

# cps®



## PROFESSIONAL AIR CONDITIONING & REFRIGERATION PRODUCTS



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CPS Products is a world leader in the design and manufacture of tools and test equipment used in the Automotive and HVACR industries. Founded in 1975, CPS has grown from a single employee and a single product to over 200 employees and 1200 products. CPS maintains 5 fully staffed subsidiary locations strategically located around the world. These global locations provide the loyal CPS customer base with unsurpassed service of our expansive product line. The success of CPS can be attributed to a basic philosophy of providing our customers with the very best our industry has to offer. This includes the best service, the best products and most importantly the best overall quality.

Supported by state-of-the-art mechanical and electronic manufacturing facilities, CPS is able to actively develop, maintain and continually improve our respected product lines in our wholly owned facilities. This ability is quite unique in today's rapidly changing manufacturing community providing CPS with a decisive edge when developing new innovative products that solve our customer's service needs. When one of our products becomes a trusted tool that a service professional will recommend to their friends, then our job is complete.

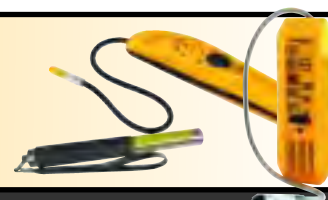
After all, we make our living by manufacturing the tools you rely on to make yours!

## Worldwide Locations



### ***ELECTRONIC LEAK DETECTION***

**1 - 3**



### ***UV LEAK DETECTION***

**4 - 6**



### ***CHARGING & RECOVERY SCALES/ CHARGING STATIONS***

**7 - 9**



### ***ELECTRICAL TEST & MEASURING INSTRUMENTS***

**10 - 11**



### ***TEMPERATURE MEASUREMENT INSTRUMENTS***

**12 - 14**



### ***VACUUM GAUGES & SPECIALTY METERS***

**15 - 16**



### ***PRO-SET<sup>®</sup> VACUUM PUMPS***

**17- 18**



### ***PORTABLE RECOVERY / RECYCLING EQUIPMENT***

**19 - 22**



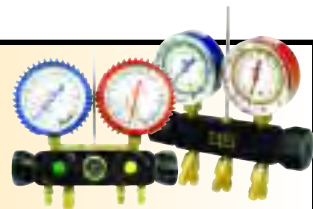




## TABLE OF CONTENTS

***SERVICE MANIFOLDS & GAUGES***

**23 - 30**



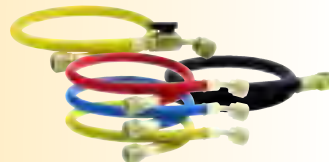
***GAS PRESSURE TEST KITS***

**31**



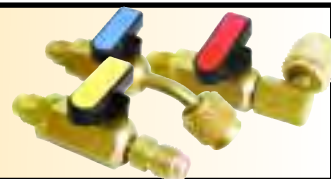
***VACUUM / CHARGING HOSES***

**32 - 34**



***HOSE ADAPTERS / BALL VALVES /  
ANTI-BLOWBACK VALVES***

**35 - 36**



***VALVE CORE TOOLS***

**37**



***ACCESS FITTINGS***

**38**



***TUBING TOOLS***

**39 - 42**



***SPECIALTY HAND TOOLS***

**43 - 45**

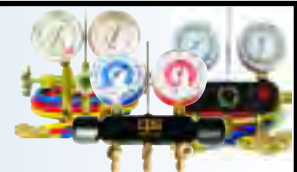


### ***AUTOMOTIVE SECTION***



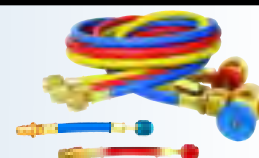
***SERVICE MANIFOLDS & GAUGES***

**46 - 47**



***CHARGING HOSES***

**48**



***R-134a COUPLERS / BALL VALVES  
& ADAPTERS***

**49**



***SPECIALTY HAND TOOLS***

**50 - 52**



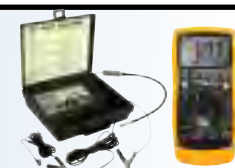
***UV LEAK DETECTION***

**53 - 55**



***ELECTRONIC TEST & MEASURING  
INSTRUMENTS***

**56**



***MOBILE RECOVERY / RECYCLING /  
RECHARGING EQUIPMENT***

**57 - 60**





## ELECTRONIC REFRIGERANT LEAK DETECTION

### THE ELIMINATOR™ LS3000B - Electronic Refrigerant Leak Detector



LS3000B

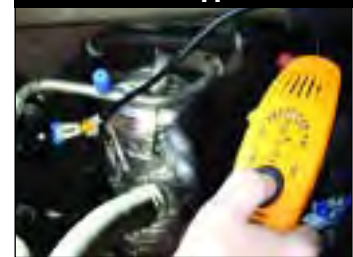
Fully automatic electronic refrigerant leak detector for all HFC, HCFC, CFC, SF6 gases & blends. Exclusive POWERSHIFT software automatically monitors, controls & adjusts all critical instrument settings to ensure maximum leak search results under any job environment. Two separate visual LED displays enable user to pinpoint the exact location of leak source & the approximate size of that leak.

|                           |                                                                                                                                                                                                                                                                                                                |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SENSOR TYPE:              | Cold Cathode Diode: Patented design allows fast, accurate detection of refrigerant leaks maintaining maximum sensitivity throughout the life of the sensor. Highly resistant to background contaminants including heavy condensation, oils, leak solutions, brake oils, radiator coolants, washer fluids, etc. |
| SENSITIVITY:              | Fully automatic selection better than 0.10oz/yr (3g/yr) leak rate of HFC.                                                                                                                                                                                                                                      |
| LEAK INDICATION:          | Audible Alarms: Two user-selectable audible alarm options (HIGH and LOW intensity)                                                                                                                                                                                                                             |
| TACHOMETER DISPLAY:       | Visual tachometer-like bar graph display: Eight high intensity LEDs                                                                                                                                                                                                                                            |
| GEARSHIFT VISUAL DISPLAY: | Arranged in a gearshift pattern, 7 LEDs indicate the current sensitivity range of the unit and subsequent leak size                                                                                                                                                                                            |
| FLEX PROBE:               | 14" / 35.6cm long, 0.25"/6.4mm diameter                                                                                                                                                                                                                                                                        |
| OPERATING TEMPERATURE:    | 0 to 140°F / -18 to 60°C                                                                                                                                                                                                                                                                                       |
| POWER:                    | 75 hours battery life using three size "C" alkaline batteries. Auto OFF after 10 minutes of inactivity.                                                                                                                                                                                                        |
| LOW BATTERY INDICATOR:    | Right most LED on Tachometer display illuminates to indicate low battery condition.                                                                                                                                                                                                                            |
| WEIGHT:                   | 1lb 2oz / 500g                                                                                                                                                                                                                                                                                                 |
| WARRANTY:                 | 2 years excluding sensors and batteries                                                                                                                                                                                                                                                                        |

#### A/C&R Application



#### Automotive Application



#### EXCLUSIVE POWERSHIFT™

Automatically controls all sensitivity related settings, eliminating guesswork and maximizing unit performance.

#### HIGHLY RESISTANT TO BACKGROUND CONTAMINANTS

Including heavy condensation, oils, leak solutions, brake fluid, radiator coolants, washer fluids, etc.

#### 8 LED TACHOMETER DISPLAY

Enables user to pinpoint exact location of leak

#### EASY ONE BUTTON OPERATION

Depress once to turn unit ON.  
Depress again to CLEAR the unit.  
Double-click to change sensitivity.  
Depress and hold to turn unit OFF.

#### STATE-OF-THE-ART COLD CATHODE DIODE (CCD) SENSOR TECHNOLOGY

Delivers quick response to leaks and maintains maximum sensitivity throughout the life of the sensor.

#### HIGH OUTPUT ALARM SPEAKER

Delivers clear crisp alarm tones

#### UNIQUE "GEARSHIFT" LED DISPLAY for LEAK SIZING

allows user to determine the approximate size of a leak.  
Neutral - Unit is ready for operation  
Leak Size: Small, Medium, Large







## ELECTRONIC REFRIGERANT LEAK DETECTION

### LEAK SEEKER® - LS780B / LS790B Electronic Refrigerant Leak Detectors



#### LS790B

Combines the most advanced microcomputer circuitry with field proven Ion-pump® sensor technology creating a highly sensitive, accurate electronic refrigerant leak detector. Over 100 computer generated tones and a high intensity bar graph display quickly alerts the user to varying halogen concentrations. Patented automatic calibration design eliminates the need for manual balance or tick rate adjustments while the user selectable 10 sensitivity ranges enables the **LS790B** to detect leaks of all refrigerants.

#### Specifications for the LS780B and LS790B

|                    |                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SENSOR TYPE:       | Patented Ion-Pump® sensor with built-in selective filter housing                                                                                                                                                                                                                                                                                                                |
| SENSITIVITY:       | Better than 0.25oz/yr (7g/yr) leak rate of HFC.                                                                                                                                                                                                                                                                                                                                 |
| AUDIBLE ALARMS:    | Over 100 computer generated tones varying in intensity with leak size                                                                                                                                                                                                                                                                                                           |
| VISUAL DISPLAY:    | 10 high intensity bar graph display (LS790B) / High intensity LED display (LS780B)                                                                                                                                                                                                                                                                                              |
| LOCK-OUT MODE:     | Unique feature enables quick & easy locating of refrigerant leaks in highly contaminated search zones. In this mode, the unit will automatically & systematically store the recorded concentration levels of background refrigerant while initiating leak search, alarming only in the area of the highest recorded concentration level, the actual leak source. (LS790B only). |
| FLEX PROBE:        | 18" / 45.7cm long metal cable probe                                                                                                                                                                                                                                                                                                                                             |
| OPERATING TEMP:    | 0 to 140F / -18 to 60C                                                                                                                                                                                                                                                                                                                                                          |
| POWER:             | 40 hours battery life using 4 "AA" alkaline batteries. Auto OFF after 15 minutes of inactivity.                                                                                                                                                                                                                                                                                 |
| LO BATT INDICATOR: | 5th LED constantly illuminates dimly indicating low battery condition.                                                                                                                                                                                                                                                                                                          |
| WEIGHT:            | 1lb 2oz / 500g                                                                                                                                                                                                                                                                                                                                                                  |
| WARRANTY:          | 2 years (LS790B). 1 year (LS780B). Excludes sensors and batteries                                                                                                                                                                                                                                                                                                               |



#### LS780B

A rugged, three position slide switch is used to turn the instrument on & select either LO or HI sensitivity ranges. Visual indication of the leak size is provided by a high intensity LED varying in brightness with the concentration of the refrigerant detected.



#### Spare Parts for LEAK SEEKERS®

1= LS780A

2 = LS780B

3=LS790A

4=LS790B

5 = LS3000B



LSXS3



LSXBMK



LSXS

| ITEM   | PRODUCT | DESCRIPTION                                        |
|--------|---------|----------------------------------------------------|
| LSXB   | 1,2,3,4 | Battery compartment cover                          |
| LSXBMK | 2,4     | Maintenance Kit: (1)LSXS + (1)LSXSF                |
| LSXC   | 1,2,3,4 | Leather carrying case                              |
| LSXC3  | 5       | Storage case LS3000                                |
| LSXE   | 1,2,3,4 | Earphone                                           |
| LSXMK  | 1,3     | Maintenance kit • 2 pcs/St. LSXS + 2 pcs/St. LSXVF |
| LSXS3  | 5       | Sensor for LS3000                                  |
| LSXS   | 1,2,3,4 | Ion-pump sensor                                    |
| LSXSF  | 2,4     | Selective filter/housing                           |
| LSXSH  | 1,3     | Aluminum Sensor housing                            |
| LSXVF  | 1,3     | Water vapor filter                                 |





## ELECTRONIC REFRIGERANT LEAK DETECTION

### Refrigerant Monitor



RM



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

| Item No.            | Refrigerant Type                           | Replacement Sensor |
|---------------------|--------------------------------------------|--------------------|
| RM12                | R-12                                       | RMX12              |
| RM134               | R-134                                      | RMX12              |
| RMX11               | R-22                                       | RMX12              |
| RM404               | R-404A                                     | RMX12              |
| RM407               | R-407                                      | RMX11              |
| RM410               | R-410A                                     | RMX12              |
| RM502               | R-502                                      | RMX12              |
| RM507               | R-507                                      | RMX12              |
| Replacement Sensors |                                            |                    |
| RMX11               | Replacement Sensor for Refrigerant Monitor |                    |
| RMX12               | Replacement Sensor for Refrigerant Monitor |                    |

|                           |                                            |
|---------------------------|--------------------------------------------|
| SENSITIVITY:              | 100 to 1,000 ppm                           |
| ACCURACY:                 | ± 3% of the setting or ± 25 ppm            |
| VISUAL ALARMS:            | High intensity LED display                 |
| AUDIBLE ALARM:            | 85 db at 1 foot                            |
| OPERATING TEMPERATURE:    | -20 to 150 F / -28 to 65 C                 |
| SENSOR MODULE:            | Relative Humidity 10 to 95% non-condensing |
| CONTROL MODULE:           | 32 to 150 F / 0 to 65 C                    |
| POWER:                    | AC or DC control voltages.                 |
| SENSOR FAILURE INDICATOR: | LED constantly illuminates                 |
| WEIGHT:                   | 1lb 2oz / 500g                             |
| WARRANTY:                 | 1 year                                     |

### GAS SEEKER® GS30 - Portable Combustible Gas Detector

The **GS30** is a low maintenance, easy-to-use portable combustible gas leak detector engineered to pinpoint leaks in residential, commercial and industrial appliances. Advanced semiconductor sensor and electronic control package enables detection of gases commonly found in service applications including; Carbon Monoxide, Natural Gas, Propane, Ammonia, Methane, Acetone, Hydrogen and Iso-Butane, with a virtually instantaneous alarm response period. Measuring just over 7" long and 0.72" in diameter its compact tubular shape enables testing in limited access areas and conveniently fits into a serviceman's pocket. Applications include the inspection of furnaces, valves, regulators, pipelines, meters and other devices associated with combustible gases.



GS30

#### Gases Detected

Carbon Monoxide, Natural Gas, Propane, Ammonia, Methane, Acetone, Hydrogen, Iso-Butane, Acetylene, Benzene, Butane, Ethanol, Ethylene Oxide, Gasoline, Hexane, Industrial Solvents, Paint Thinners, and Naptha.

**WARNING: THE GS30 IS NOT INTRINSICALLY SAFE IN CLASS 1 (EXPLOSIVE) TYPE ATMOSPHERES AND IS NOT SUITABLE FOR THE DETERMINATION OF HUMAN SAFETY OR HABITABILITY CONDITIONS.**

|                        |                                                                             |
|------------------------|-----------------------------------------------------------------------------|
| Detecting Range        | 0 - 100% LEL referenced to Methane.                                         |
| Alarm Indication       | Both visual and audible (>40db) alarm indicators                            |
| Low Level Alarm        | Preset at 10% LEL.                                                          |
| High Level Alarm       | Preset at 30% LEL                                                           |
| Operating Conditions   | 0°F to 104°F / -20°C to +40°C at less than 98% RH (non-condensing)          |
| Power                  | Working voltage is 3VDC using two 1.5V AA batteries.                        |
| Battery Life/Indicator | 5 hrs continuous use. Orange LED constantly illuminates when battery is low |
| Sampling               | Natural diffusion                                                           |
| Dimensions             | 7.2 x 0.71in / 183 x 18mm                                                   |
| Weight                 | 5.3oz / 150g (including battery)                                            |





## UV REFRIGERANT LEAK DETECTION

### UVPRO UV Flashlight & Enhancing Glasses

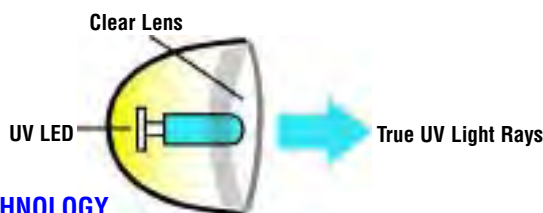


Actual Size

#### UVPRO

*Don't forget the "UV" when selecting your next UV light.*

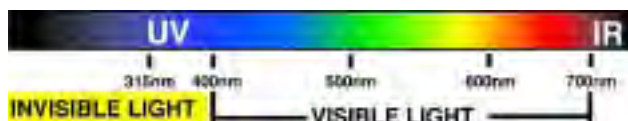
Ultra Violet (UV) dye additives are specially formulated to fluoresce in the presence of UV light rays. Hence the common industry names for the two major components used with this technology, "UV" dye and "UV" lights. Referring to the light spectrum chart below you can see that true "UV" light is invisible to the human eye, with the closest visible light colors being purple and blue respectively. The overall intensity of UV light diminishes as you move from the invisible UV light range to purple, then to blue and so on down the chart. Take care not to confuse a lamp that emits high intensity visible blue light as superior to a lamp tuned more efficiently to emit true UV light.



#### UV LED TECHNOLOGY

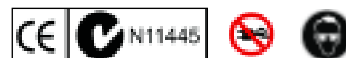
UV LED's produce only true and efficient UV Light. The CPS® UVPRO provides UV-A (Long wave UV) 325-375nm. Instant on LED provides the fastest leak inspection of any light available.

Light spectrum wavelengths in nanometers



#### Why BLUE is NOT Necessarily Cool

A correctly tuned Ultra Violet (UV) lamp should predominantly emit invisible UV light waves with only a trace of visible "purple" or "blue" light. The small amount of visible light is required to direct the user's eyes to the leak search area, while the invisible UV light rays actually illuminate the leaking dye. Lamps that emit large amounts of visible blue light have been marketed heavily as being more powerful and more effective at fluorescing leaks, backed by the obvious high output of visible light. Knowing that UV dye additives requires invisible true UV light rays to effectively fluoresce dispels this claim altogether. In fact, special "blue blocking" glasses are required for use with these high output blue lamps in order to remove the nuisance blue light from the vision of the user during the leak search process. Otherwise, the high output of light will mask the actual leak or illuminating dye additive.



### UVPRO - UV LED Light/Glasses Kit



#### UVPRO

The new and improved UVPRO light is the most compact and efficient UV light we have ever designed. The nine high intensity true UV LED's are specifically engineered to maximize the fluorescing capabilities of today's most commonly used dyes while greatly reducing the amount of "nuisance" background blue light emitted. Its rugged anodized aluminum body and o-ring sealed battery compartment allows it to handle harsh field conditions while small enough to conveniently fit in your pocket.

- 9 True UV emitting LED technology
- Rugged anodized aluminum body
- Works with all common dye additives
- Ultra Compact and lightweight
- Instant "ON" with no heat produced
- Operates on (3) AAA batteries (included)



## UV REFRIGERANT LEAK DETECTION

### UV55 LED Refrigerant Leak Detection Kit



**UV55 Includes:** UVPRO LED flashlight, squeeze gun injector w/ hose, R-134a 90° low coupler, safety glasses, UVS2 dye cartridge and carrying case.



#### UV55

- UVPRO True UV emitting LED light technology
- Compact & Rugged anodized aluminum body
- Mess-free and easy to use Squeeze Gun™ injector
- 1 UVS2 universal OEM approved dye cartridge
- Includes 90° low side snap coupler
- Operates 8 continuous hours on (3) AAA batteries (included)

### UV Dichroic Refrigeration Leak Detection Kits



#### UV150

50W 12VDC dichroic filter lamp with 90° swivel head, rechargeable battery pack, 110V charger, Flow-thru injector, 1 oz universal dye, enhancing glasses and case

**UV152:** same as above w/220V Charger

**UV152UN:** includes UVSTICK2 injector/dye system instead of flow-thru type

**UV200:** same as listed above except with 8oz bottle of dye instead of 1 oz



#### UV250

50W 12VDC dichroic filter lamp with 90° swivel head, rechargeable battery pack, 110V charger, Squeeze Gun™ injector, 6 universal dye cartridges, enhancing glasses and case

**UV252:** same as above w/220V Charger

### UV Dichroic Filter Lamps

#### UVCL



#### UVCL100



Powerful 50W Bulb  
Instant On Technology  
90° Swivel Head  
Use with UVXB (not included)

Powerful 100W Bulb  
Instant On Technology  
45° Handle for Comfortable Grip  
Use with UVXB (not included)

### ACCESSORIES

|           |                                        |           |                                           |
|-----------|----------------------------------------|-----------|-------------------------------------------|
| UVXB      | Rechargeable Battery Pack              | UVXG      | Safety/Enhancing Glasses                  |
| UVXBC     | Battery Carrying Case                  | UVXLNS    | 50W Replacement Dichroic Lens             |
| UVXC      | 100V Battery Charger                   | UVXLNS100 | 100W Replacement Dichroic Lens            |
| UVXBLB    | 50W Bulb -UVAL/UVCL                    | UVXSGA    | Hose Assembly for Squeeze-Gun Injector    |
| UVXBLB100 | 100W Bulb- UVAM/UVCL100                | UVXSH     | Hose Assembly for UVSTICK1                |
| UVXBLBPRO | Replacement Bulb for UVPRO before 2007 | UVXSHA    | Hose Assembly for UVSTICK2 and Lo Coupler |
| UVXC      | 110V Battery Charger                   | UVXSTA    | 3/8"FM X LO side Auto Adapter for UVSTICK |
| UVXCE     | 220-240v Battery Charger               |           |                                           |
| UVXCN     | Battery Connectors                     |           |                                           |





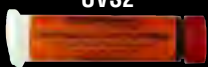
## UV REFRIGERANT LEAK DETECTION

### Prefilled/Disposable Refrigerant Dye Capsules & Cartridges

- Universal OEM approved dye formula
- Cleanest, easiest & fastest method of injection
- No refrigerant required to inject dye
- 4 sizes to match capacity of system
- Eliminates air entering system
- Eliminates over-injection of dye



*all dyes include I.D. labels...*

| SYSTEM TYPE                                                                        | REFRIGERANT CHARGE              | REFRIGERANT OIL                            | DYE CAPSULE STICK qty.6                                                                      | SQUEEZE CARTRIDGES qty.6                                                                      |
|------------------------------------------------------------------------------------|---------------------------------|--------------------------------------------|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| <b>SMALL</b><br>Ice machines,<br>window A/C units,<br>autos, refrigerators         | Up to 2.9 lbs.<br>Up to 1.3 kg  | Up to 15 fl. oz.<br>Up to .44 liter        | UV101<br> | UVS101<br> |
| <b>MEDIUM</b><br>Residential Systems                                               | 3 to 4.9 lbs.<br>1.4 to 2.2 kg  | 16 fl. oz. to 1.6 qt.<br>.45 to 1.8 liters | UV1<br>    | UVS1<br>   |
| <b>MEDIUM-LARGE</b><br>Light commercial and<br>large residential systems           | 5 to 9.9 lbs.<br>2.3 to 4.5 kg  | 1.7 qt. to 3.2 qt.<br>1.9 to 3.7 liters    | UV2<br>    | UVS2<br>   |
| <b>LARGE</b><br>Commercial and light<br>industrial, including<br>all split systems | 10 to 25 lbs.<br>4.6 to 11.4 kg | 3.3 qt. to 2 gal.<br>3.8 to 9.1 liters     | UV3<br>    | UVS3<br>   |

*In-line capsules are only for use with Spectronics® & Tracer® products' dye injection kits, bleed valves and universal connect sets*

### Bottled Refrigerant Dyes



#### UVUD6

- 8oz/237ml Universal dye bottles (6 per case)
- Universal - works with PAG, Ester and mineral oils
- Lowest cost per application
- Excellent for large systems

#### APPLICATIONS

Automotive: 1/4oz / 7.5ml per vehicle (32 vehicles per bottle)  
A/C&R: 1/4oz / 7.5ml per 20oz/591ml of systems lubricants

*All MOONSHINE™ dye meets SAE J2297 standard. Spectronics™ & Tracer are all registered trademarks of the respective company*



#### UVUDS

- 1oz/ 30ml Universal dye bottles (6 per case)
- Universal - works with PAG, Ester and mineral oils

#### Applications:

Automotive: 1/4oz / 7.5ml per vehicle (4 vehicles per bottle)

### Refillable Expandable - 1/4oz. / 7.5ml to 2oz. / 60ml Capacity



**In-Line AC&R 1/4"**  
1/4 to 1/2oz. - 7.5 to 14ml

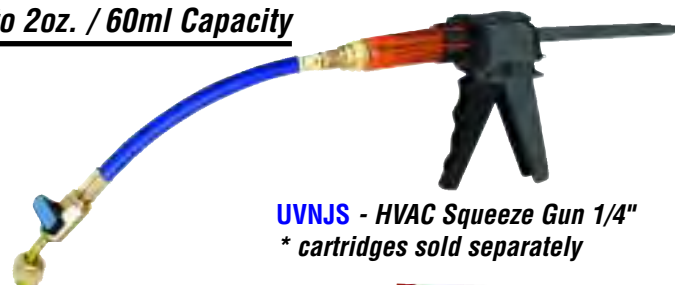
#### UVNJ



#### TLJ2

**TLJ2** R-12 1/4" SAE Oil Dye Injector

**TLJ4** R-134a 1/2" Acme Oil Dye Injector



**UVNJS - HVAC Squeeze Gun 1/4"**  
\* cartridges sold separately

#### STEP 1: LOAD CARTRIDGE



#### STEP 2: ATTACH HOSE



#### STEP 3: CONNECT & INJECT



#### STEP 4: CLEAN PORT & DISCARD EMPTY CARTRIDGE



#### UVCLNR

32oz./946ml. dye cleaner





## REFRIGERANT CHARGING / RECOVERY SCALES

### CC220 COMPUTE-A-CHARGE® High Capacity Charging Scale



**CARRYING CASE**  
10 3/4" X 13 1/2" X 2 1/2"

High capacity 220lb/100kg Compute-A-Charge® refrigerant charging/recovery scale, calibrated to strict NIST standards. Fully enclosed and removable metal scale platform enables use of product in or out of the protective case. Large, highly visible 1 1/2" x 2"/37mm x 48mm high resolution LCD readout displays either Imperial or Metric measurements in .25oz / 10g increments. The ergonomic hand held remote incorporates 6ft coil cord, a hanging hook and is backed with a magnet for attaching to metal surfaces. Full mechanical and visual overload protection. Operates 60 continuous hours on two 9V alkaline batteries. Includes automatic off feature.

#### CERTIFIED

CALIBRATED TO STANDARDS TRACEABLE TO THE NATIONAL  
INSTITUTE OF STANDARDS AND TECHNOLOGY (N.I.S.T.)



|                |                                                  |
|----------------|--------------------------------------------------|
| CAPACITY       | 220LB /100Kg                                     |
| ACCURACY       | .015% of Reading                                 |
| RESOLUTION     | ±1/4oz /±10g                                     |
| PLATFORM SIZE  | 8 3/4" x 8 3/4"<br>223 x 223mm Removable         |
| WEIGHT         | 5.6 lb/2.55 kg                                   |
| POWER          | (2) 9V battery included. Operates 60 cont. hours |
| READOUT        | Imperial /Metric                                 |
| OPERATING TEMP | -4°F - 156°F / -10°C to 50°C                     |
| PROGRAMMABLE   | No                                               |

#### REMOVABLE PLATFORM



#### CHARGING



EXTRA LARGE  
CAPACITY

#### HEATER BLANKET



**CHARGE FASTER  
IN COLD WEATHER!**

CCXHB - 110 VAC / 340W / 150°F  
CCXHBV - 220 VAC / 340W / 65°C

#### RECOVERY







## REFRIGERANT CHARGING / RECOVERY SCALES

### Programmable High Capacity Charging Scale



CC800A

Programmable high capacity 220lb/100kg Compute-A-Charge® refrigerant charging/recovery scale, calibrated to strict NIST standards. Operating exclusively on two 9V alkaline batteries, the CC800A is the only fully automatic refrigerant scale that does not require line voltage and is R-410A compatible. Using the keypad controls, simply program the CC800A to transfer or recover a pre-set amount of refrigerant, hit "go" and walk away. The scale's advanced microcomputer circuitry will constantly monitor the progress of the job, shutting off the refrigerant flow when the pre-set amount is reached and audibly alert the user. A large, highly visible 1 1/2" x 2" / 37mm x 48mm high resolution LCD readout displays either Imperial or Metric measurements in .25oz / 10g increments. The ergonomic hand held remote incorporates a 6ft coil cord, a hanging hook and is backed with a magnet for attachment to metal surfaces. Full mechanical and visual overload protection. Operates 30 continuous hours on two 9V alkaline batteries. Automatic off feature.



|                |                                           |
|----------------|-------------------------------------------|
| CAPACITY:      | 220LB /100Kg                              |
| ACCURACY:      | .015% of Reading                          |
| RESOLUTION:    | ±1/4oz /±10g                              |
| PLATFORM SIZE: | 8 3/4" x 8 3/4"<br>223 x 223mm Stationary |

|                 |                              |
|-----------------|------------------------------|
| WEIGHT:         | 8.5 lb/3.9 kg                |
| POWER:          | (2) 9V batteries included    |
| READOUT:        | Imperial /Metric             |
| OPERATING TEMP: | -4°F - 156°F / -10°C to 50°C |
| PROGRAMMABLE:   | Yes                          |

### Legal For Trade Charging Scale



CCLT

Certified by NMI to meet or exceed OIML standards. Adjustable feet and bubble level ensure accurate weight measurements. The ergonomic hand held remote incorporates a 6ft coil cord, a hanging hook and is backed with a magnet for attaching to metal surfaces. Full mechanical and visual overload protection. Operates 60 continuous hours on two 9V alkaline batteries.

|                 |                                          |
|-----------------|------------------------------------------|
| CAPACITY:       | 50 Kg                                    |
| ACCURACY:       | Class III                                |
| RESOLUTION:     | 20 g                                     |
| PLATFORM SIZE:  | 8 3/4" x 8 3/4"<br>223 x 223mm Removable |
| WEIGHT:         | 5.6 lb/2.55 kg                           |
| POWER:          | (2) 9V battery included                  |
| READOUT:        | Metric Only                              |
| OPERATING TEMP: | -4°F - 156°F / -10°C to 50°C             |
| PROGRAMMABLE:   | No                                       |



### REMOVABLE PLATFORM



Bubble Level

**Bubble Level**  
ensures accurate  
weight measurements



### PRO-SET® Portable Vacuum/Charging Stations

***“Ideal for both new installations  
and existing service work.”***

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

- Unsurpassed Charging Accuracy of  $\pm 0.015\%$  of reading
- Hanging ports and hooks for hose storage
- Rear wheels on Frame for Ease of Mobility
- Contains all Tools Needed for Charging / Evacuation
- All Components Store Easily on Cart



CS12DMV5JP5E



MV5JD



HP6



VP2D



CC220



Hard mounted manifolds



Rear wheels on Frame for  
Ease of Mobility



All Components Store  
Easily on Cart

| Item           | Application                      | Manifold Type            | Refrig. Scales                             | Press. / Temp. Scales | Hoses                                         | Vacuum Pump                        | Scale                        |
|----------------|----------------------------------|--------------------------|--------------------------------------------|-----------------------|-----------------------------------------------|------------------------------------|------------------------------|
| CS12DMV4JP5E   | Appliance / Light Refrigeration  | Vortech 4 Valve (MV4J)   | R22, R134A, R404A, R407C (80mm)            | BAR/PSI °C            | 3-pk of 150cm Prem. BV Hoses                  | Two Stage 45 l/m Pump (15 microns) | 100kg Compute-A-Charge Scale |
| CS12DMV5JP5E   | Air Conditioning                 | Vortech 5 Valve (MV5JD)  | R22, R134A, R404A, R407C (80mm)            | BAR/PSI °C            | 3-pk of 150cm Prem. BV Hoses                  | Two Stage 45 l/m Pump (15 microns) | 100kg Compute-A-Charge Scale |
| CS12DMV5J3P5E  | Air Conditioning / Refrigeration | Vortech 5 Valve (MV5J3D) | R22, R134A, R404A, R407C (80mm Oil Filled) | BAR/PSI °C            | 3-pk of 150cm Prem. BV Hoses                  | Two Stage 45 l/m Pump (15 microns) | 100kg Compute-A-Charge Scale |
| CS12DMV1202J5E | Air Conditioning / Refrigeration | Vortech 4 Valve (MV12O2) | R410A, R22, R407C (80 mm)                  | BAR/PSI °C            | 3-pk of 150cm Prem. BV Hoses                  | Two Stage 45 l/m Pump (15 microns) | 100kg Compute-A-Charge Scale |
| CS12DMV5WS10Q  | Air Conditioning / Refrigeration | Vortech 5 Valve (MV5WD)  | R134A, R404A, R407C, R507 (80 mm Class 1)  | BAR °C Class 1        | 3-pk of 300cm Standard Hoses & R134a Couplers | Two Stage 45 l/m Pump (15 microns) | 100kg Compute-A-Charge Scale |
| CS12DMV4HCP5E  | Air Conditioning / Refrigeration | Vortech 4 Valve (MV4HC)  | R600a, R290 (68mm)                         | BAR/PSI °C            | 3-pk of 150cm Prem. BV Hoses                  | Two Stage 45 l/m Pump (15 microns) | 100kg Compute-A-Charge Scale |
| CS12DMV5HCP5E  | Air Conditioning / Refrigeration | Vortech 5 Valve (MV5HCD) | R600a, R290 (68mm)                         | BAR/PSI °C            | 3-pk of 150cm Prem. BV Hoses                  | Two Stage 45 l/m Pump (15 microns) | 100kg Compute-A-Charge Scale |



### True RMS Digital Clamp-On Meter - CAT III 600V



- Display: 4 digit large character LCD
- Versatile for testing AC/DC voltage, AC/DC current, resistance and frequency
- True RMS AC measurement
- Data hold
- Max./Min. value measurement
- Clamp light and LCD backlight
- Auto zero key for DCA measurement
- Auto/Manual range, auto power off
- Secondary injection molded case, safety as per IEC1010 CAT.III 600V
- 40Hz - 100kHz (from test leads), +/- 0.1%
- 40Hz - 400Hz (from clamp jaw), +/- 0.1%
- DCV: 4 / 40 / 400  $\pm 0.8\%$  1000V  $\pm 1\%$
- ACV: 4/40 / 400/ 700V, +/- 1.2%
- DCA: 400 /600 / 1000A  $\pm 3\%$
- ACA: 400 / 600 /  $\pm 2.5\%$ , 600/1000A  $\pm 3\%$
- OHM: 400 /4k / 40k / 400k/4M $\Omega$  / 40M $\Omega$   $\pm 2\%$
- Audible continuity and diode test
- Clamp size: 42mm (max.)
- Battery: 3 x 1.5V AAA
- Dimensions and weight: 225 x 86 x 33mm, 320g
- Accessories: Test Leads and Carrying Pouch



AC650



#### AC650 Replacement Parts

DMXTL 1000V Cat 3 Test Leads

### Open-Jaw Digital Electrical Meter - CAT III 600V



- Display: 4 digit large character LCD
- Auto/manual range
- Relative, data hold, backlight
- Auto power off
- DCV: 4 /40 /400V  $\pm 0.7\%$  100V  $\pm 0.8\%$
- ACV: 4 /40 / 400V  $\pm 0.8\%$  700V  $\pm 1.0\%$
- ACA: 200A  $\pm 3.0\%$  (50Hz to 1000Hz)
- 400 /4k / 40k / 400k /4M  $\Omega$   $\pm 1.2\%$
- 40M  $\pm 2.0\%$
- CAP: 40n/400n/4 $\mu$ F  $\pm 4.0\%$
- Frequency: 10Hz to 100kHz  $\pm 2.0\%$
- Duty Cycle: 0.1% to 99.9%
- Continuity test - audible
- Diode test
- IEC1010 standard
- Accessories: Test Leads and Carrying Pouch
- Battery: 9V (1)

AC450



#### AC450 Replacement Parts

DMXTL 1000V Cat 3 Test Leads



### Digital Multimeter - CAT III 1000V



- RS-232 interface
- Designed to international safety standard IEC1010 CAT.III 1000V
- Secondary molded case
- Display: 4 digit large character LCD
- DC Voltage: 60m/6/60/600V  $\pm 0.5\%$ , 1000V  $\pm 0.8\%$
- AC Voltage: 60m/6/60/600V  $\pm 0.8\%$ , 700V  $\pm 1.0\%$
- DC Current: 600 $\mu$ /6000 $\mu$ /60m/600mA  $\pm 1.2\%$ , 10A  $\pm 1.5\%$
- AC Current: 600 $\mu$ /6000 $\mu$ /60m/600mA  $\pm 1.5\%$ , 10A  $\pm 2.0\%$
- Resistance: 600/6k/60k/600k/6M $\Omega$   $\pm 1.0\%$ , 60M $\Omega$   $\pm 1.5\%$
- Capacitance: 6nF  $\pm 1.8\%$ , 60n/600n/ 6 $\mu$  F  $\pm 1.0\%$ , 60 $\mu$ /600 $\mu$ /6mF  $\pm 1.5\%$
- Frequency: 6000/60k/600k/6M/60MHz  $\pm 0.5\%$
- Diode Test
- Continuity Test - audible
- Autorange and Manual Range
- Data Hold
- Max./Min. Value Measurement
- Back Light
- Auto Power Off
- One 9V Alkaline battery
- Size: 195 x 92 x 43mm
- Weight: Approx. 380g (including battery)
- Accessories: Hard carrying case, Test leads, "K" type bead Thermocouple, and Data log application software & RS232 cable
- Temperature: -40°C to 500°C  $\pm 2\%$

DM450



#### DM450 Replacement Parts

|       |                        |
|-------|------------------------|
| DMXTL | 1000V Cat 3 Test Leads |
| DMXF2 | Fuse Set               |



### Autorange Digital Multimeter - CAT III 600V

- Designed to international safety standard IEC1010 CAT III 600V
- Secondary injection molded case
- Auto Range
- Data Hold
- Maximum Value Measurement
- Back Light
- Auto Power off
- Display: 4 digit large character LCD
- DC Voltage: 200m / 2 / 20 / 200 / 600V  $\pm 0.7\%$
- AC Voltage: 200m / 2 / 20 / 200 / 600V  $\pm 0.7\%$
- DC Current: 200 $\mu$  / 2000  $\mu$  / 20m / 200mA  $\pm 1.2\%$ , 2/10A  $\pm 2.0\%$
- AC Current: 200  $\mu$  / 2000  $\mu$  / 20m / 200mA  $\pm 1.5\%$ , 2/10A  $\pm 3.0\%$
- DC Current: (WITH OPTIONAL CLAMP ): 200/2000A (0.1mV/0.1A)  $\pm 1.2\%$
- AC Current: (WITH OPTIONAL CLAMP ): 200/2000A (0.1mV/0.1A)  $\pm 1.5\%$
- Resistance: 200 / 2k / 20k / 200k / 2M  $\pm 1.2\%$ : 20M  $\pm 2.0\%$
- Temperature: -20°C - 1000°C  $\pm 3.0\%$ , 0°F ~ 1800°F  $\pm 3.0\%$
- Capacitance: 20n / 200n / 2 $\mu$  / 20 $\mu$  / 200 $\mu$  / 2000 $\mu$ F  $\pm 4.0\%$
- Continuity Test - Audible
- Diode Test
- Transistor hFE Test
- Power: 1.5V (AAA) X 3
- Size: 158 X 74 X 31mm
- Weight: Approx. 220g (INCLUDING BATTERY)
- Accessories: Thermocouple, Leads, and Batteries

DM350



#### DM350 Replacement Parts

|       |                        |
|-------|------------------------|
| DMXTL | 1000V Cat 3 Test Leads |
| DMXF1 | Fuse Set               |





## TEMPERATURE MEASUREMENT INSTRUMENTS

### TEMP-SEEKER® Four-Port Digital Thermometers



TM250C



#### TM250/TM250C

Professional grade temperature measurement instrument with four remote stations and a wide range of job specific accessory probes to complete all your temperature testing needs. Measures temperature differential between any two of the four remote stations and incorporate unique SCAN function that alternates measurement readings between all four of its remote stations in three-second intervals. Upgradeable to measure relative humidity, dewpoint and drybulb using the TMX2RH accessory probe. Incorporates Min/Max, Memory, °F/°C and Clear functions.

*TM250 includes (1) TMX2A, (1) TMX2G, (1) TMX2S*

*TM250C includes (1) TMX2A, (1) TMX2S, (1) TMX2C*



Incorporates Min/Max, Memory, °F/°C and Clear functions

### Probes for TM250/TM250C Series

TMX2A

AIR PROBE

15ft/4.5m lead



TMX2P

PUNCTURE PROBE

15ft/4.5m lead



TMX2S

SURFACE PROBE

15ft/4.5m lead



TMX2C

CLAMP-ON PROBE

15ft/4.5m lead



JOB SPECIFIC PROBES FOR  
ALL OF YOUR TEMPERATURE  
TESTING NEEDS

EVAPORATOR FLEX PROBE

15ft/4.5m lead

TMX2FP



TMX2G

15ft/4.5m lead

GENERAL PURPOSE AIR PROBE



TMX2RH

Drybulb/Dewpoint

probe TM250 15ft/4.5m lead

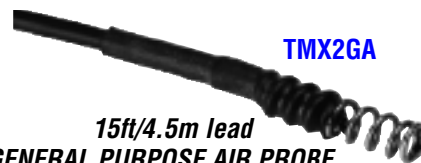
RELATIVE HUMIDTY



TMX2GA

15ft/4.5m lead

GENERAL PURPOSE AIR PROBE



### TEMP-SEEKER® Non-Contact Infrared Thermometer



The **TMINI12** infrared thermometer provides instant temperature measurement over a wide range of applications. The unit offers simple one-handed operation, laser point sighting, a backlit display, °C/°F select ability and an automatic power off feature. Use the TMINI12 to quickly measure temperatures of registers, ductwork, furnaces, evaporators, condensers, compressors, relays, manifolds, radiators, exhaust systems, thermostats, bearings and more. Leather carrying case and 9V alkaline battery are included.

|                              |                                         |
|------------------------------|-----------------------------------------|
| TEMPERATURE RANGE:           | -76°F to 932°F or -60°C to 500°C        |
| D:S (Distance to Spot Size): | 12:1                                    |
| EMISSIONITY:                 | Emmisivity pre-set at 0.95 - adjustable |
| ACCURACY:                    | ±2°C (±4°F) or ±2% of reading           |
| DISPLAY:                     | Digital Backlit LCD                     |
| RESOLUTION:                  | 1°C/°F                                  |
| BATTERIES/LIFE:              | (2) AAA batteries and auto power off    |



The unit offers simple one-handed operation, laser point sighting, a backlit display, °C/°F select ability and an automatic power off feature.

### Digital and Analog Pocket Thermometers



**TMDP**

Digital pocket thermometer with stainless steel probe and pocket clip.  
Range: -58° to 302°F / -50° to 150°C



**TMAP**

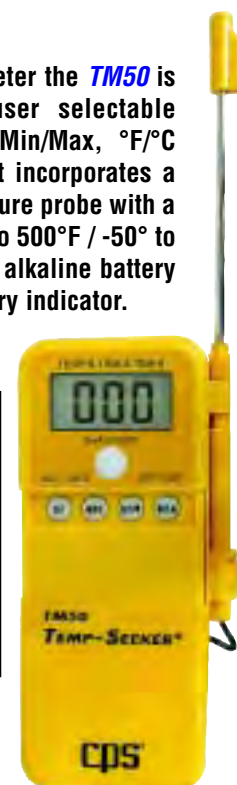
Analog pocket thermometer with 1" dial and Stainless steel probe and pocket clip

**TMAP:** Range: 0° to 220°F  
**TMAPC:** Range: -40° to 80°C

A step above the standard pocket thermometer the **TM50** is packed full of features, including a user selectable temperature alarm, a countdown timer, Min/Max, °F/°C selectable and memory functions. The unit incorporates a highly accurate stainless steel 96mm puncture probe with a 4ft/122cm cord. Temperature range is -58° to 500°F / -50° to 260°C. The TM50 operates on a single AAA alkaline battery with 25 hours of battery life and a low battery indicator.



**TM50**



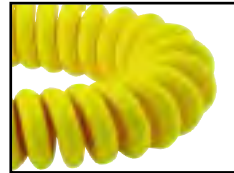


### K-TYPE TEMPERATURE PROBES



**TMXSK90**  
Max Temp: 752°F (400°C)

The **TMXSK90** is the fastest and most accurate handheld K-type surface probe providing accurate readings in less than 5 seconds. The sensor is made from flat-spring ribbons of thermocouple material for contact on uneven surfaces. An angled head for measuring hard to reach surfaces and a 3 foot coiled lead for durability and long reach. The exposed junction provides for fast response and is compatible with any other instrument with a **K-Type** input.



Coiled Lead

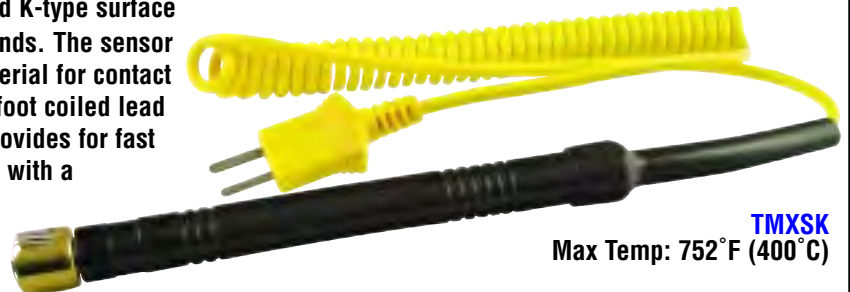


Flat-Spring Ribbons



Angled Head

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



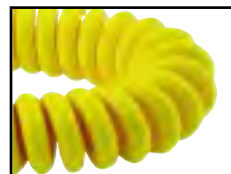
**TMXSK**  
Max Temp: 752°F (400°C)

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



**TMINI12**

**TMXSK**



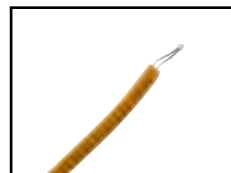
Coiled Lead



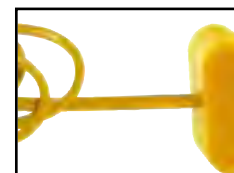
Flat-Spring Ribbons



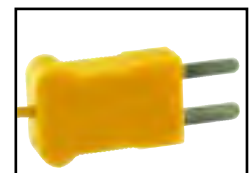
Ribbed Handle



Bead



Covered Lead



The **TMXKBEAD** is a standard K-type bead probe ideally suited for getting fast results when measuring temperature in a variety of media. This 36" long (1 meter) probe provides accurate readings in less than 5 seconds over the range of -58°F to 400 °F (-50 °C to 204 °C).



**TMXKBEAD**  
Max Temp: 400°F (204°C)  
Min Temp: -58°F (-50°C)

### VELOCITOR™ Air Velocity Meter



AM50



#### RANGE/ACCURACY OF WIND VELOCITY

| UNITS  | RANGE  | ACCURACY   |
|--------|--------|------------|
| Ft/Min | 0-8800 | ±3% or 0.1 |
| M/S    | 0-45   | ±3% or 0.1 |
| km/Hr  | 0-140  | ±3% or 0.1 |
| knots  | 0-88   | ±3% or 0.1 |

Precision vane type anemometer provides fast, accurate air velocity measurements for use in balancing HVAC systems or determining CFM calculations. A convenient TYPE K thermocouple is built-in to the remote vane providing quick measurement of grille/duct outflow temperatures from 32 to 122 F / 0 to 50 C. Included, is an easy-to-read laminated conversion chart that allows the user to quickly convert air velocity measurements into CFM calculations at a glance. Shipped with a rugged carrying case and is CE approved.

|   |              | CFM CHART (Grill Size) |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      | 18-0000* |      |      |      |      |      |
|---|--------------|------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|----------|------|------|------|------|------|
|   |              | 100                    | 125  | 150  | 175  | 200  | 225  | 250  | 275  | 300  | 325  | 350  | 375  | 400  | 425  | 450  | 475  | 500  | 525  | 550  | 575  | 600  | 625  | 650  | 675  | 700  | 725  | 750  | 775  | 800  | 825  | 850  | 875  | 900      | 925  | 950  | 975  | 1000 |      |
| R | 200X12 2.00  | 186                    | 235  | 285  | 335  | 385  | 435  | 485  | 535  | 585  | 635  | 685  | 735  | 785  | 835  | 885  | 935  | 985  | 1035 | 1085 | 1135 | 1185 | 1235 | 1285 | 1335 | 1385 | 1435 | 1485 | 1535 | 1585 | 1635 | 1685 | 1735 | 1785     | 1835 | 1885 | 1935 | 1985 | 2035 |
|   | 200X18 1.00  | 140                    | 175  | 210  | 245  | 280  | 315  | 350  | 385  | 420  | 455  | 490  | 525  | 560  | 595  | 630  | 665  | 700  | 735  | 770  | 805  | 840  | 875  | 910  | 945  | 980  | 1015 | 1050 | 1085 | 1120 | 1155 | 1190 | 1225 | 1260     | 1295 | 1330 | 1365 | 1400 |      |
| L | 24X12 5.00   | 240                    | 300  | 360  | 420  | 480  | 540  | 600  | 660  | 720  | 780  | 840  | 900  | 960  | 1020 | 1080 | 1140 | 1200 | 1260 | 1320 | 1380 | 1440 | 1500 | 1560 | 1620 | 1680 | 1740 | 1800 | 1860 | 1920 | 1980 | 2040 | 2100 | 2160     | 2220 | 2280 | 2340 | 2400 | 2460 |
|   | 24X18 2.50   | 180                    | 225  | 270  | 315  | 360  | 405  | 450  | 495  | 540  | 585  | 630  | 675  | 720  | 765  | 810  | 855  | 900  | 945  | 990  | 1035 | 1080 | 1125 | 1170 | 1215 | 1260 | 1305 | 1350 | 1395 | 1440 | 1485 | 1530 | 1575 | 1620     | 1665 | 1710 | 1755 | 1800 |      |
| I | 30X12 7.00   | 310                    | 390  | 470  | 550  | 630  | 710  | 790  | 870  | 950  | 1030 | 1110 | 1190 | 1270 | 1350 | 1430 | 1510 | 1590 | 1670 | 1750 | 1830 | 1910 | 1990 | 2070 | 2150 | 2230 | 2310 | 2390 | 2470 | 2550 | 2630 | 2710 | 2790 | 2870     | 2950 | 3030 | 3110 | 3190 | 3270 |
|   | 30X18 3.50   | 230                    | 285  | 340  | 395  | 450  | 505  | 560  | 615  | 670  | 725  | 780  | 835  | 890  | 945  | 1000 | 1055 | 1110 | 1165 | 1220 | 1275 | 1330 | 1385 | 1440 | 1495 | 1550 | 1605 | 1660 | 1715 | 1770 | 1825 | 1880 | 1935 | 1990     | 2045 | 2100 | 2155 | 2210 |      |
| S | 36X12 9.00   | 370                    | 465  | 560  | 655  | 750  | 845  | 940  | 1035 | 1130 | 1225 | 1320 | 1415 | 1510 | 1605 | 1700 | 1795 | 1890 | 1985 | 2080 | 2175 | 2270 | 2365 | 2460 | 2555 | 2650 | 2745 | 2840 | 2935 | 3030 | 3125 | 3220 | 3315 | 3410     | 3505 | 3600 | 3695 | 3790 | 3885 |
|   | 36X18 4.50   | 270                    | 335  | 400  | 465  | 530  | 595  | 660  | 725  | 790  | 855  | 920  | 985  | 1050 | 1115 | 1180 | 1245 | 1310 | 1375 | 1440 | 1505 | 1570 | 1635 | 1700 | 1765 | 1830 | 1895 | 1960 | 2025 | 2090 | 2155 | 2220 | 2285 | 2350     | 2415 | 2480 | 2545 | 2610 |      |
| E | 42X12 11.00  | 430                    | 535  | 640  | 745  | 850  | 955  | 1060 | 1165 | 1270 | 1375 | 1480 | 1585 | 1690 | 1795 | 1900 | 2005 | 2110 | 2215 | 2320 | 2425 | 2530 | 2635 | 2740 | 2845 | 2950 | 3055 | 3160 | 3265 | 3370 | 3475 | 3580 | 3685 | 3790     | 3895 | 4000 | 4105 | 4210 | 4315 |
|   | 42X18 5.50   | 320                    | 395  | 470  | 545  | 620  | 695  | 770  | 845  | 920  | 995  | 1070 | 1145 | 1220 | 1295 | 1370 | 1445 | 1520 | 1595 | 1670 | 1745 | 1820 | 1895 | 1970 | 2045 | 2120 | 2195 | 2270 | 2345 | 2420 | 2495 | 2570 | 2645 | 2720     | 2795 | 2870 | 2945 | 3020 |      |
| H | 48X12 13.00  | 490                    | 605  | 720  | 835  | 950  | 1065 | 1180 | 1295 | 1410 | 1525 | 1640 | 1755 | 1870 | 1985 | 2100 | 2215 | 2330 | 2445 | 2560 | 2675 | 2790 | 2905 | 3020 | 3135 | 3250 | 3365 | 3480 | 3595 | 3710 | 3825 | 3940 | 4055 | 4170     | 4285 | 4400 | 4515 | 4630 | 4745 |
|   | 48X18 6.50   | 360                    | 445  | 530  | 615  | 700  | 785  | 870  | 955  | 1040 | 1125 | 1210 | 1295 | 1380 | 1465 | 1550 | 1635 | 1720 | 1805 | 1890 | 1975 | 2060 | 2145 | 2230 | 2315 | 2400 | 2485 | 2570 | 2655 | 2740 | 2825 | 2910 | 2995 | 3080     | 3165 | 3250 | 3335 | 3420 |      |
| J | 54X12 15.00  | 550                    | 675  | 800  | 925  | 1050 | 1175 | 1300 | 1425 | 1550 | 1675 | 1800 | 1925 | 2050 | 2175 | 2300 | 2425 | 2550 | 2675 | 2800 | 2925 | 3050 | 3175 | 3300 | 3425 | 3550 | 3675 | 3800 | 3925 | 4050 | 4175 | 4300 | 4425 | 4550     | 4675 | 4800 | 4925 | 5050 | 5175 |
|   | 54X18 7.50   | 420                    | 515  | 610  | 705  | 800  | 895  | 990  | 1085 | 1180 | 1275 | 1370 | 1465 | 1560 | 1655 | 1750 | 1845 | 1940 | 2035 | 2130 | 2225 | 2320 | 2415 | 2510 | 2605 | 2700 | 2795 | 2890 | 2985 | 3080 | 3175 | 3270 | 3365 | 3460     | 3555 | 3650 | 3745 | 3840 |      |
| K | 60X12 17.00  | 610                    | 745  | 880  | 1015 | 1150 | 1285 | 1420 | 1555 | 1690 | 1825 | 1960 | 2095 | 2230 | 2365 | 2500 | 2635 | 2770 | 2905 | 3040 | 3175 | 3310 | 3445 | 3580 | 3715 | 3850 | 3985 | 4120 | 4255 | 4390 | 4525 | 4660 | 4795 | 4930     | 5065 | 5200 | 5335 | 5470 | 5605 |
|   | 60X18 8.50   | 480                    | 585  | 690  | 795  | 900  | 1005 | 1110 | 1215 | 1320 | 1425 | 1530 | 1635 | 1740 | 1845 | 1950 | 2055 | 2160 | 2265 | 2370 | 2475 | 2580 | 2685 | 2790 | 2895 | 3000 | 3105 | 3210 | 3315 | 3420 | 3525 | 3630 | 3735 | 3840     | 3945 | 4050 | 4155 | 4260 | 4365 |
| L | 66X12 19.00  | 670                    | 815  | 960  | 1105 | 1250 | 1395 | 1540 | 1685 | 1830 | 1975 | 2120 | 2265 | 2410 | 2555 | 2700 | 2845 | 2990 | 3135 | 3280 | 3425 | 3570 | 3715 | 3860 | 4005 | 4150 | 4295 | 4440 | 4585 | 4730 | 4875 | 5020 | 5165 | 5310     | 5455 | 5600 | 5745 | 5890 | 6035 |
|   | 66X18 9.50   | 540                    | 655  | 770  | 885  | 1000 | 1115 | 1230 | 1345 | 1460 | 1575 | 1690 | 1805 | 1920 | 2035 | 2150 | 2265 | 2380 | 2495 | 2610 | 2725 | 2840 | 2955 | 3070 | 3185 | 3300 | 3415 | 3530 | 3645 | 3760 | 3875 | 3990 | 4105 | 4220     | 4335 | 4450 | 4565 | 4680 | 4795 |
| M | 72X12 21.00  | 730                    | 885  | 1040 | 1195 | 1350 | 1505 | 1660 | 1815 | 1970 | 2125 | 2280 | 2435 | 2590 | 2745 | 2900 | 3055 | 3210 | 3365 | 3520 | 3675 | 3830 | 3985 | 4140 | 4295 | 4450 | 4605 | 4760 | 4915 | 5070 | 5225 | 5380 | 5535 | 5690     | 5845 | 6000 | 6155 | 6310 | 6465 |
|   | 72X18 10.50  | 600                    | 725  | 850  | 975  | 1100 | 1225 | 1350 | 1475 | 1600 | 1725 | 1850 | 1975 | 2100 | 2225 | 2350 | 2475 | 2600 | 2725 | 2850 | 2975 | 3100 | 3225 | 3350 | 3475 | 3600 | 3725 | 3850 | 3975 | 4100 | 4225 | 4350 | 4475 | 4600     | 4725 | 4850 | 4975 | 5100 | 5225 |
| N | 78X12 23.00  | 790                    | 955  | 1120 | 1285 | 1450 | 1615 | 1780 | 1945 | 2110 | 2275 | 2440 | 2605 | 2770 | 2935 | 3100 | 3265 | 3430 | 3595 | 3760 | 3925 | 4090 | 4255 | 4420 | 4585 | 4750 | 4915 | 5080 | 5245 | 5410 | 5575 | 5740 | 5905 | 6070     | 6235 | 6400 | 6565 | 6730 | 6895 |
|   | 78X18 11.50  | 660                    | 795  | 930  | 1065 | 1200 | 1335 | 1470 | 1605 | 1740 | 1875 | 2010 | 2145 | 2280 | 2415 | 2550 | 2685 | 2820 | 2955 | 3090 | 3225 | 3360 | 3495 | 3630 | 3765 | 3900 | 4035 | 4170 | 4305 | 4440 | 4575 | 4710 | 4845 | 4980     | 5115 | 5250 | 5385 | 5520 | 5655 |
| O | 84X12 25.00  | 840                    | 1015 | 1190 | 1365 | 1540 | 1715 | 1890 | 2065 | 2240 | 2415 | 2590 | 2765 | 2940 | 3115 | 3290 | 3465 | 3640 | 3815 | 3990 | 4165 | 4340 | 4515 | 4690 | 4865 | 5040 | 5215 | 5390 | 5565 | 5740 | 5915 | 6090 | 6265 | 6440     | 6615 | 6790 | 6965 | 7140 | 7315 |
|   | 84X18 12.50  | 720                    | 865  | 1010 | 1155 | 1300 | 1445 | 1590 | 1735 | 1880 | 2025 | 2170 | 2315 | 2460 | 2605 | 2750 | 2895 | 3040 | 3185 | 3330 | 3475 | 3620 | 3765 | 3910 | 4055 | 4200 | 4345 | 4490 | 4635 | 4780 | 4925 | 5070 | 5215 | 5360     | 5505 | 5650 | 5795 | 5940 | 6085 |
| P | 90X12 27.00  | 900                    | 1085 | 1270 | 1455 | 1640 | 1825 | 2010 | 2195 | 2380 | 2565 | 2750 | 2935 | 3120 | 3305 | 3490 | 3675 | 3860 | 4045 | 4230 | 4415 | 4600 | 4785 | 4970 | 5155 | 5340 | 5525 | 5710 | 5895 | 6080 | 6265 | 6450 | 6635 | 6820     | 7005 | 7190 | 7375 | 7560 | 7745 |
|   | 90X18 13.50  | 780                    | 935  | 1090 | 1245 | 1400 | 1555 | 1710 | 1865 | 2020 | 2175 | 2330 | 2485 | 2640 | 2795 | 2950 | 3105 | 3260 | 3415 | 3570 | 3725 | 3880 | 4035 | 4190 | 4345 | 4500 | 4655 | 4810 | 4965 | 5120 | 5275 | 5430 | 5585 | 5740     | 5895 | 6050 | 6205 | 6360 | 6515 |
| Q | 96X12 29.00  | 960                    | 1155 | 1350 | 1545 | 1740 | 1935 | 2130 | 2325 | 2520 | 2715 | 2910 | 3105 | 3300 | 3495 | 3690 | 3885 | 4080 | 4275 | 4470 | 4665 | 4860 | 5055 | 5250 | 5445 | 5640 | 5835 | 6030 | 6225 | 6420 | 6615 | 6810 | 7005 | 7200     | 7395 | 7590 | 7785 | 7980 | 8175 |
|   | 96X18 14.50  | 840                    | 1005 | 1170 | 1335 | 1500 | 1665 | 1830 | 1995 | 2160 | 2325 | 2490 | 2655 | 2820 | 2985 | 3150 | 3315 | 3480 | 3645 | 3810 | 3975 | 4140 | 4305 | 4470 | 4635 | 4800 | 4965 | 5130 | 5295 | 5460 | 5625 | 5790 | 5955 | 6120     | 6285 | 6450 | 6615 | 6780 | 6945 |
| R | 102X12 31.00 | 1020                   | 1225 | 1430 | 1635 | 1840 | 2045 | 2250 | 2455 | 2660 | 2865 | 3070 | 3275 | 3480 | 3685 | 3890 | 4095 | 4300 | 4505 | 4710 | 4915 | 5120 | 5325 | 5530 | 5735 | 5940 | 6145 | 6350 | 6555 | 6760 | 6965 | 7170 | 7375 | 7580     | 7785 | 7990 | 8195 | 8400 | 8605 |
|   | 102X18 15.50 | 900                    | 1075 | 1250 | 1425 | 1600 | 1775 | 1950 | 2125 | 2300 | 2475 | 2650 | 2825 | 3000 | 3175 | 3350 | 3525 | 3700 | 3875 | 4050 | 4225 | 4400 | 4575 | 4750 | 4925 | 5100 | 5275 | 5450 | 5625 | 5800 | 5975 | 6150 | 6325 | 6500     | 6675 | 6850 | 7025 | 7200 | 7375 |
| S | 108X12 33.00 | 1080                   | 1295 | 1510 | 1725 | 1940 | 2155 | 2370 | 2585 | 2800 | 3015 | 3230 | 3445 | 3660 | 3875 | 4090 | 4305 | 4520 | 4735 | 4950 | 5165 | 5380 | 5595 | 5810 | 6025 | 6240 | 6455 | 6670 | 6885 | 7100 | 7315 | 7530 | 7745 | 7960     | 8175 | 8390 | 8605 | 8820 | 9035 |
|   | 108X18 16.50 | 960                    | 1145 | 1330 | 1515 | 1700 | 1885 | 2070 | 2255 | 2440 | 2625 | 2810 | 2995 | 3180 | 3365 | 3550 | 3735 | 3920 | 4105 | 4290 | 4475 | 4660 | 4845 | 5030 | 5215 | 5400 | 5585 | 5770 | 5955 | 6140 | 6325 | 6510 | 6695 | 6880     | 7065 | 7250 | 7435 | 7620 | 7805 |
| T | 114X12 35.00 | 1140                   | 1365 | 1590 | 1815 | 2040 | 2265 | 2490 | 2715 | 2940 | 3165 | 3390 | 3615 | 3840 | 4065 | 4290 | 4515 | 4740 | 4965 | 5190 | 5415 | 5640 | 5865 | 6090 | 6315 | 6540 | 6765 | 6990 | 7215 | 7440 | 7665 | 7    |      |          |      |      |      |      |      |



### VACROMETER™ Digital Vacuum Gauge



VG200

AVT45

Advanced measurement instrument providing continual digital readout of evacuation process on large 5 digit LCD. Measurement units are user selectable to read in Microns, Torr, in/hg or mBar at the touch of a key. Advanced surface mount technology automatically compensates for ambient changes in the environment ensuring accuracy and consistency in performance. Advanced field-cleanable sensor is able to withstand 400 PSI of positive pressure. Unit operates 30 hours on 9V alkaline battery with low battery indicator and auto off feature. Includes carrying case, hanging hook, AVT45, 9V battery and is CE approved.

**VG201 = VG200 + 1/8" NPT Thread Connection**



#### SENSOR:

|                              |                                                                                                                                                                     |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TYPE                         | Self - heated thermistor bridge with integral temperature compensation from 0 to 50 °C (32 to 122 °F).                                                              |
| OPERATING PRESSURE RANGE     | Atmospheric pressure to 0 microns Maximum Working pressure: 400 PSIG                                                                                                |
| BURST PRESSURE               | 3000 PSIG                                                                                                                                                           |
| OPERATING RANGE              | VG200- Atmospheric to 0 microns / VG100A- Atmospheric to 25 Microns                                                                                                 |
| ACCURACY                     | +/- 10% of Reading.                                                                                                                                                 |
| OPERATING TEMPERATURE RANGE  | Compensated (accuracy as stated): 0°C TO 50°C (32°F TO 122°F) Non-compensated (add +/- 0.5% error for every °C outside compensated range): 0 to 50°C (-22 to 158°F) |
| OPERATING & STORAGE HUMIDITY | 0-95%, non-condensing.                                                                                                                                              |
| STORAGE TEMPERATURE          | - 40 to 185°F / - 40 to 85°C                                                                                                                                        |
| POWER SOURCE                 | One 9 volt alkaline battery (ANSI 1604AC – IEC 6LR61)                                                                                                               |
| BATTERY LIFE                 | 20 hours of continuous use. Instrument shuts itself off after 5 minutes of operation.                                                                               |
| WEIGHT                       | 5.5 oz. / 153 g. excluding the battery.                                                                                                                             |
| DIMENSIONS                   | 68 mm. diameter by 40 mm. deep by 124 mm. overall height (2.7" dia. by 1.6" deep by 5" overall height).                                                             |
| MECHANICAL CONNECTION        | Standard 1/4" female SAE refrigerant hose type with core depressor.                                                                                                 |
| BATTERY INDICATOR            | Battery symbol with 3 segment Power Level Bar Graph. (VG200). LED Low Battery Indicator (VG100)                                                                     |

### VACROMETER™ Vacuum Gauge



VG100A

AVT45

1/4" SAE Female x  
1/4" SAE Male

Compact self-contained instrument designed to provide constant indication and monitoring of the evacuation process from start to finish. Nine discrete high intensity LED's are preset to illuminate upon achieving industry standards for proper system evacuations. Advanced surface mount technology automatically compensates for ambient changes in the environment ensuring accuracy and consistency in performance. Advanced field-cleanable sensor is able to withstand 400 PSI of positive pressure. Unit operates 25 hours on 9V alkaline battery with low battery indicator and auto-off feature. Includes carrying case.



#### Spare parts & Accessories for VG100A / VG200

| ITEM  | DESCRIPTION                                                                             |
|-------|-----------------------------------------------------------------------------------------|
| VGXC  | Carrying case VG100A/ VG200                                                             |
| VGXH  | Hanging Hook                                                                            |
| AVT87 | Adapter for VG100A/VG200. 1/4" SAE male to 1/2"-20 male to 1/2"-20 swivel female tee    |
| AVT48 | Adapter for VG100A/VG200. 1/4" SAE male to 1/2" ACME male to 1/4" SAE swivel female tee |
| AVT45 | Adapter for VG100A/VG200. 1/4" SAE male to 1/4" SAE male to 1/4" SAE swivel female tee  |

## Dual Voltage Two Stage Vacuum Pumps

**DUAL  
VOLTAGE**



*Universal IEC plug  
All units/dual voltage 115V & 230V*

Dual voltage design vacuum pump operates on 115 VAC or 230 VAC (50 or 60Hz). Advanced two-stage design pulls deep vacuum fast to 15 microns.

| Model                        | VP2D                                 | VP3D                             | VP6D                              |
|------------------------------|--------------------------------------|----------------------------------|-----------------------------------|
| Free Air Displacement        | 1.9 CFM @ 60HZ<br>45 l/m @ 50Hz      | 3.15 CFM @ 60HZ<br>75 l/m @ 50Hz | 6.25 CFM @ 60HZ<br>148 l/m @ 50Hz |
| Horse Power<br>RPM (50/60Hz) | 1/4 HP<br>1440/1720                  | 1/3 HP<br>1440/1720              | 1/2 HP<br>2880/3440               |
| Ultimate Vacuum              | 15 microns                           |                                  |                                   |
| Inlet Ports (male flare)     | 1/4", 3/8" SAE Male & 1/2" ACME Male |                                  |                                   |
| Oil Capacity                 | 12oz./350 ml                         | 15oz./450ml                      | 15oz./ 450ml                      |
| Dimensions                   | 13" x 5.3" x 10"                     | 13.7" x 5.6" x 10.4"             | 13.7" x 5.6" x 10.4"              |
| Shipping Weight              | 21.66lb/9.8kg                        | 25.42 lb/11.5kg                  | 25.42lb/11.5kg                    |

*For Australia: VP2DA, VP3DA, VP6DA all Single Voltage 240VAC/50Hz.*

| Model                        | VP8D                                | VP10D                             | VP12D                             |
|------------------------------|-------------------------------------|-----------------------------------|-----------------------------------|
| Free Air Displacement        | 7.9 CFM @ 60HZ<br>186 l/m @ 50Hz    | 10.0 CFM @ 60HZ<br>236 l/m @ 50Hz | 11.8 CFM @ 60HZ<br>278 l/m @ 50Hz |
| Horse Power<br>RPM (50/60Hz) | 2/3 HP<br>2880/3440                 | 2/3 HP<br>2880/3440               | 3/4 HP<br>2880/3440               |
| Ultimate Vacuum              | 15 microns                          |                                   |                                   |
| Inlet Ports (male flare)     | 1/4", 3/8" SAE Male & 1/2" SAE Male |                                   |                                   |
| Oil Capacity                 | 13.5 oz./400ml                      | 14 oz./425ml                      | 15 oz./450ml                      |
| Dimensions                   | 15" x 6.2" x 11.2"                  |                                   |                                   |
| Shipping Weight              | 32.95lb/14.5kg                      | 34.26lb/15.5kg                    | 36.47lb/16.5kg                    |

## Dual Voltage Single Stage Vacuum Pumps

**DUAL  
VOLTAGE**



**LARGE  
OIL SIGHTGLASS**

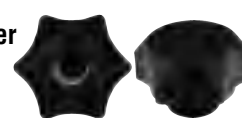


| Model                        | VP2S                                 | VP3S                             | VP6S                              |
|------------------------------|--------------------------------------|----------------------------------|-----------------------------------|
| Free Air Displacement        | 1.9 CFM @ 60HZ<br>45 l/m @ 50Hz      | 3.15 CFM @ 60HZ<br>75 l/m @ 50Hz | 5.85 CFM @ 60HZ<br>138 l/m @ 50Hz |
| Horse Power<br>RPM (50/60Hz) | 1/5 HP<br>1440/1720                  | 1/4 HP<br>1440/1720              | 1/3 HP<br>1440/1720               |
| Ultimate Vacuum              | 100 microns                          |                                  |                                   |
| Inlet Ports (male flare)     | 1/4", 3/8" SAE Male & 1/2" ACME Male |                                  |                                   |
| Oil Capacity                 | 13.5 oz./400 ml                      | 13 oz./380 ml                    | 17 oz./ 500 ml                    |
| Dimensions                   | 13" x 5.3" x 10"                     | 13" x 5.3" x 10"                 | 13.7" x 5.6" x 10.4"              |
| Shipping Weight              | 18.11lb/8.2kg                        | 19.44lb/8.8kg                    | 24.75lb/11.2kg                    |

**VPXJ220**  
220 VAC jumper power cord  
for locations where 110  
voltage is not available.



**VPXOMP**  
Oil mist preventer  
exhaust port.



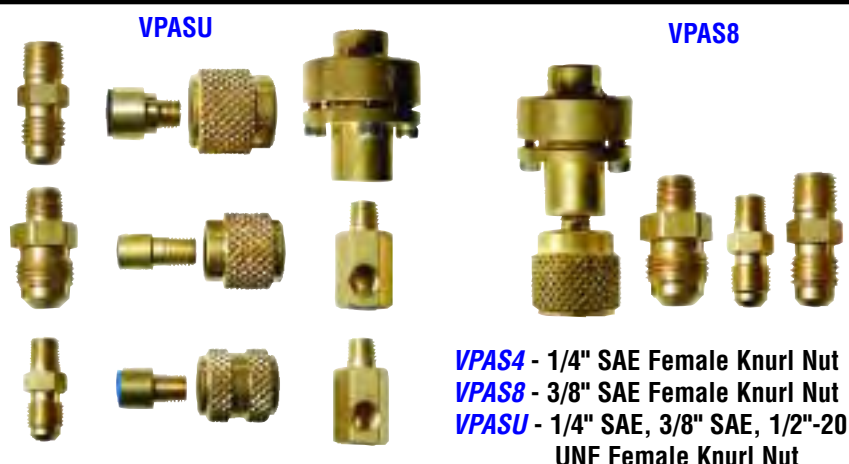


## Vacuum Pump Replacement Parts

| ITEM    | DESCRIPTION                                           |
|---------|-------------------------------------------------------|
| VPXB2   | Rubber Base-Medium VP6S/VP6D                          |
| VPXB3   | Rubber Base- Large VP8D/VP10D/VP12D                   |
| VPXC100 | Capacitor 100ufd VP6S/VP6DVP8D/VP10D/VP12D            |
| VPXCS2  | Centrifugal motor start switch (PCB) VP6S/VP6D        |
| VPXCS3  | Centrifugal motor start switch (PCB) VP8D/VP10D/VP12D |
| VPXEB2  | End Bell w/Sightglass (Medium) VP6S/VP6D              |
| VPXEB3  | End Bell w/Sightglass (Large) VP8D/VP10D/VP12D        |
| VPXEB02 | End Bell O-ring (Medium) VP6S/VP6D                    |
| VPXEB03 | End Bell O-ring (Large) VP8D/VP10D/VP12D              |
| VPXEH   | Plastic Electric Housing- VP6S/VP6DVP8D/VP10D/VP12D   |
| VPXEP1  | Electrical Panel VP6S/VP6D                            |
| VPXEP2  | Electrical Panel VP8D/VP10D/VP12D                     |

| ITEM   | DESCRIPTION                                        |
|--------|----------------------------------------------------|
| VPXF15 | Fuse T15A VP8D/VP10D/VP12D                         |
| VPXFB2 | Fan Blade- Medium VP6S/VP6D                        |
| VPXFB3 | Fan Blade- Large VP8D/VP10D/VP12D                  |
| VPXFG2 | Fan Grill- Medium VP6S/VP6D                        |
| VPXIP3 | Port Kit 8-12 CFM VP8D/VP10D/VP12D                 |
| VPXODP | Oil Drain Plug w/O-ring VP6S/VP6D/VP8D/VP10D/VP12D |
| VPXOEP | Exhaust/Oil Fill Port VP6S/VP6D/VP8D/VP10D/VP12D   |
| VPXOL2 | Overload B120-110 DRB4 VP6S                        |
| VPXOL3 | Overload DF690-KB DRB3                             |
| VPXH   | Handle VP6S/ VP6D VP8D/VP10D/VP12D                 |
| VPXIP2 | Port Kit 2-6 CFM VP6D                              |

## Anti-Siphon Valve Kits



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

Connects directly to intake port of pump.

All kits includes:  
 1/4" SAE, 3/8" SAE  
 & 1/2"-20  
 UNF Male fittings.



## Premium Vacuum Pump Oils



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

| ITEM   | DESCRIPTION            |
|--------|------------------------|
| VPOG6  | (6) one gallon bottles |
| VPOQ12 | (12) one quart bottles |
| VPOP12 | (12) one pint bottles  |

## Vacuum Pump Brass Cap Kit



# cps<sup>®</sup> **PRO-SET<sup>®</sup>** REFRIGERANT RECOVERY MACHINES

*PRO-SET<sup>®</sup> Oil-Less Refrigerant Recovery Machine*

## **CYCLONE 1HP**

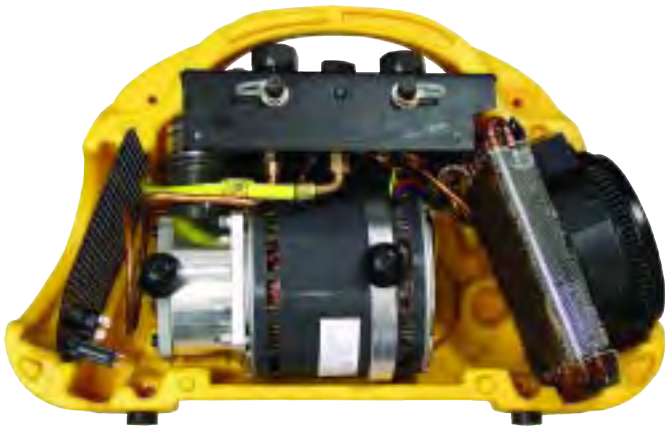


### CR700

- Fastest overall ARI certified recovery rates in its class
- Powerful 1HP oil-less reciprocating recovery compressor
- Exceptional compressor, condensing & cooling systems allow fast recovery in high temperature environments
- Automatic Low Pressure shut-off feature turns unit off when recovery is completed
- Rugged high density double walled plastic housing with easy view top mounted controls
- R-410A ready with 38 bar high pressure shut-off switch
- Ergonomic well balanced design for easy transport including shoulder strap - weighs 36 lbs/16.2kg
- Built-in suction filter located under suction port
- Worldwide patents pending



- Compact modular design with easy access 4 bolt latching system
- Complete compressor rebuilt in minutes
- Externally serviceable valves and gauges
- Integrated component moorings for quiet operation
- Fewer components equals more reliability



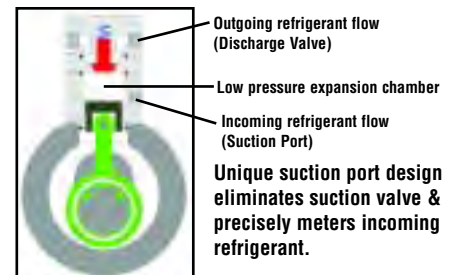
Oversized Piston



Larger discharge port



- Powerful 1HP oil-less reciprocating recovery compressor
- Oversized piston head & cylinder combined with a larger discharge port
- No suction valve eliminates failures caused by liquid slugs
- Heavy duty components with special long-lasting composite seals





# **cps**® **PRO-SET**® REFRIGERANT RECOVERY MACHINES

## **PRO-SET**® Oil-Less Refrigerant Recovery Machine

| CR700 Series |                    |         |                                                     |
|--------------|--------------------|---------|-----------------------------------------------------|
| Item         | Voltage            | Gauges  | Hoses                                               |
| CR700EC      | 220-240V           | BAR/kPa | No                                                  |
| CR700ECH     | 220-240V           | BAR/kPa | Includes 180cm Premium BV Hoses (1) HP6RE (1) HP6BE |
| CR700JUK     | 110 V (UK version) | BAR/kPa | No                                                  |
| CR700JUKCH   | 110 V (UK version) | BAR/kPa | Includes 180cm Premium BV Hoses (1) HP6RE (1) HP6BE |

|                     | CR700JUK                                               | CR700E                 |
|---------------------|--------------------------------------------------------|------------------------|
| Direct Vapor        | Up to (37 kg/hr)                                       |                        |
| Direct Liquid       | Up to (230 kg/hr)                                      |                        |
| Push-Pull Liquid    | Up to 20 lb/min (460 kg/hr)                            |                        |
| Compressor Type     | 1 HP oil-less reciprocating compressor                 |                        |
| Dimensions          | 20cm (8") wide x 37cm (14.5") long x 30.5cm (12") high |                        |
| Weight              | 15.3kg (34lbs.)                                        |                        |
| Oprtg. Temp. Range  | 0°C (32°F) to 49°C (120°)                              |                        |
| Power Source        | 115V 50/60Hz 1 HP                                      | 220-240V 50/60 Hz 1 HP |
| Power Consumption   | 850 W                                                  |                        |
| Filtration          | Cleanable 100-mesh screen integrated into Suction Port |                        |
| Shut-off valves     | Both Suction and Discharge piston manifold valves      |                        |
| Overload Protection | 15 amp                                                 | 8 amp                  |

Rates on this table @ 50Hz

### **Competitive Comparison Recovery Rates**

| Test Conditions at 75 F Degrees |              |               |                    |              | 104 F Degrees          | NRTL Ratings       |
|---------------------------------|--------------|---------------|--------------------|--------------|------------------------|--------------------|
|                                 | Refrigerant  | Liquid (kg/m) | Push / Pull (kg/m) | Vapor (kg/m) | High Temp Vapor (kg/m) |                    |
| <b>CPS CR700</b>                | <b>R410A</b> | <b>2.95</b>   | <b>6.97</b>        | <b>0.23</b>  |                        | (UL) QVBC SA12068  |
| Appion G5                       | R410A        | 1.58          | 4.63               | 0.30         |                        | (UL) QVBC SA13136  |
| Yellow Jkt 95760                | R410a        | 0.76          | 5.54               | 0.22         |                        | (UL) QVBC SA12038  |
| Promax RG5410EX                 | R410A        | 2.33          | 6.39               | 0.20         |                        | (UL) QVBC SA12994  |
| Promax RG5410A                  | R410A        | 1.85          | 4.91               | 0.16         |                        | (UL) QVBC SA12994  |
| Inficon Vortex AC               | R410A        | 1.66          | 5.15               | 0.08         |                        | (UL) QVBC SA12798  |
| Stinger 2000-3300               | R410A        | 1.37          | 6.63               | 0.10         |                        | (AR) RRRE-05040-1Q |
| <b>CPS CR700</b>                | <b>R22</b>   | <b>3.11</b>   | <b>7.17</b>        | <b>0.22</b>  | <b>0.242</b>           | (UL) QVBC SA12068  |
| Appion G5                       | R22          | 2.82          | 7.54               | 0.28         | 0.19                   | (UL) QVBC SA13136  |
| Yellow Jkt 95760                | R22          | 0.90          | 6.12               | 0.15         | 0.15                   | (UL) QVBC SA12038  |
| Promax RG5410EX                 | R22          | 1.90          | 6.58               | 0.18         | 0.14                   | (UL) QVBC SA12994  |
| Promax RG5410A                  | R22          | 1.81          | 4.32               | 0.15         | 0.13                   | (UL) QVBC SA12994  |
| Inficon Vortex AC               | R22          | 1.35          | 2.50               | 0.11         | 0.13                   | (UL) QVBC SA12798  |
| Stinger 2000-3300               | R22          | 1.60          | 5.58               | 0.13         | 0.13                   | (AR) RRRE-05040-1Q |
| <b>CPS CR700</b>                | <b>R134</b>  | <b>2.15</b>   | <b>6.30</b>        | <b>0.15</b>  |                        | (UL) QVBC SA12068  |
| Appion G5                       | R134         | 1.97          | 5.03               | 0.19         |                        | (UL) QVBC SA13136  |
| Yellow Jkt 95760                | R134         | 1.13          | 6.12               | 0.10         |                        | (UL) QVBC SA12038  |
| Promax RG5410EX                 | R134         | 1.09          | 5.30               | 0.14         |                        | (UL) QVBC SA12994  |
| Promax RG5410A                  | R134         | 1.57          | 3.63               | 0.11         |                        | (UL) QVBC SA12994  |
| Inficon Vortex AC               | R134         | 1.13          | 3.44               | 0.10         |                        | (UL) QVBC SA12798  |
| Stinger 2000-3300               | R134         | 1.21          | 4.98               | 0.10         |                        | (AR) RRRE-05040-1Q |

Rates on this table @ 60Hz, for 50Hz reduce by 15%

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# cps<sup>®</sup> **PRO-SET<sup>®</sup>** REFRIGERANT RECOVERY MACHINES

## *PRO-SET<sup>®</sup> Portable Units for Commercial Recovery*



**CR400EC**

With 1/6 HP hermetic compressor, cap direct vapor: up to 17 kg/h - direct liquid: up to 23 kg/h - push-pull: up to 190 kg/h, operating range: 0- 49°C, 230VAC/50-60Hz, overload protection: 4 amp thermal circuit breaker, power consumption: 350W, weight 12.6 kg, CE/TÜV-GS

CR400ECH = CR400C + (2) 180cm BV hose

*Portable units for commercial recovery, suitable for all refrigerants, including R-410A*



**CR500EC**

With 1/3 oil-less compressor, manual reuglating valve, capacity direct vapor: up to 24 kg/h - direct liquid: up to 50 kg/h - push-pull: up to 255 kg/h, operating range: 0-49°C, overload protection: 5 amp thermal circuit breaker, power consumption: 500W, 230VAC/50-60Hz, weight: only 8.8 kg!, CE/TÜV-GS

CR500ECH = CR500EC + (2) 180cm BV hose

*Portable units for commercial recovery, suitable for all refrigerants, including R-410A*



**CR600EC**

With 1/2 oil-less compressor, cap. direct vapor: > 27 kg/h - direct liquid: > 68 kg/h - push-pull: >272 kg/h, operating range: 0-49°C, overload protection: 6 amp thermal circuit breaker, power consumption: 750W, 230VAC / 50-60Hz, weight: 13.1 kg, CE/TÜV-GS,

CR600ECH = CR600EC + (2) 180cm BV hose

*Portable units for commercial recovery, suitable for all refrigerants, including R-410A*

|             | CR400EC                                   | CR500EC                                    | CR600EC                                    |
|-------------|-------------------------------------------|--------------------------------------------|--------------------------------------------|
| Application | Appliances, Small, A/C Units, Automobiles | Residential A/C, Refrigeration, Commercial | Residential A/C, Refrigeration, Commercial |
| Compressor  | 1/6 HP Hermetic                           | 1/3 HP Oil-less                            | 1/2 HP Oil-less                            |
| Voltage     | 230 VAC 50-60Hz                           | 230 VAC 50-60Hz                            | 230 VAC 50-60Hz                            |
| Weight      | 12.6 kg/28lbs                             | 8.8kg/20lbs                                | 12.1kg/29lbs                               |
| Approvals   | CE/TÜV-GS                                 | CE/TÜV-GS                                  | CE/TÜV-GS                                  |

Flow ratings at 50Hz





# cps<sup>®</sup> **PRO-SET<sup>®</sup>** REFRIGERANT RECOVERY MACHINES

## Refrigerant Recycling Module



\*Operates with all brands of recovery machines

### FEATURES:

- Easy access one bolt cover with 42 cubic inch solid core drier.
- High efficiency coalescent oil separator to remove oil and other contaminants from refrigerant.
- Ball Valves on the hoses for easy hook up and safe disconnection.
- Built in manifold with self clearing valve. Prepares the unit for the next refrigerant.
- Manifold utilizes CPS exclusive Triple Seal piston valves.
- Suction and discharge gauges for monitoring operation.
- 1/4" SAE Male flare oil drain port to remove recovered oil and contaminants.
- Light weight (15lbs) and ergonomically designed handle for portability.
- Heavy duty powder coated aluminum chassis surrounded by a tough high-density polyethylene case.
- 1/4" SAE Male flare fittings.

## CR Series Replacement Parts / Recovery Tanks

| Replacement Parts |                                              |
|-------------------|----------------------------------------------|
| ARXF              | Filter Replacement for CRXRM                 |
| CRXCR1            | Compressor Rebuild Kit for CR600 (all)       |
| CRXCR2            | Compressor Rebuild Kit for CR500 (115V)      |
| CRXCR3            | Compressor Rebuild Kit for CR500 (230V)      |
| CRXCR4            | Motor Brush Kit for CR500 (115V)             |
| CRXCR5            | Motor Brush Kit for CR500 (230V)             |
| CRXCR6            | Piston Seal for CR500                        |
| CRXCR7            | Piston Seal for CR600                        |
| CRXCR8            | Compressor Rebuild Kit for CR700 (all)       |
| CRXTOS2           | CR Overfill Sensor Cord Kit 115V             |
| CRXTOS3           | CR Overfill Sensor Cord Kit 230V             |
| CRXF2             | (6) Suction Filters for CR300, 400, 500, 600 |
| CRXF3             | (6) Suction Filters for CR700                |

## Refrigerant Recovery Tank

| ITEM | DESCRIPTION                   | Water Capacity  | Approvals | Service Pressure |
|------|-------------------------------|-----------------|-----------|------------------|
| T40L | 40 Liter tank with 1/4" SAE M | 70.0lb / 31.7kg | "E" Mark  | 32 BAR           |

**T40L**  
1/4" SAE Male Ports



# cps®

## PRO-SET®

### VORTECH SERIES

## VORTECH VALVE SYSTEM™

PATENT PENDING

- Advanced VVS diaphragm valve system
- Certified 15 micron vacuum rating
- Red & blue protective gauge boots
- New 45° fittings for easy hose storage (2 valve series only)
- Anodized aircraft aluminum block body
- Precision flutter-free metal cased gauges
- Heavy duty plastic valve handles
- Oversized refrigerant sight glass



- Advanced diaphragm valve design
- Superior refrigerant metering capabilities
- Certified 5 year trouble-free valve life
- Maximum unrestricted refrigerant flow
- Light touch valve operation



### 1 VALVE SERIES



MV1GH

R-12 R-22 R-502

### 2 VALVE SERIES



MV2V

R-134a R-22 R-404A

### 4 VALVE SERIES



MV4J

R-134a R-407C R-404A R-22

### 5 VALVE SERIES



MV5ND

R-12 R-22 R-502



| Gauge Description  | R-12, R22, R502                             | R134a, R404A, R407C | R410A, R22, R407C | R22, R134a, R404A | R22, R134A, R407C | R22, R134A, R404A, R407C | R410A, R22, R407C | R12, R22, R502 | R134a, R404A, R407C, R507 | R12, R22, R502 | R134a, R404A, R407C, R507 | R22, R134a, R404A, R407C | R134a    |
|--------------------|---------------------------------------------|---------------------|-------------------|-------------------|-------------------|--------------------------|-------------------|----------------|---------------------------|----------------|---------------------------|--------------------------|----------|
|                    | 68mm                                        | 68mm                | 68mm              | 68mm              | 80mm              | 80mm                     | 80mm              | 80mm           | 80mm                      | 80mm           | 80mm                      | 80mm                     | 80mm     |
|                    | BAR/PSI                                     | BAR/PSI             | BAR/PSI           | BAR/PSI           | BAR/PSI           | BAR/PSI                  | BAR/PSI           | BAR/PSI        | BAR/PSI                   | BAR            | BAR                       | BAR                      | BAR      |
|                    | Class 1.6                                   | Class 1.6           | Class 1.6         | Class 1.6         | Class 1.6         | Class 1.6                | Class 1.6         | Class 1.6      | Class 1.6                 | Class 1        | Class 1                   | Class 1                  | Class 1  |
|                    | °C                                          | °C                  | °C                | °C                | °C                | °C                       | °C                | °C             | °C                        | °C             | °C                        | °C                       | °C       |
| Rplmt. Gauges      |                                             |                     |                   |                   |                   |                          |                   |                |                           |                |                           |                          |          |
|                    | Low Side                                    | RGGH                | RGFH              | RGOH              | RGVH              | RGJH                     | RGJH              | RG2H           | RGKH                      | RGKH           | RGWH                      | RGUH                     | RGLH     |
| MV1 Valve          |                                             |                     |                   |                   |                   |                          |                   |                |                           |                |                           |                          |          |
|                    | High Side                                   | RGGL                | RGFL              | RGOL              | RGVL              | RGJL                     | RGJL              | RG2L           | RGKL                      | RGKL           | RGWL                      | RGUL                     | RGLL     |
| MV2 Valve          |                                             |                     |                   |                   |                   |                          |                   |                |                           |                |                           |                          |          |
|                    | Low Side                                    | MV1GL               | MV1FL             | MV1OL             | MV1VL             | MV1JL                    | MV1J3L            | MV1O2L         | MV1NL                     | MV1QL          | MV1WL                     | MV1UL                    | MV1LL    |
| MV4 Valve          |                                             |                     |                   |                   |                   |                          |                   |                |                           |                |                           |                          |          |
|                    | High Side                                   | MV1GH               | MV1FH             | MV1OH             | MV1VH             | MV1JH                    | MV1J3H            | MV1O2H         | MV1NH                     | MV1QH          | MV1WH                     | MV1UH                    | MV1LH    |
| MV2 Valve Manifold |                                             |                     |                   |                   |                   |                          |                   |                |                           |                |                           |                          |          |
|                    | Manifold & Gauges Only                      | MV2G                | MV2F              | MV2O              | MV2V              | MV2J                     | MV2J3             | MV2O2          | MV2N                      | MV2Q           | MV2W                      | MV2U                     | MV2L     |
|                    | w/ 90cm Hoses                               | MV2GS3              | MV2FS3            | MV2OS3            | MV2VS3            | MV2JS3                   | MV2J3S3           | MV2O2S3        | MV2NS3                    | MV2QS3         | MV2WS3                    | MV2US3                   | MV2LS3   |
|                    | w/ Carry Case                               | MV2GS3C             | MV2FS3C           | MV2OS3C           | MV2VS3C           | MV2JS3C                  | MV2J3S3C          | MV2O2S3C       | MV2NS3C                   | MV2QS3C        | MV2WS3C                   | MV2US3C                  | MV2LS3C  |
|                    | w/ 150cm Hoses                              | MMV2GS5             | MV2FS5            | MV2OS5            | MV2VS5            | MV2JS5                   | MV2J3S5           | MV2O2S5        | MV2NS5                    | MV2QS5         | MV2WS5                    | MV2US5                   | MV2LS5   |
| MV4 Valve Manifold |                                             |                     |                   |                   |                   |                          |                   |                |                           |                |                           |                          |          |
|                    | w/ Carry Case                               | MMV2GS5C            | MV2FS5C           | MV2OS5C           | MV2VS5C           | MV2JS5C                  | MV2J3S5C          | MV2O2S5C       | MV2NS5C                   | MV2QS5C        | MV2WS5C                   | MV2US5C                  | MV2LS5C  |
|                    | Manifold & Gauges Only                      | MV4G                | MV4F              | MV4O              | MV4V              | MV4J                     | MV4J3             | MV4O2          | MV4N                      | MV4Q           | MV4W                      | MV4U                     | MV4L     |
|                    | w/ 150cm Hoses                              | MV4GS5              | MV4FS5            | MV4OS5            | MV4VS5            | MV4JS5                   | MV4J3S5           | MV4O2S5        | MV4NS5                    | MV4QS5         | MV4WS5                    | MV4US5                   | MV4LS5   |
|                    | w/ Carry Case                               | MV4GS5C             | MV4FS5C           | MV4OS5C           | MV4VS5C           | MV4JS5C                  | MV4J3S5C          | MV4O2S5C       | MV4NS5C                   | MV4QS5C        | MV4WS5C                   | MV4US5C                  | MV4LS5C  |
| MV5 Valve Manifold |                                             |                     |                   |                   |                   |                          |                   |                |                           |                |                           |                          |          |
|                    | w/ 150cm BV Hoses                           | MV4GS5E             | MV4FS5E           | MV4OS5E           | MV4VS5E           | MV4JS5E                  | MV4J3S5E          | MV4O2S5E       | MV4NS5E                   | MV4QS5E        | MV4WS5E                   | MV4US5E                  | MV4LS5E  |
|                    | w/ 150cm BV Hoses, Analog Vac Gauge & Case  | MV4GS5EC            | MV4FS5EC          | MV4OS5EC          | MV4VS5EC          | MV4JS5EC                 | MV4J3S5EC         | MV4O2S5EC      | MV4NS5EC                  | MV4QS5EC       | MV4WS5EC                  | MV4US5EC                 | MV4LS5EC |
|                    | Manifold, Gauges & Analog Vac Gauge         | N/A                 | N/A               | N/A               | N/A               | MV5J                     | MV5J3             | N/A            | MV5N                      | MV5Q           | MV5W                      | MV5U                     | MV5L     |
|                    | Manifold, Gauges & Digital Vac Gauge        | N/A                 | N/A               | N/A               | N/A               | MV5JD                    | MV5J3D            | N/A            | MV5ND                     | MV5QD          | MV5WD                     | MV5UD                    | MV5LD    |
| MV5 Valve Manifold |                                             |                     |                   |                   |                   |                          |                   |                |                           |                |                           |                          |          |
|                    | w/ 150cm BV Hoses, Analog Vac Gauge & Case  | N/A                 | N/A               | N/A               | N/A               | MV5J5PEC                 | MV5J35PEC         | N/A            | MV5NGPEC                  | MV5QGPEC       | MV5W5PEC                  | MV5U5PEC                 | MV5L5PEC |
| MV5 Valve Manifold |                                             |                     |                   |                   |                   |                          |                   |                |                           |                |                           |                          |          |
|                    | w/ 150cm BV Hoses, Digital Vac Gauge & Case | N/A                 | N/A               | N/A               | N/A               | MV5J5PEC                 | MV5J35PEC         | N/A            | MV5NGPEC                  | MV5QGPEC       | MV5W5PEC                  | MV5U5PEC                 | MV5L5PEC |

## VORTECH™ Anodized Pink Body For R-410A

All Gauges have Protective Rubber Boots Except for Oil Filled Type

- Advanced VVS diaphragm valve system
- Red & blue protective gauge boots
- New 45° fittings for easy hose storage (2 valve series only)
- Anodized aircraft aluminum block body
- Precision flutter-free metal cased gauges
- Heavy duty metal valve handles
- Oversized refrigerant sight glass
- Advanced one-piece diaphragm valve design
- Superior refrigerant metering capabilities
- Vacuum rated to 15 microns or better
- Certified 5 year trouble-free valve life
- Maximum unrestricted refrigerant flow
- Light touch valve operation



**MV1202**  
R-410A



**MV11E**  
R-410A



**MV110**  
R-410A

| Gauge Description | Refrigerant Scales | R410A, R22, R407C | R410A     | R410A, R22, R407C | R410A   | R410A, R22, R407C |
|-------------------|--------------------|-------------------|-----------|-------------------|---------|-------------------|
|                   | Diameter           | 68mm              | 80mm      | 80mm              | 80mm    | 80mm              |
|                   | Pressure Scales    | BAR/PSI           | BAR/PSI   | BAR/PSI           | BAR     | BAR/PSI           |
|                   | Accuracy           | Class 1.6         | Class 1.6 | Class 1.6         | Class 1 | Class 1           |
|                   | Temperature Scales | °C                | °C        | °C                | °C      | °C                |

| Rplmt. Gauges | Low Side  | RG0H | RGAH | RG02H | RGEH | RG04H |
|---------------|-----------|------|------|-------|------|-------|
|               | High Side | RG0L | RGAL | RG02L | RGEL | RG04L |

| MV11<br>2 Valve Manifold | Manifold & Gauges Only | MV110     | MV11A     | MV1102     | MV11E     | MV1104     |
|--------------------------|------------------------|-----------|-----------|------------|-----------|------------|
|                          | w/ 150cm Hoses         | MV110J5   | MV11AJ5   | MV1102J5   | MV11EJ5   | MV1104J5   |
|                          | w/ Carry Case          | MV110J5C  | MV11AJ5C  | MV1102J5C  | MV11EJ5C  | MV1104J5C  |
|                          | w/ 150cm BV Hoses      | MV110J5E  | MV11AJ5E  | MV1102J5E  | MV11EJ5E  | MV1104J5E  |
|                          | w/ Carry Case          | MV110J5EC | MV11AJ5EC | MV1102J5EC | MV11EJ5EC | MV1104J5EC |

| MV12<br>4 Valve Manifold | Manifold & Gauges | MV120     | MV12A     | MV1202     | MV12E     | MV1204     |
|--------------------------|-------------------|-----------|-----------|------------|-----------|------------|
|                          | w/ 150cm Hoses    | MV120J5   | MV12AJ5   | MV1202J5   | MV12EJ5   | MV1204J5   |
|                          | w/ Carry Case     | MV120J5C  | MV12AJ5C  | MV1202J5C  | MV12EJ5C  | MV1204J5C  |
|                          | w/ 150cm BV Hoses | MV120J5E  | MV12AJ5E  | MV1202J5E  | MV12EJ5E  | MV1204J5E  |
|                          | w/ Carry Case     | MV120J5EC | MV12AJ5EC | MV1202J5EC | MV12EJ5EC | MV1204J5EC |

\* All Manifolds 1/2"-20





## SERVICE MANIFOLD & GAUGES

### BLACKMAX™ 2-Valve Piston Valve Manifolds With 1/4" SAE Fittings



R-134A R-22 R-404A

- No flutter gauges with rugged Metal housings
- Aluminum block
- Additional Schraeder® valve "T" port
- Large easy-to-grip knobs



R-134A R-22 R-404A

- Exclusive TripleSeal™ valve system
- Valve stems retract fully for maximum flow
- Back seating o-ring seals valve nut when fully open

## TRIPLE SEAL™ VALVES

### NEW TRIPLE-SEAL™ PISTON VALVE SYSTEM

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



MBVS3

| Gauge Description | Refrigerant Scales | R12, R22, R502 | R134A, R404A, R407C | R410A, R22, R407C | R22, R134A, R404A |
|-------------------|--------------------|----------------|---------------------|-------------------|-------------------|
|                   | Diameter           | 68mm           | 68mm                | 68mm              | 68mm              |
|                   | Pressure Scales    | BAR/PSI        | BAR/PSI             | BAR/PSI           | BAR/PSI           |
|                   | Accuracy           | Class 1.6      | Class 1.6           | Class 1.6         | Class 1.6         |
|                   | Temperature Scales | °C             | °C                  | °C                | °C                |

| Rplmt. Gauges | Low Side  | RGGH | RGFH | RGOH | RGVH |
|---------------|-----------|------|------|------|------|
|               | High Side | RGGL | RGFL | RGOL | RGVL |

| MB | Manifold & Gauges Only | MBG   | MBF   | MBO   | MBV   |
|----|------------------------|-------|-------|-------|-------|
|    | w/ 90cm Hoses          | MBGS3 | MBFS3 | MBOS3 | MBVS3 |
|    | w/ 150cm Hoses         | MBGS5 | MBFS5 | MBOS5 | MBVS5 |

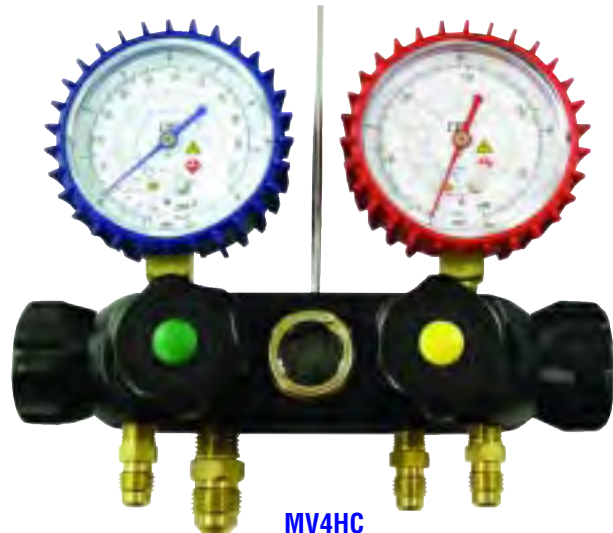
| MC R410A 1/2" - 20 | Manifold & Gauges | N/A | N/A | MCO   | N/A |
|--------------------|-------------------|-----|-----|-------|-----|
|                    | w/ 90cm Hoses     | N/A | N/A | MCOJ3 | N/A |
|                    | w/ 150cm Hoses    | N/A | N/A | MCOJ5 | N/A |

### Hydro-Carbon Manifold Sets

|                  |                                                                          |            |
|------------------|--------------------------------------------------------------------------|------------|
| 2 Valve Manifold | <b>Vortech Series Manifolds</b>                                          |            |
|                  | Manifold & Gauges                                                        | MV2HC      |
|                  | w/ 150cm Hoses*                                                          | MV2HCP5E   |
|                  | <b>*Only available with premium hoses</b>                                |            |
| 4 Valve Manifold | <b>BlackMax Series Manifolds</b>                                         |            |
|                  | Manifold & Gauges                                                        | MBHC       |
|                  | w/ 150cm BV Hoses*                                                       | MBHCP5E    |
|                  | <b>*Only available with premium hoses</b>                                |            |
| 5 Valve Manifold | Manifold & Gauges                                                        | MV4HC      |
|                  | w/ 150cm BV Hoses*                                                       | MV4HC5PE   |
|                  | w/ Carry Case*                                                           | MV4HC5PEC  |
|                  | <b>*Only available with premium hoses, also includes 3/8 Vacuum Hose</b> |            |
| 5 Valve Manifold | Mnfl'd, Gauges & Analog Vac.Gauge                                        | MV5HC      |
|                  | w/ 150cm BV Hoses, Analog Vac.Gauge & Case*                              | MV5HC5PE   |
|                  | w/ 150cm BV Hoses, Digital Vac.Gauge & Case*                             | MV5HCD5PEC |
|                  | <b>*Only available with premium hoses, also includes 3/8 Vacuum Hose</b> |            |



MV2HC



MV4HC



MV5HC



### 2-Valve Brass Manifolds With 1/4" SAE Fittings



| Gauge Description | Refrigerant Scales | R12, R22, R502 | R134A, R404A, R407C | R410A, R22, R407C | R22, R134A, R404A |
|-------------------|--------------------|----------------|---------------------|-------------------|-------------------|
|                   | Diameter           | 68mm           | 68mm                | 68mm              | 68mm              |
|                   | Pressure Scales    | BAR/PSI        | BAR/PSI             | BAR/PSI           | BAR/PSI           |
|                   | Accuracy           | Class 1.6      | Class 1.6           | Class 1.6         | Class 1.6         |
|                   | Temperature Scales | °C             | °C                  | °C                | °C                |

| Rplmt. Gauges | High Side | RGGH | RGFH | RG0H | RGVH |
|---------------|-----------|------|------|------|------|
|               | Low Side  | RGGL | RGFL | RGOL | RGVL |

| M6 2 Valve | Manifold & Gauges Only | M6G   | M6F   | M6O   | M6V   |
|------------|------------------------|-------|-------|-------|-------|
|            | w/ 90cm Hoses          | M6GS3 | M6FS3 | M6OS3 | M6VS3 |
|            | w/ 150cm Hoses         | M6GS5 | M6FS5 | M6OS5 | M6VS5 |

#### Brass Manifolds

- Quality forged brass body
- Sliding double o-ring piston valve system
- Full sized porting for maximum flow
- No flutter gauges with rugged Metal housings
- Large easy-to-grip knobs

#### Manifold Accessories

|        |                                                            |
|--------|------------------------------------------------------------|
| M2XHA  | 2-way hose anchor bracket for Vortech & diaphragm          |
| M2XRK  | Diaphragm valve repair kit: services 2 valves              |
| M4XHA  | 4-way hose anchor bracket for Vortech & diaphragm          |
| M4XRK  | Diaphragm valve repair kit: services 4 valves              |
| M5XRK  | Diaphragm valve repair kit: services 5 valves              |
| MV2XRK | Vortech valve repair kit: services 2 valves                |
| MV4XRK | Vortech valve repair kit: services 4 valves                |
| MV5XRK | Vortech valve repair kit: services 5 valves                |
| MVXK   | Replacement valve handle w/ plugs for Vortech manifolds    |
| MXBK   | Replacement valve handle for brass manifold                |
| MXC    | Plastic carrying case for manifolds                        |
| MXK    | Replacement valve handle w/ labels for diaphragm manifolds |
| MXMH   | Hanging hook for all manifolds                             |
| MXPK   | Replacement valve handle w/ labels for BLACKMAX manifolds  |
| MPV    | Complete BLACKMAX piston valve assembly                    |
| MPVO   | BLACKMAX piston valve seals repair kit: services 2 valves  |



**NEW!**

### PRO-SET® 2 1/2" 68mm Pressure Gauges



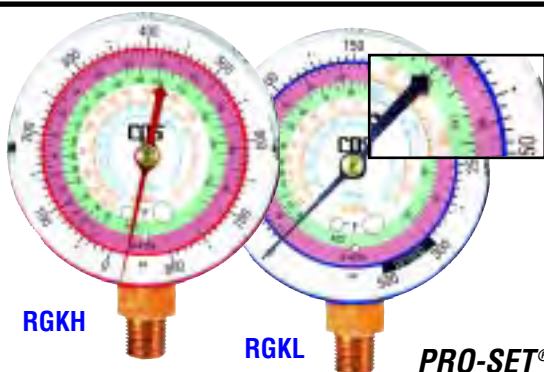
- No-flutter gauge design
- Easy to read color coded dials
- Durable metal casing
- Front calibration access port
- High impact pop-in lexan lens
- 1/8" NPT brass connection

R-410a R-22 R-407C



Calibration access port

### PRO-SET® 3 1/8" /80mm Pressure Gauges



- Extra large easy to read scales
- No-flutter gauge design
- Durable metal casing
- Front calibration access port
- High impact pop-in lexan lens
- 1/8" NPT brass connection

R-134a R-407C R-404A R-507A

### PRO-SET® 3 1/8" /80mm Oil-Filled Pressure Gauges

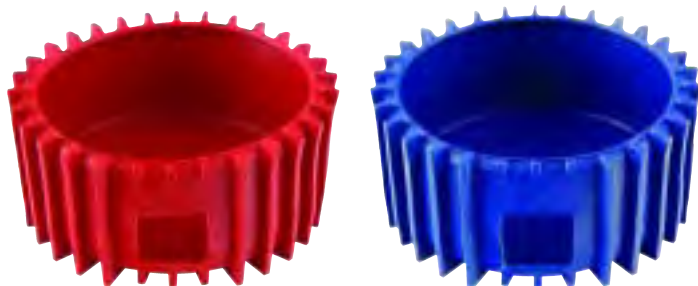


Fill Port

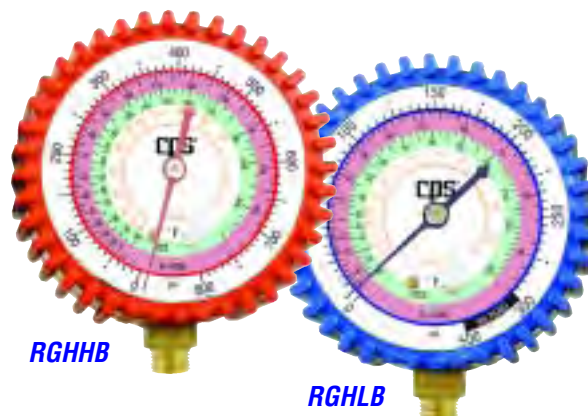
- Extra large scales
- No-flutter gauge design
- Rear calibration access port
- 1/8" NPT brass connection

R-22 R-134a R-404A R-407C

### Protective Rubber Gauge Boots



| Gauge Boots       | Red     | Blue    |
|-------------------|---------|---------|
| 68mm Rubber Boots | RGX68RB | RGX68BB |
| 80mm Rubber Boots | RGX80RB | RGX80BB |



**FITS MOST MANUFACTURERS MODELS**



## Replacement Gauges

| 68mm Replacement Gauges |                          |                 |                     |                   |                   |                               |
|-------------------------|--------------------------|-----------------|---------------------|-------------------|-------------------|-------------------------------|
| Gauge Description       | Refrigerant Scales       | R-12, R22, R502 | R134a, R404A, R407C | R22, R134a, R404A | R410A, R22, R407C | R600a, R290, R600a/R290 blend |
|                         | Diameter                 | 68mm            | 68mm                | 68mm              | 68mm              | 68mm                          |
|                         | Pressure Scales          | BAR/PSI         | BAR/PSI             | BAR/PSI           | BAR/PSI           | BAR/PSI                       |
|                         | Accuracy                 | Class 1.6       | Class 1.6           | Class 1.6         | Class 1.6         | Class 1.6                     |
| Rplmt. Gauges           | Temperature Scales       | °C              | °C                  | °C                | °C                | °C                            |
|                         | Low Side                 | RGGH            | RGFH                | RGVH              | RGOH              | RGHCH                         |
|                         | High Side                | RGGL            | RGFL                | RGVL              | RGOL              | RGHCL                         |
|                         | Low Side w/ Rubber Boot  | RGHGB           | RGFHB               | RGVHB             | RGHGB             | RGHCHB                        |
| Rplmt. Gauges           | High Side w/ Rubber Boot | RGGLB           | RGFLB               | RGVLB             | RGOLB             | RGHCLB                        |



RGEH

RGHCLB

RGWL

| 80mm Replacement Gauges |                          |                          |                          |                   |                |                           |                     |         |           |                   |
|-------------------------|--------------------------|--------------------------|--------------------------|-------------------|----------------|---------------------------|---------------------|---------|-----------|-------------------|
| Gauge Description       | Refrigerant Scales       | R22, R134a, R404A, R407C | R22, R134a, R404A, R407C | R410A, R22, R407C | R12, R22, R502 | R134a, R404A, R407C, R507 | R134a, R404A, R407C | R134a   | R410A     | R410A, R22, R407C |
|                         | Diameter                 | 80mm                     | 80mm Oil Filled          | 80mm              | 80mm           | 80mm                      | 80mm                | 80mm    | 80mm      | 80mm              |
|                         | Pressure Scales          | BAR/PSI                  | BAR/PSI                  | BAR/PSI           | BAR/PSI        | BAR/PSI                   | BAR                 | BAR     | BAR/PSI   | BAR/PSI           |
|                         | Accuracy                 | Class 1.6                | Class 1.6                | Class 1.6         | Class 1.6      | Class 1                   | Class 1             | Class 1 | Class 1.6 | Class 1           |
|                         | Temperature Scales       | °C                       | °C                       | °C                | °C             | °C                        | °C                  | °C      | °C        | °C                |
| Rplmt. Gauges           | Low Side                 | RGJH                     | RGJ3H                    | RG02H             | RGNH           | RGKH                      | RGQH                | RGWH    | RGUH      | RGEH              |
|                         | High Side                | RGJL                     | RGJ3L                    | RG02L             | RGNL           | RGKL                      | RGOL                | RGWL    | RGUL      | RGEL              |
| Rplmt. Gauges           | Low Side w/ Rubber Boot  | RGJHB                    | RGJ3HB                   | RG02HB            | RGNHB          | RGKHB                     | RGQHB               | RGWHB   | RGUHB     | RGEHB             |
|                         | High Side w/ Rubber Boot | RGJLB                    | RGJ3LB                   | RG02LB            | RGNLB          | RGKLB                     | RGQLB               | RGWLB   | RGULB     | RGELB             |



## Gas Test Gauge / Fuel Oil Test Kit

### Gas Pressure Test Assemblies

The **GT1** and **GT2** are designed to test the integrity of new installations for pressure leaks. Available with either a 3/4" or 1" FPT brass bell. Simply connect the test assembly, pressurize the system using the supplied access port and monitor the easy-to-read 3 1/2" / 80mm gauge for potential pressure drops that would indicate a leak.



#### **GT1**

##### **GAS TEST GAUGE**

- Large 3 1/8" gauge - easy to read
- 0-30 PSIG (0-2 BAR) pressure scale
- 1 PSIG increments
- 3/4" FPT hex style brass bell
- Access valve



#### **GT2**

##### **GAS TEST GAUGE**

- Large 3 1/8" gauge - easy to read
- 0-100 PSIG (0-7 BAR) pressure scale
- 2 PSIG increments
- 3/4" FPT hex style brass bell
- Access valve

### Fuel Oil Test Kit

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



#### **GT3**



Carrying case included with kit

#### **FUEL OIL TEST KIT**

##### **Includes:**

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

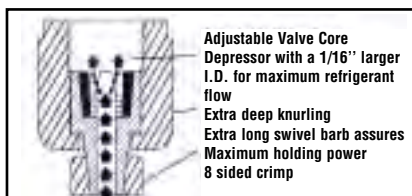




## STANDARD CHARGING HOSES

### STANDARD

- All-weather flexibility and strength
- Extra deep knurling on nuts for easy grip
- 750 psi working pressure; 3000 psi burst
- 1/4" SAE fittings with 45° bend on one end
- Available with MicroSeal™ or ball valve fittings
- Leak-proof eight-sided crimp
- Blow-off grooves channel refrigerant to prevent spray back

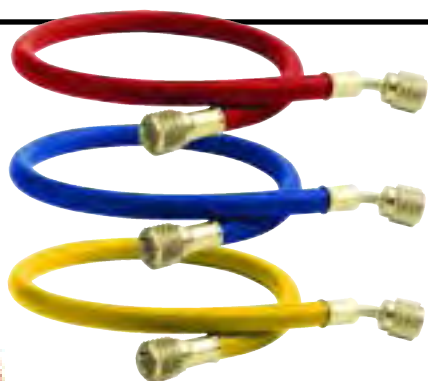


### PREMIUM

- R-410A Compatible
- 800 psi working pressure; 4000 psi burst
- Environment friendly Nylon Permeation Barrier meets SAE J2196
- Compatible with CFC, HCFC and HFC refrigerants & blends
- Available with MicroSeal™ or ball valve fittings

Adjustable valve core depressor opens all out of tolerance Schraeder® valves.

### 1/4" Standard Hoses



| LENGTH      | YELLOW | BLUE  | RED   | 3-PACK |
|-------------|--------|-------|-------|--------|
| 3' - 90cm   | HS3Y   | HS3B  | HS3R  | HS3    |
| 4' - 120cm  | HS4Y   | HS4B  | HS4R  | HS4    |
| 5' - 150cm  | HS5Y   | HS5B  | HS5R  | HS5    |
| 6' - 180cm  | HS6Y   | HS6B  | HS6R  | HS6    |
| 8' - 240cm  | HS8Y   | HS8B  | HS8R  | HS8    |
| 10' - 300cm | HS10Y  | HS10B | HS10R | HS10   |

HXG - Replacements 1/4" Gaskets (10)

HXD - Replacements Depressors (10)

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

| LENGTH     | YELLOW | BLUE  | RED   | 3-PACK |
|------------|--------|-------|-------|--------|
| 3' - 90cm  | HS3YE  | HS3BE | HS3RE | HS3E   |
| 5' - 150cm | HS5YE  | HS5BE | HS5RE | HS5E   |
| 6' - 180cm | HS6YE  | HS6BE | HS6RE | HS6E   |
| 8' - 240cm | HS8YE  | HS8BE | HS8RE | HS8E   |

HXG - Replacements 1/4" Gaskets (10)

HXD - Replacements Depressors (10)



### 1/4" Standard Hoses With MICROSEAL™ Anti-Blowback Valve On One End



Super compact design (.75" x 1", 19mm x 25mm) enables access to service ports in tight quarters

| LENGTH     | YELLOW | BLUE  | RED   | 3-PACK |
|------------|--------|-------|-------|--------|
| 3' - 90cm  | HS3YA  | HS3BA | HS3RA | HS3A   |
| 5' - 150cm | HS5YA  | HS5BA | HS5RA | HS5A   |
| 6' - 180cm | HS6YA  | HS6BA | HS6RA | HS6A   |
| 8' - 240cm | HS8YA  | HS8BA | HS8RA | HS8A   |

HXG - Replacements 1/4" Gaskets (10)

HXD - Replacements Depressors (10)

### 1/4" Standard In-Line Ball Valve Hoses

| LENGTH     | YELLOW | BLUE  | RED   | 3-PACK |
|------------|--------|-------|-------|--------|
| 3' - 90cm  | HS3YL  | HS3BL | HS3RL | HS3L   |
| 5' - 150cm | HS5YL  | HS5BL | HS5RL | HS5L   |
| 6' - 180cm | HS6YL  | HS6BL | HS6RL | HS6L   |
| 8' - 240cm | HS8YL  | HS8BL | HS8RL | HS8L   |

HXG - Replacements 1/4" Gaskets (10)

HXD - Replacements Depressors (10)



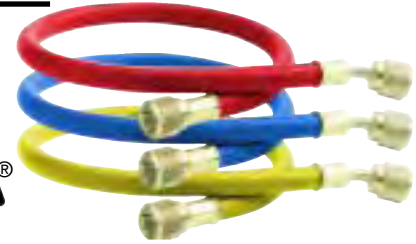


## PREMIUM CHARGING HOSES

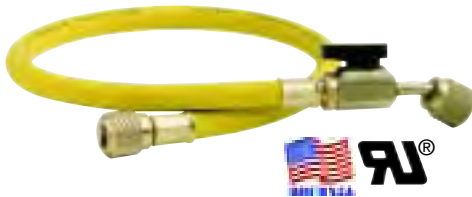
### 1/4" Premium Hoses For All Refrigerants

| LENGTH     | YELLOW | BLUE | RED  | 3-PACK |
|------------|--------|------|------|--------|
| 3' - 90cm  | HP3Y   | HP3B | HP3R | HP3    |
| 5' - 150cm | HP5Y   | HP5B | HP5R | HP5    |
| 6' - 180cm | HP6Y   | HP6B | HP6R | HP6    |

HXG - Replacement 1/4" Gaskets (10)    HXD - Replacement Depressors (10)



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



| LENGTH     | YELLOW | BLUE  | RED   | 3-PACK |
|------------|--------|-------|-------|--------|
| 3' - 90cm  | HP3YE  | HP3BE | HP3RE | HP3E   |
| 5' - 150cm | HP5YE  | HP5BE | HP5RE | HP5E   |
| 6' - 180cm | HP6YE  | HP6BE | HP6RE | HP6E   |

HXG - Replacement 1/4" Gaskets (10)    HXD - Replacement Depressors (10)

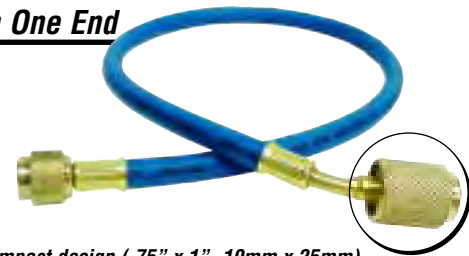
### 1/4" Premium Hoses With MICROSEAL™ Anti-Blowback Valve On One End

| LENGTH     | YELLOW | BLUE  | RED   | 3-PACK |
|------------|--------|-------|-------|--------|
| 3' - 90cm  | HP3YA  | HP3BA | HP3RA | HP3A   |
| 5' - 150cm | HP5YA  | HP5BA | HP5RA | HP5A   |
| 6' - 180cm | HP6YA  | HP6BA | HP6RA | HP6A   |

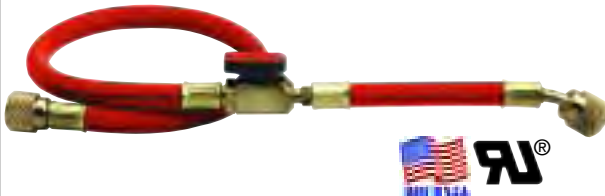
HXGA - Replacements Gaskets (6)



Super compact design (.75" x 1", 19mm x 25mm) enables access to service ports in tight quarters



### 1/4" Premium In-Line Ball Valve Hoses



| LENGTH     | YELLOW | BLUE  | RED   | 3-PACK |
|------------|--------|-------|-------|--------|
| 3' - 90cm  | HP3YL  | HP3BL | HP3RL | HP3L   |
| 5' - 150cm | HP5YL  | HP5BL | HP5RL | HP5L   |
| 6' - 180cm | HP6YL  | HP6BL | HP6RL | HP6L   |

HXG - Replacement 1/4" Gaskets (10)    HXD - Replacement Depressors (10)

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

| LENGTH     | YELLOW | BLUE | RED  | 3-PACK |
|------------|--------|------|------|--------|
| 3' - 90cm  | HJ3Y   | HJ3B | HJ3R | HJ3    |
| 5' - 150cm | HJ5Y   | HJ5B | HJ5R | HJ5    |

| WITH 45° BALL VALVE FITTING IN ONE END |       |       |       |      |
|----------------------------------------|-------|-------|-------|------|
| 3' - 90cm                              | HJ3YE | HJ3BE | HJ3RE | HJ3E |
| 5' - 150cm                             | HJ5YE | HJ5BE | HJ5RE | HJ5E |

HXG2 - Gaskets (10) (1/2" ACME) & (1/2" - 20 UNF)  
HXTG2 - Teflon Gaskets (10) (1/2" ACME) & (1/2" - 20 UNF)  
HXD - Replacement Depressors (10)



R-410A



### 6" - 12" Ball Valve Hose Extensions



| LENGTH | FITTINGS   | YELLOW   | BLUE     | RED      | 3 - PACK |
|--------|------------|----------|----------|----------|----------|
| 6"     | 1/4 SAE    | HTYE     | HTBE     | HTRE     | HTE      |
| 12"    | 1/4 SAE    | HT1YE    | HT1BE    | HT1RE    | HT1E     |
| 6"     | 1/2-20 UNF | HT410YEJ | HT410BEJ | HT410REJ | HT410EJ  |





**PRO-SET®****SPECIALTY HOSES, REPLACEMENT  
GASKETS & DEPRESSORS*****Premium Pressure Control Hoses***

- Replaces Standard Copper Capillary Tubing
- 1/4" SAE Hex Style Fittings
- Do not exceed 203°F (95°C) for long term use

| LENGTH     | 90° x 90° | Straight x 90° |
|------------|-----------|----------------|
| 2' - 60cm  | HHC2      | HHC2S          |
| 3' - 90cm  | HHC3      | HHC3S          |
| 4' - 120cm | HHC4      | HHC4S          |

***Premium 3/8" Vacuum/Charging Hoses***

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



| HOSE P/N           | LENGTH     |
|--------------------|------------|
| WITHOUT BALL VALVE |            |
| HV3                | 3' - 90cm  |
| HV5                | 5' - 150cm |
| HV6                | 6' - 180cm |
| HV8                | 8' - 240cm |

| HOSE P/N                | LENGTH     |
|-------------------------|------------|
| WITH IN-LINE BALL VALVE |            |
| HV5E                    | 5' - 150cm |

HX38G - Replacement 3/8" Gaskets (10)

see page 51  
Automotive  
Section

QCH14

high side

QCL14

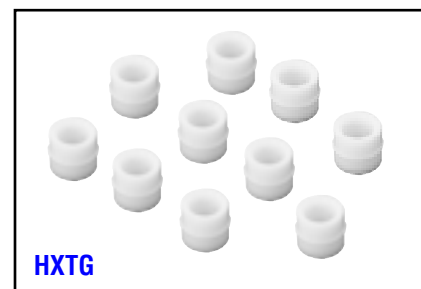
low side

***Replacement Hose Gaskets, Depressors & O-Rings***

HXG



HXGD



HXTG



HXGD2



HXD

| ITEM  | PARTS DESCRIPTION                                            |
|-------|--------------------------------------------------------------|
| HXGD2 | 1/2"-20 UNF & 1/2" ACME Hose Gaskets                         |
| HX3G  | 3/16" Hose Gasket (10)                                       |
| HX14R | 14mm Hose Rings (10)                                         |
| HX38G | 3/8" Hose Gaskets (10)                                       |
| HXG2  | 1/2" UNF & 1/2" ACME Hose Gaskets (10), core depressors (10) |
| HXD   | 1/4" SAE Hose Core Depressors (10)                           |

| ITEM    | PARTS DESCRIPTION                                |
|---------|--------------------------------------------------|
| HXGA    | Microseal™ Antiblowback gaskets (10)             |
| HXGA410 | 1/2"-20 UNF Microseal™ Antiblowback gaskets (10) |
| HXTG    | 1/4" SAE Teflon hose gasket (10)                 |
| HXTG2   | 1/2"-20 UNF & 1/2" ACME Teflon hose gasket (10)  |



### PRO-SET® Ball Valves

## PRO-SET®

- Add to 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

#### MALE x MALE FULL FLOW BALL VALVE



**BVM**  
1/4" SAE Male, x 1/4" SAE Male



#### 90° SWIVEL ELBOW x MALE FLOW FLOW BALL VALVE



**BV90**  
1/4" SAE Female, x 1/4" SAE Male



#### 45° SWIVEL ELBOW x MALE FULL FLOW BALL VALVE



**BV45**  
1/4" SAE Female, x 1/4" SAE Male



#### SWIVEL NUT STRAIGHT x MALE FULL FLOW BALL VALVE



**BV**  
1/4" SAE Female, x 1/4" SAE Male



| Item     | Qty / Pk | Female                                                           | Female                  | 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 |
| BV410    | 1        | 1/2" - 20 UNF                                                    | 1/2" - 20 UNF           | Straight |
| BV41018  | 1        |                                                                  | 1/2" 20 UNF x 1/8" MNPT | Straight |
| BV4103   | 3        | 1/2" - 20 UNF                                                    | 1/2" - 20 UNF           | Straight |
| BV41090A | 1        | 1/2" - 20 UNF 90°                                                | 1/4" SAE                | 90° FM   |
| BV410A   | 1        | 1/2" - 20 UNF                                                    | 1/4" SAE                | Straight |
| BV45     | 1        | 1/4" SAE 45°                                                     | 1/4" SAE                | 45° FM   |
| BV453    | 3        | 1/4" SAE 45°                                                     | 1/4" SAE                | 45° FM   |
| BV90     | 1        | 1/4" SAE 90°                                                     | 1/4" SAE                | 90° FM   |
| BV903    | 3        | 1/4" SAE 90°                                                     | 1/4" SAE                | 90° FM   |
| BVAD38   | 1        | 3/8" SAE                                                         | 1/4" SAE                | Straight |
| BVBH     | 1        |                                                                  | 1/4" SAE x 1/16" MNPT   | Bulkhead |
| BVM      | 1        |                                                                  | 1/4" SAE x 1/4" SAE     | Straight |
| BVM3     | 3        |                                                                  | 1/4" SAE x 1/4" SAE     | Straight |
| BVXH     | 3        | Replacement Ball Valve Handle w/1 ea (Yellow, Blue, Red) inserts |                         |          |

### Brass Gauge Adapter

### MICROSEAL™ Anti-Blowback Valves



**ABG18**  
1/4" SAE FM Anti-blowback  
x 1/8" NPT Female



- Advanced automatic sealing valve eliminates refrigerant loss and blowback
- New micro valve technology enables use on systems with limited access to service ports
- Add to existing hose to eliminate refrigerant loss and comply with EPA regulations
- Deep easy grip knurling and non-restrictive porting for maximum refrigerant flow
- Up to 25% smaller O.D. than similar competitive models

| Item     | Qty / Pk | Female               | Male          | Other                  |
|----------|----------|----------------------|---------------|------------------------|
| AB       | 1        | 1/4" SAE             | 1/4" SAE      | Straight               |
| AB12     | 1        | 1/2" ACME            | 1/2" ACME     | Straight               |
| AB3      | 3        | 1/4" SAE             | 1/4" SAE      | Straight               |
| AB410    | 1        | 1/2" - 20 UNF        | 1/2" - 20 UNF | Straight               |
| AB4103   | 3        | 1/2" - 20 UNF        | 1/2" - 20 UNF | Straight               |
| AB41090A | 1        | 1/2" - 20 UNF        | 1/4" SAE      | 90° FM                 |
| AB410A   | 1        | 1/2" - 20 UNF        | 1/4" SAE      | Straight               |
| AB90     | 1        | 1/4" SAE 90°         | 1/4" SAE      | 90° FM                 |
| AB903    | 3        | 1/4" SAE 90°         | 1/4" SAE      | 90° FM                 |
| ABG18    | 1        | 1/4" SAE x 1/8" FNPT |               | 1/8" FNPT is not an AB |

\*HXGA - Replacement O Rings (6)



**AB90**



**AB**



### HVAC/R ADAPTERS



AD12



AD41/AD61/AD81



AD47



AVC4



AD44



AD68



AD78/AD87

| ITEM   | QTY                             | FEMALE           | MALE                 | OTHER                   | APPLICATION                                 |
|--------|---------------------------------|------------------|----------------------|-------------------------|---------------------------------------------|
| AD12   |                                 | 1/2" ACME        | LO-side R-134a       | Bulk                    | R-134a automotive tanks                     |
| AD12B  | 100                             | 1/2" ACME        | LO-side R-134a       | Bulk                    | R-134a automotive tanks                     |
| AD14   | -                               | -                | 14mm x 1/4" SAE      |                         | R-134a automotive couplers                  |
| AD14B  | 100                             | -                | 14mm x 1/4" SAE      | Bulk                    | R-134a automotive couplers                  |
| AD18C  | -                               | 1/4" SAE         | 1/8" SAE             | w/ valve core           | Manifolds, Compressors                      |
| AD24   | 6                               | -                | 1/4" SAE x 1/8" MNPT | w/cap & valve core      | Manifolds, Compressors                      |
| AD24B  | 100                             | -                | 1/4" SAE x 1/8" MNPT | Bulk                    | 1/4" Service Manifolds                      |
| AD36   | 1                               | 3/16" SAE        | 1/4" SAE             | w/ valve core           | TLVC Valve Core Tool for R-12 Auto. HI-side |
| AD36C  | -                               | 3/16" SAE        | 1/4" SAE             | w/ valve core           | -                                           |
| AD41   | 1                               | 3/4" -14         | 1/4" SAE             | -                       | Large 125 lb cylinders                      |
| AD41B  | 100                             | 3/4" -14         | 1/4" SAE             | Bulk                    | Large 125 lb cylinders                      |
| AD61   | 1                               | 3/4" -14         | 3/8" SAE             |                         | Large 125 lb cylinders                      |
| AD61B  | 100                             | 3/4" -14         | 3/8" SAE             | Bulk                    | Large 125 lb cylinders                      |
| AD44   | 6                               | -                | 1/4" SAE x 1/4" MNPT | w/cap & valve core      | Vacuum Pumps, Compressors                   |
| AD44B  | 100                             | -                | 1/4" SAE x 1/4" MNPT | Bulk                    | Vacuum Pumps, Compressors                   |
| AD47   | 1                               | -                | 1/4" SAE X 1/4" SAE  | -                       | 1/4" Hose Union                             |
| AD47B  | 100                             | -                | 1/4" SAE X 1/4" SAE  | Bulk                    | 1/4" Hose Union                             |
| AD48   | 3                               | 1/4" SAE         | 1/2" ACME            | -                       | Vacuum Pumps/Manifolds/Recovery/Tanks       |
| AD48B  | 50                              | 1/4" SAE         | 1/2" ACME            | Bulk                    | Vacuum Pumps/Manifolds/Recovery/Tanks       |
| AD48C  | 300                             | 1/4" SAE         | 1/2" ACME            | no valve core           | Vacuum Pumps/Manifolds/Recovery/Tanks       |
| AD68   | 3                               | 1/4" SAE         | 3/8" SAE             | -                       | Vacuum Pumps                                |
| AD68V  | -                               | 1/2" ACME        | 3/8" SAE             | male adapter            | Vacuum Pumps                                |
| AD78   | 1                               | 1/4" SAE         | 1/2"-20 UNF          | w/core & Depressor      | R-410A International                        |
| AD78B  | 100                             | 1/4" SAE         | 1/2"-20 UNF          | w/core & Depressor Bulk | R-410A International                        |
| AD81   | 1                               | 3/4" -14         | 1/2" ACME            | -                       | Large 125 lb cylinder                       |
| AD81B  | 100                             | 3/4" -14         | 1/2" ACME            | Bulk                    | Large 125 lb cylinder                       |
| AD84   | 3                               | 1/2" ACME        | 1/4" SAE             | -                       | Vacuum Pumps/Manifolds/Recovery/Tanks       |
| AD84B  | 100                             | 1/2" ACME        | 1/4" SAE             | Bulk                    | Vacuum Pumps/Manifolds/Recovery/Tanks       |
| AD84C  | 3                               | 1/2" ACME        | 1/4" SAE             | w/Core                  | Vacuum Pumps/Manifolds/Recovery/Tanks       |
| AD87   | 1                               | 1/2"-20 UNF      | 1/4" SAE             | w/core & Depressor      | R-410A International                        |
| AD87S  | 1                               | 1/2"-20 UNF SWVL | 1/4" 55° SAE         | w/core & Depressor      | R-410A International                        |
| AD149C | 1                               | 1/4" SAE         | 1/4" 90°SAE          | adapter w/ valve core   | -                                           |
| AD369C | 1                               | 3/16" SAE        | 1/4" 90°SAE          | adapter w/ valve core   | -                                           |
| AD849C | 3                               | 1/2" ACME 90°    | 1/4" SAE             | w/Core                  | Vacuum Pumps/Manifolds/Recovery/Tanks       |
| ADGM   | R-12 GM POSI-SEAL ADAPTER       |                  |                      |                         |                                             |
| ADK12  | DELUXE PRO-SET R-12 ADAPTER KIT |                  |                      |                         |                                             |

see page 50 for automotive adapters

### Quick Seal O-Ring Caps & Valve Cores

| ITEM      | Qty./Pk. | Description                                 |
|-----------|----------|---------------------------------------------|
| AVC134C   | 2        | 1/2" ACME Brass Caps w/Chain                |
| AVC134CB  | 100      | 1/2" ACME Brass Caps w/Chain (BULK)         |
| AVC134H   | 10       | R-134a HI Side Caps                         |
| AVC134HB  | 100      | R-134a HI Side Caps                         |
| AVC134L   | 10       | R-134a LO Side Caps                         |
| AVC134LB  | 100      | R-134a LO Side Caps                         |
| AVC134PS  | 2        | 1/2" ACME Plastic Cap w/ Straps             |
| AVC134PSB | 100      | 1/2" ACME Plastic Cap w/ Straps             |
| AVC2      | 10       | 1/4" Aluminum Term Caps                     |
| AVC3      | 10       | 3/16" Aluminum Term Caps                    |
| AVC3P     | 10       | 3/16" Plastic Caps                          |
| AVC3PB    | 10       | 3/16" Plastic Caps                          |
| AVC410    | 10       | 1/2"-20 UNF SAE Brass Caps                  |
| AVC410B   | 100      | 1/2"-20 UNF SAE Brass Caps                  |
| AVC410C   | 2        | 1/2" -20 UNF SAE Brass Caps w/ Chain        |
| AVC410CB  | 100      | 1/2" -20 UNF SAE Brass Caps w/ Chain (BULK) |
| AVC4      | 10       | 1/4" SAE Brass Caps                         |
| AVC425    | 25       | 1/4" SAE Brass Caps                         |
| AVC4B     | 100      | 1/4" SAE Brass Caps Bulk                    |
| AVC4C     | 2        | 1/4" SAE Brass Caps w/ Chain                |
| AVC4CB    | 100      | 1/4" SAE Brass Caps w/ Chain (BULK)         |
| AVC4P     | 6        | 1/4" SAE Plastic Caps                       |
| AVC4PB    | 100      | 1/4" SAE Plastic Caps                       |
| AVC6C     | 2        | 3/8" SAE Brass Caps w/ Chain                |
| AVC6CB    | 100      | 3/8" SAE Brass Caps w/ Chain (BULK)         |

| ITEM   | Qty./Pk. | Description                              |
|--------|----------|------------------------------------------|
| AVC8C  | 2        | 1/2" SAE Brass Caps w/ Chain             |
| AVC8BC | 100      | 1/2" SAE Brass Caps w/ Chain (BULK)      |
| AVC4PS | 6        | 1/4" SAE Plastic Caps w/ Straps          |
| AVC4R  | 6        | 1/4" SAE Brass Caps w/ Core Remover      |
| AVC4RB | 100      | 1/4" SAE Brass Caps w/ Core Remover Bulk |
| AVC6P  | 3        | 3/8" SAE Plastic Caps                    |
| AVLP   | 1        | Univ. Line Tap Valve 3/16" - 3/8" O.D.   |
| AVS1   | 10       | Valve Cores                              |
| AVS1V  | 6        | Valve Cores- 6pk. w/ 1 Brass Cap in Vial |
| AVS125 | 25       | Valve Cores                              |
| AVS1B  | 100      | Valve Cores Bulk                         |
| AVS1BC | 1000     | Valve Cores Bulk                         |
| AVS2   | 10       | GM Large Bore Valve Core                 |
| AVS3   | 10       | JRA 6mm Valve Cores                      |

**NEW!**



**AVS1V - VALVE CORE KIT**

Handy pocket sized kit includes a valve core remover/installer and 6 premium 1/4" valve cores all packaged in a small clear plastic tube.



### Valve Core Tool Accessories

| ITEM       | DESCRIPTION                                             |
|------------|---------------------------------------------------------|
| TLVC       | 1/4" SAE Remover & Installer                            |
| TLVCS      | 1/4" SAE valve core remover & installer w/side port     |
| TLVC1      | Standard Valve Core w/3 cores                           |
| TLVC2      | Dual Valve Core Standard & Large Bore Remover/Installer |
| TLVC2B     | Dual valve core tool (Bulk 100pk)                       |
| TLVC4      | Valve Core Remover/Installer with Port Rethreader       |
| TLVC6      | JRA 6mm Valve Core Remover/Installer                    |
| TLVC134    | R-134a Valve Core Remover & Installer                   |
| TLVC410    | 1/2"-20 UNF Remover/Installer                           |
| TLVCS410   | 1/2"-20 UNF Valve Core Remover/Installer w/side port    |
| TLVC810    | EATON 8 & 10mm Valve Core Remover/Installer             |
| TLXVCBC    | Broken Schrader Extractor Tool for TLVC/TLVCS           |
| TLXVCRT    | Schrader Rethreading Tool for TLVC/TLVCS                |
| TLXVCT     | Digital Thermometer Accessory for TLVC/TLVCS            |
| TLXVC410BC | Broken Schrader Extractor Tool for TLVC410/TLVCS410     |
| TLXVC410RT | Schrader Rethreading Tool for TLVC410/TLVCS410          |



**TLXVCT**  
Digital Thermometer Accessory



**TLXVCRT**  
**TLXVC410RT** [R-410A]  
Schrader Rethreading Tool



**TLXVCBC**  
**TLXVC410BC** [R-410A]  
Broken Schrader Extractor Tool



**TLVCS**  
**TLVCS410** [R-410A]  
Remover & Installer w/ side port



**TLVC1**  
Standard Valve Core  
w/ 3 cores



**TLVC**  
**TLVC410** [R-410A]  
Valve Core Remover & Installer



### HVAC/R Access Fittings



- Includes Wrench Cap
- For Use with all Refrigerants
- Valves Meet ARI Standard 720-97

- Extension length approx. 2"
- Material is CDA 360 Brass & Standard Refrigeration Tubing

**AVS44 - 3PK**  
1/4" M with cap and  
core x 1/4 F swivel

| Standard Cap |         | Description                               | Wrench Cap |        |
|--------------|---------|-------------------------------------------|------------|--------|
| 6pk          | 100pk   |                                           | 6pk        | 100pk  |
| AV2          | AV2B    | 1/8" O.D. x 1/16" I.D.                    | AV2R       | AV2RB  |
| AV2P         | AV2PB   | 1/8" MPT x 1/4" I.D.                      | N/A        | N/A    |
| AV3          | AV3B    | 3/16" O.D. x 1/8" I.D.                    | AV3R       | AV3RB  |
| AV4          | AV4B    | 1/4" O.D. x 3/16" I.D.                    | AV4R       | AV4RB  |
|              | AV4BU   | 1/4" O.D. x 3/16" I.D.<br>UNASSMBLD       | N/A        | N/A    |
| AV4L         | AV4LB   | 1/4" O.D. x 3/16" I.D.<br>W/4" COP-TB EXT | AV4LR      | AV4LRB |
| AV4P         | AV4PB   | 1/4" MPT x 1/4" I.D. SOL                  | N/A        | N/A    |
| AV5          | AV5B    | 5/16" O.D. x 1/4" I.D.                    | AV5R       | AV5RB  |
| AV6          | AV6B    | 3/8" O.D. x 5/16" I.D.                    | AV6R       | AV6RB  |
| AV6MM        | AV6MB   | 6mm O.D. x 5mm I.D.                       | AV6MR      | AV6MRB |
| AV4410       | AV4410B | 1/2"-20 ACCES, 1/4" O.D. X<br>3/16" I.D.  | N/A        | N/A    |
| AV46M        | AV46MB  | 6mm O.D. x 1/4" O.D.                      | N/A        | N/A    |

### 1/4" SAE Brass Bodies /Multi-Step Access Valves

**AVB34 - 6PK**  
**AVB34B - 100PK**  
3/16" ID x 1/4" OD



**AVB346 - 6PK**  
**AVB346B - 100PK**  
**AVB346BU - 100PK unassbld**  
**AVB346RB - 100PK cap w/core tool**  
3/16" ID x 1/4" OD x 3/8" OD



**AVB46 - 6PK**  
**AVB46B - 100PK**  
1/4" ID x 3/8" OD



**AVB456 - 6PK**  
**AVB456B - 100PK**  
1/8" ID x 3/16", 1/4", 5/16"



**AVB6 - 6PK**  
**AVB6B - 100PK**  
**AVB6BC - 100PK w/o caps**  
6-8-10mm OD Solder



### 1/4" SAE Tee Connectors

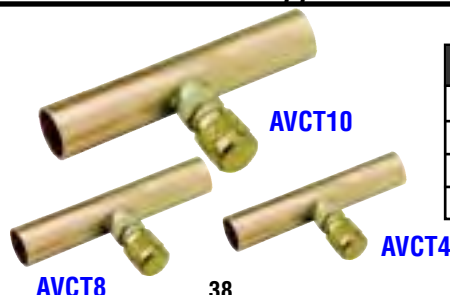


| Item  | Qty/pk | Description                                                    |
|-------|--------|----------------------------------------------------------------|
| AVT2P | 3      | 1/4" Male w/Cap & Valve Core x 1/4" Male x 1/8" MNPT           |
| AVT4  | 3      | 1/4" Male w/Cap & Valve Core x 1/8" MNPT x 1/4" Male           |
| AVT4B | 100    | 1/4" Male w/Cap & Valve Core x 1/8" MNPT x 1/4" Male           |
| AVT4P | 3      | 1/4" Male w/Cap & Valve Core x 1/4" Male x 1/4" MNPT           |
| AVT4M | 3      | 1/4" Male x 1/8" MNPT x 1/4" Male w/Core                       |
| AVT44 | 3      | 1/4" Female Hex x 1/4" SAE male x 1/4" male w/Cap & Valve Core |

| Item   | Qty/pk | Description                                                |
|--------|--------|------------------------------------------------------------|
| AVT45  | 3      | 1/4" Male x 1/4" Female Knurl x 1/4" Male                  |
| AVT48  | 1      | 1/4" Male x 1/4" Female Knurl x 1/2" Acme Male             |
| AVT64  | 3      | 1/4" Male w/Cap & Valve Core x 1/4" Male x 1/4" Female Hex |
| AVT64B | 100    | 1/4" Male w/Cap & Valve Core x 1/4" Male x 1/4" Female Hex |
| AVT87  | 1      | 1/4" Male x 1/2"-20 UNF Female x 1/2"-20 UNF Male (R-410A) |

### 1/4" SAE Access Valve With Copper Tube On Branch

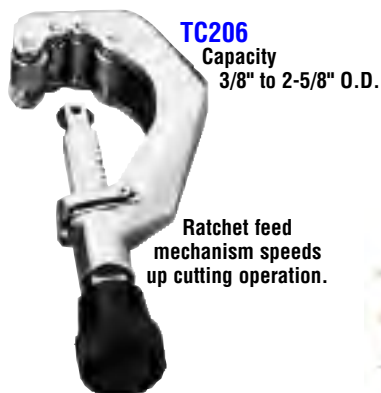
| Item   | Qty./Pk. | Description            |
|--------|----------|------------------------|
| AVCT4  | 3        | 1/4" SAE x 1/4" O.D.F  |
| AVCT4B | 100      | 1/4" SAE x 1/4" O.D.F  |
| AVCT5  | 3        | 1/4" SAE x 5/16" O.D.F |
| AVCT6  | 3        | 1/4" SAE x 3/8" O.D.F  |
| AVCT8  | 3        | 1/4" SAE x 1/2" O.D.F  |



| Item   | Qty/pk | Description             |
|--------|--------|-------------------------|
| AVCT10 | 1      | 1/4" SAE x 5/8" O.D.F   |
| AVCT12 | 1      | 1/4" SAE x 3/4" O.D.F   |
| AVCT14 | 1      | 1/4" SAE x 7/8" O.D.F   |
| AVCT18 | 1      | 1/4" SAE x 1-1/8" O.D.F |

### PRO-SET® Tube Cutters

#### Premium ratchet feedtube cutter



#### Premium tube cutter



#### Heavy duty tube cutter



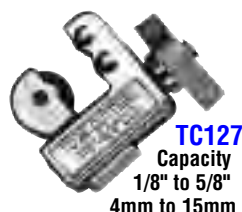
#### Big mini tube cutter



#### Clearance



#### Mini tube cutter



#### TCSET



### PRO-SET® Tube Cutters

#### Capillary tube cutter



#### Tube cutter



| ITEM     | DESCRIPTION                                       |
|----------|---------------------------------------------------|
| TC127    | Mini Tube Cutter - 1/8" - 5/8", 4 - 15 mm         |
| TC174    | Big Mini Tube Cutter 3/8" - 1 1/8", 9.5 - 28 mm   |
| TCX7C    | TC127 Cutting Wheel- (10 PK)                      |
| TCX7S    | TC127 Cutting Wheel Screw- (10 PK)                |
| TC274    | Tube Cutter 1/8" - 1 1/8", 4 - 28 mm              |
| TC312    | Heavy Duty Tube Cutter 1/4" to 1 5/8", 7 to 41 mm |
| TCX4C    | TC274 / 312 Cutting Wheel- (10 PK)                |
| TCX4R    | TC274 / TC312 Reamer Blade                        |
| TCX4RS   | TC274 / TC312 Reamer Blade Screw                  |
| TCX4S    | TC274 / TC312 Cutting Wheel Screw- (10 PK)        |
| TCAP     | Capillary Tube Cutter                             |
| TCSET    | TC127 / TC274 Tubing Cutter Set                   |
| TC100    | Tube Cutter - 1/4" - 7/8". 6 - 23mm               |
| TCX4CS   | Cutting Wheel and Screw for TC274 / TC312         |
| TCX7CS   | Cutting Wheel and Screw for TC127                 |
| TCX100CS | Cutting Wheel and Screw for TC100                 |
| TCX4CTS  | Titanium Cutting Wheel and Screw for TC206        |
| TCX6CTS  | Titanium Cutting Wheel and Screw for TC206        |
| TCX7CTS  | Titanium Cutting Wheel and Screw for TC127        |



### PRO-SET® Tube Benders



#### TB250

Universal ratchet tube bender for soft copper, aluminum, and light wall hydraulic tubing from 3/8" to 7/8"  
 Sizes: 1/4", 3/8", 1/2", 5/8", 3/4", 7/8" (6, 8, 10, 12, 16, 19, 22mm)



TC274



REAMER INCLUDED

| ITEM   | DESCRIPTION                                     |
|--------|-------------------------------------------------|
| TB04   | 1/4" Tube Bender                                |
| TB05   | 5/16" - 8 mm Tube Bender                        |
| TB06   | 3/8" Tube Bender                                |
| TB08   | 1/2" Tube Bender                                |
| TB10   | 3/4" Tube Bender                                |
| TB12   | 5/8" Tube Bender                                |
| TB14   | 7/8" Tube Bender                                |
| TB250  | Universal Tube Bender, TC274, Reamer            |
| TB368  | Universal Tube Bender 1/4"-5/16"-3/8" 6-8-10 mm |
| TB6MM  | 6 mm Tube Bender                                |
| TB10MM | 10 mm Tube Bender                               |
| TB12MM | 12 mm Tube Bender                               |
| TB15MM | 15 mm Tube Bender                               |
| TB16MM | 16 mm Tube Bender                               |
| TB10XH | TB10 Replacement Hook with Screw                |
| TB12XH | TB12 Replacement Hook with Screw                |
| 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                         |

| ITEM   | REPLACEMENT ACCESSORIES |
|--------|-------------------------|
| TBXB1  | Small Bending Bar       |
| TBX2   | Large Bending Bar       |
| TBXM10 | Mandrel 3/8" / 10MM     |
| TBXM14 | Mandrel 1/2" / 14MM     |
| TBXM16 | Mandrel 5/8" / 16MM     |
| TBXM19 | Mandrel 3/4" / 19MM     |
| TBXM22 | Mandrel 7/8" / 22MM     |
| TBXM6  | Mandrel 1/4" / 6MM      |
| TBXM8  | Mandrel 5/16" / 8MM     |
| TBXR   | Ratchet Mechanism       |



**MULTIPLE BENDING CHANNELS**  
 Compact and Durable Tool With Multiple Bending Capabilities

**TB368**  
 Universal Tube Bender



**TB10**  
 5/8" Tube Bender



**TB08**  
 1/2" Tube Bender



**TB04**  
 1/4" Tube Bender



**TBS04**  
 1/4" Spring Tube Bender  
**TBS10**  
 5/8" Spring Tube Bender

## PRO-SET® Flaring & Swaging Tools



**FT500**

### FEATURES OF THE FT500

- Slot in yoke is used for tube height gauge.
- Sliding dies with lever clamping action.
- Yoke slips over top of bar, then locks into position with slight turn.

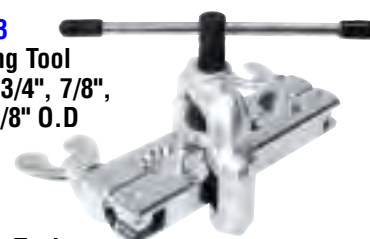


**FT525**  
Universal/ Adjustable Flaring Tool  
3/16" to 5/8" (5mm to 16mm)



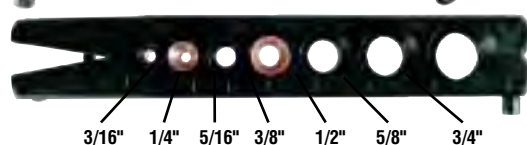
**FT195**  
45° Flaring Tool  
3/16" to 5/8"

**FT203**  
Flaring Tool  
5/8", 3/4", 7/8",  
& 1 1/8" O.D.



**FT800FN**

## PRO-SET®



3/16" 1/4" 5/16" 3/8" 1/2" 5/8" 3/4"

Also Available FT806A / FT806M

### FT800FN R-410A

- Engineered specifically to create stronger flare joints for higher pressure R-410A systems.
- Unique clutch driven feed screw and eccentrically mounted cone produces uniform, clean flare walls without galling.
- Exclusive 3/8"sq drive incorporated directly in yoke handle for use with ratchet (included).
- Rugged polyethylene storage case included.



**FS275**  
45° Flaring & Swaging Kit  
1/8" - 3/4"

## PRO-SET® Flaring Tools, Kits, Replacement Parts

*\*All flaring tools listed are recommended for softer thin-walled materials such as copper, aluminum, and brass*

| ITEM   | DESCRIPTION                                             |
|--------|---------------------------------------------------------|
| FS226  | Tube Cutting/Double Flaring Set 1/8" - 3/4"             |
| FS226M | Metric Tube Cutting/Double Flaring Set 4.75, 6, 8, 10mm |
| FS275  | 45° Flaring & Swaging Kit 1/8" - 3/4"                   |
| FS275M | 45° Flaring & Swaging Kit Metric                        |
| FSX501 | FS275 Bar 7/16", 1/4", 1/8", 3/16", 5/16", 3/8"         |
| FSX502 | FS275 Short Bar 1/2", 5/8", 3/4" O.D.                   |
| FSX503 | FS275 5/16" Swaging Adapter                             |
| FSX504 | FS275 3/16" Swaging Adapter                             |
| FSX505 | FS275 1/2" Swaging Adapter                              |
| FSX506 | FS275 5/8" Swaging Adapter                              |
| FSX507 | FS275M 8, 12, 14, 16, 22 MM Swaging Adapter             |
| FSX508 | FS275 3/4" Swaging Adapter                              |
| FSX509 | FS275 Yoke Assembly                                     |
| FSX511 | FS275M 15, 16mm Flaring Bar Metric                      |
| FSX512 | FS275M 4, 18, 22mm Flaring Bar Metric                   |
| FSX513 | FS275 Compressor Cone                                   |
| FT195  | 45° Flaring Tool 3/16" to 5/8"                          |
| FT500  | 45° Flaring/Burning Tool Metric 3/16" TO 5/8"           |
| FT500M | 45° Flaring/Burning Tool Metric 6mm to 16mm             |
| FT525  | Adjustable Flaring Tool 3/16" to 5/8" / 5 to 16mm       |

| ITEM       | DESCRIPTION                                                                                  |
|------------|----------------------------------------------------------------------------------------------|
| FT800FN    | R-410A Imperial Concentric Flaring Tool w/Ratchet 3/16", 1/4", 5/16", 3/8", 1/2", 5/8", 3/4" |
| FT806A     | Imperial Eccentric Flaring Tool w/Ratchet 3/16", 1/4", 5/16", 3/8", 1/2", 5/8", 3/4"         |
| FT806M     | Metric Eccentric Flaring Tool w/Ratchet 6, 8, 10, 12, 15, 16, 18mm                           |
| FTX500     | FT195 Yoke Assembly                                                                          |
| FTX501     | FT195 Flaring Bar 5/16", 3/8", 7/16"                                                         |
| FTX509     | FT195 Compressor Cone                                                                        |
| FTX510     | FT195 Wing Nut                                                                               |
| FTX513     | FT500 Yoke Assembly                                                                          |
| FTX514     | FT500 Die Holder Assembly                                                                    |
| FTX515     | FT500M Die Holder Assembly                                                                   |
| FTX516     | FT525 Yoke Assembly                                                                          |
| FTX517     | FT525 Tube Holding Assembly                                                                  |
| FTX518     | FS275 Yoke Assembly                                                                          |
| FTX800B410 | FT800FN R410A Imperial Flaring Bar                                                           |
| FTX800BA   | FT806A Imperial Flaring Bar                                                                  |
| FTX800BM   | FT806M Metric Flaring Bar                                                                    |
| FTX800R    | Ratchet for FT800FN/FT806A/FT806M                                                            |
| FTX800Y    | Yoke Assembly FT800FN/FT806A/FT806M                                                          |



### PRO-SET® Tube Expander/Swaging Set



TLE6/TLE6M (metric)

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

| Accessory Heads |                                                                     |
|-----------------|---------------------------------------------------------------------|
| Imperial        |                                                                     |
| Model           | Size                                                                |
| TLE6            | Tube expander set with 6 heads 3/8", 1/2", 5/8", 3/4", 7/8", 1 1/8" |
| TLE6M           | Tube expander set with case includes: 10, 12, 15, 18, 22, 28mm      |
| TLE601          | Expander tool only                                                  |
| TLH06           | 3/8" Expander Head (Standard in TLE6)                               |
| TLH08           | 1/2" Expander Head (Standard in TLE6)                               |
| TLH10           | 5/8" Expander Head (Standard in TLE6)                               |
| TLH12           | 3/4" Expander Head (Standard in TLE6)                               |
| TLH14           | 7/8" Expander Head (Standard in TLE6)                               |
| TLH16           | 1" Expander Head                                                    |
| TLH18           | 1 1/8" Expander Head (Standard in TLE6)                             |
| TLH22           | 1 3/8" Expander Head                                                |
| TLH26           | 1 5/8" Expander Head                                                |
| Metric          |                                                                     |
| Model           | Size                                                                |
| TLHM10          | 10mm Expander Head (Standard in TLE6M)                              |
| TLHM12          | 12mm Expander Head (Standard in TLE6M)                              |
| TLHM15          | 15mm Expander Head (Standard in TLE6M)                              |
| TLHM16          | 16mm Expander Head                                                  |
| TLHM18          | 18mm Expander Head (Standard in TLE6M)                              |
| TLHM20          | 20mm Expander Head                                                  |
| TLHM22          | 22mm Expander Head (Standard in TLE6M)                              |
| TLHM28          | 28mm Expander Head (Standard in TLE6M)                              |
| TLHM35          | 35mm Expander Head                                                  |
| TLHM42          | 42mm Expander Head                                                  |



### PRO-SET® Metric Torque Wrench Set



TLTWSM

Professional interchangeable jaw torque wrench set ensures compliance with OEM torque settings for high pressure **R-410A** systems.

- Interchangeable 17, 22, 24, 26, 27 & 29mm jaw sizes.
- Corresponding settings clearly marked on torque wrench in Newton Meters (10-75Nm).
- Provides consistently accurate readings and rugged, trouble free performance.
- Includes storage case for long-term protection.
- 1 year product warranty.

### PRO-SET® Deburring Tools /Universal Reamer Tool



TLDB2 - Pocket Deburring Tool



TLDB  
TLDBX - Replacement Blade for TLDB



TLRM

# cps®

## PRO-SET®

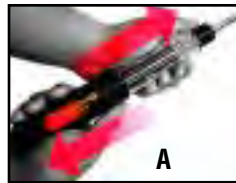
### SPECIALTY HAND TOOLS

#### PRO-SET® 6-in-1 Auto-Loading Screwdriver



##### TLSD1

- Patented auto loading bit design
- 6 replaceable industrial grade 1/4" hex bits
- Includes standard valve core tool bit
- Magnetic head holds fastener in place
- Ergonomic high impact housing design
- Standard 1/4" hex drive



Pull handle back to return bit to storage chamber



Rotate handle to select bit



Push handle forward to load bit



#### PRO-SET® Specialty Hex Key Wrench Sets



##### TLSSH

Inch Hex Key Set:  
3/32", 7/64", 1/8",  
9/64", 5/32", 3/16",  
7/32" and 1/4"  
(Nickel Plated Finish)

\*TLSSH Two Piece Set:  
Includes TLSSH and TLSWB



##### TLSSB

Inch Ball Point Key Set:  
3/32", 7/64", 1/8", 9/64",  
5/32", 3/16", 7/32"  
and 1/4"  
(Nickel Plated Finish)

\*TLSSH Two Piece Set:  
Includes TLSSH and TLSSB



##### TLSSWH

Metric Hex Key Set:  
1.5, 2, 2.5, 3, 4,  
5, 6, 8mm  
(Nickel Plated Finish)



##### TLSSWT

Torx Wrench Set

#### PRO-SET® Swaging / Pinch-Off Tools



##### TLPORR

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



##### TLPK

Swage Punch Tool



##### TLMSP

Multi Swage Punch Tool  
6 sizes- 3/16" to 5/8"

#### PRO-SET® Service Pliers



##### TLPO

Pinch-Off Pliers



##### TLPP

Tube Piercing Pliers 1/4"



##### TLPPX

Replacement tip for TLPP

#### PRO-SET® Service Wrenches

127 Offset Wrench  
3/8" - 5/16" x 1/4"  
- 3/16" Sq.

##### TLSSO



127 Service Wrench  
3/8" - 5/16" x 1/4"  
- 3/16" Sq.

##### TLSSS



124 Service Wrench  
1/4" - 3/16" SQ x 9/16"  
1/2" HEX

##### TLSSL





### Fin Straightening Tools



**TLFC1**  
Metal Fin  
Straightening Tool



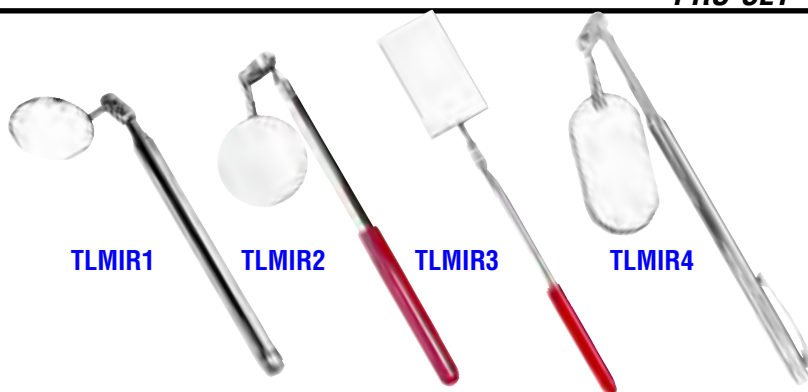
**TLFC2**  
Fin Straightener  
with large handle



**TLFC6**  
Universal 6 Sided  
Fin Straightening Tool  
Repair bent condenser fins  
with the TLFC6 Universal 6  
sided fin comb straightening  
tool.



### PRO-SET® Inspection Mirrors



**TLMIR1**

**TLMIR2**

**TLMIR3**

**TLMIR4**

| ITEM    | DESCRIPTION                                |
|---------|--------------------------------------------|
| TLMIR1  | Circular Telescoping Pocket Mirror ø 1.25" |
| TLMIR2  | Circular Telescoping Mirror ø 2.24"        |
| TLMIR3  | Rectangular Telescoping Mirror 3.5 x 2.12" |
| TLMIR4  | Oval Pocket Mirror 2 x .98"                |
| TLXMIR1 | Replacement Mirror Head for TLMIR1         |
| TLXMIR2 | Replacement Mirror Head for TLMIR2         |
| TLXMIR3 | Replacement Mirror Head for TLMIR3         |
| TLXMIR4 | Replacement Mirror Head for TLMIR4         |

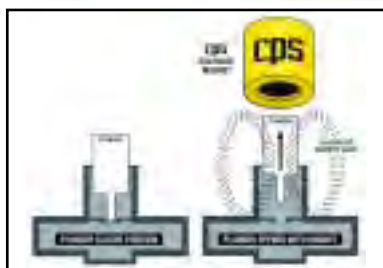
### Solenoid Magnet

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"/18mm opening fits all common manufactured valves



**TLMKC18**



### Compact Magnetizer/Demagnetizer

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

- Instantly Magnetize or Demagnetize Steel Tools & Parts
- Incorporates Two C5 Industrial Strength Magnets
- Impact Resistant ABS Molded Plastic
- No Batteries or Electricity Required
- Compact Design: 2" x 2" x 1"



**TLMAG1**





## SPECIALTY HAND TOOLS

### Composite Handle Adjustable Wrench

***Super-strong tool that exceeds ANSI specifications providing years of service.***



- Patented Light Weight Composite Handle Design
- Ergonomic, Comfortable Grip Reduces Fatigue
- Wide Jaw Opening With 45% More Torque
- Precision Machined for Smooth Operation
- Durable and Environment-Resistant
- One Year Warranty

### Duct Knives

Used to fabricate fiberglass duct board. Stainless steel double edge resharpenable blade facilitates easy piercing for inside cuts. The double edge is also ideal for tapping into and trimming flex duct. Available with either ergonomic cushioned or a comfortable walnut wooden handle.

A double edge also ideal for tapping into and trimming flex duct.



**TLDKRH**  
6" (152 mm.)

**TLDKWH**  
6" (152 mm.)  
Net Weight: 5 oz. (142 g.)

### Rechargeable Anodized Aluminum LED Work Light

Simply the best work light you will ever own, the **TLWL53A** is precision machined from aircraft grade aluminum and anodized for long life. Fifty three proprietary high output LEDs are incorporated in the work light segment with a 1W Luxeon LED integrated in the top. A powerful 2500mAh Ni-Mh rechargeable battery keeps the lights burning for hours; 7-8 hours for Luxeon spot, 4-5 hours for 53 white LEDs. The professional quality and intense output of the TLWL53A outperforms many competitive units incorporating 70 or more standard LEDs. Ideal for air conditioning contractors municipalities, law enforcement, fire fighters, automotive technicians, and wherever else a high performance, professional, durable work light is needed.

# MOONLIGHT™

- Rugged Anodized Aluminum Body
- Super Bright 1W Luxeon Spot
- 53 Proprietary High Lumen Output LEDs
- Integrated 2500mAh 3.5V Rechargeable Battery
- Strong magnetic base for attaching to metal surfaces
- Universal UL/CUL Electronic Wall and Car Chargers Included
- Superior Durability and Shock Resistance
- High Quality Reflector Lens
- One Year Warranty
- Wall and Car charger Included



**TLWL53A**



**Super Bright 1W Luxeon Spot**



**53 Proprietary High Lumen Output LEDs**



**Strong magnetic base for attaching to metal surfaces**





# ***AUTOMOTIVE SECTION***





### Automotive Two Valve Manifolds with 1/2" ACME FITTINGS

1/2" ACME Fittings on Manifold, 1/2" ACME X 14mm Fittings on Hoses & 14mm couplers

| Gauge Description           | Refrigerant Scales                | R134a, R404A, R407C | R134a, R404A, R22, R407C | R134a     |
|-----------------------------|-----------------------------------|---------------------|--------------------------|-----------|
|                             | Diameter                          | 68mm                | 80mm                     | 80mm      |
|                             | Pressure Scales                   | BAR/PSI             | BAR/PSI                  | BAR/PSI   |
|                             | Accuracy                          | Class 1.6           | Class 1.6                | Class 1.0 |
|                             | Temperature Scales                | °C                  | °C                       | °C        |
| Rplmt. Gauges               | High Side                         | RGFH                | RGJH                     | RGLH      |
|                             | Low Side                          | RGFL                | RGJL                     | RGLL      |
| Rplmt. Gauges               | High Side w/ Rubber Boot          | RGFHB               | RGJHB                    | RGLHB     |
|                             | Low Side w/ Rubber Boot           | RGFLB               | RGJLB                    | RGLLB     |
| Two Valve Vortech Manifold  | Manifold & Gauges Only            | MV7F                | MV7J                     | MV7L      |
|                             | 180cm Hoses w/14mm Prem. Couplers | MV7FA6Q             | MV7JA6Q                  | MV7LA6Q   |
|                             | w/ Carry Case                     | MV7FA6QC            | MV7JA6QC                 | MV7LA6QC  |
|                             | 240cm Hoses w/14mm Prem. Couplers | MV7FA8Q             | MV7JA8Q                  | MV7LA8Q   |
|                             | w/ Carry Case                     | MV7FA8QC            | MV7JA8QC                 | MV7LA8QC  |
| Two Valve BlackMax Manifold | Manifold & Gauges Only            | MAF                 | N/A                      | N/A       |
|                             | 180cm Hoses w/14mm Snap Couplers  | MAFA6K              | N/A                      | N/A       |
|                             | 240cm Hoses w/14mm Snap Couplers  | MAFA8K              | N/A                      | N/A       |
|                             | w/ Carry Case                     | MAFA8KC             | N/A                      | N/A       |

### VORTECH®



### BLACKMAX™





### DUAL AUTOMOTIVE TWO VALVE MANIFOLDS

1/4" SAE Fittings on Manifold, Hoses & Couplers

|                   |                    |                     |                          |           |
|-------------------|--------------------|---------------------|--------------------------|-----------|
| Gauge Description | Refrigerant Scales | R134a, R404A, R407C | R134a, R404A, R22, R407C | R134a     |
|                   | Diameter           | 68mm                | 80mm                     | 80mm      |
|                   | Pressure Scales    | BAR/PSI             | BAR/PSI                  | BAR       |
|                   | Accuracy           | Class 1.6           | Class 1.6                | Class 1.0 |
|                   | Temperature Scales | °C                  | °C                       | °C        |

|               |           |      |      |      |
|---------------|-----------|------|------|------|
| Rplmt. Gauges | High Side | RGFH | RGJH | RGLH |
|               | Low Side  | RGFL | RGJL | RGLL |

|               |                          |       |       |       |
|---------------|--------------------------|-------|-------|-------|
| Rplmt. Gauges | High Side w/ Rubber Boot | RGFHB | RGJHB | RGLHB |
|               | Low Side w/ Rubber Boot  | RGFLB | RGJLB | RGLLB |

|                            |                                       |          |          |          |
|----------------------------|---------------------------------------|----------|----------|----------|
| Two Valve Vortech Manifold | Manifold & Gauges Only                | MV8F     | MV8J     | MV8L     |
|                            | 180cm Hoses w/1/4" SAE Prem. Couplers | MV8FA6Q  | MV8JA6Q  | MV8LA6Q  |
|                            | w/ Carry Case                         | MV8FA6QC | MV8JA6QC | MV8LA6QC |
|                            | 240cm Hoses w/1/4" SAE Prem. Couplers | MV8FA8Q  | MV8JA8Q  | MV8LA8Q  |
|                            | w/ Carry Case                         | MV8FA8QC | MV8JA8QC | MV8LA8QC |

|                             |                                      |         |     |     |
|-----------------------------|--------------------------------------|---------|-----|-----|
| Two Valve BlackMax Manifold | Manifold & Gauges Only               | MDF     | N/A | N/A |
|                             | 180cm Hoses w/1/4" SAE Snap Couplers | MDFS6K  | N/A | N/A |
|                             | 240cm Hoses w/1/4" SAE Snap Couplers | MDFS8K  | N/A | N/A |
|                             | w/ Carry Case                        | MDFS8KC | N/A | N/A |

**VORTECH®**



**BLACKMAX™**





## AUTOMOTIVE

## CHARGING HOSES & ADAPTER KITS

### Automotive Hoses 14mm x 1/2" ACME

| LENGTH      | YELLOW<br>1/2" acme x 1/2" acme | BLUE<br>1/2" acme x 14mm | RED<br>1/2" acme x 14mm | 3-PACK | YELLOW A.B.<br>1/2" acme x 1/2" acme | 3 PACK<br>Anti Blowback |
|-------------|---------------------------------|--------------------------|-------------------------|--------|--------------------------------------|-------------------------|
| 3' - 90cm   | HA3Y                            | HA3B                     | HA3R                    | HA3    | HA3YA                                | HA3A                    |
| 5' - 150cm  | HA5Y                            | HA5B                     | HA5R                    | HA5    | HA5YA                                | HA5A                    |
| 6' - 180cm  | HA6Y                            | HA6B                     | HA6R                    | HA6    | HA6YA                                | HA6A                    |
| 8' - 240cm  | HA8Y                            | HA8B                     | HA8R                    | HA8    |                                      |                         |
| 10' - 300cm | HA10Y                           | HA10B                    | HA10R                   |        |                                      |                         |
| 20' - 600cm | HA20Y                           | HA20B                    | HA20R                   |        |                                      |                         |



HXG2 - Replacement 1/2" ACME Gaskets (10)  
 HX14R - Replacement 14mm O-Ring (Qty. 10 Red & Blue Hoses Only)  
 HXD - Replacement Depressors (Yellow hose only)  
 See pg. 34-36 for 1/4" SAE Hoses & Replacement Parts

### R-12 to R-134a Automotive Hose Conversion Sets

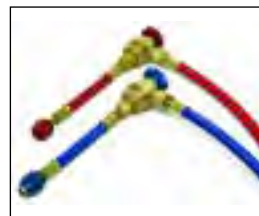


Complete manifold hose set 1/4" SAE x 1/2" ACME 6' w/R-134a couplers  
 HC6B- Blue replacement hose  
 HC6R- Red replacement hose  
 HC6Y- Yellow replacement hose  
 QCL134- R-134a low coupler 14mm  
 QCH134- R-134a high coupler 14mm

### R-12 Automotive Adapter Kit

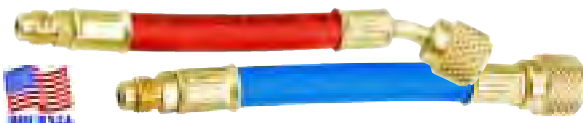


### R-12 Automotive Flex Hoses



Use your R-134a manifold to check old R-12 systems

### Automotive Flex Hoses



|       |                                       |
|-------|---------------------------------------|
| HTAD1 | R-12 1/4" SAE Male x 1/4" SAE Female  |
| HTAD2 | R-12 1/8" Female x 1/4" SAE Male      |
| HTAD3 | R-12 3/16" SAE Female x 1/4" SAE Male |



|        |                                       |
|--------|---------------------------------------|
| HT134L | R-134a 1/4" SAE Female x R-134a Low   |
| HT134H | R-134a 3/16" SAE Female x R-134a High |

### Charging Hose Service Parts Kit



HXKIT

This assortment contains hose gaskets, valve cores, service port caps, and coupler o-rings. Order the **HXKIT** for both R-134a and R-12.

Replacement parts sold individually: AVS1, AVC3P, AVC4P, AVC134L, AVC134H, HXD, HXD, HX3D, HX4D, HXG, HX14R, QCXR34

### Automotive O-Ring Assortment



The **TLRK** covers the most popular metric and SAE o-rings. A must for today's busy a/c repair shop. 18 sizes with 180 o-rings.

HNBR & NEOPRENE  
OEM APPROVED

TLRK



### PRO-SET® Ball Valves

### PRO-SET®

- Add 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 includes all three color-coded handle inserts

#### MALE x MALE FULL FLOW BALL VALVE



#### BVM

1/4" SAE Male, 1/4" SAE Male



#### 90° SWIVEL ELBOW x MALE FULL FLOW BALL VALVE



#### BVAD90

3/16" SAE Female 90° 1/4" SAE Male 90° FM



#### SWIVEL NUT STRAIGHT x MALE FULL FLOW BALL VALVE



#### BV38

3/8" SAE Female, 3/8" SAE Male



#### SWIVEL NUT STRAIGHT x MALE FULL FLOW BALL VALVE



#### BV12

1/2" ACME Female, 1/2" ACME Male



| Item   | 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 |
| BV12   | 1        | 1/2" ACME                                                        | 1/2" ACME | Straight |
| BVAD   | 1        | 3/16" SAE                                                        | 1/4" SAE  | Straight |
| BVAD12 | 1        | 1/2" ACME                                                        | 3/8" SAE  | Straight |
| BVAD24 | 1        | 1/2" ACME                                                        | 1/4" SAE  | Straight |
| BVAD38 | 1        | 3/8" SAE                                                         | 1/4" SAE  | Straight |
| BVAD90 | 3        | 3/16" SAE 90°                                                    | 1/4" SAE  | 90° FM   |
| BVXH   | 3        | Replacement Ball Valve Handle w/1 ea (Yellow, Blue, Red) inserts |           |          |

### MICROSEAL™ Anti-Blowback Valves

- Advanced automatic sealing valve eliminates refrigerant loss and blowback
- New micro valve technology enables use on systems with limited access to service ports
- Add to existing hose to eliminate refrigerant loss and comply with EPA regulations
- Deep easy grip knurling and non-restrictive porting for maximum refrigerant flow
- Up to 25% smaller O.D. than similar competitive models

| Item | Qty / Pk | Female    | Male      | Other    |
|------|----------|-----------|-----------|----------|
| AB12 | 1        | 1/2" ACME | 1/2" ACME | Straight |

see pg. 35 for additional anti-blowbacks



#### AB12

### Premium R-134a Manual Couplers Meets EPA SNAP rule



#### QCH134 SET



These patented couplers include latching balls to provide superior service port alignment, cross pin valve depressor control, and a safety sleeve to prevent accidental refrigerant venting.

QCH134 -high side QCL134 -low side  
QCHR34 -coupler O-rings

|        |           |
|--------|-----------|
| STYLE  | Manual    |
| SPEC   | SAE J-639 |
| THREAD | 14mm      |



#### QC14 SET



This 1/4" style converts old freon® hoses and manifolds to R-134a. Order the **QC14SET** for R-134a 1/2" Acme systems that require the AD84 tank adapter.

QCH14 -high side  
QCL14 -low side

|        |           |
|--------|-----------|
| STYLE  | Manual    |
| SPEC   | SAE J-639 |
| THREAD | 1/4" SAE  |

### Standard R-134a Snap Couplers



#### QC90 SET

Change your old R-12 brass manifold to R-134a with the **QC90SET**. Many A/C injectors use the quick connect snap style for the low side dye/oil application.

QCH90 -high side QCL90 -low side

|        |              |
|--------|--------------|
| STYLE  | push on snap |
| THREAD | 1/4" SAE     |



#### QC13490 SET

The snap style is designed for mechanics just starting a/c repair.

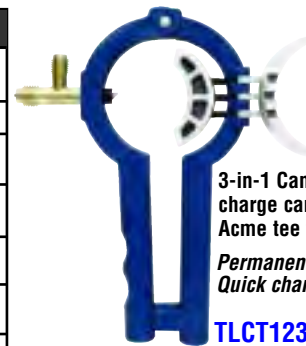
QCH13490 -high side  
QCL13490 -low side  
QCX0 -coupler O-rings

|        |              |
|--------|--------------|
| STYLE  | push on snap |
| THREAD | 14mm         |

### PRO-SET® Valve Core Tools

### Automotive Refrigerant Can Taps

| ITEM    | DESCRIPTION                                             | HVAC | AUTOMOTIVE                        | TRUCK                                  |
|---------|---------------------------------------------------------|------|-----------------------------------|----------------------------------------|
| TLVC    | 1/4" SAE Remover & Installer                            | ALL  | R-12 Only (use AD36 for 3/16")    | R-12 Only (use AD36 for 3/16")         |
| TLVC1   | Standard Valve Core w/3 cores                           | ALL  | R-12 & some R-134a                | R-12 & some R-134a                     |
| TLVC2   | Dual Valve Core Standard & Large Bore Remover/Installer | ALL  | R-12 & some R-134a                | R-12 & some R-134a                     |
| TLVC4   | Valve Core Remover/Installer with Port Rethreader       | ALL  | R-12 Only                         | R-12 Only                              |
| TLVC6   | JRA 6mm Valve Core Remover/Installer                    | No   | R-134a Cars Made In Japan         | R-134a Light Trucks Made In Japan      |
| TLVC810 | EATON 8 & 10mm Valve Core Remover/Installer             | No   | R-134a Cars with 8 & 10mm         | R-134a Heavy Duty Trucks with 8 & 10mm |
| TLVC134 | R-134a Valve Core Remover & Installer                   | No   | R-134a systems with standard core | R-134a systems with standard core      |



3-in-1 Can Tap: R-12, R-134a & oil charge cans Dual 1/4" SAE & 1/2" Acme tee fitting for both R-12 & R-134a. Permanently attached swiveling inserts. Quick change between can types.

TLCT1234



#### SIDE CAN TAPS

|          |                           |
|----------|---------------------------|
| TLCT1234 | R-12/ R-134a can tap      |
| TLCT12   | R-12 Side Can Tapper      |
| TLCT34   | R-134a Side Can Tapper    |
| TLCTX34  | R-134a Oil Charge Insert  |
| TLCTXG   | Side Can Tap Gaskets (10) |

**NEW!**



AVS1V - VALVE CORE KIT

Handy pocket sized kit includes a valve core remover/installer and 6 premium 1/4" valve cores all packaged in a small clear plastic tube.

TLVC134



#### R-134a VALVE CORE REMOVER & INSTALLER

- Fits Hi & Lo service ports with standard size valve cores.
- Built-in ball valve retains charge & allows access to A/C system.
- Excellent for replacing valve cores without discharging the system and for speeding recovery and recharging of large systems.



TLVC4



TLVC6



TLVC1



TLVC2



TLVC810

### PRO-SET® Valve Core Tools



ADGM



AD18C/AD36C



AD149C/AD369C



AD48



AD12



AD14

| ITEM   | QTY | FEMALE        | MALE            | OTHER                      | APPLICATION                           |
|--------|-----|---------------|-----------------|----------------------------|---------------------------------------|
| AD12   | 1   | 1/2" ACME     | LO-side R-134a  | -                          | R-134a automotive tanks               |
| AD14   | 1   | -             | 14mm x 1/4" SAE | -                          | R-134a automotive couplers            |
| AD149C | 1   | 1/4" SAE 90°  | 1/4" SAE        | w/core & Depressor         | Hard-to-access ports                  |
| AD18C  | 1   | 1/8" SAE      | 1/4" SAE        | w/core & Depressor         | R-12 Automotive HI-side               |
| AD36C  | 1   | 3/16" SAE     | 1/4" SAE        | w/Cap & Core               | R-12 Automotive HI-side               |
| AD369C | 1   | 3/16" SAE 90° | 1/4" SAE        | w/Cap & Core               | R-12 Automotive HI-side               |
| AD48   | 3   | 1/4" SAE      | 1/2" ACME       | w/Core                     | Vacuum Pumps/Manifolds/Recovery/Tanks |
| ADGM   | 1   | GM Deep Reach | 1/4" SAE        | w/ Extended Core Depressor | GM R-12 PosiSeal HI-side 91-94        |



### Compressor Clutch Tool Kit



The **CTK1300A** includes the most popular tools that remove and install clutch hubs. In addition, the universal spanner wrench has been added. The instruction manual covers all specifications for air gap, oil, compressor id, and troubleshooting tips.

Domestic and Imports  
Individual tools include CT205,  
CT305, CT499, CT861, CT867,  
CT884

**CTK1300A**

### Deluxe Clutch Hub Puller/Inst. Kit



Comprehensive variety of A/C clutch hub pullers and installers for popular A/C compressors such as GM, Ford, Chrysler and imports.

**CTK9100**

### Compressor Clutch Tools

| ITEM  | COMPRESSOR TYPE                     | REMOVER | INSTALLER |
|-------|-------------------------------------|---------|-----------|
| CT206 | Zexel (Diesel Kiki) used with CT305 | YES     | NO        |
| CT305 | Sanden SD 5&7                       | YES     | NO        |
| CT499 | Universal Spanner Wrench            | YES     | YES       |
| CT861 | GM R4, A6 SAE                       | YES     | YES       |
| CT867 | GM V5, DA6, HR6 Metric              | YES     | YES       |
| CT884 | Ford FS6 /Chrysler C171             | YES     | YES       |
|       | Hitachi MJ /Tecumseh                | YES     | YES       |
|       | Nippondenso 6P /10P                 | YES     | YES       |



**CT499**



**CT305**



**41-631**



**CT867**



**CT861**



**CT206**



**CT884**



**CT862 GM SAE Metric Set**

### Orifice Tube Tool Kit

### R-134a Orifice Tube Tool Kit

### Individual Orifice Tube Tools



#### TLOTK

Includes remover, extender body, damaged tube extractor for 1985-2004 GM, Ford, and import clutch cycling orifice tube systems.



#### TLK134

The TLK134 is the most complete tool kit on the market for valve core and orifice tube service. Includes an easy to find application chart.



**TLOT12**



**TLOT18**



**TLOT19**

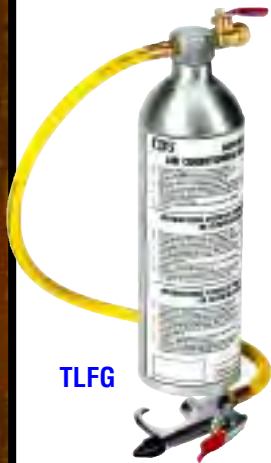
| ITEM   | DESCRIPTION                                             |
|--------|---------------------------------------------------------|
| TLOT12 | GM/Ford remover/installer with evaporator inlet (short) |
| TLOT18 | Ford FOTCC system remover/installer (long)              |
| TLOT19 | Orifice tube extractor used with TLOT12 & TLOT18        |
| TLOTK  | Universal Orifice Tube Tool Kit with Case               |
| TLK134 | R-134a Orifice Tube Tool Kit with Case                  |



**AUTOMOTIVE**

**SPECIALTY HAND TOOLS**

**Flush Gun kit**



**TLFG**



Reduce comebacks by flushing evaporator & condenser with the **TLFG**. Simply add solvent and use shop air to reverse flush the component.  
**TLFGXT** - Replacement tip for flush gun.

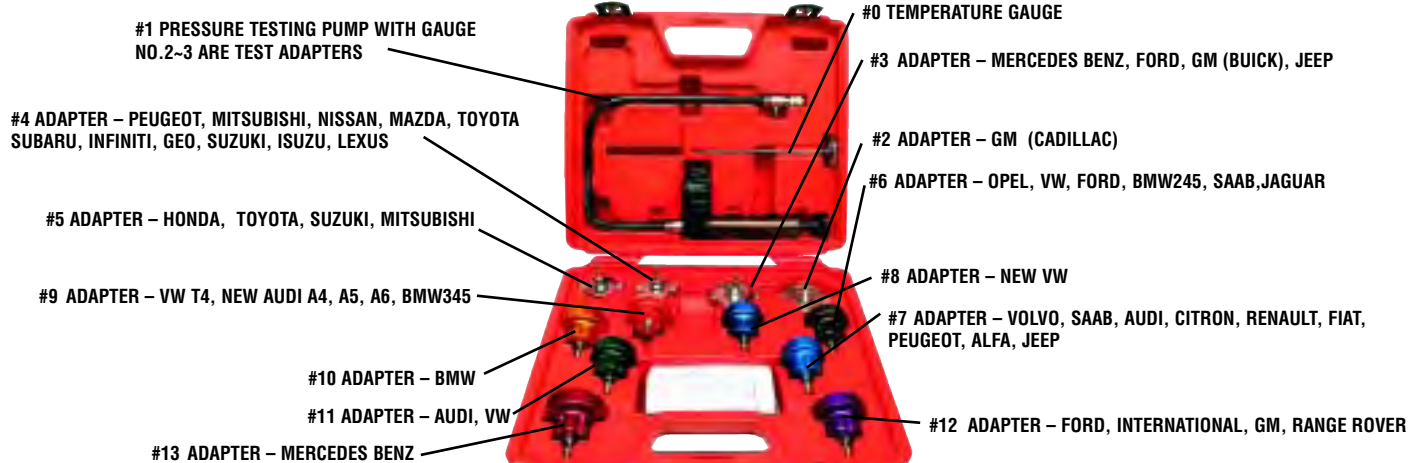
**PRO-SET® Flaring & Swaging Tools**



**FS226M**

**Metric ISO Bubble Flaring  
For Japanese and European  
Brake Lines  
Tool Kit 4.75, 6, 8, 10 mm**

**Automotive Service Parts Kit**



**TLRAD**

**FEATURES ANODIZED ALUMINUM ADAPTERS!!!**

**Springlock Coupling Tools**



**Fits Ford/Jaguar, Chrysler/Jeep & Mitsubishi**

**Anodized Aluminum A/C Disconnect Tool Kit**



**PRO-SET® Deburring Tools /Universal Reamer Tool**



**TLDB34**  
R-134a Automotive



**Refractometer**

**TLREF**

**ANTIFREEZE / BATTERY / CLEANING FLUIDS TESTER**  
This instrument is designed for testing the concentration of battery fluids, antifreeze liquids and cleaning fluids. The percentage indicator indicates the point of freezing for both propylene glycol and ethylene glycol. It can also be used for checking the strength of electrolyte solution batteries.



### UVPRO UV Flashlight & Enhancing Glasses

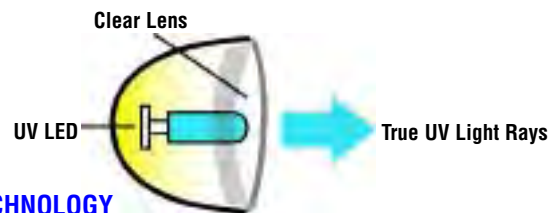


Actual Size

#### UVPRO

*Don't forget the "UV" when selecting your next UV light.*

Ultra Violet (UV) dye additives are specially formulated to fluoresce in the presence of UV light rays. Hence the common industry names for the two major components used with this technology, "UV" dye and "UV" lights. Referring to the light spectrum chart below you can see that true "UV" light is invisible to the human eye, with the closest visible light colors being purple and blue respectively. The overall intensity of UV light diminishes as you move from the invisible UV light range to purple, then to blue and so on down the chart. Take care not to confuse a lamp that emits high intensity visible blue light as superior to a lamp tuned more efficiently to emit true UV light.



#### UV LED TECHNOLOGY

UV LED's produce only true and efficient UV Light. The CPS® UVPRO provides UV-A (Long wave UV) 325-375nm. Instant on LED provides the fastest leak inspection of any light available.

Light spectrum wavelengths in nanometers



#### Why BLUE is NOT Necessarily Cool

A correctly tuned Ultra Violet (UV) lamp should predominantly emit invisible UV light waves with only a trace of visible "purple" or "blue" light. The small amount of visible light is required to direct the user's eyes to the leak search area, while the invisible UV light rays actually illuminate the leaking dye. Lamps that emit large amounts of visible blue light have been marketed heavily as being more powerful and more effective at fluorescing leaks, backed by the obvious high output of visible light. Knowing that UV dye additives requires invisible true UV light rays to effectively fluoresce dispels this claim altogether. In fact, special "blue blocking" glasses are required for use with these high output blue lamps in order to remove the nuisance blue light from the vision of the user during the leak search process. Otherwise, the high output of light will mask the actual leak or illuminating dye additive.



### UVPRO True UV Inspection Lamp



#### UVPRO

The new and improved UVPRO light is the most compact and efficient UV light we have ever designed. The nine high intensity true UV LED's are specifically engineered to maximize the fluorescing capabilities of today's most commonly used dyes while greatly reducing the amount of "nuisance" background blue light emitted. Its rugged anodized aluminum body and o-ring sealed battery compartment allows it to handle harsh field conditions while small enough to conveniently fit in your pocket.

- 9 True UV emitting LED technology
- Rugged anodized aluminum body
- Works with all common dye additives
- Ultra Compact and lightweight
- Instant "ON" with no heat produced
- Operates on (3) AAA batteries (included)

### UV55A LED Refrigerant Leak Detection Kit



**UV55A** Includes: UVPRO LED flashlight, squeeze gun injector w/hose, R-134a 90 low side coupler, safety glasses, (5) UVS5 5-shot universal dye cartridges



#### UV55A

- UVPRO True UV emitting LED light technology
- Compact & Rugged anodized aluminum body
- Mess-free and easy to use Squeeze Gun™ injector
- 1 universal OEM approved dye cartridges; good for 5 vehicles
- Includes 90° low side snap coupler
- Operates 8 continuous hours on (3) AAA batteries (included)

### UV Dichroic Refrigeration Leak Detection Kits



#### UV100

This design allows technician to use pre-measured, pre-filled dye cartridges and requires no refrigerant. Simply connect to low or high side and squeeze the trigger. Standard automotive a/c systems require only a 1/40z/7.39ml. Larger cartridges are available for vans, trucks, buses, and refrigerated trailers.



Product application shown



#### UV300

This economical method of injection uses refrigerant to push dye into the system through a refillable anodized aluminum in-line injector. Simply fill the injector with the appropriate amount of universal Moonshine™ dye (1/40z/ 7.39ml of dye treats 200z/591ml lubricant).



Product application shown

### UV Dichroic Filter Lamps



Powerful 50W Bulb  
Instant On Technology  
90° Swivel Head  
Use with UVXB (not included) with UVXB (not included)

Powerful 100W Bulb  
Instant On Technology  
45° Handle for Comfortable Grip Use  
Use with UVXB (not included) with UVXB (not included)

#### ACCESSORIES

|           |                                        |
|-----------|----------------------------------------|
| UVXB      | Rechargeable Battery Pack              |
| UVXBC     | Battery Carrying Case                  |
| UVXC      | 100V Battery Charger                   |
| UVXBLB    | 50W Bulb -UVAL/UVCL                    |
| UVXBLB100 | 100W Bulb- UVAM/UVCL100                |
| UVXBLBPRO | Replacement Bulb for UVPRO before 2007 |
| UVXC      | 110V Battery Charger                   |
| UVXCE     | 220-240v Battery Charger               |
| UVXCN     | Battery Connectors                     |

|           |                                           |
|-----------|-------------------------------------------|
| UVXG      | Safety/Enhancing Glasses                  |
| UVXLNS    | 50W Replacement Dichroic Lens             |
| UVXLNS100 | 100W Replacement Dichroic Lens            |
| UVXSGA    | Hose Assembly for Squeeze-Gun Injector    |
| UVXSH     | Hose Assembly for UVSTICK1                |
| UVXSHA    | Hose Assembly for UVSTICK2 and Lo Coupler |
| UVXSTA    | 3/8"FM X LO side Auto Adapter for UVSTICK |



### Prefilled/Disposable Refrigerant Dye Capsules & Cartridges



**UVS5 -**

4 pk, 20 systems



**UVS3 -**

6 pk, 60 systems



**UVS101**

- Prefilled, universal, disposable dye capsules
- Inject dye with refrigerant
- Drop-in, low cost replacements
- Interchangeable with Spectronic's capsule dye injection kits
- 6 Pk - 6 systems



**UV101A**

R-134a 1/2" Acme



**UV34DS**

1/4oz / 7.5ml(12 per case)

- 1 vehicle per bottle
- Universal - works with PAG, Ester and mineral oils
- Controls inventory for service managers



**UVCLNR**

32oz./946ml. dye cleaner



**UVUD6**

- 8oz/237ml Universal dye bottles (6per case)
- Universal - works with PAG, Ester and mineral oils
- Lowest cost per application
- Excellent for large systems

Applications:

Automotive: 1/4oz / 7.5ml per vehicle (32 vehicles per bottle)

A/C&R: 1/4oz / 7.5ml per 20oz/591ml of systems lubricants.



all dyes include I.D. labels...



**UVUDS**

- 1oz/ 30ml Universal dye bottles (6 per case)
- Universal - works with PAG, Ester and mineral oils

Applications:

Automotive: 1/4oz / 7.5ml per vehicle (4 vehicles per bottle)

All MOONSHINE™ dye meets SAE J2297 standard. Spectronics™ & Tracer are all registered trademark of their respective companies

### Squeeze Injectors - 1/4oz. / 7.5ml to 2oz. / 60ml Capacity

STEP 1: LOAD CARTRIDGE



STEP 2: ATTACH HOSE



STEP 3: CONNECT & INJECT



STEP 4: CLEAN PORT & DISCARD EMPTY CARTRIDGE



**UVNJSA** - Automotive Squeeze Gun with coupler (not shown)\* cartridges sold separately

| ITEM    | QTY | DESCRIPTION                                     |
|---------|-----|-------------------------------------------------|
| UVNJXOR | 2   | Replacement O-rings for UVNJ/UVNJ134/UVNJ1234   |
| UVNJXO  | 2   | Replacement O-rings for UVNJ2/ UVNJ34           |
| UVXSH   | 1   | Hose assembly for UVSTICK/ UVSTICK2             |
| UVXSHA  | 1   | Hose assembly for UVSTICK1/ UVSTICK2 w/ coupler |
| UVXSTA  | 1   | 3/8" FM x LO-side auto cplr adapter for UVSTICK |

**UVSTICK**

Treats up to 175 lbs./79.38kg of refrigerant (one turn = 7 lbs./ 3.2kg of refrigerant (Automotive Dye Stick w/ R-134a coupler)

**UVSTICK1** - A/C&R Dye Stick with 1/4" hose (no coupler)

**UVSTICK** - Replacement Dye Stick (not shown)



**UVNJ1234**

In-Line Automotive 1/4 to 1/2oz. - 7.5 to 14ml



**UVNJ34**

Hand Turn Automotive w/ R-134a Coupler In line

**UVNJ2** - Hand Turn A/C&R w/ 1/4" Hose (not shown)

1/4 to 1/2oz. - 7.5 to 14ml



**Oil Injectors TLJ2 / TLJ4**

**TLJ2** R-12 1/4" SAE Oil Dye Injector

**TLJ4** R-134a 1/2" Acme Oil Dye Injector

### TEMP-SEEKER® Four-Port Digital Thermometers



The **TM250A** is an excellent tool to diagnose compressor, condenser, and evaporator problems for today's automotive critical R-134a charged systems. Clamp on and air vent 15' probes allow for road testing problem vehicles. System temperature measurements up to 4 locations plus the optional humidity probe can be scanned for differential readings. A comprehensive R-134a automotive troubleshooting manual is included.

**TM250A includes:** (1) TMX2GA, (2) TMX2C, (1) TMX2FP  
*see pg.12 for additional probes*

**TM250A**

**TMX2C**

**CLAMP-ON PROBE**  
15ft/4.5m lead

**TMX2FP**

**EVAPORATOR FLEX PROBE**  
15ft/4.5m lead

**TMX2GA**

**GENERAL PURPOSE AIR PROBE**  
15ft/4.5m lead

### Digital Multimeter



**DMA400**



- Display: 4000 Counts
- Auto/Manual Range
- DC Voltage: 400mV/4/40/400V±0.5%, 600V ± 0.8%
- AC Voltage: 4/40/400V ± 0.8%, 400mV/600V ± 2%
- DC Current: 40/400mA ± 1.5%, 4/10A ± 2%
- AC Current: 40/400mA ± 2%, 4/10A ± 2.5%
- Resistance: 400Ω/4/40/400kΩ ± 1%, 4/40MΩ ± 2%
- Capacitance: 40nF/400nF/4μF /40μF ± 3%, 400μF /4000μF ± 20%
- Frequency: 10Hz -10MHz ± 0.1%
- Duty Cycle: 0.1%-99.9%±2%
- FI PEAK Voltages: 400V ± 5%
- O2 CROSS COUNT: 0 - 500Hz (per second)±0.5%
- RPM: 0 - 10000 RPM±0.5%
- Dwell Angle: 1 - 12 CYL±2%
- Pulse Width 1~999ms±2%
- Temperature: -50°C - 400°C ±0.75% ±3°C /-58°F - 752°F ±0.75% ±5°F
- Diode Check
- Continuity Buzzer
- Battery Test
- Auto Power Off (Can Disable)
- Relative Measurement
- Data Hold
- Data Recording: MAX/MIN

#### ACCESSORIES:

- Leads
- Thermocouple Probe
- Carrying Pouch
- Replacement Parts: DMXTL (1000V Cat 3 Test Leads) and DMXF1 (Fuse Set)

#### DM400A Replacement Parts

|       |                        |
|-------|------------------------|
| DMXTL | 1000V Cat 3 Test Leads |
| DMXF1 | Fuse Set               |



### Nitrogen Pressure Leak Test Kit



**NITROKIT** automotive Air Conditioning Nitrogen Pressure Leak Test Kit. This kit is needed to pre-check automotive A/C systems for leaks due to loose mechanical connections, leaks in hoses, evaporators and condensers, before re-introducing refrigerant back into the A/C system. This will prevent unnecessary leakage of refrigerant into the atmosphere.

The **NITROKIT** consists of the following items:

- NITRO test manifold with 0-200 PSIG gauge
- 6' Red Service Hose with 1/4 SAE Female
- R 134a High Side Snap Coupler
- 25' Coiled Air Hose Assembly with 1/4 MPT X 1/4 Coupler
- Instructional Manual



**NITROKIT**: includes the NITROKIT with a nitrogen regulator.



**WARNING:** Item must be used with nitrogen regulator. "NOT INCLUDED"

### Portable R-134a Automotive Charging Station



**CS12DMV5JP6Q**

These portable, compact charging stations are ideal for small and large repair shops alike providing all the necessary tools to properly charge an A/C system on one lightweight tubular cart with rear wheels. Included with this station is a **PRO-SET®** manifold, a **PRO-SET®** vacuum pump, a **Compute-A-Charge®** refrigerant scale, premium charging hoses and manual R-134a couplers. The unit is designed to allow a full system vacuum and charging without reconfiguring the hoses for a contamination free charging.

- Unsurpassed Charging Accuracy of  $\pm 0.015\%$  of reading
- Hanging ports and hooks for hose storage
- Rear wheels on Frame for Ease of Mobility
- Perfect for Busy A/C shops or as Alternative to Large Charging Equipment
- All Components Store Easily on Cart

**"Ideal for both new installations and existing service work."**



Hard mounted manifolds



Rear wheels on Frame for Ease of Mobility



All Components Store Easily on Cart

| Item         | Application | Manifold Type           | Refrig. Scales                  | Press./Temp Scales | Hoses                              | Vacuum Pump                        | Scale                        |
|--------------|-------------|-------------------------|---------------------------------|--------------------|------------------------------------|------------------------------------|------------------------------|
| CS12DMV4JP6Q | Automotive  | Vortech 4 Valve (MV4J)  | R22, R134A, R404A, R407C (80mm) | BAR/PSI °C         | 3-pk of 180cm Prem. Hoses & Cplrs. | Two Stage 45 l/m Pump (15 microns) | 100kg Compute-A-Charge Scale |
| CS12DMV5JP6Q | Automotive  | Vortech 5 Valve (MV5JD) | R22, R134A, R404A, R407C (80mm) | BAR/PSI °C         | 3-pk of 180cm Prem. Hoses & Cplrs. | Two Stage 45 l/m Pump (15 microns) | 100kg Compute-A-Charge Scale |
| CS12DMV4LP6Q | Automotive  | Vortech 4 Valve (MV4L)  | R134a (Class 1)                 | BAR °C             | 3-pk of 180cm Prem. Hoses & Cplrs. | Two Stage 45 l/m Pump (15 microns) | 100kg Compute-A-Charge Scale |
| CS12DMV5LP6Q | Automotive  | Vortech 5 Valve (MV5LD) | R134a (Class 1)                 | BAR                | 3-pk of 180cm Prem. Hoses & Cplrs. | Two Stage 45 l/m Pump (15 microns) | 100kg Compute-A-Charge Scale |

**Fully Compliant with the new EPA  
required SAE J2788 Standard**



The heart of the AR2788 is the proprietary 1 HP CPS Cyclone™ oil less Hybrid compatible compressor providing up to 50% faster recovery cycle rates. A unique patent pending plumbing arrangement eliminates the use of all solenoid and check valves, both being highly susceptible to in-field failure when exposed to foreign contaminants such as aftermarket A/C Sealants. The patent pending flow control technology and 6 CFM PRO-SET® vacuum pump allows you to evacuate systems up to 50% faster. Intelligent self diagnostic capabilities, proprietary 5 level modular design layout and quality USA manufacturing all contribute to create a solid unit you can rely on to run smoothly in those busy summer months. As an added feature to the AR2788, all five modules are Takeapartable™ for ease in upgrades and maintenance.

#### EASY USER SET-UP & OPERATION

- No assembly required! Simply remove the packaging material and add refrigerant. Easy-to-follow instructional DVD and booklet included
- Multi language selectable in English, Spanish, French, German, and Chinese

#### ROCK SOLID CONSTRUCTION

- The AR2788 emulates the appearance of a professional grade mechanics tool box with all steel construction, high -gloss black enameled finish and chrome trimming
- Three integrated drawers provide convenient storage of a/c service tools and replacement filters
- Mobility around the shop floor is a breeze with heavy duty front casters and large rubber/tube tires in the rear

#### PROFIT FROM SPEED

- A critical component of the ARI J2788 standard states that a certified unit must be able to recover 95% of a 2007 Chevy Suburban's 3lb refrigerant charge (dual a/c) within 30 minutes. The AR2788 MACH 7 accomplished this task in less than 15 minutes! Earn greater return on your investment with **SPEED**
- Patent pending flow control technology enables faster and more accurate recovery, recycling and recharging





### AR2788

**Integrated Drawers To Store Your A/C Tools**



\*Items shown in drawers not included

#### OIL-LESS COMPRESSOR TECHNOLOGY

- Powerful 1 HP oil-less Cyclone™ compressor provides up to 50% faster recovery cycle rates, ensures compatibility with all hybrid oils and is **MAINTENANCE FREE**

#### NO SOLENIIDS or CHECK VALVES

- Exclusive patent pending plumbing arrangement eliminates the use of all solenoid and check valves, both prone to failure when exposed to foreign contaminants such as aftermarket A/C sealants

#### ZERO DOWNTIME WITH MODULAR DESIGN

- Advanced self-diagnostic software actively monitors all mechanical and electronic functions immediately notifying user of improper system operations
- The Takeapartable™ modular design enables “do-it-yourself” replacement of any affected module quickly and easily
- Full system diagnostics are available via our toll free customer service hotline
- Replacement modules are available for shipment **OVERNIGHT** for those customers located within the continental United States

#### OTHER FEATURES

- Battery back-up feature ensures the proper shut down of machine in the event of a power failure
- High performance two stage 6 CFM vacuum pump ensures deep, fast evacuation
- 8ft premium barrier service hoses & couplers
- Uses DOT or EU approved cylinders
- Automatic air purge
- Large 4.5 x 2.5 LCD display

| Models  | Tank Size |
|---------|-----------|
| AR2788  | 50 lb     |
| AR2788B | 92 lb     |
| AR2788E | 40L EU    |

| Optional Items |                                                      |
|----------------|------------------------------------------------------|
| Heater Blanket | AR27XHB115 (300W/115VAC)<br>AR27XHB230 (300W/230VAC) |
| ARXC           | Nylon Cover                                          |
| AR27X H12      | 12ft. Service Hoses                                  |
| AR27XH16       | 16ft. Service Hoses                                  |
| AR27XH20       | 20ft. Service Hoses                                  |

| Specifications             |                                                 |
|----------------------------|-------------------------------------------------|
| Power                      | Convertible to either 115 or 230 VAC            |
| Power Consumption          | 850W                                            |
| Charging Accuracy          | ±.5oz (15 grams)                                |
| Recovery Accuracy          | ± 1oz (30 grams)                                |
| Pump Free Air Displacement | 6 CFM (170 L/min)                               |
| Dimensions                 | 2.5"/53cm wide x 25"/64cm deep x 48"/122cm high |
| Weight (w/o tank)          | 175lbs / 80 kgs                                 |
| Filter Drier Size          | 41 cubic inches (Spare Filters: ARXF5)          |
| Scale cap/resolution       | 100kg /2g                                       |
| Access. Power Outlet       | Rating 350W, 115VAC/230VAC                      |



## AUTOMOTIVE

## RECOVERY, RECYCLING, RECHARGING EQUIPMENT

### PRO-SET® Oil-Less Recovery / Recycling Unit

#### PRO-SET®



AR500EC

The **AR500EC** is a light weight portable recovery/recycling unit. It is perfect for small shops, agriculture, off road, tractor, and mobile service. It comes with hoses, coupler & with or without tank.

|                                |                                                                                         |
|--------------------------------|-----------------------------------------------------------------------------------------|
| COMPRESSOR TYPE                | 1/3 hp reciprocating oil-less                                                           |
| RECOVERY RATE                  | .75 lbs. per minute vapor, 3lbs./min liquid                                             |
| REFRIGERANT CLEARING OPERATION | manual self clearing valve                                                              |
| EVACUATION RATING*             | Single pass recycling                                                                   |
|                                | 28" hg. After self-evacuation open discharge valve to atmosphere while running the unit |
| OPERATING TEMP RANGE           | 32°F to 132°F                                                                           |
| WEIGHT                         | 24 lbs. (tank is additional weight)                                                     |
| WARRANTY                       | 1 year parts and labor                                                                  |



ARXF2 - AR500 filter

| Model   | Power Supply    | Gauges  | Fittings |
|---------|-----------------|---------|----------|
| AR500EC | 230 VAC 50/60Hz | BAR/kPa | 1/4 SAE  |

AR500ECH = AR500EC + (2) 180cm BV Hose + Coupler

### AR200 / AR300 / AR400 Series Accessories & Parts

| P/N      | Description                                 | Model Used On          |
|----------|---------------------------------------------|------------------------|
| 30-736   | Low Side Manifold Gauge (psig/kgcm/kPa)     | AR300, AR300A, AR212   |
| 30-737   | High Side Manifold Gauge (psig/kgcm/kPa)    | AR300, AR300A, AR212   |
| 30-738   | Tank Pressure Gauge                         | All AR300/AR400        |
| 30-744   | Low Side Manifold Gauge (BAR/kPa/psig)      | AR300E, AR200E         |
| 30-745   | High Side Manifold Gauge (BAR/kPa/psig)     | AR300E, AR200E         |
| 30-733   | Tank Pressure Gauge                         | AR212                  |
| ARH27-A1 | R-134a Low Service Hose 1/2" ACME-14mm, 8'  | AR300, AR400           |
| ARH28-A1 | R-134a High Service Hose 1/2" ACME-14mm, 8' | AR300, AR400           |
| ARH6-A1  | R-134a Low Service Hose 1/4 SAE-14mm, 8'    | AR300A, AR300E, AR400A |
| ARH7-A1  | R-134a High Service Hose 1/4" SAE-14mm, 8'  | AR300A, AR300E, AR400A |
| ARH16-A1 | R-12 Low Service Hose 1/4" SAE, 8'          | AR212, AR400, AR400A   |
| ARH17-A1 | R-12 High Service Hose 1/4" SAE, 8'         | AR212, AR400, AR400A   |
| ARXF     | Filter Drier, 45 cubic inches               | All AR200/300/400      |
| M2XRK    | Manifold Replacement valve                  | All AR200/300/400      |
| 74-017   | Knob Label                                  | All AR200/300/400      |
| 42-245   | Knob                                        | All AR200/300/400      |
| AD12     | 1/2" ACME to R134a Refill Tank Adapter      | All AR200/300/400      |
| 40-392   | 1/4" SAE to R134a Refill Tank Adapter       | All AR200/300/400      |
| OCL14    | Premium Low Side Coupler 14mm               | All R-134a models      |
| OCH14    | Premium High Side Coupler 14mm              | All R-134a models      |



ARXC  
Nylon Cover

Printer with cable & shelf



ARXP115 - 110 VAC  
ARXP230 - 230 VAC



ARXF  
AR212/300/400 filter





## WARRANTY

*CPS® guarantees that all products are free of manufacturing and material defects for one 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 option) at no charge. 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. LS3000 and LS790B carry a 2 year warranty.*



## GLOBAL CONTACTS

|            |             |           |          |          |           |                |             |
|------------|-------------|-----------|----------|----------|-----------|----------------|-------------|
| 30-733     | PG 60       | ARH6-A1   | PG 60    | AVC4B    | PG 37     | CR600ECH       | PG 21       |
| 30-736     | PG 60       | ARH7-A1   | PG 60    | AVC4C    | PG 37     | CR700          | PG 19,22    |
| 30-737     | PG 60       | ARXC      | PG 59,60 | AVC4CB   | PG 37     | CR700E         | PG 20       |
| 30-738     | PG 60       | ARXF      | PG 22,60 | AVC4P    | PG 37,48  | CR700EC        | PG 20       |
| 30-744     | PG 60       | ARXP115   | PG 60    | AVC4PB   | PG 37     | CR700ECH       | PG 20       |
| 30-745     | PG 60       | ARXP230   | PG 60    | AVC4PS   | PG 37     | CR700JUK       | PG 20       |
| 40-392     | PG 60       | AV2       | PG 38    | AVC4R    | PG 37     | CR700JUKCH     | PG 20       |
| 41-631     | PG 51       | AV2B      | PG 38    | AVC4RB   | PG 37     | CRXCR1         | PG 22       |
| 42-245     | PG 60       | AV2P      | PG 38    | AVC6C    | PG 37     | CRXCR2         | PG 22       |
| 74-017     | PG 60       | AV2PB     | PG 38    | AVC6CB   | PG 37     | CRXCR3         | PG 22       |
| AB         | PG 35       | AV2R      | PG 38    | AVC6P    | PG 37     | CRXCR4         | PG 22       |
| AB12       | PG 35,49    | AV2RB     | PG 38    | AVC8BC   | PG 37     | CRXCR5         | PG 22       |
| AB3        | PG 35       | AV3       | PG 38    | AVC8C    | PG 37     | CRXCR6         | PG 22       |
| AB410      | PG 35       | AV3B      | PG 38    | AVCT12   | PG 38     | CRXCR7         | PG 22       |
| AB4103     | PG 35       | AV3R      | PG 38    | AVCT14   | PG 38     | CRXCR8         | PG 22       |
| AB41090A   | PG 35       | AV3RB     | PG 38    | AVCT18   | PG 38     | CRXF2          | PG 22       |
| AB410A     | PG 35       | AV4       | PG 38    | AVCT4    | PG 38     | CRXF3          | PG 22       |
| AB90       | PG 35       | AV4410    | PG 38    | AVCT4B   | PG 38     | CRXRM          | PG 22       |
| AB903      | PG 35       | AV4410B   | PG 38    | AVCT5    | PG 38     | CRXRM          | PG 22       |
| ABG18      | PG 35       | AV46M     | PG 38    | AVCT6    | PG 38     | CRXTOS2        | PG 22       |
| AC450      | PG 10       | AV46MB    | PG 38    | AVCT8    | PG 38     | CRXTOS3        | PG 22       |
| AC650      | PG 10       | AV4B      | PG 38    | AVCVAC   | PG 18     | CS12DMV1202J5E | PG 9        |
| AD12       | PG 36,50,60 | AV4BU     | PG 38    | AVLP     | PG 37     | CS12DMV4HCP5E  | PG 9        |
| AD12B      | PG 36       | AV4L      | PG 38    | AVS1     | PG 37     | CS12DMV4JJP5E  | PG 9        |
| AD14       | PG 36,50    | AV4LB     | PG 38    | AVS125   | PG 37     | CS12DMV4JP6Q   | PG 57       |
| AD149C     | PG 36,50    | AV4LR     | PG 38    | AVS1B    | PG 37     | CS12DMV4LP6Q   | PG 57       |
| AD14B      | PG 36       | AV4LRB    | PG 38    | AVS1BC   | PG 37     | CS12DMV5HCP5E  | PG 9        |
| AD18C      | PG 36,50    | AV4P      | PG 38    | AVS1V    | PG 37,50  | CS12DMV5J3P5E  | PG 9        |
| AD24       | PG 36       | AV4PB     | PG 38    | AVS2     | PG 37     | CS12DMV5JJP5E  | PG 9        |
| AD24B      | PG 36       | AV4R      | PG 38    | AVS3     | PG 37     | CS12DMV5JP6Q   | PG 57       |
| AD36       | PG 36       | AV4RB     | PG 38    | AVS44    | PG 38     | CS12DMV5LP6Q   | PG 57       |
| AD369C     | PG 36,50    | AV5       | PG 38    | AVT2P    | PG 38     | CS12DMV5WS10Q  | PG 9        |
| AD36C      | PG 36,50    | AV5B      | PG 38    | AVT4     | PG 38     | CT206          | PG 51       |
| AD41       | PG 36       | AV5R      | PG 38    | AVT44    | PG 38     | CT305          | PG 51       |
| AD41B      | PG 36       | AV5RB     | PG 38    | AVT45    | PG 16,38  | CT499          | PG 51       |
| AD44       | PG 36       | AV6       | PG 38    | AVT48    | PG 16,38  | CT861          | PG 51       |
| AD44B      | PG 36       | AV6B      | PG 38    | AVT4B    | PG 38     | CT862          | PG 51       |
| AD47       | PG 36       | AV6MB     | PG 38    | AVT4M    | PG 38     | CT867          | PG 51       |
| AD47B      | PG 36       | AV6MM     | PG 38    | AVT4P    | PG 38     | CT884          | PG 51       |
| AD48       | PG 36,50    | AV6MR     | PG 38    | AVT64    | PG 38     | CTK1300A       | PG 51       |
| AD48B      | PG 36       | AV6MRB    | PG 38    | AVT64B   | PG 38     | CTK9100        | PG 51       |
| AD48C      | PG 36       | AV6R      | PG 38    | AVT87    | PG 16,38  | DM350          | PG 11       |
| AD61       | PG 36       | AV6RB     | PG 38    | BV       | PG 35,49  | DM450          | PG 11       |
| AD61B      | PG 36       | AVB34     | PG 38    | BV12     | PG 49     | DMA400         | PG 56       |
| AD68       | PG 36       | AVB346    | PG 38    | BV3      | PG 35,49  | DMXF1          | PG 11,56    |
| AD68V      | PG 36       | AVB346B   | PG 38    | BV38     | PG 35,49  | DMXF2          | PG 11       |
| AD78       | PG 36       | AVB346BU  | PG 38    | BV410    | PG 35     | DMXTL          | PG 10,11,56 |
| AD78B      | PG 36       | AVB346RB  | PG 38    | BV41018  | PG 35     | FS226          | PG 41       |
| AD81       | PG 36       | AVB34B    | PG 38    | BV4103   | PG 35     | FS226M         | PG 41,52    |
| AD81B      | PG 36       | AVB456    | PG 38    | BV41090A | PG 35     | FS275          | PG 41       |
| AD84       | PG 36       | AVB456B   | PG 38    | BV410A   | PG 35     | FS275M         | PG 41       |
| AD849C     | PG 36       | AVB46     | PG 38    | BV45     | PG 35     | FSX501         | PG 41       |
| AD84B      | PG 36       | AVB46B    | PG 38    | BV453    | PG 35     | FSX502         | PG 41       |
| AD84C      | PG 36       | AVB6      | PG 38    | BV90     | PG 35     | FSX503         | PG 41       |
| AD87       | PG 36       | AVB6B     | PG 38    | BV903    | PG 35     | FSX504         | PG 41       |
| AD87S      | PG 36       | AVB6BC    | PG 38    | BVAD     | PG 49     | FSX505         | PG 41       |
| ADGM       | PG 36,50    | AVC134C   | PG 37    | BVAD12   | PG 49     | FSX506         | PG 41       |
| ADK12      | PG 36       | AVC134CB  | PG 37    | BVAD24   | PG 49     | FSX507         | PG 41       |
| ADK1234    | PG 48       | AVC134H   | PG 37    | BVAD38   | PG 35     | FSX508         | PG 41       |
| AM50       | PG 15       | AVC134H   | PG 48    | BVAD38   | PG 49     | FSX509         | PG 41       |
| AR200      | PG 60       | AVC134HB  | PG 37    | BVAD90   | PG 49     | FSX511         | PG 41       |
| AR2788     | PG 58,59    | AVC134L   | PG 37    | BVAD90   | PG 49     | FSX512         | PG 41       |
| AR2788B    | PG 59       | AVC134L   | PG 48    | BVBH     | PG 35     | FSX513         | PG 41       |
| AR2788E    | PG 59       | AVC134LB  | PG 37    | BVM      | PG 35,49  | FT195          | PG 41       |
| AR27X H12  | PG 59       | AVC134PS  | PG 37    | BVM3     | PG 35     | FT203          | PG 41       |
| AR27XH16   | PG 59       | AVC134PSB | PG 37    | BVXH     | PG 35     | FT500          | PG 41       |
| AR27XH20   | PG 59       | AVC2      | PG 37    | BVXH     | PG 49     | FT500M         | PG 41       |
| AR27XHB115 | PG 59       | AVC3      | PG 37    | CC220    | PG 7,9,22 | FT525          | PG 41       |
| AR27XHB230 | PG 59       | AVC3P     | PG 37    | CC800A   | PG 8      | FT800FN        | PG 41       |
| AR300      | PG 60       | AVC3P     | PG 48    | CCLT     | PG 8      | FT806A         | PG 41       |
| AR400      | PG 60       | AVC3PB    | PG 37    | CCXHB    | PG 7      | FT806M         | PG 41       |
| AR500EC    | PG 60       | AVC4      | PG 36,37 | CCXHBV   | PG 7      | FTX500         | PG 41       |
| AR500ECH   | PG 60       | AVC410    | PG 37    | CR400EC  | PG 21     | FTX501         | PG 41       |
| ARH16-A1   | PG 60       | AVC410B   | PG 37    | CR400ECH | PG 21     | FTX509         | PG 41       |
| ARH17-A1   | PG 60       | AVC410C   | PG 37    | CR500EC  | PG 21     | FTX510         | PG 41       |
| ARH27-A1   | PG 60       | AVC410CB  | PG 37    | CR500ECH | PG 21     | FTX513         | PG 41       |
| ARH28-A1   | PG 60       | AVC425    | PG 37    | CR600EC  | PG 21     | FTX514         | PG 41       |



|            |       |       |         |          |                |            |          |
|------------|-------|-------|---------|----------|----------------|------------|----------|
| FTX515     | PG 41 | HP3RL | PG 33   | HS6      | PG 32          | LSXC3      | PG 2     |
| FTX516     | PG 41 | HP3Y  | PG 33   | HS6A     | PG 32          | LSXE       | PG 2     |
| FTX517     | PG 41 | HP3YA | PG 33   | HS6B     | PG 32          | LSXMK      | PG 2     |
| FTX518     | PG 41 | HP3YE | PG 33   | HS6BA    | PG 32          | LSXS       | PG 2     |
| FTX800B410 | PG 41 | HP3YL | PG 33   | HS6BE    | PG 32          | LSXS3      | PG 2     |
| FTX800BA   | PG 41 | HP5   | PG 33   | HS6BL    | PG 32          | LSXSF      | PG 2     |
| FTX800BM   | PG 41 | HP5A  | PG 33   | HS6E     | PG 32          | LSXSH      | PG 2     |
| FTX800R    | PG 41 | HP5B  | PG 33   | HS6L     | PG 32          | LSXVF      | PG 2     |
| FTX800Y    | PG 41 | HP5BA | PG 33   | HS6R     | PG 32          | M2XHA      | PG 28    |
| GS30       | PG 3  | HP5BE | PG 33   | HS6RA    | PG 32          | M2XRK      | PG 28,60 |
| GT1        | PG 31 | HP5BL | PG 33   | HS6RE    | PG 32          | M4XHA      | PG 28    |
| GT2        | PG 31 | HP5E  | PG 33   | HS6RL    | PG 32          | M4XRK      | PG 28    |
| GT3        | PG 31 | HP5L  | PG 33   | HS6Y     | PG 32          | M5XRK      | PG 28    |
| HA10B      | PG 48 | HP5R  | PG 33   | HS6YA    | PG 32          | M6F        | PG 28    |
| HA10R      | PG 48 | HP5RA | PG 33   | HS6YE    | PG 32          | M6FS3      | PG 28    |
| HA10Y      | PG 48 | HP5RE | PG 33   | HS6YL    | PG 32          | M6FS5      | PG 28    |
| HA20B      | PG 48 | HP5RL | PG 33   | HS8      | PG 32          | M6G        | PG 28    |
| HA20R      | PG 48 | HP5Y  | PG 33   | HS8A     | PG 32          | M6GS3      | PG 28    |
| HA20Y      | PG 48 | HP5YA | PG 33   | HS8B     | PG 32          | M6GS5      | PG 28    |
| HA3        | PG 48 | HP5YE | PG 33   | HS8BA    | PG 32          | M6O        | PG 28    |
| HA3A       | PG 48 | HP5YL | PG 33   | HS8BE    | PG 32          | M6OS3      | PG 28    |
| HA3B       | PG 48 | HP6   | PG 9,33 | HS8BL    | PG 32          | M6OS5      | PG 28    |
| HA3R       | PG 48 | HP6A  | PG 33   | HS8E     | PG 32          | M6V        | PG 28    |
| HA3Y       | PG 48 | HP6B  | PG 33   | HS8L     | PG 32          | M6VS3      | PG 28    |
| HA3YA      | PG 48 | HP6BA | PG 33   | HS8R     | PG 32          | M6VS5      | PG 28    |
| HA5        | PG 48 | HP6BE | PG 33   | HS8RA    | PG 32          | MAF        | PG 46    |
| HA5A       | PG 48 | HP6BL | PG 33   | HS8RE    | PG 32          | MAFA6K     | PG 46    |
| HA5B       | PG 48 | HP6E  | PG 33   | HS8RL    | PG 32          | MAFA8K     | PG 46    |
| HA5R       | PG 48 | HP6L  | PG 33   | HS8Y     | PG 32          | MAFA8KC    | PG 46    |
| HA5Y       | PG 48 | HP6R  | PG 33   | HS8YA    | PG 32          | MBD        | PG 26    |
| HA5YA      | PG 48 | HP6RA | PG 33   | HS8YE    | PG 32          | MBF        | PG 26    |
| HA6        | PG 48 | HP6RE | PG 33   | HS8YL    | PG 32          | MBFS3      | PG 26    |
| HA6A       | PG 48 | HP6RL | PG 33   | HT134H   | PG 48          | MBFS5      | PG 26    |
| HA6B       | PG 48 | HP6Y  | PG 33   | HT134L   | PG 48          | MBG        | PG 26    |
| HA6R       | PG 48 | HP6YA | PG 33   | HT1BE    | PG 33          | MBGS3      | PG 26    |
| HA6Y       | PG 48 | HP6YE | PG 33   | HT1E     | PG 33          | MBGS5      | PG 26    |
| HA6YA      | PG 48 | HP6YL | PG 33   | HT1RE    | PG 33          | MBHC       | PG 27    |
| HA8        | PG 48 | HS10  | PG 32   | HT1YE    | PG 33          | MBHCP5E    | PG 27    |
| HA8B       | PG 48 | HS10B | PG 32   | HT410BEJ | PG 33          | MBO        | PG 26    |
| HA8R       | PG 48 | HS10R | PG 32   | HT410EJ  | PG 33          | MBOS3      | PG 26    |
| HA8Y       | PG 48 | HS10Y | PG 32   | HT410REJ | PG 33          | MBOS5      | PG 26    |
| HC6        | PG 48 | HS3   | PG 32   | HT410YEJ | PG 33          | MBV        | PG 26    |
| HC6B       | PG 48 | HS3A  | PG 32   | HTAD1    | PG 48          | MBVS3      | PG 26    |
| HC6R       | PG 48 | HS3B  | PG 32   | HTAD2    | PG 48          | MBVS5      | PG 26    |
| HC6Y       | PG 48 | HS3BA | PG 32   | HTAD3    | PG 48          | MCO        | PG 26    |
| HHC2       | PG 34 | HS3BE | PG 32   | HTBE     | PG 33          | MCOJ3      | PG 26    |
| HHC2S      | PG 34 | HS3BL | PG 32   | HTE      | PG 33          | MCOJ5      | PG 26    |
| HHC3       | PG 34 | HS3E  | PG 32   | HTRE     | PG 33          | MDF        | PG 47    |
| HHC3S      | PG 34 | HS3L  | PG 32   | HTYE     | PG 33          | MDFS6K     | PG 47    |
| HHC4       | PG 34 | HS3R  | PG 32   | HV3      | PG 34          | MDFS8K     | PG 47    |
| HHC4S      | PG 34 | HS3RA | PG 32   | HV5      | PG 34          | MDFS8KC    | PG 47    |
| HJ3        | PG 33 | HS3RE | PG 32   | HV5E     | PG 34          | MMV2GS5    | PG 24    |
| HJ3B       | PG 33 | HS3RL | PG 32   | HV6      | PG 34          | MMV2GS5C   | PG 24    |
| HJ3BE      | PG 33 | HS3Y  | PG 32   | HV8      | PG 34          | MV11A      | PG 25    |
| HJ3E       | PG 33 | HS3YA | PG 32   | HX14R    | PG 34,48       | MV11AJ5    | PG 25    |
| HJ3R       | PG 33 | HS3YE | PG 32   | HX38G    | PG 34          | MV11AJ5C   | PG 25    |
| HJ3RE      | PG 33 | HS3YL | PG 32   | HX3D     | PG 48          | MV11AJ5E   | PG 25    |
| HJ3Y       | PG 33 | HS4   | PG 32   | HX3G     | PG 34          | MV11AJ5EC  | PG 25    |
| HJ5B       | PG 33 | HS4B  | PG 32   | HX4D     | PG 48          | MV11E      | PG 25    |
| HJ5BE      | PG 33 | HS4R  | PG 32   | HXD      | PG 32,34,48    | MV11EJ5    | PG 25    |
| HJ5E       | PG 33 | HS4Y  | PG 32   | HXG      | PG 32,33,34,48 | MV11EJ5C   | PG 25    |
| HJ5HJ3YE   | PG 33 | HS5   | PG 32   | HXG2     | PG 33,34,48    | MV11EJ5E   | PG 25    |
| HJ5R       | PG 33 | HS5A  | PG 32   | HXGA     | PG 33,34,35    | MV11EJ5EC  | PG 25    |
| HJ5RE      | PG 33 | HS5B  | PG 32   | HXGA410  | PG 34          | MV11O      | PG 25    |
| HJ5Y       | PG 33 | HS5BA | PG 32   | HXGD     | PG 34          | MV11O2     | PG 25    |
| HJ5YE      | PG 33 | HS5BE | PG 32   | HXGD2    | PG 34          | MV11O2J5   | PG 25    |
| HP3        | PG 33 | HS5BL | PG 32   | HXKIT    | PG 48          | MV11O2J5C  | PG 25    |
| HP3A       | PG 33 | HS5E  | PG 32   | HXTG     | PG 34          | MV11O2J5E  | PG 25    |
| HP3B       | PG 33 | HS5L  | PG 32   | HXTG2    | PG 33,34       | MV11O2J5EC | PG 25    |
| HP3BA      | PG 33 | HS5R  | PG 32   | LS3000B  | PG 1,2         | MV11O4     | PG 25    |
| HP3BE      | PG 33 | HS5RA | PG 32   | LS780A   | PG 2           | MV11O4J5   | PG 25    |
| HP3BL      | PG 33 | HS5RE | PG 32   | LS780B   | PG 2           | MV11O4J5C  | PG 25    |
| HP3E       | PG 33 | HS5RL | PG 32   | LS790A   | PG 2           | MV11O4J5E  | PG 25    |
| HP3L       | PG 33 | HS5Y  | PG 32   | LS790B   | PG 2           | MV11O4J5EC | PG 25    |
| HP3R       | PG 33 | HS5YA | PG 32   | LSXB     | PG 2           | MV11OJ5    | PG 25    |
| HP3RA      | PG 33 | HS5YE | PG 32   | LSXBMK   | PG 2           | MV11OJ5C   | PG 25    |
| HP3RE      | PG 33 | HS5YL | PG 32   | LSXC     | PG 2           | MV11OJ5E   | PG 25    |

|            |          |           |          |            |          |             |                      |
|------------|----------|-----------|----------|------------|----------|-------------|----------------------|
| MV110J5EC  | PG 25    | MV2L      | PG 24    | MV4V       | PG 24    | MXMH        | PG 28                |
| MV12A      | PG 25    | MV2LS3    | PG 24    | MV4VS5     | PG 24    | MXPK        | PG 28                |
| MV12AJ5    | PG 25    | MV2LS3C   | PG 24    | MV4VS5C    | PG 24    | MXPV        | PG 28                |
| MV12AJ5C   | PG 25    | MV2LS5    | PG 24    | MV4W       | PG 24    | MXPVO       | PG 28                |
| MV12AJ5E   | PG 25    | MV2LS5C   | PG 24    | MV4WS5     | PG 24    | NITROKIT    | PG 57                |
| MV12AJ5EC  | PG 25    | MV2N      | PG 24    | MV4WS5C    | PG 24    | NITROKITG   | PG 57                |
| MV12E      | PG 25    | MV2NS3    | PG 24    | MV4XRK     | PG 28    | QC134 SET   | PG 49                |
| MV12EJ5    | PG 25    | MV2NS3C   | PG 24    | MV5HC      | PG 27    | QC13490 SET | PG 49                |
| MV12EJ5C   | PG 25    | MV2NS5    | PG 24    | MV5HC5PE   | PG 27    | QC14 SET    | PG 49                |
| MV12EJ5E   | PG 25    | MV2NS5C   | PG 24    | MV5HCD5PEC | PG 27    | QC90 SET    | PG 49                |
| MV12EJ5EC  | PG 25    | MV2O      | PG 24    | MV5J       | PG 24    | QCH134      | PG 49                |
| MV12O      | PG 25    | MV2O2     | PG 24    | MV5J3      | PG 24    | QCH13490    | PG 49                |
| MV12O2     | PG 25    | MV2O2S3   | PG 24    | MV5J35PEC  | PG 24    | QCH14       | PG 34,49,60          |
| MV12O2J5   | PG 25    | MV2O2S3C  | PG 24    | MV5J35PECD | PG 24    | QCH90       | PG 49                |
| MV12O2J5C  | PG 25    | MV2O2S5   | PG 24    | MV5J3D     | PG 24    | QCL134      | PG 49                |
| MV12O2J5E  | PG 25    | MV2O2S5C  | PG 24    | MV5J5PEC   | PG 24    | QCL13490    | PG 49                |
| MV12O2J5EC | PG 25    | MV2OS3    | PG 24    | MV5J5PECD  | PG 24    | QCL14       | PG 34,49,60          |
| MV12O4     | PG 25    | MV2OS3C   | PG 24    | MV5JD      | PG 9,24  | QCL90       | PG 49                |
| MV12O4J5   | PG 25    | MV2OS5    | PG 24    | MV5K       | PG 24    | QCXO        | PG 49                |
| MV12O4J5C  | PG 25    | MV2OS5C   | PG 24    | MV5K5PEC   | PG 24    | QCXR34      | PG 48                |
| MV12O4J5E  | PG 25    | MV2Q      | PG 24    | MV5K5PECD  | PG 24    | QCXR34      | PG 49                |
| MV12O4J5EC | PG 25    | MV2QS3    | PG 24    | MV5KD      | PG 24    | RG0H        | PG 29                |
| MV12OJ5    | PG 25    | MV2QS3C   | PG 24    | MV5L       | PG 24    | RG0L        | PG 29                |
| MV12OJ5C   | PG 25    | MV2QS5    | PG 24    | MV5L5PEC   | PG 24    | RGAH        | PG 25,30             |
| MV12OJ5E   | PG 25    | MV2QS5C   | PG 24    | MV5L5PECD  | PG 24    | RGAHB       | PG 30                |
| MV12OJ5EC  | PG 25    | MV2U      | PG 24    | MV5LD      | PG 24    | RGAL        | PG 25,30             |
| MV1FH      | PG 24    | MV2US3    | PG 24    | MV5N       | PG 24    | RGALB       | PG 30                |
| MV1FL      | PG 24    | MV2US3C   | PG 24    | MV5N5PEC   | PG 24    | RGEH        | PG 25,30             |
| MV1GH      | PG 23,24 | MV2US5    | PG 24    | MV5N5PECD  | PG 24    | RGEHB       | PG 30                |
| MV1GL      | PG 24    | MV2US5C   | PG 24    | MV5ND      | PG 23,24 | RGEL        | PG 25,30             |
| MV1J3H     | PG 24    | MV2V      | PG 23,24 | MV5Q       | PG 24    | RGELB       | PG 30                |
| MV1J3L     | PG 24    | MV2VS3    | PG 24    | MV5Q5PEC   | PG 24    | RGFFH       | PG 24,26,28,30,46,47 |
| MV1JH      | PG 24    | MV2VS3C   | PG 24    | MV5Q5PECD  | PG 24    | RGFFHB      | PG 30,46,47          |
| MV1JL      | PG 24    | MV2VS5    | PG 24    | MV5QD      | PG 24    | RGFL        | PG 24,26,28,30,46,47 |
| MV1KH      | PG 24    | MV2VS5C   | PG 24    | MV5U       | PG 24    | RGFLB       | PG 30,46,47          |
| MV1KL      | PG 24    | MV2W      | PG 24    | MV5U5PEC   | PG 24    | RGGH        | PG 24,26,28,30       |
| MV1LH      | PG 24    | MV2WS3    | PG 24    | MV5U5PECD  | PG 24    | RGHGB       | PG 30                |
| MV1LL      | PG 24    | MV2WS3C   | PG 24    | MV5UD      | PG 24    | RGGL        | PG 24,26,28,30       |
| MV1NH      | PG 24    | MV2WS5    | PG 24    | MV5W       | PG 24    | RGGLB       | PG 30                |
| MV1NL      | PG 24    | MV2WS5C   | PG 24    | MV5W5PEC   | PG 24    | RGHCH       | PG 30                |
| MV1O2H     | PG 24    | MV2XRK    | PG 28    | MV5W5PECD  | PG 24    | RGHCHB      | PG 30                |
| MV1O2L     | PG 24    | MV4F      | PG 24    | MV5WD      | PG 24    | RGHCL       | PG 30                |
| MV1OH      | PG 24    | MV4FS5    | PG 24    | MV5XRK     | PG 28    | RGHCLB      | PG 30                |
| MV1OL      | PG 24    | MV4FS5C   | PG 24    | MV7F       | PG 46    | RGHHB       | PG 29                |
| MV1QH      | PG 24    | MV4G      | PG 24    | MV7FA6Q    | PG 46    | RGHLB       | PG 29                |
| MV1QL      | PG 24    | MV4GS5    | PG 24    | MV7FA6QC   | PG 46    | RGJ3H       | PG 24,29,30          |
| MV1UH      | PG 24    | MV4GS5C   | PG 24    | MV7FA8Q    | PG 46    | RGJ3HB      | PG 30                |
| MV1UL      | PG 24    | MV4HC     | PG 27    | MV7FA8QC   | PG 46    | RGJ3L       | PG 24,29,30          |
| MV1VH      | PG 24    | MV4HC5PE  | PG 27    | MV7J       | PG 46    | RGJ3LB      | PG 30                |
| MV1VL      | PG 24    | MV4HC5PEC | PG 27    | MV7JA6Q    | PG 46    | RGJH        | PG 24,30,46,47       |
| MV1WH      | PG 24    | MV4J      | PG 23,24 | MV7JA6QC   | PG 46    | RGJHB       | PG 30,46,47          |
| MV1WL      | PG 24    | MV4J3     | PG 24    | MV7JA8Q    | PG 46    | RGJL        | PG 24,30,46,47       |
| MV2F       | PG 24    | MV4J3S5   | PG 24    | MV7JA8QC   | PG 46    | RGJLB       | PG 30,46,47          |
| MV2FS3     | PG 24    | MV4J3S5C  | PG 24    | MV7L       | PG 46    | RGKH        | PG 24,29,30          |
| MV2FS3C    | PG 24    | MV4JS5    | PG 24    | MV7LA6Q    | PG 46    | RGKHB       | PG 30                |
| MV2FS5     | PG 24    | MV4JS5C   | PG 24    | MV7LA6QC   | PG 46    | RGKL        | PG 24,29,30          |
| MV2FS5C    | PG 24    | MV4K      | PG 24    | MV7LA8Q    | PG 46    | RGKLB       | PG 30                |
| MV2G       | PG 24    | MV4KS5    | PG 24    | MV7LA8QC   | PG 46    | RGLH        | PG 30,46,47          |
| MV2GS3     | PG 24    | MV4KS5C   | PG 24    | MV8F       | PG 47    | RGLHB       | PG 30,46,47          |
| MV2GS3C    | PG 24    | MV4L      | PG 24    | MV8FA6Q    | PG 47    | RGLL        | PG 30,46,47          |
| MV2HC      | PG 27    | MV4LS5    | PG 24    | MV8FA6QC   | PG 47    | RGLLB       | PG 30,46,47          |
| MV2HCP5E   | PG 27    | MV4LS5C   | PG 24    | MV8FA8Q    | PG 47    | RGNH        | PG 24,30             |
| MV2J       | PG 24    | MV4N      | PG 24    | MV8FA8QC   | PG 47    | RGNHB       | PG 30                |
| MV2J3      | PG 24    | MV4NS5    | PG 24    | MV8J       | PG 47    | RGNL        | PG 24,30             |
| MV2J3S3    | PG 24    | MV4NS5C   | PG 24    | MV8JA6Q    | PG 47    | RGNLB       | PG 30                |
| MV2J3S3C   | PG 24    | MV4O      | PG 24    | MV8JA6QC   | PG 47    | RG02H       | PG 24,25,30          |
| MV2J3S5    | PG 24    | MV4O2     | PG 24    | MV8JA8Q    | PG 47    | RG02HB      | PG 30                |
| MV2J3S5C   | PG 24    | MV4O2S5   | PG 24    | MV8JA8QC   | PG 47    | RG02L       | PG 24,25,30          |
| MV2JS3     | PG 24    | MV4O2S5C  | PG 24    | MV8L       | PG 47    | RG02LB      | PG 30                |
| MV2JS3C    | PG 24    | MV4OS5    | PG 24    | MV8LA6Q    | PG 47    | RG04H       | PG 25,30             |
| MV2JS5     | PG 24    | MV4OS5C   | PG 24    | MV8LA6QC   | PG 47    | RG04HB      | PG 30                |
| MV2JS5C    | PG 24    | MV4Q      | PG 24    | MV8LA8Q    | PG 47    | RG04L       | PG 25,30             |
| MV2K       | PG 24    | MV4QS5    | PG 24    | MV8LA8QC   | PG 47    | RG04LB      | PG 30                |
| MV2KS3     | PG 24    | MV4QS5C   | PG 24    | MVXK       | PG 28    | RG0H        | PG 24,25,26,28,30    |
| MV2KS3C    | PG 24    | MV4U      | PG 24    | MXBK       | PG 28    | RG0HB       | PG 30                |
| MV2KS5     | PG 24    | MV4US5    | PG 24    | MXC        | PG 28    | RGOL        | PG 24,25,26,28,30    |
| MV2KS5C    | PG 24    | MV4US5C   | PG 24    | MXK        | PG 28    | RGOLB       | PG 30                |



|          |                |          |         |            |          |           |            |
|----------|----------------|----------|---------|------------|----------|-----------|------------|
| RGQH     | PG 24,30       | TCX4RS   | PG 39   | TLSWO      | PG 43    | UVNJS     | PG 6       |
| RGQHB    | PG 30          | TCX4S    | PG 39   | TLSWS      | PG 43    | UVNJSJA   | PG 55      |
| RGQL     | PG 24,30       | TCX6CTS  | PG 39   | TLSWT      | PG 43    | UVNJXO    | PG 55      |
| RGQLB    | PG 30          | TCX7C    | PG 39   | TLTWSM     | PG 42    | UVNJXOR   | PG 55      |
| RGUH     | PG 24,30       | TCX7CS   | PG 39   | TLVC       | PG 37,50 | UVPRO     | PG 4       |
| RGUHB    | PG 30          | TCX7CTS  | PG 39   | TLVC1      | PG 37,50 | UVPRO     | PG 53      |
| RGUL     | PG 24,30       | TCX7S    | PG 39   | TLVC134    | PG 37,50 | UVS1      | PG 6       |
| RGULB    | PG 30          | TL7238   | PG 52   | TLVC2      | PG 37,50 | UVS101    | PG 55      |
| RGVH     | PG 24,26,28,30 | TL7239   | PG 52   | TLVC2B     | PG 37    | UVS101    | PG 6       |
| RGVHB    | PG 30          | TL7240   | PG 52   | TLVC4      | PG 37,50 | UVS2      | PG 6       |
| RGVL     | PG 24,26,28,30 | TL7241   | PG 52   | TLVC410    | PG 37    | UVS3      | PG 6,55    |
| RGVLB    | PG 30          | TL7242   | PG 52   | TLVC6      | PG 37,50 | UVS5      | PG 55      |
| RGWH     | PG 24,30       | TL7881   | PG 52   | TLVC810    | PG 37,50 | UVSTICK   | PG 55      |
| RGWHB    | PG 30          | TLCT12   | PG 50   | TLVCS      | PG 37    | UVSTICK1  | PG 55      |
| RGWL     | PG 24,30       | TLCT1234 | PG 50   | TLVCS410   | PG 37    | UVUD6     | PG 6,55    |
| RGWLB    | PG 30          | TLCT34   | PG 50   | TLWA06     | PG 45    | UVUDS     | PG 6,55    |
| RGX68BB  | PG 29          | TLCTX34  | PG 50   | TLWA08     | PG 45    | UVXB      | PG 5,54    |
| RGX68RB  | PG 29          | TLCTXG   | PG 50   | TLWA10     | PG 45    | UVXBC     | PG 5,54    |
| RGX80BB  | PG 29          | TLDB     | PG 42   | TLWA12     | PG 45    | UVXBLB    | PG 5,54    |
| RGX80RB  | PG 29          | TLDB2    | PG 42   | TLWL53A    | PG 45    | UVXBLB100 | PG 5,54    |
| RM       | PG 3           | TLDB34   | PG 52   | TLXMIR1    | PG 44    | UVXBLBPRO | PG 5,54    |
| RM12     | PG 3           | TLDKRH   | PG 45   | TLXMIR2    | PG 44    | UVXC      | PG 5,54    |
| RM134    | PG 3           | TLDKWH   | PG 45   | TLXMIR3    | PG 44    | UVXCE     | PG 5,54    |
| RM404    | PG 3           | TLE6     | PG 42   | TLXMIR4    | PG 44    | UVXCN     | PG 5,54    |
| RM407    | PG 3           | TLE601   | PG 42   | TLXVC410BC | PG 37    | UVXG      | PG 5,54    |
| RM410    | PG 3           | TLE6M    | PG 42   | TLXVC410RT | PG 37    | UVXLNS    | PG 5,54    |
| RM502    | PG 3           | TLFC1    | PG 44   | TLXVCBC    | PG 37    | UVXLNS100 | PG 5,54    |
| RM507    | PG 3           | TLFC2    | PG 44   | TLXVCRT    | PG 37    | UVXSGA    | PG 5,54    |
| RMX11    | PG 3           | TLFC6    | PG 44   | TLXVCT     | PG 37    | UVXSH     | PG 5,54,55 |
| SM150    | PG 15          | TLFG     | PG 52   | TM250      | PG 12    | UVXSHA    | PG 5,54,55 |
| T40L     | PG 22          | TLFGXT   | PG 52   | TM250A     | PG 56    | UVXSTA    | PG 5,54,55 |
| TB04     | PG 40          | TLH06    | PG 42   | TM250C     | PG 12    | VCT10     | PG 38      |
| TB04     | PG 40          | TLH08    | PG 42   | TM50       | PG 13    | VG100A    | PG 16      |
| TB05     | PG 40          | TLH10    | PG 42   | TMAP       | PG 13    | VG200     | PG 16      |
| TB06     | PG 40          | TLH12    | PG 42   | TMAPC      | PG 13    | VG201     | PG 16      |
| TB08     | PG 40          | TLH14    | PG 42   | TMDP       | PG 13    | VGXC      | PG 16      |
| TB10     | PG 40          | TLH16    | PG 42   | TMINI12    | PG 13,14 | VGXH      | PG 16      |
| TB10MM   | PG 40          | TLH18    | PG 42   | TMX2A      | PG 12    | VP10D     | PG 17      |
| TB10XH   | PG 40          | TLH22    | PG 42   | TMX2C      | PG 12    | VP12D     | PG 17      |
| TB12     | PG 40          | TLH26    | PG 42   | TMX2C      | PG 56    | VP2D      | PG 9,17    |
| TB12MM   | PG 40          | TLHM10   | PG 42   | TMX2FP     | PG 12    | VP2S      | PG 17      |
| TB12XH   | PG 40          | TLHM12   | PG 42   | TMX2FP     | PG 56    | VP3D      | PG 17      |
| TB14     | PG 40          | TLHM15   | PG 42   | TMX2G      | PG 12    | VP3S      | PG 17      |
| TB15MM   | PG 40          | TLHM16   | PG 42   | TMX2GA     | PG 12    | VP6D      | PG 17      |
| TB16MM   | PG 40          | TLHM18   | PG 42   | TMX2GA     | PG 56    | VP6S      | PG 17      |
| TB250    | PG 40          | TLHM20   | PG 42   | TMX2P      | PG 12    | VP8D      | PG 17      |
| TB368    | PG 40          | TLHM22   | PG 42   | TMX2RH     | PG 12    | VPAS4     | PG 18      |
| TB6MM    | PG 40          | TLHM28   | PG 42   | TMX2S      | PG 12    | VPAS8     | PG 18      |
| TBS04    | PG 40          | TLHM35   | PG 42   | TMXKBEAD   | PG 14    | VPASU     | PG 18      |
| TBS05    | PG 40          | TLHM42   | PG 42   | TMXSK      | PG 14    | VPOG 6    | PG 18      |
| TBS06    | PG 40          | TLJ2     | PG 6,55 | TMXSK90    | PG 14    | VPOP 12   | PG 18      |
| TBS08    | PG 40          | TLJ4     | PG 6,55 | UV1        | PG 6     | VPOQ 12   | PG 18      |
| TBS10    | PG 40          | TLK134   | PG 51   | UV100      | PG 54    | VPXB2     | PG 18      |
| TBS12    | PG 40          | TLMAG1   | PG 44   | UV101      | PG 6     | VPXB3     | PG 18      |
| TBX2     | PG 40          | TLMIR1   | PG 44   | UV101A     | PG 55    | VPXC100   | PG 18      |
| TBXB1    | PG 40          | TLMIR2   | PG 44   | UV150      | PG 5     | VPXCS2    | PG 18      |
| TBXM10   | PG 40          | TLMIR3   | PG 44   | UV152      | PG 5     | VPXCS3    | PG 18      |
| TBXM14   | PG 40          | TLMIR4   | PG 44   | UV152UN    | PG 5     | VPXEB2    | PG 18      |
| TBXM16   | PG 40          | TLMKC18  | PG 44   | UV2        | PG 6     | VPXEB3    | PG 18      |
| TBXM19   | PG 40          | TLMSP    | PG 43   | UV200      | PG 5     | VPXEB02   | PG 18      |
| TBXM22   | PG 40          | TLOT12   | PG 51   | UV250      | PG 5     | VPXEB03   | PG 18      |
| TBXM6    | PG 40          | TLOT18   | PG 51   | UV252      | PG 5     | VPXEH     | PG 18      |
| TBXM8    | PG 40          | TLOT19   | PG 51   | UV3        | PG 6     | VPXEP1    | PG 18      |
| TBXR     | PG 40          | TLOTK    | PG 51   | UV300      | PG 54    | VPXEP2    | PG 18      |
| TC100    | PG 39          | TLPK     | PG 43   | UV34DS     | PG 55    | VPXF15    | PG 18      |
| TC127    | PG 39          | TLPO     | PG 43   | UV55       | PG 5     | VPXFB2    | PG 18      |
| TC174    | PG 39          | TLPORR   | PG 43   | UV55A      | PG 54    | VPXFB3    | PG 18      |
| TC206    | PG 39          | TLPP     | PG 43   | UVAL       | PG 54    | VPXFG2    | PG 18      |
| TC274    | PG 39,40       | TLPPX    | PG 43   | UVAM       | PG 54    | VPXH      | PG 18      |
| TC312    | PG 39          | TLRAD    | PG 52   | UVCL       | PG 5     | VPXIP2    | PG 18      |
| TCAP     | PG 39          | TLREF    | PG 52   | UVCL100    | PG 5     | VPXIP3    | PG 18      |
| TCSET    | PG 39          | TLRK     | PG 48   | UVCLNR     | PG 55    | VPXJ220   | PG 17      |
| TCX100CS | PG 39          | TLSD1    | PG 43   | UVCLNR     | PG 6     | VPXODP    | PG 18      |
| TCX4C    | PG 39          | TLSWB    | PG 43   | UVNJ       | PG 6     | VPXOEP    | PG 18      |
| TCX4CS   | PG 39          | TLSWH    | PG 43   | UVNJ1234   | PG 55    | VPXOL2    | PG 18      |
| TCX4CTS  | PG 39          | TLSWHM   | PG 43   | UVNJ2      | PG 55    | VPXOL3    | PG 18      |
| TCX4R    | PG 39          | TLSWL    | PG 43   | UVNJ34     | PG 55    | VPXOMP    | PG 17      |



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