUM HEAVY DUTY VACUUM HOSES

	HV5	HV5E	HV5Z*	HV6	HV6E
Length	5 ft.			6 ft.	
Hose I.D.	5/16"				
Hose Color	Black				
Hose Ends	Straight	BV, Straight	Straight	Straight	BV, Straight
Neoprene Gaskets	✓				
Working Pressure	460 psig				
Burst Rating	2300 psig				
Ferrule & Finish	3/8"x 3/8" SAE, Deep Knurl, Brass				
Crimp	8 Sided				
Qty/Pack	1				

\*Non-stock item (made to order). Call Customer Service for price and lead time.



HV5Z

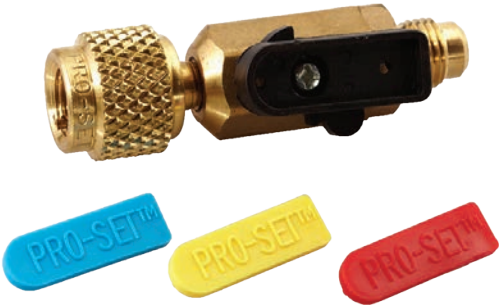


HV6

# COMPACT BALL VALVES

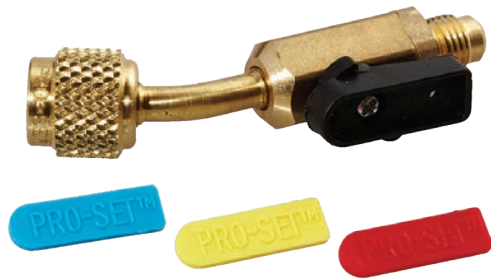
Pro-Set premium ball valves can be added to any existing hose to eliminate refrigerant loss and comply with EPA regulations.

- Easy 1/4 turn open/close with rugged plastic composite color-coded handles
- Oversized chrome ball for smooth operation and non-restrictive flow
- Individual valves include all three color-coded handle inserts

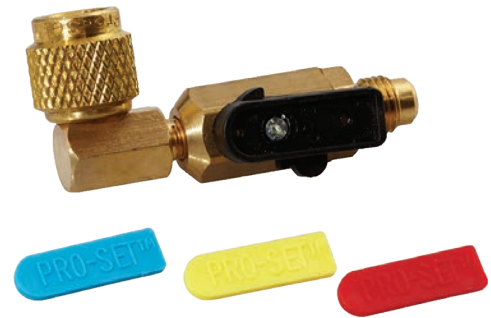


Part No.	Qty/Pk	Female	Male	Other
BV	1	1/4" SAE	1/4" SAE	Straight
BV3*	3	1/4" SAE	1/4" SAE	Straight
BV38*	1	3/8" SAE	3/8" SAE	Straight
BV410A*	1	5/16" (1/2" - 20 UNF)	1/4" SAE	Straight

\*Non-stock item (made to order). Call Customer Service for price and lead time.



Part No.	Qty/Pk	Female	Male	Other
BV45	1	1/4" SAE 45°	1/4" SAE	45°
BV453	3	1/4" SAE 45°	1/4" SAE	45°



Part No.	Qty/Pk	Female	Male	Other
BV90*	1	1/4" SAE 90°	1/4" SAE	90°
BV903*	3	1/4" SAE 90°	1/4" SAE	90°
BV41090A*	1	5/16" SAE 90°	1/4" SAE	90°

\*Non-stock item (made to order). Call Customer Service for price and lead time.



Part No.	Qty/Pk	Female	Male	Other
BVM	1	1/4" SAE	1/4" SAE	Straight

FPT: Female (internal) National Pipe Taper Threads  
 MPT: Male (external) National Pipe Taper Threads

# MICROSEAL™ QUICK COUPLERS

AB



AB45



AB90



ABG18



AB410A



AB41090A



Part No.	Qty	Size	Description
AB	1	1/4" SAE Female x 1/4" SAE male	Straight, Anti-Blow Back, Quick Coupler
AB3*	3		
AB45	1		45° Anti-Blow Back Quick Coupler
AB90	1		90°
ABG18*	1	1/4" SAE Female x 1/8" FPT Adapter	Straight
AB410*	1	5/16" SAE (1/2" - 20 UNF) x 5/16" SAE (1/2" - 20 UNF) Male	Straight
AB410A*	1	5/16" SAE (1/2" - 20 UNF) Female x 1/4" SAE Male	Straight
AB41090A*	1		90°

\*Non-stock item (made to order). Call Customer Service for price and lead time.

# GASKETS & DEPRESSORS

HXG  
**R-134a Hose Gaskets  
 Fits 1/2" Acme**

(10Pk)



HXD  
**1/4" SAE Hose Core  
 Depressors**

(10Pk)



HXGA  
**Microseal™ Antiblowlback  
 Gaskets**

(10Pk)



HXGD  
**1/4" SAE Hose Gaskets  
 and Core Depressors**

(6 Ea)



HXG2  
**(1/2"-20 UNF, 1/2"  
 ACME Hose Gaskets**

(10Pk)



HX38G  
**Hose Gaskets, 3/8" SAE  
 Neoprene**

(10Pk)



HXTG  
**1/4" SAE Teflon  
 Replacement Hose  
 Gaskets**

(10Pk)



HX14G  
**1/4" SAE Teflon  
 Replacement Hose  
 Gaskets**

(10Pk)

- For Straight End Of SafeMate HK5NG Hoses



HX516G  
**5/16" SAE Teflon  
 Replacement Hose  
 Gaskets**

(10Pk)

- For Straight End Of SafeMate HJ5NG Hoses



HX14516G  
**1/4" 5/16" SAE Teflon  
 Replacement Hose  
 Gaskets**

(10Pk)

- For Valve End Of SafeMate Hoses HP5NG, HK5NG, HJ5NG



HX140R  
**1/4" Replacement  
 Hose Rings**

(10Pk)

- For Valve End Of SafeMate Hoses HP5NG



HX5160R  
**5/16" Replacement  
 Hose Rings**

(10Pk)

- For Valve End of SafeMate Hoses HK5NG & HJ5NG





# INSTRUMENTS



# TAKE CONTROL WITH TANK TRACKER®

A SUPPLY AND RECOVERY TANK INVENTORY MANAGEMENT SYSTEM EXCLUSIVELY FROM CPS

The Tank Tracker® feature, developed by CPS® Products, Inc., provides a convenient way to manage and track your inventory of refrigerant supply and recovery tanks in the field. Tank Tracker® is included within the CPS Link™ app (U.S. Patent) and it allows technicians to set up an electronic inventory of all their supply and recovery tanks.

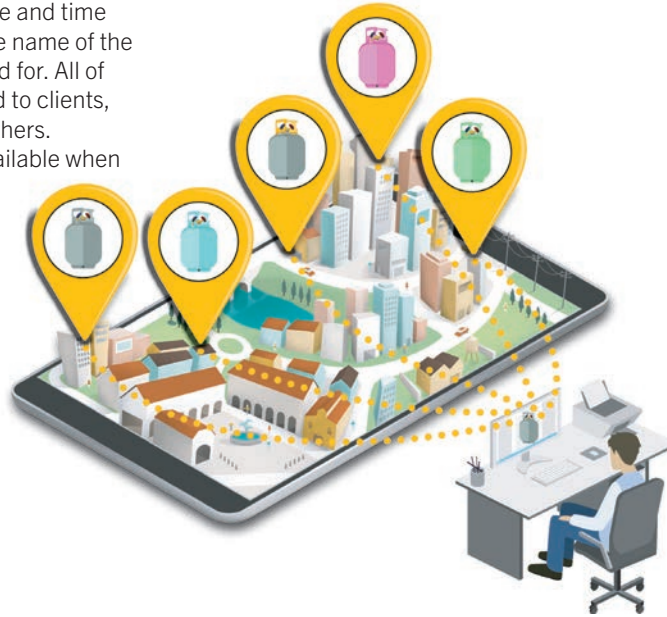
Information such as tank size, type and amount of refrigerant contained in each can be entered. Tank Tracker® will then record the addition or subtraction of refrigerant from a tank, along with the date, place and time the tank was used, as well as the name of the job and the customer it was used for. All of this information can be e-mailed to clients, technicians, a home office, or others. The Tank Tracker® feature is available when

the CPS Link™ app has been activated, and any CPS wireless scale has been paired to a mobile device. This allows technicians to perform programmable charging or recovery.

For automatic charging or recovery, pair any CPS wireless scale and the SVW Wireless Solenoid Valve to a mobile device running the CPS Link™ app. The SVW will turn ON or OFF to automatically control refrigerant flow.

## LOG REFRIGERANT USAGE/ DISPOSAL PER EPA REQUIREMENTS

## TRACK WHO, WHEN, WHERE AND HOW MUCH REFRIGERANT IS USED ON EVERY JOB



**Bluetooth®**  
SVW

### Wireless Solenoid Valve

The SVW is a compact, battery operated solenoid valve with 1/4" SAE IN/OUT male ports that open and close in 100 milliseconds to control refrigerant flow. Operate it manually, or in automatic mode for more precise control. Works with all CPS wireless scales using our patented CPS Link™ technology.

- Operate manually for instantaneous On/Off control of refrigerant.
- Or, pair to any CPS wireless scale for automatic, precise control of refrigerant during service routines.
- Saves time, reduces cost and extends service equipment life
- Compatible with all common CFC, HFC, HCFC, HFO refrigerants and blends
- Operates with CPS Link™ app
- Designed by CPS Products, Inc. in USA

### SPECIFICATIONS

Transmission Range (Line Of Sight)	Up to 150 feet
Continuous Battery Life	Up to 500 hours
Maximum Working Pressure	500 Psig (34.5 Bar)
IN/OUT Fittings	Brass, 1/4 SAE male
Approvals	FCC, IC, CE
Dimensions	3" x 2-3/4" x 4.5" (76 x 70 x 114mm)
Packaging	Color box
Warranty	1 Year



RECOVER



SVW



CHARGE



# COMPUTE-A-CHARGE®

## THE MOST TRUSTED BRAND OF CHARGING/RECOVERY SCALES

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.

- Ideal for critical charging of large or small systems and all refrigerant recovery applications
- Environmentally sealed and temperature compensated for reliable operation in extreme environments
- Rugged cast aluminum platform and base assemblies for stability and long life
- Electronic and mechanical overload protected to withstand 150% of capacity
- Calibrated to strict NIST standards (National Institute of Standards & Technology)
- Designed and manufactured in the USA with U.S. and globally sourced components

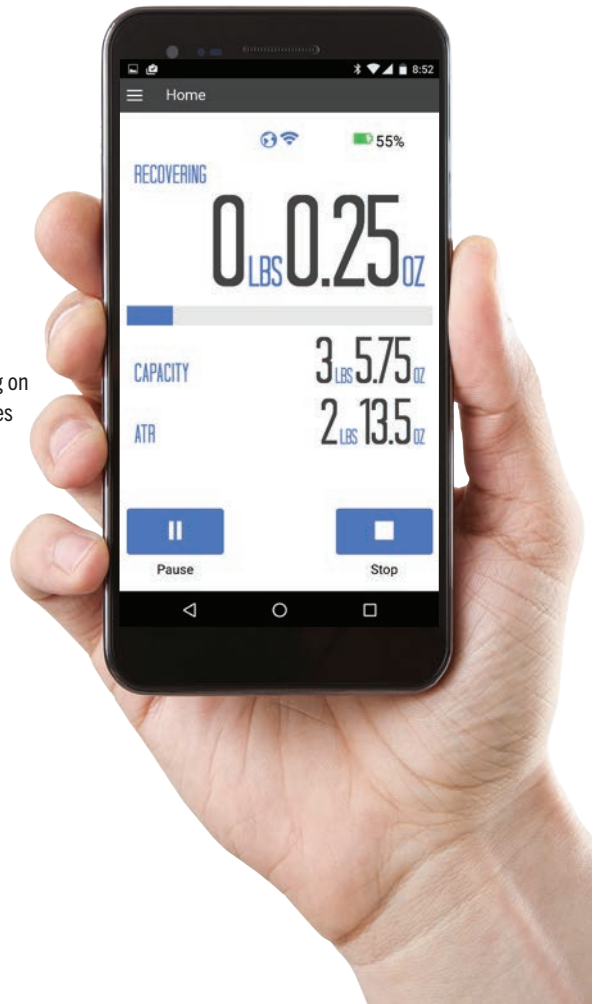


REFRIGERANT CHARGING

CPS Link app running on iOS or Android devices



REFRIGERANT RECOVERY



# CHARGING SCALES



CCD110

## Refrigerant Charging Scale

- 110 lb (50 kg) capacity
- 0.20 oz (5 g) display resolution
- Accurate to 0.015% of reading (or +/- 0.2 oz/5g) whichever is greater
- 3 button corded control with large, high contrast, wide angle, display
- Cast aluminum platform and base
- 3 point non-rocking foot pattern for best stability
- Heavy duty rubber platform mat
- Owner's manual
- Padded storage case with shoulder strap
- Unique patent pending "delta" shaped design
- Designed by CPS Products, Inc. in USA



CC220EW

## Enhanced Wireless Refrigerant Charging Scale

- 220 lb (100 kg) capacity
- Accurate to 0.015% of Reading [or  $\pm$  selected resolution, whichever >]
- 4 adjustable resolution settings
- 8.75" (22.3 cm) square platform
- 7 button corded/wireless control - For manual or programmable operation
- Mobile device control - For added functions, including Tank Tracker™
- Audible and visual alarms for use during charging and recovery



CC800A

## Programmable Refrigerant Charging Scale

- 220 lb (100 kg) capacity
- Accurate to 0.015% of Reading [or  $\pm$  0.25 oz (10 g) whichever is greater
- 0.25 oz (10 g) resolution
- 8.75" (22.3 CM) square aluminum platform.
- Programmable for automatic charging or recovery via built-in solenoid valves
- 7 button corded control
- Hard storage case
- Designed by CPS Products, Inc. in USA





Model #	CCD110	CC220	Bluetooth® CC220EW	CC800A
Maximum Load	110 lb (50 Kg)		220 lb (100 kg)	
<b>CONTROLS</b>				
Control To Scale Connection	Flexcord		Flexcord Or Wireless (CPS Link™)	Flexcord
Control Mount	360 swivel hook	Magnet back & 360 swivel hook		
Control Buttons (Physical Functions)	3 (On/Off, Lb/Kg, Tare)		7 (On/Off, Lb/Kg, Tare, Go/Hold, Increase, Set/Reset, Decrease)	
Tare (Empty) Weight Mode	Yes			
Programmable Solenoid	n/a	Pair With Wireless SVW	n/a	Yes
Auto Power Off Feature (ENABLED)	Display shows "APO ON" at power up. [Display will turn OFF after 10 minutes inactivity]. Selectable	Display Turns OFF After 10 Minutes Inactivity	Default = Display Turns OFF After 10 Minutes Inactivity (Can re-set in increments of 5, 10, 15, 30, 60 mins or OFF)	10 mins (if weight on platform does not change by more than 1oz (30g) within 10 mins).
Auto Power Off Feature (DISABLED)	Display shows "APO OFF" at power up [Display will be constant ON]	Display shows "APO OFF" at power up [Display will be constant ON]		
Smart Awake	Display shows last weight measurement at time of Auto-Off, updated to current value	Scale displays last weight measurement at time of Auto-Off, updated to current value		
<b>CHARGE/RECOVER ALARMS</b>				
Charge/Recover Alarm	n/a		Audible & visual alarms during charge and recovery	Continuous beep during charge
<b>WIRELESS</b>				
Wireless Connectivity	n/a		Yes	n/a
Transmission Range	n/a		150' (45.7m) direct line of sight	n/a
Frequency Range	n/a		2.4 GHz, ISM Band (Worldwide)	n/a
<b>BATTERY</b>				
Power Source	Hand Control: (1 or 2) 9V Alkaline (1 Included)	(1 or 2) 9V Alkaline (2 Included)	Hand Control: (2) 9V Alkaline (Included)	
Continuous Battery Life	One 9V = 75 hrs; Two 9V = 150 hrs.	One 9V = 75 hrs; Two 9V = 150 hrs.	One 9V = 50 hrs; Two 9V = 100 hrs.	30 Hrs
Battery Status Indicator	2 Segment Battery Icon	2 Segment Battery Icon	3 Segment Battery Icon	4 Segment Battery Icon
<b>LCD DISPLAY</b>				
Units (Weight) Readout	lb & oz, or kg & gm			
Weight Accuracy	0.015% of Reading [or ± 0.2 Oz (5g) whichever >]	0.015% of Reading [or ± 0.25 oz (10g) whichever >]	0.015% of Reading [or ± selected resolution whichever >]	0.015% of reading, or ± 0.25 oz/10 gm (whichever greater)
Display Resolution (Increments)	0.20 Oz (5g)	0.25 Oz (10g)	Selectable: 0.1 Oz (2g); 0.2 Oz (5g); 0.25 Oz (10g); or 0.50 Oz (25g)	0.25 Oz (10g)
<b>WEIGHTS, DIMENSIONS, MATERIALS</b>				
Platform Dimensions	Delta shape [fits w/ 10.4" (26.4 cm) circle]	8.75" x 8.75" (22.3 x 22.3 cm)		
Scale Weight (With Case)	5.5 Lb (2.5 Kg)	5.68 lb (2.6 kg)	5.62 lb (2.55 kg)	8.5 lb (3.9 kg)
Length Of Control Cord	6' (1.8 m), Extended			
Maximum Working Pressure	n/a			500 Psig (34,5 Bar)
Maximum Operating Differential	n/a			485 Psig (33,5 Bar)
Rubber Platform Cover	Yes	No		
Storage Case	Soft Case	Molded Case		
Overload Protection	Mechanical (Internal Overload Stop)	Mechanical (Internal Overload Stop)		
Operating Temperature Range	14°F to 122°F (-10°C to 50°C)	14°F to 122°F (-10°C to 50°C)		
Operating Humidity Range	0% to 95% (Non-Condensing)	0% to 95% (Non-Condensing)		
<b>APPROVALS, CALIBRATION, WARRANTY</b>				
Approvals	CE		FCC,IC,CE	CE
Calibrated To NIST Standards	Yes			
Declaration Of Conformity	EN 61326-1:2013, CISPR 11:2009/A1:2010	EN 61326-1:2013, CISPR 11:2009/A1:2010	n/a	
Warranty	1 Year			

# CLAMP METERS



VOLT-100

## Wireless Clamp Power Meter

- Use with or without the CPS Link app. Connects to Apple and Android smart phones & tablets via Bluetooth
- Power factoring to determine true power consumption
- Data logging of electrical readings
- Utility data feed calculates actual cost/hour of appliances
- CAT. III 1,000 V rating
- True RMS measurements
- Non-contact voltage tester
- Maximum Voltage: 750 V AC; 1000 V DC
- Autorange and manual measuring
- Measuring range overload protection
- Display auto-off
- Display back light
- Automatic polarity indication
- Max/Min and relative measuring function

### MEASURE:

- Inrush current
- AC current
- Resistance
- AC/DC voltage Phase angle
- Harmonics
- Frequency
- Capacitance
- Duty cycle
- Diode connection

### INCLUDES:

- 39" (1 m) test leads
- Durable storage case
- 9V battery
- Owner's manual
- One year warranty

### SPECIFICATIONS

Data Logging	Up to 1,000 samples
Sampling Rate	1X/sec. for max of 16 mins., 40 secs.
Maximum Input Current	1000A AC
Maximum Input Voltage	750V AC (TRMS); 1000V DC
Wattage	3W/100W/4000W/10kW/100kW/750kW
AC Current	60A/600A/1000A
Inrush Current	60A/600A/1000A
Resistance	600Ω/6kΩ/60kΩ/600kΩ/6MΩ/60MΩ
Capacitance	9.999nF/99.99nF/999.9nF/9.999μF 99.99μF/999.9μF/9.999mF
Jaw Opening	1.6" (42mm) Max.
Size (H x W x D)	9.4" x 1.9" x 3.6" (238 x 50 x 92 mm)
Weight	0.92 lb (420 g)

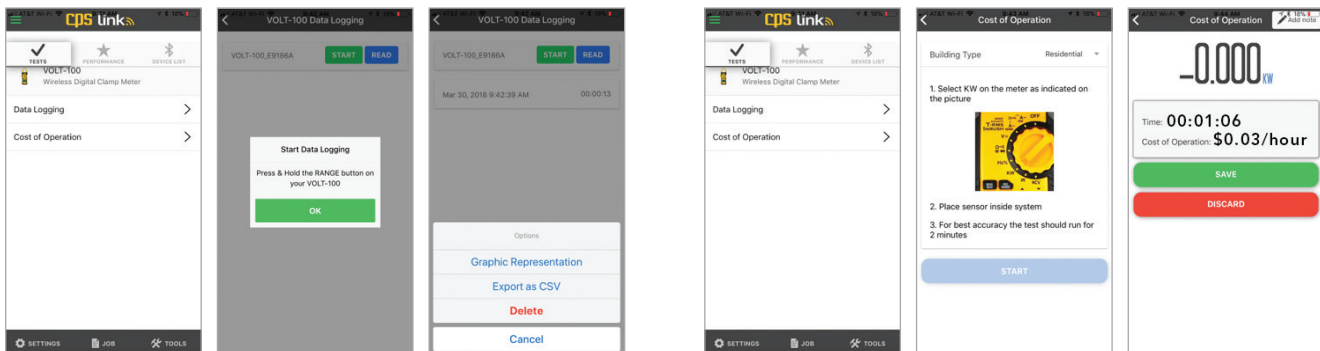


Clamshell package



Included items

### SCREEN SHOTS (WHEN PAIRED TO A MOBILE DEVICE RUNNING THE CPS LINK APP)



Data Logging Capability

Cost of Operation Capability

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 inrush measurements and non-contact voltage detection.

- Versatile for testing AC/DC voltage, AC/DC current, resistance, capacitance, and frequency
- True RMS Measurement
- Inrush Current Measurement
- Relative Measurement
- Non-Contact Voltage Detection
- Auto & Manual Ranging
- Diode Open Voltage 3.2V
- MAX/MIN
- Data Hold
- Display 6000 Counts
- Jaw Opening: 1.6" (40mm)
- Auto Power Off
- Continuity Buzzer <50Ω
- Display Backlight
- Work Light
- Low Battery Display
- Secondary injection molded case, safety as per IEC1010 1000V CAT III

### SPECIFICATIONS

DC Voltage	60mV/600mV/6V/60V/600V
AC Voltage	60mV/600mV/6V/60V/600V
DC Current	60A/600A/1000A
AC Current	60A/600A/1000A
Inrush Current	60A/600A/1000A
Resistance	600Ω/6kΩ/60kΩ/600kΩ 6MΩ/60MΩ
Capacitance	10nF/100nF/1000nF/10μF 100μF/1000μF/10mF/100mF
Frequency (A)	100Hz/1000Hz
Frequency (V)	100Hz/1000Hz/10kHz
Frequency (Hz/Duty)	10Hz/100Hz/1000Hz/10kHz 100kHz/1000kHz/10MHz
Duty Cycle	0.1%-99.9%
Battery	9V battery
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)



Clamshell package



Included items



Back view

# DIGITAL GAUGES



SPECIFICATIONS	VG200W Bluetooth	VG200	PT200W Bluetooth	
Description	Wireless Vacuum Gauge	Vacrometer™ Digital Vacuum Gauge	Wireless Pressure / Temperature Gauge	
Accuracy	+/- 10% Of Reading	+/- 10% Of Reading	1% of reading ± 0.1PSIG (0.01 bar)	
Display Type	Large, 5 digit LCD display with low battery indicator	5 digit LCD display with continual digital readout	LCD, 5 Digit	
Display Auto-Off	After 10 minutes of no use	After 5 minutes of operation	10 minutes = default if no key pressed, no wireless connection, gauge not logging data	
Operating Vacuum Range	Atmospheric pressure to 0 microns		n/a	
Maximum Working Pressure	400 Psig		750 PSIG MWP, 3000 PSIG Burst	
Operating Temperature Range	Compensated (Accuracy as stated): 32°F to 122°F (0°C to 50°C); Non-Compensated: Add +/- 0.5% error for every °C; Outside Compensated: -22° F to 158° F (-30° C to 70° C)		23 °F to 149 °F (-5 °C to 65 °C)	
Storage Temperature	-22° F to 185° F (-30° C to 85° C)		-40 °F to 185 °F (-40 °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		Up to 40 hours continuous use	
Battery Indicator	Battery symbol with 3 segments	Battery symbol with 3 segment Power Level Bar Graph	Battery symbol with 3 segments	
Mechanical Connection	Standard 1/4" Female SAE refrigerant hose with core depressor	Standard 1/4" female SAE refrigerant hose w/core depressor	1/8" NPT thread connection	Standard 1/4" Female SAE refrigerant hose with core depressor



## VG200

### Vacrometer™ Digital Vacuum Gauge

- 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
- 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

#### INCLUDES

- AVT4 Brass Adapter
- VGXH Swivel Hanging Hook
- VGXC Padded Vinyl Storage Case

#### OPTIONAL

- AVT45SS Stainless Steel Adapter

## GAUGE ACCESSORIES



### AVT45

#### Brass Adapter

- 1/4" SAE female knurl x 1/4" SAE male x 1/4" SAE male core



### VGXH

#### Swivel Hanging Hook

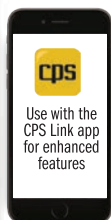
- For VG200, VG200W, PT200W



## VG200W

**Wireless Vacuum Gauge**

The VG200W is a precision digital vacuum gauge for obtaining accurate pressure measurements during evacuations of HVAC and refrigeration systems. It is also ideal for obtaining vacuum data while conducting time, target, dynamic and static vacuum tests. The VG200W may be used as a standalone gauge, or it may be paired with a mobile device (using the free CPS Link™ app) for greatly enhanced jobsite capabilities.

**FEATURES:**

- Large, 5 digit LCD display with low battery indicator
- Easy 2 button control (On/Off and Units)
- Select from 4 different vacuum units (at any time).
- Atmospheric to 0 micron pressure range
- Auto-Off after 10 minutes of no use
- Operates up to 20 continuous hours on one 9V alkaline battery (included)
- Compatible with all refrigerant gases (including ammonia)
- Field cleanable sensor
- Includes stainless steel T connector, hanger hook, vinyl storage case, and Quick Start Guide - all packed in a clear clamshell
- Designed and manufactured in the USA with US and foreign components

**WHEN USED WITH CPS LINK™ APP**

- Choose from 8 different languages to work in
- Log vacuum test data (viewable in real time graphs)
- **Client Lists** – Enter and retain client information
- **Job Checklist** – Create and retain job reminders
- **Job Tracker** – Create and retain record of services performed
- **Geolocation** – Record where (global coordinates) and when (time stamp) jobs performed
- Set low and high alarms
- Cloud backup of data

**INCLUDES**

AVT45SS	Stainless Steel Adapter
VGXH	Swivel Hanging Hook
VGXC	Padded Vinyl Storage Case

**Bluetooth®**

## PT200W

**Wireless Pressure, Temperature Gauge**

The PT200W is a compact, portable instrument for accurately measuring and calculating HVAC/R data such as pressure, SuperHeat, SubCool, and temperature differential (tH-tL) that are critical to properly servicing HVAC/R equipment. Use the PT200W as a stand-alone gauge or pair with a mobile device to set up, store or e-mail client and job lists, jobsite data, invoices and other convenient, time saving features.

**FEATURES:**

- High & low temperature probe connections
- Take measurements directly from system access ports
- Large, 5 digit LCD display with low battery indicator
- Compatible with all refrigerant gases (including ammonia)
- Includes thermistor sensor (clamp, with 6 ft. lead), stainless steel T connector, hanger hook, double wall cloth storage case, and quick start guide – all packed in a clear clamshell
- Designed and manufactured in the USA with US and foreign components.

**WHEN USED WITH CPS LINK™ APP**

- **Client Lists** – Enter and retain client information
- **Job Checklist** – Create and retain job reminders
- **Job Tracker** – Create and retain record of services performed
- **Geolocation** – Record where (global coordinates) and when (time stamp) jobs were performed
- Monitor readings remotely without refrigerant loss caused by manifolds and long hoses
- **Share/Send Data** – Conveniently e mail data to client, home office, others.
- **Selectable Language** – Choose from English or Spanish
- P/T tables for 105 refrigerants, and ability to add/delete
- **Data Log** – Pressure, temperature (tH, tL)
- Cloud backup of data

**INCLUDES**

AVT45SS	Stainless Steel Adapter
VGXH	Swivel Hanging Hook

# LEAK DETECTORS



LSCG

## Combustible Gas Leak Detector



The LSCG Leak-Seeker® is a hand-held, battery powered combustible gas leak detector **for use by HVAC Pros, Plumbers, Pipefitters, Mechanical Contractors, Facility Maintenance, Factory Technicians, and other professional trades** for installing or servicing equipment that uses combustible gas on residential, commercial, or light industrial jobs.

A key benefit of the LSCG is that it has **5 different alarms to help technicians quickly pinpoint leaks**. For example, **3 different visual alarms** show “gas concentration” on the large backlit display, while **one vibration alarm and one audible alarm** alert technicians when working in challenging jobsite conditions. Other key features include:

- **Detects Up To 30 Combustible Gases** – Best in its class! (See list below).
- **Large Backlit LCD Display** – 1.5” x 2” (38 x 51mm) largest in its class! Visual alarms include:
  - **Speedometer PPM Scale** – Great for peripheral vision while searching for leaks.
  - **PPM Readout** – Large ½” numbers are more precise than detectors that show ranges.
  - **LEL % Readout** – Large ½” numbers show what % of the lowest gas concentration that has the potential to be flammable or combustible.
- **High/Low Concentration Key** – For detecting 10 to 1,000 PPM or 100 to 10,000 PPM.
- **Long 20” (51cm) Flexible Probe** – For hard-to-reach areas.
- **Ergonomic Housing with Intuitive Keypad** – Simple icons or abbreviations
- **Auto Features (AC, APO, AZ)** – Automatic Calibration at each power up; Auto Power Off if not used for 10 minutes; Auto Zero – resets the sensor.
- **Rechargeable Lithium-Ion Battery** – No need to buy or dispose of single-use batteries.

### REPLACEMENT PARTS (LSCG)

LSXSCG  Replacement Sensor For LSCG

### SPECIFICATIONS

Audible (Beep) Alarm (dB)	85 dB volume
Audible Alarm Activation Key	Audible beep can be turned On or Off with a dedicated key
Audible (Beep) Alarm Frequency	Beep rate (frequency) is proportional to gas concentration being detected.
Vibration Alarm Activation Key	Vibration can be turned On or Off with a dedicated key
Sensor Warm Up Time	40 seconds (display counts backwards) after turning device on
Sensor Response Time	2 seconds
Replaceable Sensor	Yes (Available from CPS Products, Inc)
Auto Calibration	Each time device is turned on (display will count backwards from 40 seconds)
Gas Concentration Range, PPM (On Display Readout)	For LOW Concentration Range Setting: 10 to 1,000 ppm (Methane) For HIGH Concentration Range Setting: 100 to 10,000 ppm (Methane)




Highest PPM/LEL Readout (Methane)	10,000 PPM or 20% of the 5% LEL for Methane (= 1.25% Methane)
LEL (Lower Explosion Limit), % (On Display Readout)	0% to 100% (for gases containing a methane component). See manual for the LEL % values of 30 different gases.
Gases Detected	Natural Gas (Methane, Ethane, Propane, Butane), and Acetylene, Acetone, Acetaldehyde, Ammonia, Benzene, CO, Denatured, Alcohol, Ethanol, Ethylene, Formaldehyde, Gasoline, Hexane, Hydrogen, Hydrogen Sulfide, Isobutane, Isopropanol, Isopropyl Alcohol, Kerosene, Methanol, MEK, Mineral Spirits, Naptha, Paint Thinner, Paraxylene, Toluene, Xylene
Gas Sensitivity	<10 PPM (at X10 concentration)

# THE MOST SENSITIVE, RELIABLE AND ACCURATE REFRIGERANT LEAK DETECTORS WITH THE LONGEST SENSOR LIFE




## FEATURES (LS1, LS2)

- Detects refrigerants including those with hydrocarbon components (CFC, HCFC, HFC, HFO, NH3, HC).
- E\_MOS detection technology increases battery and sensor life, with replaceable sensor, filter and tip
- One button controls On/Off and all functions.
- Microprocessor controlled sensor improves sensitivity and reduces false alarms
- Metal sensor housing with patented water vapor stabilizing filter eliminates false alarms due to condensate
- Optimal leak-finding performance under a broad range of conditions
- Intuitive bar graph LED display for relative leak size
- Software managed sensor rejuvenation at startup ensures highest sensitivity
- Ergonomic, high-impact housing with high output alarm speaker
- Designed and manufactured in U.S.A. with U.S. and globally sourced components.

## REPLACEMENT PARTS (LS1, LS2)

EMOS2		E_MOS Technology Sensor
LS2XF		E_MOS Technology Sensor Filters (10-Pk)
LS2XVF		Vapor Filter Sensing Tip

## REPLACEMENT PARTS LS790B

LSXS		Selective Filter Housing
LSXBMK		Maintenance Kit: (1) LSXS + (1) LSXS (replaces LSXMK)
LSXS		Ion-Pump Sensor



F-Gas Compliant  
(ENG 14624-2005)



LS2

## Leak-Seeker® II

Fully automatic sensitivity selection and control.

Simply turn it on and pinpoint the leak.

- Six sensitivity ranges
- Fully automatic sensitivity selection
- High output alarm speaker
- 56 levels of sensitivity automatically selected by proprietary Powershift™ software
- 2 Year Warranty



F-Gas Compliant  
(ENG 14624-2005)



LS1

## Leak-Seeker® I

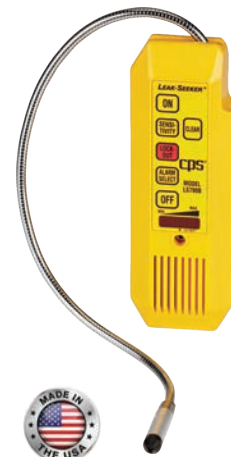
- Progressive Alarm Mode: Alarm pitch and number of lighted LEDs progressively increase as the leak source is approached. Allows searching for a broad range of leak sizes.
- Threshold Alarm Mode: Provides a quick go, no/go verifying a leak has been found and approximate size.
- One button operation for reset, changing of audible alarm range, and power off




LS790B

## Leak-Seeker®

Field proven Ion-pump® sensor technology a highly sensitive, accurate electronic refrigerant leak detector.

- Over 128 computer generated tones
- Alarm Select Key- Choose audible, or audible and visual.
- Sensitivity Key- Select within 10 ranges to match leak size.
- Lock -Out Mode Key- Memorizes highest refrigerant level within a large leak.
- Clear Key- Recalibrates to ambient conditions.



			
SPECIFICATIONS	LS1	LS2	LS790B
Detector Type	E_Mos Technology		Proprietary Ion-Pump sensor with built-in selective filter housing
Sensitivity	Better than 0.1 oz (3g) / year		Better than 0.25 oz (7g) / year leak rate of HFC
Sensitivity Selection	Manual	Fully Automatic Powershift Software	Manual
Refrigerant Sensitivity	All, including those with hydrocarbon components (CFC, HCFC, HFC, HFO, NH3, HC. Hydrogen trace gas in 95% N2, 5% H2 mixture)		All, including those with hydrocarbon components (CFC, HCFC, HFC, HFO, NH3, HC)
Visual Alarm	Visual tachometer-like bar graph display with 8 high intensity LEDs		High intensity bar graph display
Flex Probe	15.5" flexible probe for hard-to-reach areas		18" metal flex probe
Lock-Out Mode	N/A		Yes
Controls	One button controls on/off and all functions		6 button keypad
Batteries (Included)/Life	3 "C" batteries (>50 hours continuous use)		4 "AA" alkaline batteries (>40 hours continuous use)
Audible Alarms	In Progressive Mode: Extended tone range. In Threshold Mode: Single high pitch tone	2 user selectable alarm ranges	128 computer generated tones to precisely guide user to the source of the leak
Low Battery Indication	Green (middle) LED turns off when batteries at 10% capacity	Rightmost (No Battery) LED stays on when batteries at 10% capacity	Center LED above "****" lights during operation
Auto-Off	After 10 minutes of inactivity		After 15 minutes of inactivity
Sensor Life	>500 hours continuous use		Replace seasonally
Weight	18 oz (500g)		
Operating Temperature	0 to 140°F (-18 to 60°C)		
Warranty	1 year	2 years	1 year
Standards	Complies with European Standard EN14624: 2012		
Certifications	Individually Calibrated To NIST Traceable Leak Standard		
Carrying Case	Molded Case		Yes
Earphone	No		Yes



# INDOOR AIR QUALITY METERS



# INDOOR AIR QUALITY

Bluetooth®

IAQPRO



## Indoor Air Quality Meter

### The Standard for Professional Indoor Air Quality Meters ...

The industry's first smart tool that helps HVAC professionals identify indoor air quality issues, determine potential causes, and recommend effective solutions. The SmartAir™ diagnostic program is designed for the residential market, but has the accuracy and performance to measure indoor air quality in commercial environments as well.

#### BECOME AN INDOOR AIR QUALITY PROFESSIONAL

Internal sensors test 9 critical air quality factors every second. Simply place the meter device in the area to be tested and begin the test. Test results include numerical air quality data plus recommendations to solve air quality problems.

#### SELL ADDITIONAL PRODUCTS AND SERVICES

The CPS Link™ app generates a customized report of products, services and prices for technicians to resolve air quality issues all year long.

#### INSTANTLY SHARE A JOB SNAP-SHOT

While viewing live air quality data on a mobile device, technicians can take a snapshot or generate a full report for instant e-mailing to clients, the company office, others.



#### DETECTS 9 CRITICAL INDOOR AIR-QUALITY FACTORS

##### Volatile Organic Compounds

Chemical pollutants given off by interior building materials such as carpet, paint, upholstery, vinyl flooring, cleaning products, cosmetics, burning wood etc.

##### Combustible Gases / Non-combustible Inert Gases Carbon dioxide (CO2),

nitrogen, etc., any of which may pose a threat to humans if found in high enough concentrations inside a home or business.

##### Particulate Matter

Inhalable particle matter that can penetrate the lungs and cause health problems. Includes dust, pet dander, pollen and other airborne allergens with a diameter between 2.5 and 10 microns.

##### Temperature, Relative Humidity, Dew Point,

Pressure and Comfort Zone  
Indoor air temperature and dew point in Fahrenheit or Celsius, relative humidity (%) and building pressure (Hg, atm, kPa, or mb units).



#### LIGHT BAR



Light bar changes color to indicate indoor air quality.

SPECIFICATIONS	
Size (HWD)	5" x 3.5" x 2.9" (12.7 x 8.9 x 7.4 cm)
Weight	0.65 Lb (0.3 kg)
Wireless Transmission Range	Up to 150 Ft (45.7m) Direct Line Of Sight
Air Quality Test	30 Minutes (Default)
Power Cord	6.66 Ft. (2.02 m)
Storage Case	Molded Soft Case, With Carrying Handle
Agency Approvals	FCC, CE, ICES-003
Warranty	1 year
Geotag Feature	Time, Date, Location (Where Work Done)
Designed In USA	✓

# Accurate, Affordable Real-Time Airflow Readings In Seconds

## LIGHTWEIGHT AND COMPACT

Weighs less than 5 pounds

## AFFORDABLE

The Easy-Hood costs hundreds or thousands less than competitive models!

## EASY OPERATION

No complicated data entry needed. No traversing a grille like competitive models. Automatically generates test and balance reports. Easily share job data to validate performance.



ABM-HOOD

### ABM EasyHood™ Airflow Capture Hood

FOR USE WITH ABM-100 OR ABM-200 AIRFLOW METERS

- Adjustable spring-lock smartphone platform
- Vortex air straightener
- Rubber grip handles
- Durable molded housing
- Built-in rubber airflow seal



ABM-Hood-200

### Includes ABM-HOOD and ABM-200 Airflow Meter

- #ABM-200 Airflow Environmental Meter
- #ABM-HOOD Airflow capture hood with expansion hood
- Integrated vortex air straightener
- Low airflow adapter plate
- Protective storage case

\* Smart phone not included



Up to 12" x 12" vents



Up to 24" x 24" vents with Expansion Hood



Low airflow adapter plate

## REPLACEMENT PARTS

- ABMHOOX1 Phone Base Door
- ABMHOOX2 Hood Rubber Seal
- ABMHOOX3 Expansion Base
- ABMHOOX5 Extension Pole Assembly
- ABMHOOX6 Low Airflow Plate



Easy operation with online guidance and visual instruction

## EASY-TO-USE CPS LINK™ APP MAKES AIRFLOW ANALYSIS A BREEZE!

MEASURE AND RECORD:	USING ABM-100	USING ABM-200
<b>AIRFLOW VOLUME</b> Minimum, Average, Maximum	✓	✓
<b>AIRFLOW VELOCITY</b>	✓	
<b>TEMPERATURE</b>		✓
<b>WET BULB</b>		✓
<b>DEW POINT</b>		✓
<b>RELATIVE HUMIDITY</b>		✓





**Bluetooth®**  
**ABM-100**  
**Airflow Meter**

The ABM-100 easily plugs into a smart device and instantly converts air speed into air volume and records the data. Accurately measures airflow in: Linear feet per minute, cubic feet per minute, cubic meters per hour, linear meters per second

- Portable, fits in your pocket
- Easy to use—no math or formulas to remember
- Automatically generates and emails detailed reports
- 2.5" H x 1.75" W x .75" D
- Plastic storage case with color sleeve

**Bluetooth®**  
**ABM-200**  
**Airflow and Environmental Meter**

Measures and records a variety of data, including: Airflow velocity, airflow volume, dry bulb temperature, wet bulb temperature, relative humidity, feels like temperature, dew point, air density, wind speed/direction/gusts, indoor vs. outdoor conditions and barometric pressure.

- On-screen guidance ensures accurate readings
- Rugged housing with 1/4" 20 mount fitting for hands-free use
- Attach to the EXP-64 – a 64" aluminum extension pole (sold separately) to take readings without using a ladder
- Connects over 20X faster than traditional Bluetooth
- Emails personalized, professional reports
- 3.3" H x 1.8" W x 0.6" D
- Plastic storage case with color sleeve



**Bluetooth®**  
**TS-100**  
**Temperature and Humidity Data Logger**

Easy to use and accurate, produces readings for: dry & wet bulb temperatures, relative humidity, feels like temperature, dew point

- Data Log stores the last 20,000 temperature and humidity readings that can be uploaded to your smart device for review and to generate professional reports
- Increases productivity, safety & enhances professionalism
- Includes a 1/4"-20 metal D-ring connector, key chain split-ring and alligator clip for mounting in various configurations
- Can be mounted on the EXP-64 Extension Pole & TRI-MIN Tripod – no ladder needed!
- Emails professional personalized reports
- Rugged, weather resistant housing
- Plastic storage case with color sleeve

**Bluetooth®**  
**TS-100-6PK**  
**Temperature and Humidity Data Loggers**

Our convenient 6-pack data logger kit makes it easy and cost effective to deploy multiple meters. Each meter can be individually named to make tracking data easy.

Reading Increments	Data Log Capacity	
	Hours	Days
5 Seconds	28	1.2
30 Seconds	167	7
1 Minute	333	14
5 Minutes	1,667	69
30 Minutes	10,000	417
Hourly	20,000	833
Daily	480,000	20,000







Bluetooth®

SPM-K1

## Static Pressure Meter & Probe Kit

The SPM-K1 kit is the must-have smart tool that combines our popular SPM-100 manometer with our PRB-KIT and a brass gas fitting. This powerful and accurate dual port manometer harnesses the power of the smart phone to perform tests quickly, easily and accurately. Simple, intuitive and accurate readings for: static pressure, pressure differential, indoor vs. outdoor pressure, total external static pressure, gas pressure.

- Imports local weather data to ensure accurate testing
- Rugged housing with magnetic back for hands-free operation
- Two color coded (Red and Blue) stainless steel probes
- Two 6 ft. (1.8 m) rubber tubes
- One gas manifold fitting (brass)
- Plastic storage case with color sleeve

Bluetooth®

SPM-100

## Static Pressure Meter

Harnessing the power of your smart phone or tablet with a free app that provides on-screen guidance, the SPM-100 takes the guesswork out of accurately measuring static pressure!

Simple, intuitive, and accurate readings for: static pressure, pressure differential, indoor vs. outdoor pressure, system external static pressure.

- Automatically imports local weather data based on GPS location
- Easily emails professional, detailed reports
- Rugged, weather resistant housing with hands-free magnetic holder
- Color display box with color sleeve



PRB-KIT

## Static Pressure Probe Kit

Accurately measure and record: Static pressure, pressure differential, indoor/outdoor pressure, system external static pressure, gas pressure test.

### INCLUDES:

- Two color coded (lower case Red and Blue) stainless steel probes with magnetic bases
- Two 6 ft. (1.8 m) rubber tubes
- One gas manifold fitting (brass)
- Plastic storage case with color sleeve



EXP-64

### Telescopic Extension Pole

Take accurate airflow readings without using a ladder. Mount an ABM-200 or TS-100 to the 1/4"-20 universal threaded end to obtain fast, easy readings from vents mounted on ceilings, high walls or other hard to reach places. The EXP-64 has a rubber grip handle and telescopes from 18" to 64". It has a second 1/4"-20" threaded fitting on the handle end to allow the EXP-64 to be mounted on a floor tripod.



Attach the ABM-200, or TS-100 to the end of the EXP-64, to access hard-to-reach areas.



Thumbwheel for attaching/removing threaded universal end



The EXP-64 can be mounted on tripods for longer term analysis of airflow from wall or ceiling vents



TRI-MIN

### Mini-Tripod

This mini tripod has a 1/4"-20 top fitting to attach the TS-100 or ABM-200. It adjusts from 6-8" in height and is collapsible for compact storage.



Makes extended environmental condition readings easy

# THERMOMETERS



TM360

## 4 Station Thermo-Psychrometer

TM360 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. A dedicated special purpose port accommodates an optional humidity transducer probe for fast and accurate measurements during superheat calculations. A generous probe storage area is provided to contain all your job specific probes.



### FEATURES

- 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
- Integrated battery eliminator jack
- Rugged polyethylene carrying case

### INCLUDES

- Accessory probes TMX2A, TMX2G, TMX2S



TMX2A

### Moving Air Probe, 15' (4.5 m) Lead COMMON USES

Air: Ducting, registers, air movement across condensers, ambient air

#### OPERATING TEMP RANGE

-40°F to 221°F  
-40°C to +105°C



TMX2G

### General Purpose Probe, 15' (4.5 m) Lead COMMON USES

Surface, Air, Liquids: Copper pipe, ambient air, RH wet sock method

#### OPERATING TEMP RANGE

-40°F to 257°F  
-40°C to +125°C



TMX2GA

### General Purpose Air Probe, 15' (4.5 m) Lead COMMON USES

Air, Surface, Liquids: Ambient air, ducting, registers, air movement across condensers.

#### OPERATING TEMP RANGE

-40°F to 257°F  
-40°C to +125°C



TMX2P

### Puncture Probe, 15' (4.5 m) Lead COMMON USES

Surface, Liquids (Shaft Only): Internal temperatures of frozen materials, air ducts

#### OPERATING TEMP RANGE

-40°F to 257°F  
-40°C to +125°C



TMX2S

### Velcro Strap Pipe Probe, 15' (4.5 m) Lead COMMON USES

Surface: Temperatures of Copper Tubing

#### OPERATING TEMP RANGE

-40°F to 257°F  
-40°C to +125°C



TMX3C

### Clamp-On Surface Probe, 15' (4.5 m) Lead COMMON USES

Surface: temperatures of copper tubing

#### OPERATING TEMP RANGE

-40°F to 221°F  
-40°C to +105°C



TMX3RH

### Relative Humidity / Dry Bulb / Wet Bulb / Dew Point Probe COMMON USES

Specialty RH Probe: Measure indoor air quality, set/troubleshoot humidity devices

#### OPERATING TEMP RANGE

-40°F to 194°F  
-40°C to +90°C



TMX3WB

### Wet Bulb Socks COMMON USES

for use With TM360

#### OPERATING TEMP RANGE

-40°F to 194°F  
-40°C to +90°C



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, 8 point laser 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

#### SPECIFICATIONS

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



TMAP

### Analog Pocket Thermometer



TMDP

### Digital Pocket Thermometer

Temperature Scale:	Fahrenheit	°F & °C (selectable)
Thermal Response:	Instant	Instant
Dial Size/ Lens	1" Clear polycarbonate	LCD Power: One 1.5V button-cell battery (included), Auto-Off: After 45 minutes non-use
Probe/Case:	5" stainless steel, with protective pen type case & clip	Stainless steel (5" (127mm) with Protective Plastic Sleeve for clip-on pocket
Measuring Range:	0~220°F	-58°F ~ 302°F, -50°C ~ 150°C
Graduation:	2°F	Resolution (C): 0.1C (Temps < 100C); 0.5C (Other Ranges) Fahrenheit: +/- 1.8°F (30°F ~90°F); +/-3.6°F (Other Ranges) Celsius: +/-1°C (0°C ~100°C); +/- 2°C (Other Ranges) Meets RoHS/CE standard
Accuracy:	+/- 2°F (30°F ~90°F); +/-5°F (other ranges)	

# MANIFOLDS



## BLACKMAX® BLACK & CHROME™ VORTECH™ Valve Series

- Two and four valve black anodized aircraft aluminum machined body
- Vortech™ deep vacuum valves
- 3-1/8" (80 mm) class 1.0 accuracy gauges built with internal silicon dampening cup for flutter-free operation
- Nickel plated 1/4" SAE fittings; 3/8" SAE fitting (4 valve units)
- Large sight glass
- Heavy duty nickel plated metal handles
- Auxiliary center access port with Schrader valve
- Protective gauge boots
- Packaged in display tin



Manifold Body			Refrigerant(s)					Gauges					Manifold and Gauge Set				
Description	Valves	Fittings	R-22	R-134 A	R-404 A	R-407 C	R-410 A	Gauge Size	Accuracy	Scale	Pressure	Low Gauge	High Gauge	Manifold and Gauge only (No Hoses)	With (3) 5' Premium Black & Chrome™ Hoses	With (3) 5' & Ball Valve	
BLACK AND CHROME VORTECH™ VALVE SERIES	2	1/4" SAE 45°	●	●	●		●	3-1/8"	Class 1.0	°F	Psi	RGH4L	RGH4H	-	MV2H4P5Z	-	-
			●			●					°C	bar/Psi	-	-	-	-	-
	4	1/4" SAE 45°	●	●	●		●	3-1/8"	Class 1.0	°F	Psi	RGH4L	RGH4H	-	MV4H4P5Z	MV4H4P5EZ	MV4H4P5AZ
			●			●					°C	bar/Psi	-	-	-	-	-

## BLACKMAX® BLACK & CHROME™ TRIPLE-SEAL™ Series (includes VORTECH™ Valves)

- Two valve black anodized aircraft aluminum machined body
- Vortech™ deep vacuum valves
- Triple Seal™ piston valves
- Available in 3-1/8" (80 mm) class 1.0 accuracy gauges or 2-5/8" (68 mm) class 1.6 accuracy gauges built with internal silicon dampening cup for flutter-free operation
- Nickel plated 1/4" SAE fittings; 3/8" SAE fitting (4 valve units)
- Auxiliary center access port with Schrader valve
- Protective gauge boots
- Packaged in display tin



Manifold Body			Refrigerant(s)					Gauges					Manifold and Gauge Set				
Description	Valves	Fittings	R-22	R-134 A	R-404 A	R-407 C	R-410 A	Gauge Size	Accuracy	Scale	Pressure	Low Gauge	High Gauge	Manifold and Gauge only (No Hoses)	With (3) 5' Premium Black & Chrome™ Hoses	With (3) 5' with Ball Valve	
BLACK AND CHROME TRIPLE SEAL™ SERIES	2	1/4" SAE 45°	●	●	●		●	2-1/2"	Class 1.6	°F	Psi	RGH5L	RGH5H	-	MBH5P5Z	MBH5P5EZ	
			●	●	●		●	3-1/8"	Class 1.0	°F	Psi	RGH4L	RGH4H	-	MBH4P5Z	MBH4P5EZ	



## Pro-Set® The Workman's Choice™ Series

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



Manifold Body			Refrigerant(s)				Gauges						Manifold and Gauge Set			
Description	Valves	Fittings	R-22	R-134 A	R-404 A	R-410 A	Gauge Size	Accuracy	Scale	Pressure	Low Gauge	High Gauge	Manifold and Gauge only (No Hoses)	With (3) 5' Premium Pro-Set® Barrier Hoses	With (3) 5' Premium Pro-Set® Barrier Hoses with Anti-Blowback valves	(3) 5' Premium Pro-Set® Barrier Hoses with Ball Valves
WORKINGMAN'S CHOICE SERIES	2	1/4" SAE 45°	●	●	●	●	3-1/8"	Class 1.0	°F	Psi	RGH7L	RGH7H	MT2H7	MT2H7P5	MT2H7P5A	-
	2		●	●	●	●					-	MT2HPBK5	-	MT2HPBK5E		

## Pro-Set® Premium Piston Black Body Series

- 2 1/2" (68 mm) class 1.6 accuracy gauges
- Two valve anodized aluminum black body
- Triple Seal™ piston valves
- 1/4" SAE 45° fittings
- Sure grip rubber over metal valve handles
- Protective gauge boots
- Extra access port in center with Schrader valve and hanging hook



Manifold Body			Refrigerant(s)				Gauges						Manifold and Gauge Set			
Description	Valves	Fittings	R-22	R-134 A	R-404 A	R-410 A	Gauge Size	Accuracy	Scale	Pressure	Low Gauge	High Gauge	Manifold and Gauge only (No Hoses)	With (3) 5' Premium Pro-Set® Barrier Hoses	With (3) 5' Premium Pro-Set® Barrier Hoses with Anti-Blowback valves	With (3) 5' Premium Pro-Set® Barrier Hoses with Ball Valves
BLACK BODY SERIES	2	1/4" SAE 45°	●	●	●		2-5/8"	Class 1.6	°F	Psi	RGDL	RGDH	MBD	MBDP5	-	-
			●		●	●						RGHL	RGHH	-	MBHP5	MBHP5A

## ACCESSORIES AND REPLACEMENT PARTS

A complete line of repair kits, parts and accessories to keep your manifold 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**



MXMH  
**Hanging hook for all manifolds**



MV4XRX  
**Valve Repair Kit for Manifolds**



MVXV  
**VVS (II) Complete Valve Repair Kit for Manifolds**



MVXKC  
**Replacement Valve Handle for BLACKMAX® Vortech Handle Chrome Manifolds**



MXPk  
**Replacement Valve Handle w/ Labels for BLACKMAX® Manifolds**



MXPkC  
**Piston Valve Chrome Handle**



MXPkW  
**Valve Handle, End-Cap, Screw & Label**



MXPV  
**Complete BLACKMAX® Piston Valve Assembly**

# DIGITAL MANIFOLDS

MD100W / MD100WVHE

## BLACKMAX® Wireless MD Series

BLACKMAX® wireless digital manifolds combine industry-leading accuracy with a rugged nylon water-resistant housing, durable elastomeric keypad and large backlit LCD display. For use with or without CPS Link™ app— can work as a standalone device.

### 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

### RUGGED DESIGN

- Water-resistant, high-strength, glass-filled nylon housing
- Precision machined anodized aluminum manifold body
- Proprietary Vortech valve system certified to 10 microns
- High-impact polycarbonate LCD window
- Advanced sight glass design



Connections For Thermistor Sensors



9V DC Charger Port



### USE WITH CPS LINK™ FOR ENHANCED FUNCTIONS

- Fast, convenient touch screen control
- Comprehensive views of system measurements
- Graphical depictions of test functions
- Data logging
- Geolocation data and more
- Perform and monitor system measurements—in real time without the need to physically touch the manifold
- Color scheme change according to refrigerant
- Pressure or vacuum tests can be saved, stored or emailed as a graph
- Select from different languages to work in.




### SIMPLICITY & VERSATILITY

- Preloaded with over 100 refrigerants with quick access to your favorite five
- One-touch access to your 5 favorite refrigerants

### FULL SYSTEM MEASUREMENT

- 2 Pressures, 2 temperatures and vacuum (using MDXVG accessory)
- Vacuum hold and pressure hold test functions
- Simultaneously displays:
  - HI and LO pressures, superheat and subcooling
  - HI and LO pressures, T1 and T2
  - HI and LO pressures, saturation T1 and saturation T2
  - HI and LO pressures, displays T1, T2 and Delta T

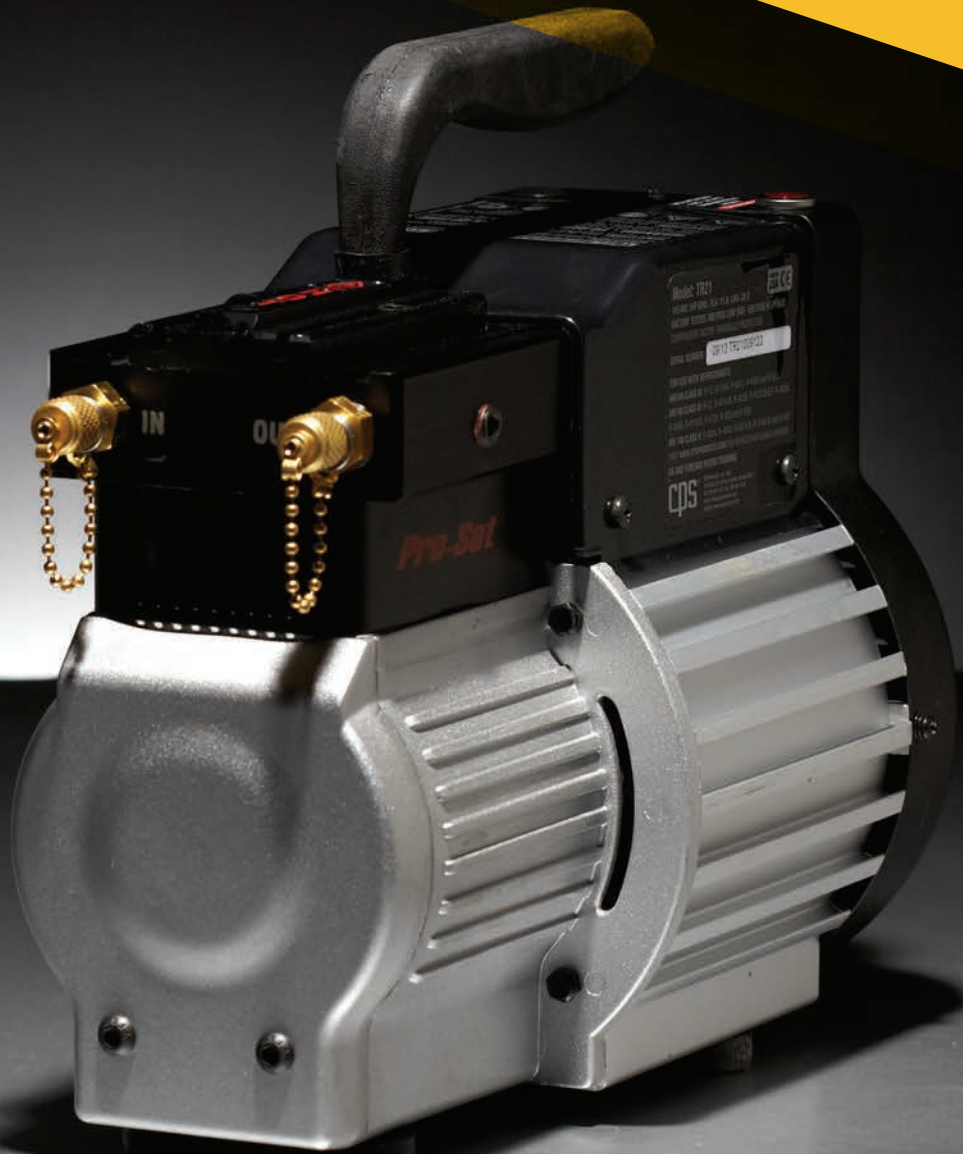
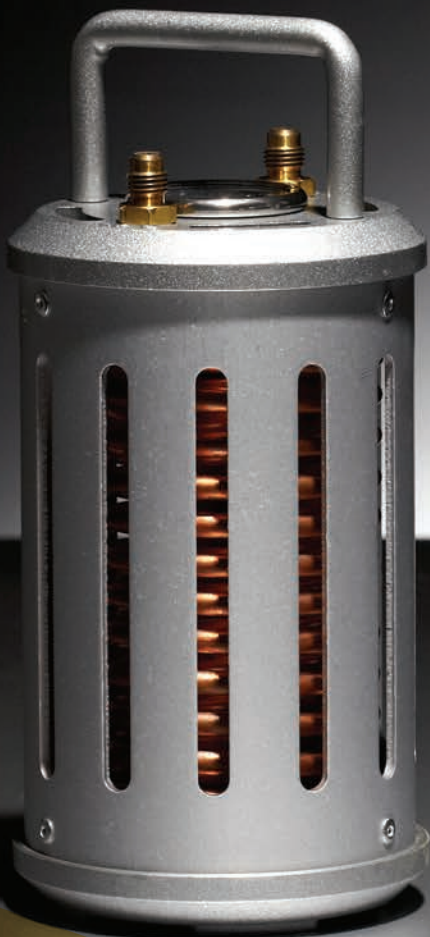
### ACCESSORIES (INCLUDED OR PURCHASE SEPARATELY)

			
Wireless Digital Manifolds	HP5BKEZ3 <b>Three 5' Black &amp; Chrome Ball Valve Charging Hoses</b>	HV5Z <b>One 5' Heavy Duty Black &amp; Chrome Vacuum Hose</b>	MDXSC <b>Soft Case For All Digital Manifolds</b>
MD100W	✗	✗	Optional
MD100WVHE	✓	✓	Optional



Accuracy	+/- 10% of reading or +/- 10 microns, whichever is greater	
Sensor Type	Self - heated thermistor bridge with integral temperature compensation from 0 to 50 °C (32 to 122 °F).	
Operating Temperature Range	Compensated (accuracy as stated): 0°C TO 50°C (32°F TO 122°F)	
	Non-compensated (add +/- 0.5% of reading error for every °C outside compensated range): -10 to 0°C (14 to 32°F)	
Operating and Storage Humidity	0 to 95%, non-condensing	
Storage Temperature	-40 to 85°C (-40 to 185°F)	
Display Pressure Range	AUTO-RANGING SCALES:	
	0 to 99 microns	1 micron resolution
	100 to 990 microns	10 micron resolution
	1000 to 9900 microns	20 micron resolution
	10000 to 25000 microns	50 micron resolution
High side pressure range	-14.5 to 800.0 PSIG (-1.0 to 55 bar)	
Low side pressure range	-14.5 to 800.0 PSIG (-1.0 to 55 bar)	
Pressure reading accuracy	+/- 1% of reading or +/- 0.5 PSIG (+/- 0.05 bar)	
Pressure reading resolution	0.5 PSIG (0.05 bar)	
High and low side burst pressure	1500.0 PSIG (103.4 bar)	
High side temperature range	-58.0 °F to 302 °F (-50 °C to 150°C)	
Low side temperature range	-58.0 °F to 302 °F (-50 °C to 150°C)	
Temperature reading accuracy	+/- 0.36 °F (+/- 0.2°C)	
Vacuum indication accuracy	+/- 10 microns (requires MDXVG accessory)	
SH, SC & saturation temperature accuracy	+/- 0.5°F (+/- 0.3°C)	
Instrument working temperature	-4.0 °F to 122°F (-20°C to 50°C)	
Communication range (With CPS Link™)	300 ft. (max) (Depends on device capabilities)	
Instrument working RH range	0% to 100% non-condensing	
APO (Automatic Power Off)	10 minutes. Can be disabled by user.	
4 valve size (L x H x W)	8.1" x 3.5" x 7.0" (20.5 cm x 8.9 cm x 17.8cm)	
4 valve weight	3.3 lb. (1.5 kg)	
Display Life using 4 industrial alkaline AA batteries (included)	Backlight full ON	25+ hrs. continuous duty
	Backlight full OFF	60+ hrs. continuous duty
Display Life using 4 Rechargeable NiMH AA batteries (not included)	Backlight full ON	20+ hrs. continuous duty from full charge
	Backlight full OFF	50+ hrs. continuous duty from full charge

# RECOVERY EQUIPMENT



# THE ULTIMATE IN DEPENDABILITY



- Suction and Discharge Shut-Off Valves
- Connection Point For Power Cord
- Discharge Port
- Suction Port, with Replaceable Cleanable Filter
- ON-OFF Power Switch
- Large 2-1/4" (44mm) Diameter Suction and Discharge Gauges
- Indicator Lights for High Pressure or Low Pressure Status
- Twin fans, High Airflow, High Efficiency Condensing

4 Skid Resistant Rubber Feet



High Density Polyethylene Case



## TR700 SerieS **BLACKMAX® Refrigerant Recovery Machine**

Designed for residential and commercial refrigeration systems, the BLACKMAX TR700 Series are the industry's best-performing refrigerant recovery machines 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.

### FEATURES:

- 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
- For use with AHRI Category III, IV & V refrigerants
- R-410a ready with 550 psi high pressure shut-off switch
- Ergonomic well balanced design for easy transport (includes shoulder strap)
- Compact design with easy 4 bolt access
- Externally serviceable valves and gauges
- Integrated component mounts for quiet operation
- Less parts provide greater reliability
- Designed by CPS Products, Inc. in USA





Twin fans, high density polyethylene case, 4 skid-resistant rubber feet



Selectable manual or automatic shut-off mode settings



Large 2-1/4" diameter gauges and indicator lights for high pressure or low pressure status



Replaceable, cleanable filter



Detachable power cord



Adjustable carrying strap

		BLACKMAX® TR700 SERIES			
Specs		TR700	TR700C	TR700S	TR710
Voltage, (Hz), Phase		115V (60 Hz)		220-240 VAC (50 Hz)	115V (60 Hz)
Motor HP		2/3 HP			
Pressure Gauges		High, Low			
Overload Protection		15 Amp	13 Amp	10 Amp	15 Amp
Power Consumption		1000 W			
High Pressure Shut-Off		550 psig (38 bar)	450 psig (31 bar)	550 psig (38 kg/cm)	
Auto Vs. Manual Reset		Auto			
AHRI Refrigerant Category		Category III (Medium Pressure; IV (Medium High Pressure; V (High Pressure)			
Suction Pressure Gauge	Outer Scale	-30" Hg to 500 psig			
	Inner Scale	-76 cm Hg to 35 kg/cm			
Discharge Pressure Gauge	Outer Scale	0 to 1000 psig			
	Inner Scale	0 to 70 kg/cm			
ASHRAE Standard 34 Refrigerant Safety Classification		A1			
Operating Temperature Range		32°F to 120°F (0°C to 49°C)			
Power Cord Length		6' (1.82 m) Detachable			
Dimensions		9.75" x 21" x 14.0" (24.7 cm x 53.3 cm x 35.6 cm)			
Weight		32 Lb (14.5 kg)			
Agency Approvals		UL (ARI-740-98),, CE, CSA, TUV			
Warranty (Years)		1			
Tank Overfill Sensor Cord		NO			YES

# IGNITION PROOF



TRS600 & TRS600 Series

## PRO-SET® Ignition Proof Refrigerant Recovery Machine for Class A1, A2, A2L, A3 Refrigerants

### FAST. COMPACT. RELIABLE.

We took six recovery machines and their verified recovery rates. The Pro-Set TR600 was the undisputed fastest recovery machine for R410a and fastest overall for R22, R134a and R407c.

### FEATURES:

- Designed and tested to meet ANSI 12:12.01 Ignition proof standards
- Powerful 2/3 HP oil-less 2 cylinder reciprocating recovery compressor
- Exceptional compressor, condensing and cooling systems allow fast recovery in high temperature environments
- Maintenance free oil-less compressor
- Permanently lubricated and sealed main bearings
- Ignition proof power switch
- Sealed start relay
- Hard wired 9.8 ft. (3m) power cord
- 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 fitting for easy filter clean/change
- Quiet operation
- Designed by CPS Products, Inc. in USA

Ignition proof power switch



High pressure shut off indicator



**PRO-SET® TR600 & TRS600 SERIES**

Specs	TR600C	TR600K	TR600S	TRS600	TRS600E	TRS600EH	TRS600K	
Voltage, (Hz), Phase	115 VAC (60 Hz)	220V (50 Hz) 230V (60 Hz)	220-240 VAC (50 Hz)	115 VAC (60 Hz)	220-240 VAC (50 Hz)		220V (50 Hz) 230V (60 Hz)	
Motor HP	2/3 HP							
Pressure Gauges	High, Low							
Overload Protection	13 Amp						10 Amp	
Power Consumption	1000 W							
High Pressure Shut-Off	450 psig (31 Bar)						550 psig (38 bar)	
Auto Vs. Manual Reset	Auto				Manual		Auto	
Ignition Proof Design	✗			✓				
Suction Pressure Gauge	Outer Scale	-30" Hg to 500 psig	-30" Hg to 500 psig	30" Hg to 500 psig		0 to 3500 kPa		30" Hg to 500 psig
	Inner Scale		-76 cm Hg to 35 kg/cm			0 to 35 bar		
Discharge Pressure Gauge	Outer Scale	0-550 psig				0 to 3800 kPa		0-550 psig
	Inner Scale					0 to 38 bar		
ASHRAE Standard 34 Refrigerant Safety Classification	A1, A2, A2L, A3							
Operating Temperature Range	32°F to 120°F (0°C to 49°C)							
Power Cord Length	3.5 ft (1.06m)			9.8 ft (3.0 m)			6 ft (1.8 m)	
Dimensions	8.5" x 16.7" x 12.3" (21.6 cm x 42.4 cm x 31.2 cm)							
Weight	28 Lb (12.7 kg)							
Agency Approvals	UL, CE, CSA	UL, CE			CE		UL, CE	
Warranty (Years)	1							



# SMALLEST, LIGHTEST, FASTEST AND MOST RELIABLE RECOVERY MACHINES

TR21 & TRS21 Series

## PRO-SET® Ignition Proof Refrigerant Recovery Machine for Class A1, A2, A2L, A3 refrigerants

- Designed and tested to meet ANSI 12:12.01 Ignition Proof standards
- Ignition proof ON-OFF switch
- Sealed start relay
- Maintenance free oil-less compressor
- Permanently lubricated and sealed main bearings
- 550 Psig high pressure cutoff switch with LED indicator
- Cleanable 100 mesh inlet filter
- Fastest recovery rates in its class
- Multi-language color box



		PRO-SET® TR21 & TRS21 SERIES					
Specs		TR21C	TR21E	TRS21	TRS21A*	TRS21C	TRS21E*
Voltage, (Hz), Phase		115V (60 Hz)	220-240 V (50Hz)	115V (60Hz)	220-240 VAC (50Hz), 1 PH		
Motor HP		2/3					
Pressure Gauges		NA					
Overload Protection		✗	10 Amp	✗	10 Amp	✗	10 Amp
Power Consumption		1000 W					
High Pressure Shut-Off		450 PSI (31 Bar)	522 psig (36 Bar)	550 psig (38 Bar)		522 psig (36 Bar)	
Auto Vs. Manual Reset		Auto	Manual (Button)	Auto	Manual (Button)		
Ignition Proof Design		✗			✓		
Suction Pressure Gauge	Outer Scale	No Gauges					
	Inner Scale						
Discharge Pressure Gauge	Outer Scale	No Gauges					
	Inner Scale						
ASHRAE Standard 34 Refrigerant Safety Classification		A1	A1, A2, A2L, A3		A1		
Operating Temperature Range		32°F to 120°F (0°C to 49°C)					
Power Cord Length		6 Ft (1.82 m) Detachable					
Dimensions		6" x 12" x 9" (15cm x 30cm x 23cm)					
Weight		24.3 lb (11.0 kg)					
Agency Approvals		UL, CE, CSA					
Warranty (Years)		1					

## REPLACEMENT PARTS FOR TR700, TR600, TRS600, TR21, TRS21 SERIES MACHINES

Item	Description	Where used
TR21X1	Valve Rebuild Kit	TR700, TR600, TR21
TR21X2	Complete Rebuild Kit	TR700, TR600, TR21
TR21X3	Piston/Connecting Rod	TR700, TR600, TR21
TR21X4	Complete Head Replacement	TR21
TR21X5	Eccentric Crank Set	TR700, TR21
CRXF3	Suction Filter	All

## SUB COOLER

# DRAMATICALLY INCREASES THE SPEED OF ANY RECOVERY MACHINE

### CUT YOUR RECOVERY TIME IN HALF!

The only commercialized recovery sub-cooler manufactured for the professional A/C & R technician to work with ALL refrigerants. Use in-line with the discharge line of any recovery machine to dramatically increase the speed of recovery!

- Increases the speed and performance of your recovery machine up to 95%! For example: The time needed to recover 15 lb of R-22 at 120°F is 32 minutes. Using the MT69, it takes only 17 minutes.
- Functions as a submersible condenser or evaporator
- Rugged, compact and easy to use

### THE HOTTER IT IS, THE BETTER IT WORKS

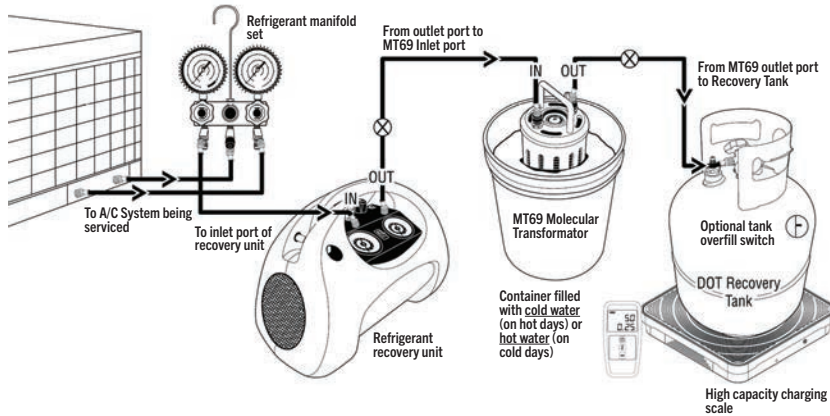
- Essential for recovering R410A on hot days and eliminates the need to change tanks
- Eliminates annoying shutdown due to high pressure switch limit
- Essential for recovering liquid refrigerant on cold days
- Eliminates liquid slugging at colder temperatures
- Patented
- Designed in USA



**MT69**  
The original molecular transformator with copper coil

**MT69SS**  
With stainless steel coil- for use on refrigerant systems utilizing Class A1, A2, A2L and A3 refrigerants

## HOW THE 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.

SPECIFICATIONS	MT69	MT69SS
Dimensions	4.25" x 9" (10.9 cm x 22.9 cm)	
Weight	3.50 lb (1.58 kg)	3.10 Lb (1.40 kg)
Maximum Operation Pressure	500 Psig	
Discharge Pressure Gauge	0 to 600 Psig	
Inlet/Outlet Connections	0 to 600 Psig	
Refrigerant Compatibility	CFC, HCFC, HFC, HC, and HFO	CFC, HCFC, HFC, HC, HFO, and NH3
Coil	Copper	Stainless Steel



# REFRIGERANT RECOVERY TANKS

- DOT Certified for refrigerant storage
- Refrigerant compatible sealant used on all mechanical connection points
- Auxiliary port for optional overfill sensor
- Liquid and Vapor UL listed Y-valve
- Powder coated for maximum rust protection
- 1/4" SAE Male



SPECIFICATIONS		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	
30 Lb	CRX430T	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
	CRX430TB	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
50 Lb	CRX400T	28.3	12.8	47.4	21.5	75.7	34.3	8	203.2	12.5	317.5	19.75	501.7	400
	CRX400TB	28.3	12.8	47.4	21.5	75.7	34.3	8	203.2	12.5	317.5	19.75	501.7	400
90 Lb	CRX390T	49.5	22.5	92.5	42	142.0	64.4	9.5	241.3	12	304.8	31.75	806.5	350

# HEATER STRAPS

## CHARGE FASTER IN COLD WEATHER

### REFRIGERANT CYLINDER HEATER STRAPS

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, reducing refrigerant transfer time.

SPECIFICATIONS	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



# VACUUM PUMPS





# PRO-SET® VACUUM PUMPS

## FEATURES

- Models are for use with class A1 (non-toxic, non-flammable), class A2 (non-toxic, low-flammable) or A3 (lower toxicity, higher flammability) as indicated below.
- Oil filled rotary vacuum pump cartridge construction
- Air cooled, thermally protected motors encased in a durable aluminum housing
- 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

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. Pumps are offered in a variety of single and dual stage models with numerous voltage, horsepower and free air displacement (CFM) options.



## TWO STAGE VACUUM PUMP SPECIFICATIONS

	VP2D	VP2DE	VP4D	VP4DE	VP6D	VP6DE	VPS6DE	VPS6DU	VP8D	VP8DE	VP10D	VP12D	VPS12DU	
Stage	2													
Ultimate Vacuum	10 Microns						25 Microns							
Refrigerant Class	A1, A2						A1, A2, A3		A1, A2	A1	A1	A1, A2	A1, A2, A3	
Ignition Proof	✗	✗	✗	✗	✗	✗	✓	✓	✗	✗	✗	✗	✓	
Dimensions (Inches)	12.2" x 5" x 9.6"		13.1" x 5.5" x 10"						14.9" x 5.7" x 10.6"					
Weight	17.7 lb (8.0 kg)		22.1 lb (10.0 kg)			22.5 lb (10.2 kg)		29.8 lb (13.5 kg)		30.3 lb (13.7 kg)		30.9 lb (14.0 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)		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	1/2 HP (1440, 1720 RPM)		1/2 HP (2880, 3440 RPM)						2/3 HP (2880, 3440 RPM)		1 HP (2880, 3440 RPM)			
Voltage	110-120V Or 220-240V @ 50/60Hz		110-120V Or 220-240V @ 50/60Hz		110-120V Or 220-240V @ 50/60Hz		220-240V, 50 Hz		115V 60Hz	110-120V Or 220-240V @ 50/60Hz		110-120V Or 220-240V @ 50/60Hz		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	Universal IEC Socket & Voltage Selector Switch	Universal IEC Socket	Universal IEC Socket, Voltage Selector Switch		Hard wired	
On/Off Power Switch	Yes						Yes (Ignition-proof sealed starting components)			Yes				Yes (Ignition-proof sealed starting components)
Operating Temperature Range	32°F to 125°F (0°C to 52°C)											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)		29 oz (860 ml)		28 oz (830 ml)		27 oz (800 ml)		
Gas Ballast Valve	Yes								Yes					
Intake Fittings	SAE: 1/4", 3/8", ACME: 1/2"						SAE 1/4", 3/8", 1/2"			SAE 1/4", 3/8", 1/2"				
Warranty (Years)	2	1	2	1	2	1	1	1	1	1	2	2	1	

## LEGEND

VP= Vacuum Pump; 2,4,6= CFM;

VOLTAGE: E= 220-240VAC 50 Hz; U = 115VAC, 50/60 Hz.

DUAL VOLTAGE = 110-120VAC or 220-240VAC 50/60 Hz.

REFRIGERANT CLASSES: A1 (lower toxicity, non-flammable); A2 (lower toxicity, flammable); A3 (lower toxicity, higher flammability)



### PRO-SET® TWO 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® 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® 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 operation and are hardwired with NEMA 115VAC plugs. Best of all, these pumps feature some of the smallest, lightest and most compact aluminum housings in the industry.

	SINGLE STAGE VACUUM PUMP SPECIFICATIONS (Standard Size)			SINGLE STAGE VACUUM PUMP SPECIFICATIONS (Compact Size)		
	VP2S	VP4S	VP6S	VPC2DU	VPC2SU	VPC4SU
Stage	1			2	1	
Ultimate Vacuum	50 Microns			> 15 Microns	100 Microns	
Refrigerant Class	A1			A1		
Ignition Proof	X	X	X	X	X	X
Dimensions (Inches)	12.2" x 5" x 9.6"		13.1" x 5.5" x 10"	11.3" x 4.5" x 8"	9.1" x 4.5" x 8.0"	11.3" x 4.5" x 8.0"
Weight	13.7 lb (6.2 kg)	15.0 lb (6.8 kg)	18.3 lb (8.3 kg)	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 @ 60Hz (96 l/m @ 50Hz)	6 CFM @ 60 Hz (144 l/m @ 50 Hz)	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 (1440 1720 RPM)	1/3 (HP) 2880/3440	1/2 HP (2880, 3440 RPM)	1/5 HP (2880, 3440 RPM)		1/4 HP (2880, 3440 RPM)
Voltage	Dual (110-120V Or 220-240V @ 50/60Hz)			115V @ 60 Hz		115V @ 60 Hz
Power Cord Connection to Pump	Universal IEC Socket, Voltage Selector Switch, Nema 15 Plug			Hardwired, Nema 115V Plug		Hardwired, Nema 115V Plug
On/Off Power Switch	Yes			Yes		
Operating Temperature Range	32°F to 125°F (0°C to 52°C)			32°F to 125°F (0°C to 52°C)		
Pro-Set® Vacuum Pump Oil Capacity	16 oz (470 ml)		19 oz (540 ml)	9 oz (250 ml)		10 oz (300 ml)
Gas Ballast Valve	No			No		
Intake Fittings	SAE: 1/4" & 3/8", ACME: 1/2"			SAE: 1/4", ACME: 1/2"		
Warranty (Years)	2			1		

**LEGEND**

VP= Vacuum Pump; C= Compact; 2,4,6 = CFM; S= Single Stage;

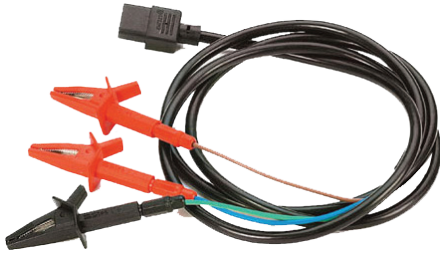
VOLTAGE: E= 220-240VAC 50 Hz; U = 115VAC, 50/60 Hz.

DUAL VOLTAGE = 110-120VAC or 220-240VAC 50/60 Hz.

REFRIGERANT CLASSES: A1 (lower toxicity, non-flammable); A2 (lower toxicity, flammable); A3 (lower toxicity, higher flammability)



## ACCESSORIES



VPXJ220

### Jumper Cord Kit

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



### Oil Port Caps

Oil mist preventer exhaust port.

VPXOMP for 2-6 CFM

VPXOMP2 for 8-12 CFM



AVCVAC

### Vacuum Pump Cap Kit

Vacuum pump cap kit with chains on one common ring.

## VACUUM PUMP OILS



### PRO-SET® PREMIUM VACUUM PUMP OIL

Pro-Set Premium Vacuum Pump Oil is extremely high quality, severely hydro-treated oil and can be used in vacuum pumps made by most manufacturers. It has low vapor pressure and better chemical stability vs. conventional oils and results in an excellent lubricant for vacuum applications.

To extend the life of your pump vacuum pump oil should always be clean and free of contaminants such as moisture, acids, vapors, dirt etc. So, change it after each use with Pro-Set Premium Vacuum Pump oil (available in pints, quarts and gallons).

#### CASES

VPOG6 (1 Gallon, 6/Case)  
 VPOQ12 (1 Quart, 12/Case)  
 VPOP12 (1 Pint, 12/Case)

#### SINGLE CONTAINERS

VPOG (1 Gallon)  
 VPOQ (1 Quart)  
 VPOP (1 Pint)

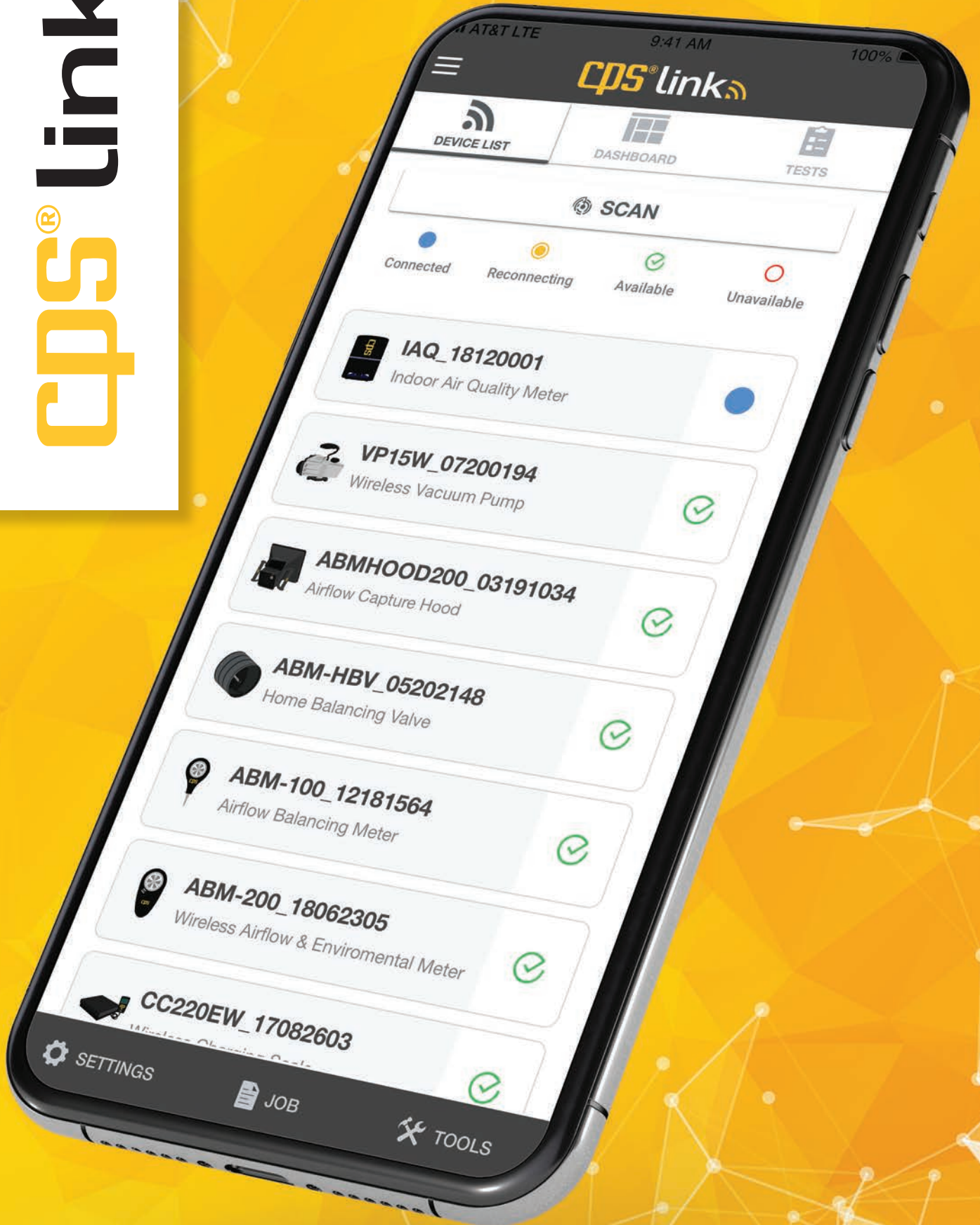
PRO-SET VACUUM PUMP OIL SPECIFICATIONS			
Property	Method	Units	Value
ISO Viscosity Grade	-	-	46
Viscosity	ASTM D445	cSt @ 40°C	43
Viscosity	ASTM D445	cSt @ 100°C	6.55
Viscosity Index	ASTM D2270	VI	107
Density 20°C	ASTM D4052	lb/Gal g/cc	7.19 0.863
Acid Number	ASTM D664	Mg KOH/g	<0.01
Water	ASTM D1744	ppm	<25
Flash Point	ASTM D92	°C (°F)	226 (440)
Pour Point	ASTM D97	°C (°F)	-18 (0)
Vapor Pressure	ASTM D2879	Torr 37.7°C	8 x 10 <sup>-7</sup>



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**MODEL:** TPSPD      **TYPE:** 1or2 SPD  
120/240 VAC 50-60Hz. In = 20kA SCCR = 200kA  
**MCOV:** 150VAC L-N    300VAC L-L  
**VPR:** 800VAC L-N/G 1200VACL-L

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**GREEN LED OFF:** Replace surge protection device  
Contains no serviceable parts



ANSI/UL 1449 4th Edition  
NEMA Type 4X Enclosure

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**CPS PRODUCT GUARANTEE**

CPS® guarantees all products are free of manufacturing and material defects up to 1 year from the date of purchase. If a product should fail during the guarantee period due to defective material or workmanship, it will be repaired or replaced (at our office) at no charge to customer. This guarantee does not apply to products that have been altered, misused, or are in need of field service maintenance. All repaired products will carry an independent 90-day warranty.

