

# ED32

HVAC/R  
Service Products



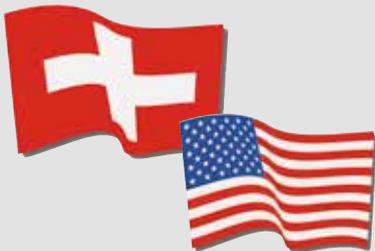
# Swiss Quality



REFCO Manufacturing (US) Inc. is pleased to introduce our new full line catalog. REFCO, headquartered in Hitzkirch (Switzerland) has long been recognized as a world leader in the manufacturing of service equipment for the refrigeration and air conditioning industry. With this full line catalog, our manufacturing facility stocking warehouse in the USA and an excellent sales representative network, we will show North America what the rest of the world already knows, that REFCO Manufacturing (US) Inc. is the highest quality and best value refrigeration and air conditioning service tool manufacturer available today.

Manfred P. Ulrich  
President / CEO

Steve Secord  
Vice-President





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# NEWS



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# Business & Economy



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# Production





# Logistic





# Trade Shows Worldwide



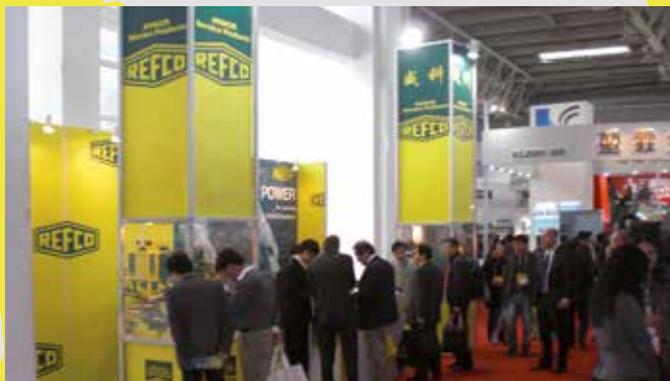
Germany, Chillventa



Italy, Mostra Convegno



UK, RAC



China, China Refrigeration



Mexico, AHR Expo



USA, ASHRAE Expo

# Vacuum Pumps

## Features for all RL-Vacuum Pumps

- Built specifically for the AC/R Industry
- Latest technology allows extremely compact size
- High-end materials result in low weight but top quality
- Compact, practical, long lifetime
- Sturdy ergonomic handle stays cool to the touch
- Large, easily accessible oil fill port to prevent spillage when filling
- Sight glass for easy viewing of the oil level
- Two-stage rotary vane pump in state of the art design for greater efficiency
- Easy to start, compact motor operates efficiently
- Internal oil pump with unique device to prevent any oil back suction
- Built-in on/off switch to prevent breakage or accidental shut off
- Gas ballast valve feature to help keep the oil clean and to reduce water vapor in the oil compartment
- Easily field replaceable one piece cartridge allows for rebuild without special tooling
- Special designed oil exhaust filter to reduce oil mist
- Quiet operation
- Swiss Quality product manufactured under ISO 9001

### RL-2 1.35 cfm

- Includes DV-44 vacuum pump oil (0.5 pt. / 250 ml)

### RL-8 6.4 cfm

- Large oil drain valve located at the front bottom of oil pan to allow for fast and easy oil change
- Modern metal, rugged pump design with high-tech plastic housing to absorb shocks
- Ergonomical design for even easier handling
- Lower point of gravity for higher stability
- Both ¼" and ⅜" SAE inlet connections allow for flexibility of connections
- Integrated blank off ball-valve to isolate pump from system
- Includes DV-45 vacuum pump oil (1pt. / 500 ml)

RL-2



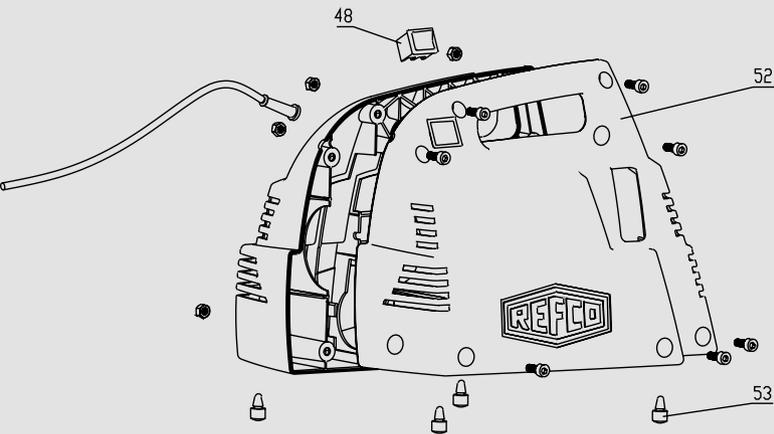
RL-8



#### Technical Data

	RL-2	RL-8
Free air displacement:	1.35 cfm	6.4 cfm
Number of stages:	2	2
Microns:	15	15
Intake threads:	¼" SAE Flare	¼" and ⅜" SAE Flare with integrated ball valve
Motor:	⅙ horsepower, 2700 rpm	½ horsepower, 3300 rpm
Voltage:	115 Volt, 60 Hz	115 Volt, 60 Hz
Power Cord Length:	78"	78"
Oil Capacity:	0.25 pt.	1 pt.
Recommended oil change:	Every 20 working hours	Every 20 working hours
Dimensions:	10.5 x 6.5 x 7.5 inch	14 x 8.6 x 9.8 inch
Weight:	8.3 lbs	26 lbs
<b>Part No.</b>	<b>4661601</b>	<b>4507356</b>

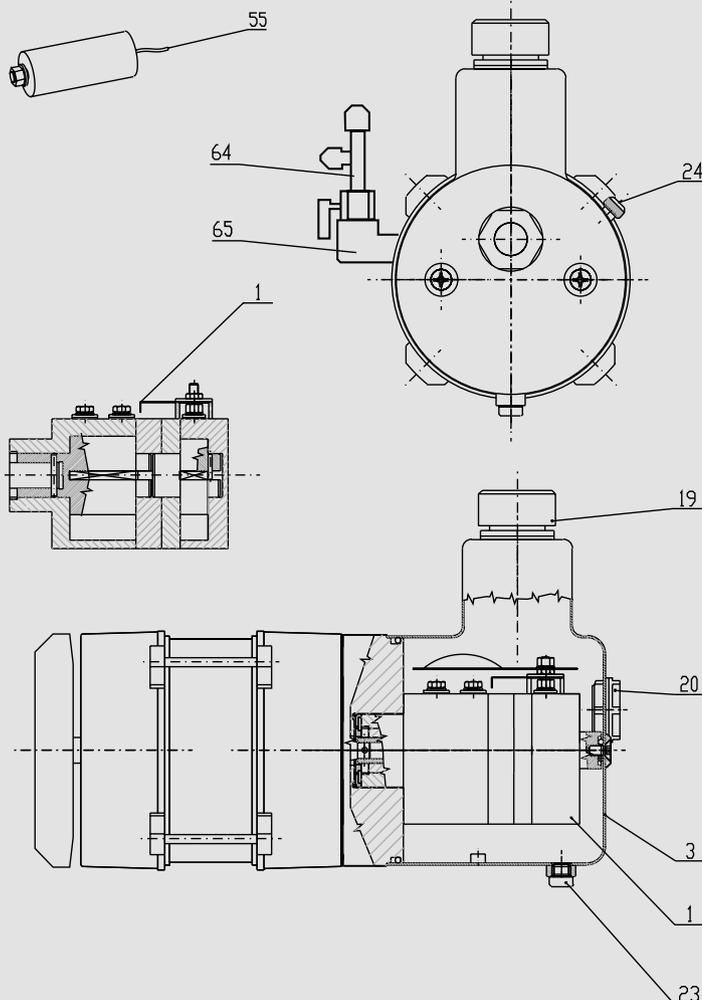
## Spare Parts for RL-2, RL-4 and RL-8



### Spare Parts for RL-2

Pos.	Designation	Description	Part No.
3	<b>RL-2-3000</b>	Oil basin complete with gasket	<b>4661589</b>
20	<b>RL-2-3011</b>	Oil sight glass with gasket + counter nut	<b>4661597</b>
19	<b>RL-2/4-303</b>	Oil mist filter with gasket	<b>4495471</b>
24	<b>RL-2/4-3060</b>	Gas ballast valve complete	<b>4661423</b>
53	<b>RL-8-4071</b>	Rubber pad set (4 pieces)	<b>4507631</b>
55	<b>RL-2-406</b>	Capacitor	<b>4661040</b>
48	<b>RL-2/4/8-415</b>	Switch	<b>4496770</b>
52	<b>RL-2-4000</b>	Housing complete	<b>4661538</b>
1	<b>RL-2-2A</b>	Vacuum stage complete	<b>4661482</b>
64	<b>RL-2-64</b>	Intake port w/cap	<b>4668028</b>

### Spare Parts for RL-4



Pos.	Designation	Description	Part No.
3	<b>RL-4-3000</b>	Oil basin complete with gasket	<b>4507674</b>
20	<b>RL-4-3011</b>	Oil sight glass with gasket + counter nut	<b>4507682</b>
23	<b>RL-4/8-310</b>	Oil drain plug with gasket	<b>4496761</b>
19	<b>RL-2/4-303</b>	Oil mist filter with gasket	<b>4495471</b>
24	<b>RL-2/4-3060</b>	Gas ballast valve complete	<b>4661423</b>
53	<b>RL-8-4071</b>	Rubber pad set (4 pieces)	<b>4507631</b>
55	<b>RL-4-406</b>	Capacitor	<b>4505051</b>
48	<b>RL-2/4/8-415</b>	Switch	<b>4496770</b>
52	<b>RL-4-4000</b>	Housing complete	<b>4661474</b>
1	<b>RL-4-2A</b>	Vacuum stage complete	<b>4661954</b>
64	<b>RL-4-64</b>	Intake port w/caps	<b>4668036</b>
65	<b>RL-4/8-65</b>	Intake elbow	<b>4668053</b>

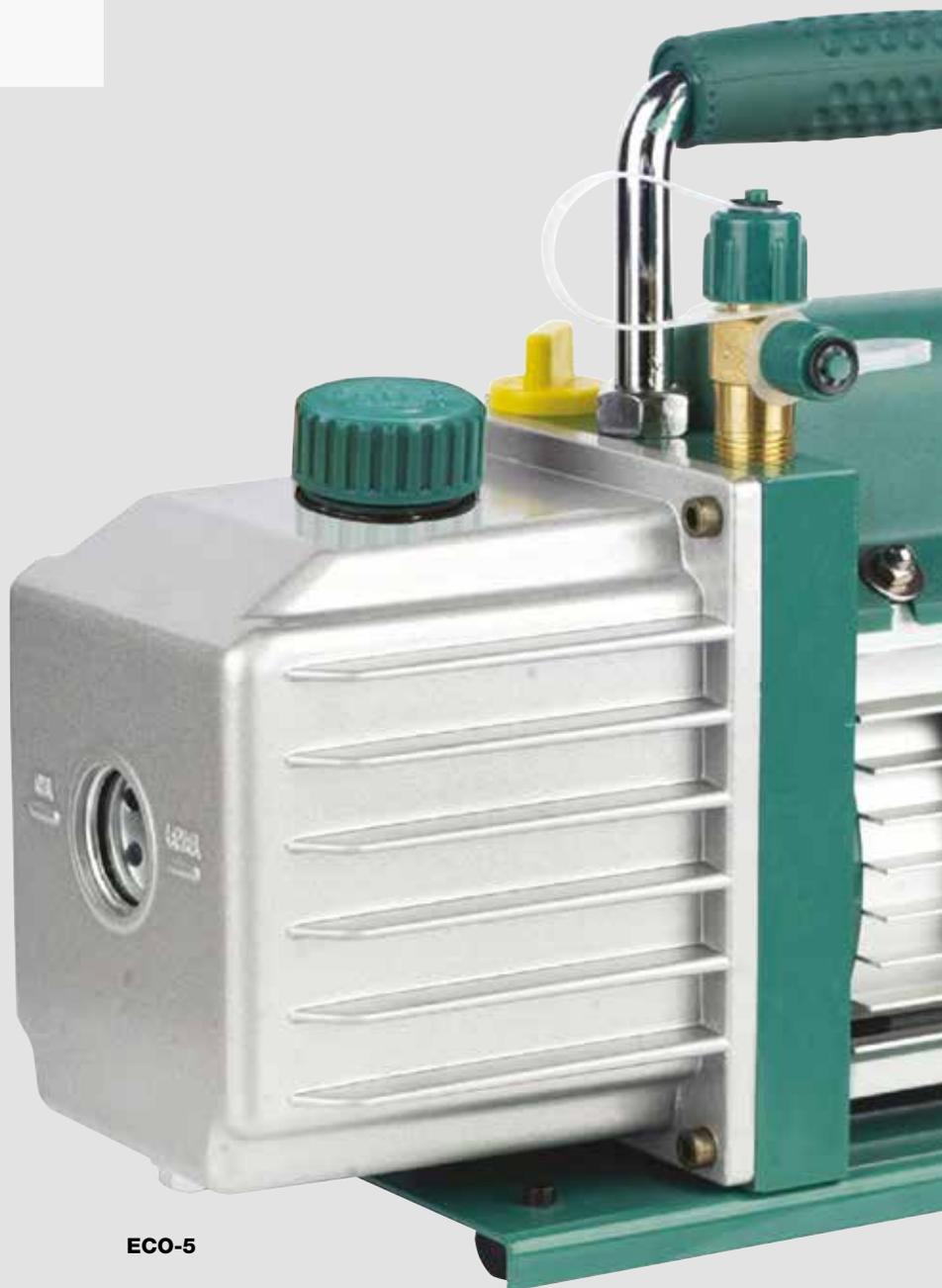
### Spare Parts for RL-8

Pos.	Designation	Description	Part No.
3	<b>RL-8-3000</b>	Oil basin complete with gasket	<b>4507607</b>
20	<b>RL-8-3011</b>	Oil sight glass with gasket + counter nut	<b>4507615</b>
23	<b>RL-4/8-310</b>	Oil drain plug with gasket	<b>4496761</b>
19	<b>RL-8-303</b>	Oil mist filter with gasket	<b>4507445</b>
24	<b>RL-8-3060</b>	Gas ballast valve complete	<b>4507623</b>
53	<b>RL-8-4071</b>	Rubber pad set (4 pieces)	<b>4507631</b>
55	<b>RL-8-426</b>	Capacitor set (2 pieces)	<b>4508203</b>
48	<b>RL-2/4/8-415</b>	Switch	<b>4496770</b>
52	<b>RL-8-4000</b>	Housing complete	<b>4507640</b>
1	<b>RL-8-2A</b>	Vacuum stage complete	<b>4507658</b>
64	<b>RL-8-64</b>	Intake port w/caps, handle, screw	<b>4668045</b>
65	<b>RL-4/8-65</b>	Intake elbow	<b>4668053</b>

# Vacuum Pumps

## ECO Series Vacuum Pumps

- Designed specifically for HVAC/R Service
- Two stage rotary vane pump design
- Compact design with aluminum housing and easy to grip carrying handle
- Very quiet operation
- High pumping capacity reduces evacuation time
- Carrying handle stays cool to the touch
- Easy to start
- Both 1/4" and 3/8" SAE flare inlet connections allow for flexibility of connections
- Vacuum pump oil included
- Value priced but still manufactured to the highest quality and performance specifications



ECO-5

**NEW: DUAL VOLTAGE**

Technical Data	ECO-5	ECO-5-DV	ECO-9
Free air displacement:	5.0 cfm	5.0 cfm	9.0 cfm
Number of stages:	2	2	2
Microns:	15	15	15
Intake threads:	1/4" and 3/8" SAE Flare	1/4" and 3/8" SAE Flare	1/4" and 3/8" SAE Flare
Motor:	1/2 horsepower	1/2 horsepower	1 horsepower
Voltage:	115 Volt, 60 Hz	115/230 Volt, 60 Hz	115 Volt, 60 Hz
Power cord length:	78"	78"	78"
Oil capacity:	9.5 oz / 0.6 pt.	9.5 oz / 0.6 pt.	20 oz / 1.25 pt.
Dimensions:	14 x 5 x 10 inch	14 x 5 x 10 inch	16 x 6 x 11 inch
Weight:	24 lbs	28 lbs	37 lbs
<b>Part No.</b>	<b>4667685</b>	<b>4682692</b>	<b>4669661</b>



## Spare Parts for ECO Series

Pos.	Designation	Description	Part No.
1	<b>ECO-3/5/9-1</b>	Rubber feet	<b>4667757</b>
2	<b>ECO-3/5/9-3</b>	Oil drain plug	<b>4667774</b>
3	<b>ECO-3/5/9-4</b>	Handle	<b>4667782</b>
4	<b>ECO-3/5/9-5</b>	Oil fill cap (yellow)	<b>4667790</b>
5	<b>ECO-3/5/9-8</b>	Protection cap	<b>4667820</b>
5	<b>ECO-3/5-20N</b>	Exhaust cap for ECO-3/5	<b>4684580</b>
5	<b>ECO-9-20</b>	Exhaust cap for ECO-9	<b>4684604</b>
6	<b>NFT5-4-K-Green</b>	Seal flare cap 1/4" for ECO-3/5/9	<b>4676110</b>
7	<b>NFT5-6-K-Green</b>	Seal flare cap 3/8" for ECO-5/9	<b>4676128</b>
8	<b>ECO-3-9</b>	On/Off switch	<b>4678911</b>
8	<b>ECO-5-9</b>	On/Off switch	<b>4678929</b>
8	<b>ECO-9-9</b>	On/Off switch	<b>4678937</b>
9	<b>ECO-3-10</b>	Fan cover for ECO-3	<b>4678946</b>
9	<b>ECO-5-10</b>	Fan cover for ECO-5	<b>4678954</b>
9	<b>ECO-9-10</b>	Fan cover for ECO-9	<b>4678962</b>
10	<b>ECO-3-11</b>	Fan blades for ECO-3	<b>4678970</b>
10	<b>ECO-5-11</b>	Fan blades for ECO-5	<b>4678988</b>
10	<b>ECO-9-11</b>	Fan blades for ECO-9	<b>4678996</b>



DV-44/45/46

## Vacuum Pump Oil for RL-2, RL-4, RL-8, ECO Series

- REFCO Vacuum pump oil is specifically manufactured to allow your vacuum pump to operate efficiently in different types of operating conditions

Designation	Description	Part No.
<b>DV-44</b>	0.5 pint (250 ml) Vacuum pump oil	<b>4495340</b>
<b>DV-45</b>	1 pint (500 ml) Vacuum pump oil	<b>4495358</b>
<b>DV-46</b>	1 quart (1000 ml) Vacuum pump oil	<b>4495366</b>

# Recovery

## ENVIRO

This state of the art, one-knob operation recovery machine allows for recovery of all popular CFC, HCFC and HFC refrigerants including R410A. The oil-less, aircooled compressor assures efficient and fast operation, making irritating oil changes unnecessary. In comparison to other compressors, this unit runs extremely quiet and without vibrations. Oil-filled gauges allow for an even easier reading. The compact and ergonomic design as well as the rugged construction provide maximum protection during transport and usage. The ENVIRO is equipped with a self-purging mode as well as a built in filter which is easy to clean and replace.

### Technical Data:

- Compressor:  $\frac{3}{4}$  hp, oil-less, maintenance free
- Power supply: 115 V, 60 Hz
- Gauge: Oil-filled
- Weight: 32 lbs
- Dimensions: 16 x 10 x 14 in
- Certified to AHRI 740

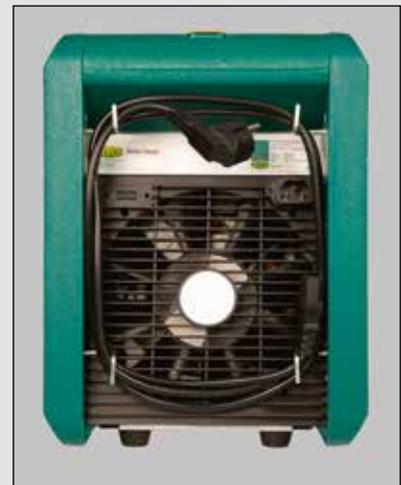
### Recovery Rate:

- Vapour rate: up to max. 0.80 lbs/min
- Liquid rate: up to 5 lbs/min
- Push-pull up to max. 14 lbs/min

Part No 4684593



ENVIRO



## ENVIRO DUO

This high performance, state of the art, one-knob operation recovery machine allows for maximum recovery of all popular CFC, HCFC and HFC refrigerants including R410A. The oil-less, air-cooled, 2-piston compressor makes an impact due to its impressive performance. Oil-filled gauges allow for easier reading. Even in close proximity, the noise level during operation is low in comparison to common compressors. The compact and ergonomic design as well as the rugged construction provide maximum protection from transport and usage. The ENVIRO-DUO is equipped with an 80% overfill-protection. Additionally the unit is equipped with a self-cleaning mode as well as a built in filter which is easy to clean and replace.

**Two Piston  
Recovery  
Machine**

### Technical Data:

- Compressor: 1 hp, oil-less, maintenance free
- Power supply: 115 V, 60 Hz
- Gauge: Oil-filled
- Weight: 35 lbs
- Dimensions: 16 x 10 x 14 in
- Certified to AHRI 740

### Recovery Rate:

- Vapour rate: up to max. 1.2 lbs/min
- Liquid rate: up to max. 7.7 lbs/min
- Push-pull rate: up to max. 21 lbs/min

### Part No 4684605



**ENVIRO DUO**

# Recovery

## POWERMAX

### Refrigerant Recovery Machine

The POWERMAX is a lightweight 22 lbs recovery system with the 1 horsepower oil-less Wizard compressor.

No other recovery system on the market is this light with a 1 horsepower compressor. The unit has a durable plastic case design which recovers all high pressure refrigerants including R12, R134a, R22, R401, R402, R404, R406, R407, R409, R410A, R411, R412, R500, R502, R507, R509 as well as many other blends.

#### Features

- 1 horsepower oil-less compressor
- Easy two-hose refrigerant recovery system
- Two connection systems provides automatic, straight through, liquid vapor operation
- Self-evacuation feature
- Recovery rates up to 5 lbs/minute liquid and ½ lbs/minute vapor
- Weighs only 22 lbs
- Durable plastic case, well balanced and portable

#### Additional Features

- Made in the USA
- High pressure safety switch
- Re-settable circuit breaker
- Over-sized condenser
- Large air cooled 7 inch fan
- Cylinder overfill protection
- Connection fittings point away from operator
- Easy to operate, oversized control knobs
- 2 year warranty
- UL certified to AHRI 740

**Part No. 4663239**



**POWERMAX**

## Spare Parts POWERMAX

#### Recovery Ratings POWERMAX:

Refrigerant	Push/Pull Liquid (lbs/min)	Standard Liquid (lbs/min)	Standard Vapor (lbs/min)
R-12	10.25	3.75	.41
R-22	11.97	5.00	.53
R-502	10.70	4.20	.42
R134a	10.45	4.10	.41
R-410A	17.97	4.56	.48

Designation	Description	Part No.
<b>ALF-032</b>	Inlet filter	<b>4670414</b>
<b>2277</b>	Tune-up kit	<b>4674079</b>
<b>400-15</b>	Circuit breaker (12-Amp)	<b>4671011</b>
<b>1997-1</b>	Safety cable	<b>4670406</b>
<b>1997-10</b>	Jumper plug for safety cable (2 pieces)	<b>4674087</b>
<b>2070-10</b>	Power cord	<b>4671526</b>
<b>3000-60</b>	Drive belt	<b>4670562</b>
<b>3000-72</b>	Valve plate w/gaskets	<b>4672441</b>
<b>3000-73</b>	Gasket kit	<b>4674096</b>
<b>AA-30</b>	30# Recovery tank	<b>4674681</b>
<b>AA-50</b>	50# Recovery tank	<b>4674699</b>
<b>CONTROL-KNOB</b>	Control knob rebuild	<b>4674478</b>

# OZ-4000

## Refrigerant Recovery Machine

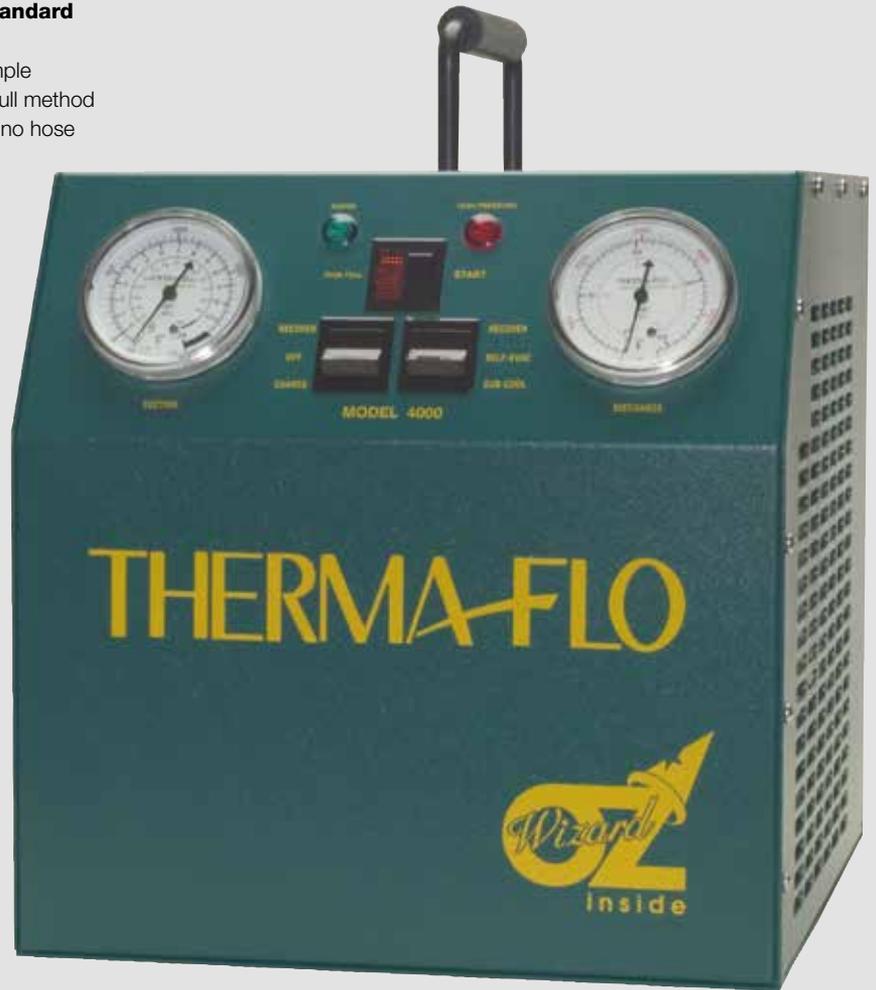
### The machine that sets the HVAC/R Industry Standard

Due to the patented solenoid system design and a simple 4 hose hook up, the OZ-4000 can go from the push pull method (17 lbs/minute) to ½ lbs/minute in vapor recovery with no hose changes and without shutting off the unit.

#### Features

- 1 horsepower oil-less Wizard compressor inside
- Fully automatic
- Patented automatic subcool feature
- Lightweight 29 lbs
- Signal lights to indicate liquid to vapor recovery modes and high pressure shut-off
- Safety shut-off to prevent tank overflow
- Over-sized condenser
- Re-settable circuit breaker
- Self-evacuation feature
- Shipped with safety cable and 3 - 72" hoses
- Self-discriminates between liquid and vapor, routing the liquid around the compressor for longer life and maximum capacity
- 2 year warranty
- Over 150'000 units sold since 1992

**Part No. 4663247**



**OZ-4000**

### Spare Parts OZ-4000

#### Recovery Ratings OZ-4000:

Refrigerant	Push/Pull Liquid (lbs/min)	Standard Liquid (lbs/min)	Standard Vapor (lbs/min)
R-12	10.00	3.24	.25
R-22	10.25	3.50	.40
R-502	10.50	4.09	.46
R134a	10.00	3.42	.25
R-410A	10.25	3.50	.35

Designation	Description	Part No.
<b>ALF-032</b>	Inlet filter	<b>4670414</b>
<b>2277</b>	Tune-up kit	<b>4674079</b>
<b>400-15</b>	Circuit breaker (12-Amp)	<b>4671011</b>
<b>1997-1</b>	Safety cable	<b>4670406</b>
<b>1997-10</b>	Jumper plug for safety cable (2 pieces)	<b>4674087</b>
<b>2070-10</b>	Power cord	<b>4671526</b>
<b>3000-9-1</b>	Ball valve	<b>4671801</b>
<b>3000-60</b>	Drive belt	<b>4670562</b>
<b>3000-72</b>	Valve plate w/gaskets	<b>4672441</b>
<b>3000-73</b>	Gasket kit	<b>4674096</b>
<b>AA-30</b>	30# Recovery tank	<b>4674681</b>
<b>AA-50</b>	50# Recovery tank	<b>4674699</b>

# Pressure Gauges

## REFCO Gauges General Information

### Class 1 vs. Class 1.6 vs. Class 2 accuracy gauges

Class 1 gauges are accurate within  $\pm 1$  percent reading all the way around the gauge dial. These gauges are the most accurate offered by REFCO.

Class 1.6 gauges are accurate within  $\pm 1.6$  percent reading all the way around the gauge dial. These gauges are also very accurate and are the standard accuracy gauge offered by REFCO.

Class 2.0 gauges are accurate within  $\pm 2$  percent over the first  $\frac{1}{3}$  of the gauge dial,  $\pm 3$  percent over the next  $\frac{1}{3}$  of the gauge dial and then  $\pm 2$  percent over the last  $\frac{1}{3}$  of the gauge dial. This is commonly called 2-3-2 accuracy. These gauges are least accurate where most of the readings are taken.

**REFCO uses as standard on manifolds Class 1.6 accuracy gauges and on higher end manifolds Class 1.0 accuracy gauges. Most competitors use as standard the Class 2 or 2-3-2 accuracy gauges. This makes REFCO manifolds more accurate. REFCO DOES NOT USE ANY CLASS 2 or 2-3-2 accuracy GAUGES ON ITS MANIFOLDS. Unlike many service tool suppliers REFCO manufactures their own gauges.**

**SWISS  
movement**



## Standard Refrigerant Temperature Scales:

R12	= R12/R22/R502
R22	= R22/R134a/R404A
R32	= R32/R410A
R134a	= R134a/R404A/R507
R410A	= R410A
R410A-FG	= R410A/R404A/R22

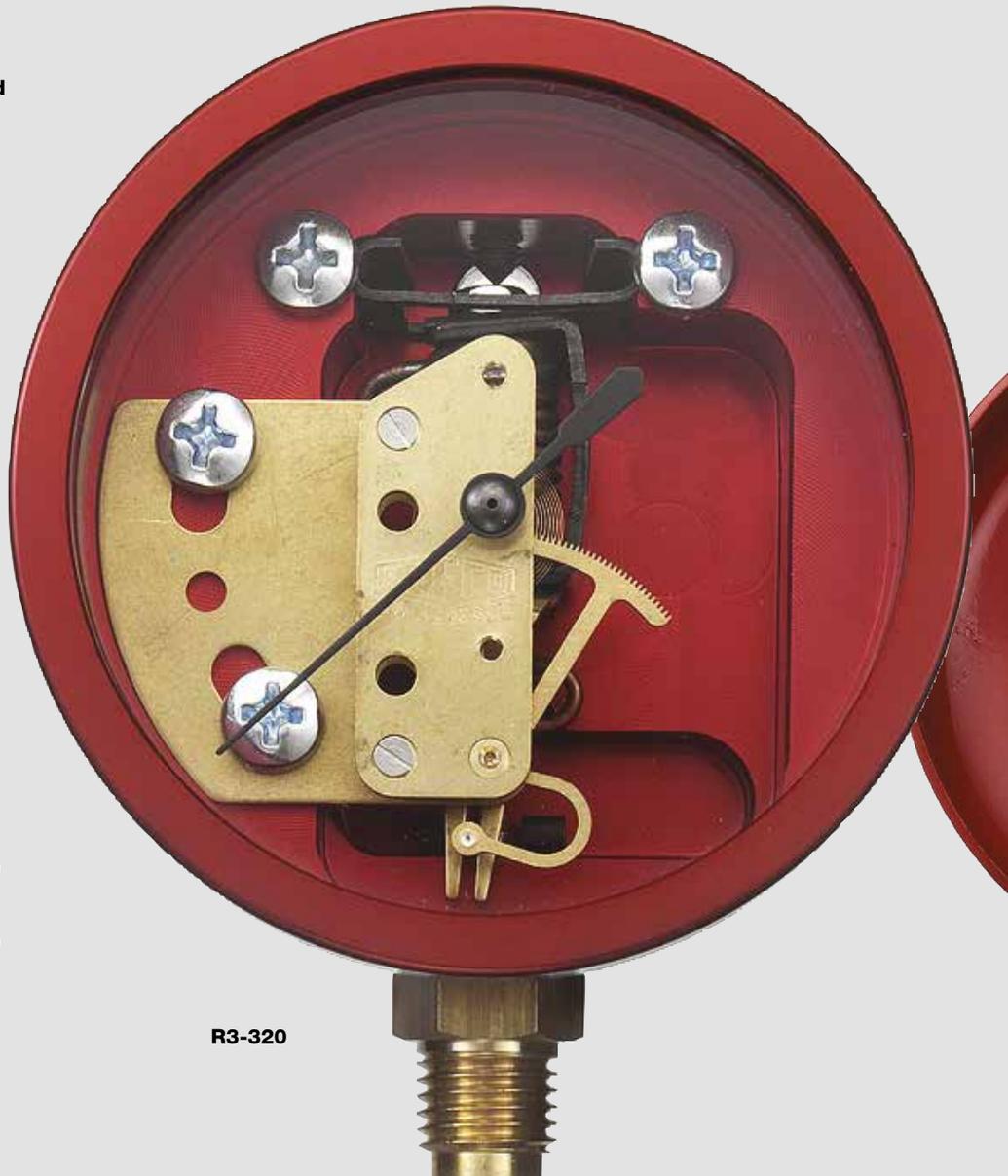
## Standard Pressure Scales:

R12, R22 and R134a gauges:

Low side 30" vacuum up to 120 psi, retard protection to 350 psi  
High side 0 psi up to 500 psi

R410A gauges:

Low side 30" vacuum up to 500 psi  
High side 0 psi up to 800 psi



R3-320



## Standard Features of REFCO KM2 and M2 Series Class 1.6

### Bourdon Tube Gauges are:

- Class 1.6 accuracy
- 2 3/4" or 68 mm outside diameter
- Zero point adjustable
- Pulse free
- Color-coded for pressure and compound
- Standard 1/8" NPT bottom connection
- All brass internal parts, no plastic

## Standard Features of REFCO GR Series, Glycerine, Class 1.6

### Bourdon Tube Gauges are:

- Class 1.6 accuracy
- 2 3/4" or 68 mm outside diameter
- Glycerine-filled
- Standard 1/8" NPT bottom connection
- All brass internal parts, no plastic

Same features for GR Series but with:

- Zero point adjustable
- Color-coded for pressure and compound

## Standard Features of REFCO M5 Series Class 1.0

### Bourdon Tube Gauges are:

- Class 1 accuracy
- 3 1/4" or 80 mm outside diameter
- Easy to read
- Retard protection
- Zero point adjustable
- Pulse free
- All brass internal parts, no plastic

## Standard Features of REFCO R3 and R5 Class 1.0

### Bellow Gauges are:

- ◆ Bellow type gauges are extremely over-pressure resistant. A bellow type gauge can withstand up to 2.5 times over-pressurization of the printed pressure scale without damage to the gauge. A bourdon tube gauge cannot withstand this type of over-pressurization
- ◆ Class 1.0 accuracy
- ◆ Available in 2 3/4" (68 mm) or 3 1/4" (80 mm), both large and easy to read. PM series only available in 3" (76 mm)
- ◆ Zero point adjustable
- ◆ Silicone oil-filled, except PM series
- ◆ Aluminum anodized body for R3 and R5 series
- ◆ PM series is made with a fiberglass body
- ◆ Hermetically sealed, no oil fill plug on the top of the gauge to allow seepage or leakage for R3 and R5 series
- ◆ Color-coded for pressure and compound
- ◆ Standard 1/8" NPT bottom connection
- ◆ All brass or steel internal parts, no plastic
- ◆ Relief device on back of gauge in case of extreme over-pressurization for R3 and R5 series

## Pressure and Vacuum Gauges

### General Information:

Standard threaded connection - 1/8" NPT

F = pressure scale on gauge in psi and temperature scale in degrees F

### Temperature scales:

- R12** = R12/R22/R502
- R22** = R22/R134a/R404A
- R32** = R32/R410A
- R134a** = R134a/R404A/R507
- R410A** = R410A
- R410A-FG** = R410A/R404A/R22

Pressure scales:

R12, R22, R134a gauges:

Low side 30" vacuum up to 120 psi, retard to 350 psi

High side 0 psi up to 500 psi

R410A:

Low side 30" vacuum up to 500 psi

High side 0 psi up to 800 psi



**SWISS**  
movement

**M2-500**

# Pressure Gauges

## Standard Bourdon Tube Pressure Gauges

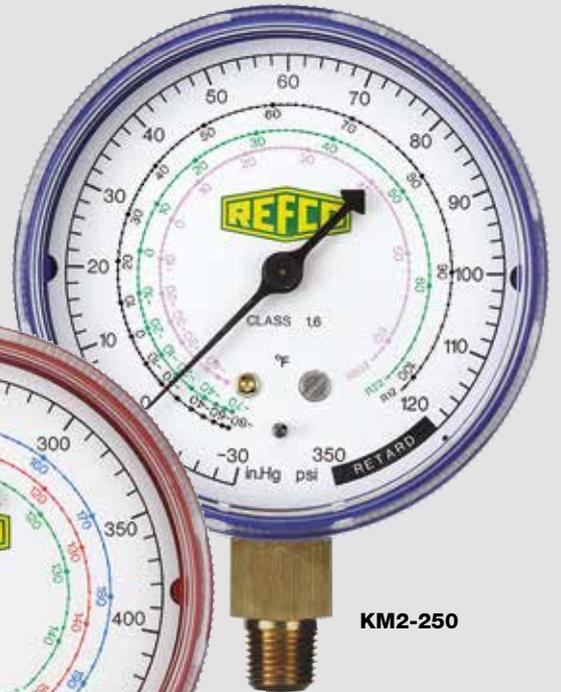
### KM2 standard series

- Class 1.6 accuracy, bourdon tube design
- 2 3/4" (68 mm) outside diameter, easy to read
- Zero point adjustable
- Pulse free
- Color coded for easy high and low side identification
- Composite housing
- Standard 1/8" NPT connection
- Gauge internals are all brass, no plastic pieces

Designation	Description	Part No.
<b>KM2-250-F-R12</b>	R12/R22/R502 scales, compound	<b>4530152</b>
<b>KM2-500-F-R12</b>	R12/R22/R502 scales, pressure	<b>4530161</b>
<b>KM2-250-F-R22</b>	R22/R134a/R404A scales, compound	<b>4505417</b>
<b>KM2-500-F-R22</b>	R22/R134a/R404A scales, pressure	<b>4505425</b>
<b>KM2-250-F-R134a</b>	R134a/R404A/R507 scales, compound	<b>4530179</b>
<b>KM2-500-F-R134a</b>	R134a/R404A/R507 scales, pressure	<b>4530187</b>
<b>KM2-001</b>	Replacement lens cover	<b>4503350</b>



KM2-250



KM2-250

**SWISS  
movement**



KM2-500



M2-500



M2-250



M2-500

**SWISS**  
movement

## M2 Premium Series

- Standard all metal housing and easy to read through lens cover
- Class 1.6 accuracy, bourdon tube design
- 2 3/4" (68 mm) outside diameter, easy to read
- Zero point adjustable
- Pulse free
- Color-coded for easy high and low side identification
- Standard 1/8" NPT connections
- Gauge internals are all brass, no plastic pieces

Designation	Description	Part No.
M2-250-F-R12	R12/R22/R502 scales, compound	7829168
M2-500-F-R12	R12/R22/R502 scales, pressure	7829567
M2-250-F-R22	R22/R134a/R404A scales, compound	7635083
M2-500-F-R22	R22/R134a/R404A scales, pressure	7635147
M2-250-F-R410A	R410A scale, compound	7829982
M2-500-F-R410A	R410A scale, pressure	7830000
M2-250-F-R32	R410/R32 scales, compound	4687453
M2-500-F-R32	R410/R32 scales, pressure	4687454
M2-250-F-R410A-FG	R410A/R404A/R22 scales, compound	7218188
M2-500-F-R410A-FG	R410A/R404A/R22 scales, pressure	7218358
M2-001	Replacement lens cover	1212648
M2-GS	Gauge protector set	4677451



M2-GS



Zero point adjustment

# Pressure Gauges

## Bourdon Tube Gauges

### Glycerin Filled and dry Execution

## GR Series

### Glycerin Filled Gauges

- Class 1.6, glycerin filled, bourdon tube gauge
- Zero point adjustable
- Color-coded for easy high and low side identification
- 2 ¼" (68 mm) outside diameter, easy to read
- Pulse free
- Standard ½" NPT connection

Designation	Description	Part No.
<b>GR-220-F-R12</b>	R12/R22/R502 scales, glycerin-filled, compound	<b>7714013</b>
<b>GR-320-F-R12</b>	R12/R22/R502 scales, glycerin-filled, pressure	<b>7714098</b>
<b>GR-220-F-R134a</b>	R134a/R404A/R507 scales, glycerin-filled, compound	<b>7714064</b>
<b>GR-320-F-R134a</b>	R134a/R404A/R507 scales, glycerin-filled, pressure	<b>7714102</b>



GR-320



GR-220

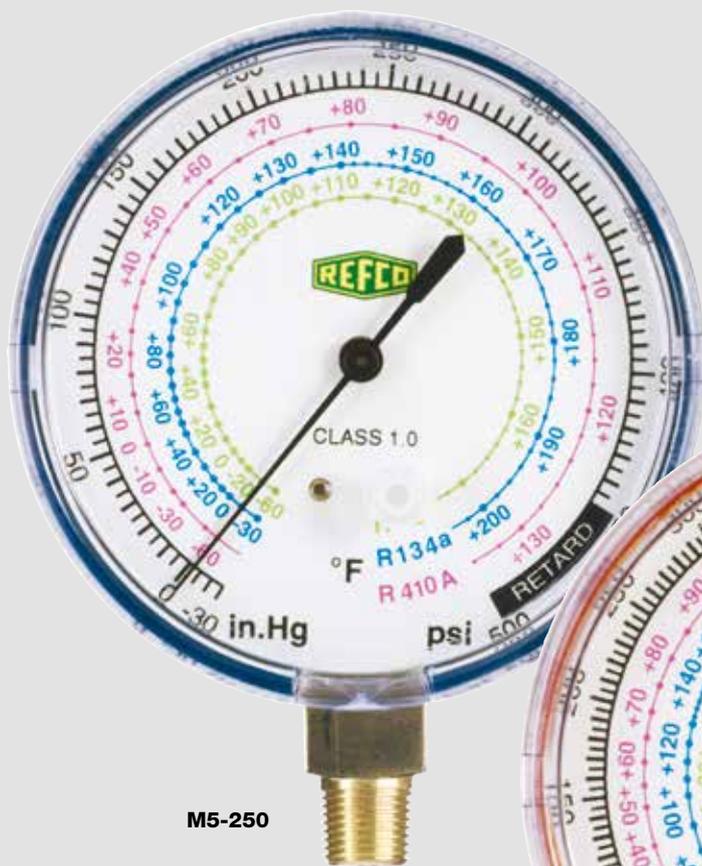
**SWISS**  
movement

## M5 Series

### Large Bourdon Tube Gauges

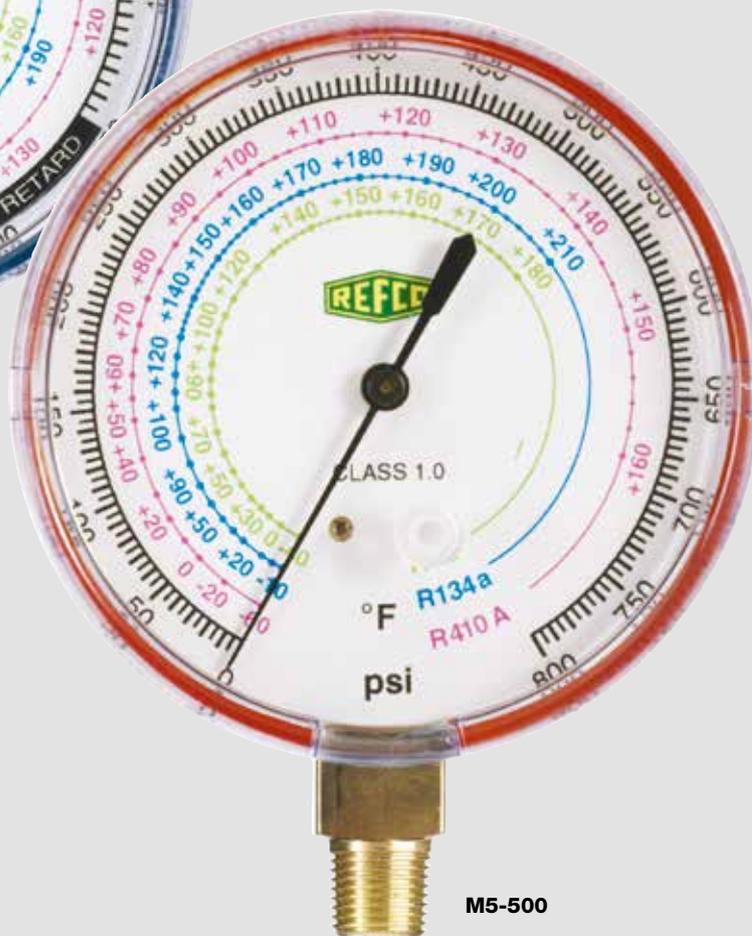
- 3 1/4" (80 mm) outside diameter, easy to read
- Bourdon tube, Class 1.0 accuracy
- Retard protection
- Zero point adjustable
- Metal housing
- Pulse free

Designation	Description	Part No.
<b>M5-250-F-R410A-FG</b>	R410A/R134a/R22 scales, compound	<b>4675288</b>
<b>M5-500-F-R410A-FG</b>	R410A/R134a/R22 scales, pressure	<b>4675296</b>



M5-250

**SWISS**  
movement



M5-500



# Pressure Gauges

## Bellow Type, Class 1.0 Gauges, Oil Filled and Dry Execution

Fundamentals of a Bellow Gauge – The best gauge you'll ever have.

A metal bellow type gauge is very sensitive and therefore much more accurate than a standard bourdon tube gauge.

The main benefit of a bellow type gauge is that it is extremely accurate and highly over-pressure resistant.

The bellow gauge is accurate within 1% around the gauge face and can withstand up to 2.5 times over-pressurization without damage to the gauge.

A bourdon tube gauge would never withstand this type of over-pressurization.



R3-320



### R3 Series

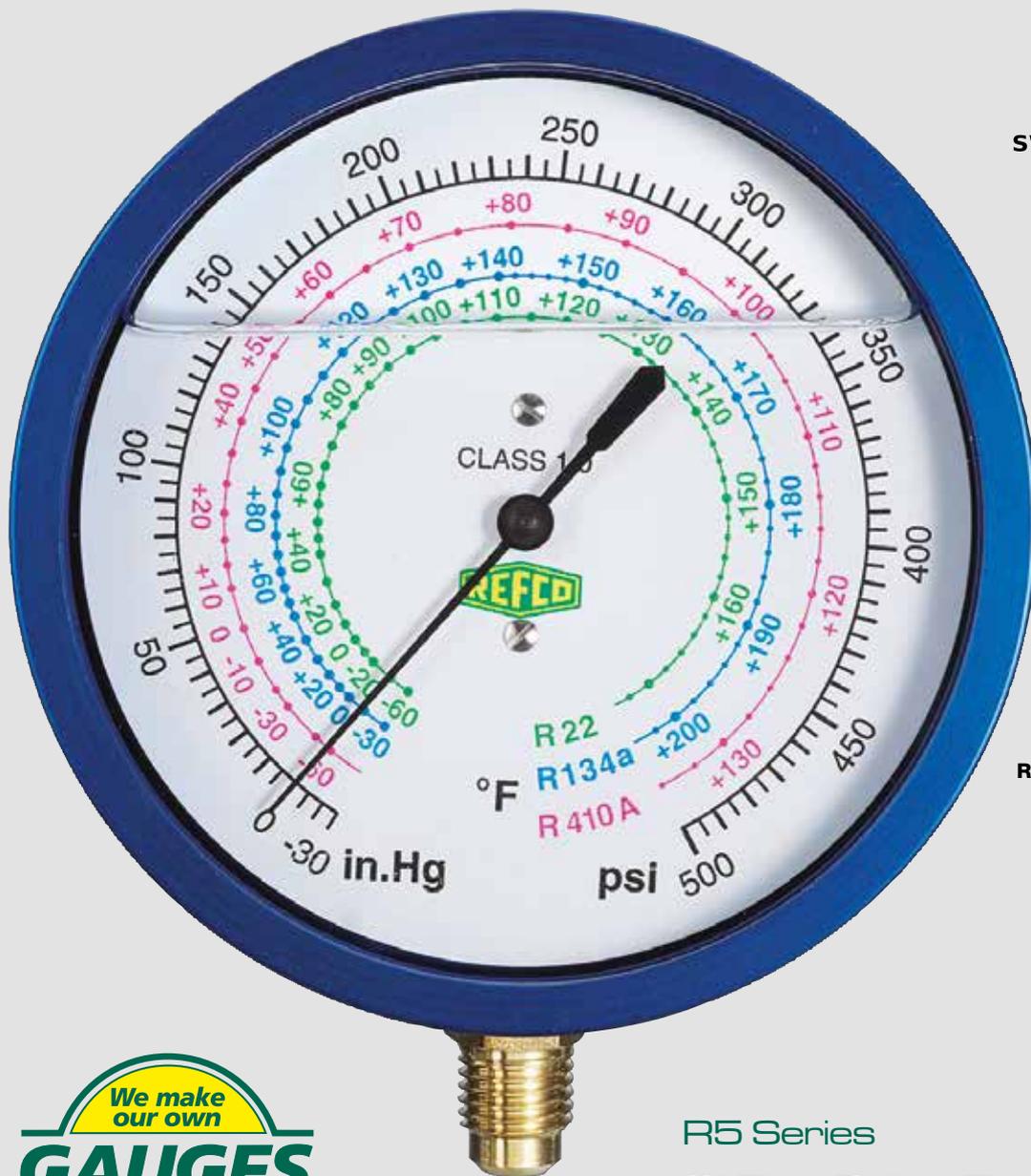
### Oil Filled Bellow Type Gauges

- Bellow type, Class 1.0 accuracy, oil filled gauge
- Hermetically sealed, no oil fill plug on the top of gauge to allow leakage
- Highly over-pressure resistant, can withstand up to 2.5 times the printed scale
- Zero point adjustable
- All anodized aluminum body, no plastic
- Color-coded for easy identification of high and low side
- 2 3/4" (68 mm) outside diameter, easy to read
- Pulse free

Designation	Description	Part No.
R3-220-F-R12	R12/R22/R502 scales, oil-filled, compound	9884479
R3-320-F-R12	R12/R22/R502 scales, oil-filled, pressure	9884480
R3-220-F-R22	R22/R134a/R404A scales, oil-filled, compound	4667472
R3-320-F-R22	R22/R134a/R404A scales, oil-filled, pressure	4667480
R3-220-F-R134a	R134a/R404A/R507 scales, oil-filled, compound	9884481
R3-320-F-R134a	R134a/R404A/R507 scales, oil-filled, pressure	9884482
R3-220-F-R410A-FG	R410A/R404A/R22 scales, oil-filled, compound	4662399
R3-320-F-R410A-FG	R410A/R404A/R22 scales, oil-filled, pressure	4662403



Zero point adjustment



R5-220



## R5 Series Oil Filled Bellow Type Gauges

- All of the R3 features except it has a larger outside diameter of 3 1/4" (80 mm) for an extra easy to read gauge face

Designation	Description	Part No.
<b>R5-220-F-R12</b>	R12/R22/R502 scales, oil-filled, compound	<b>4493916</b>
<b>R5-320-F-R12</b>	R12/R22/R502 scales, oil-filled, pressure	<b>4493924</b>
<b>R5-220-F-R410A-FG</b>	R410A/R404A/R22 scales, oil-filled, compound	<b>4675300</b>
<b>R5-320-F-R410A-FG</b>	R410A/R404A/R22 scales, oil-filled, pressure	<b>4675318</b>

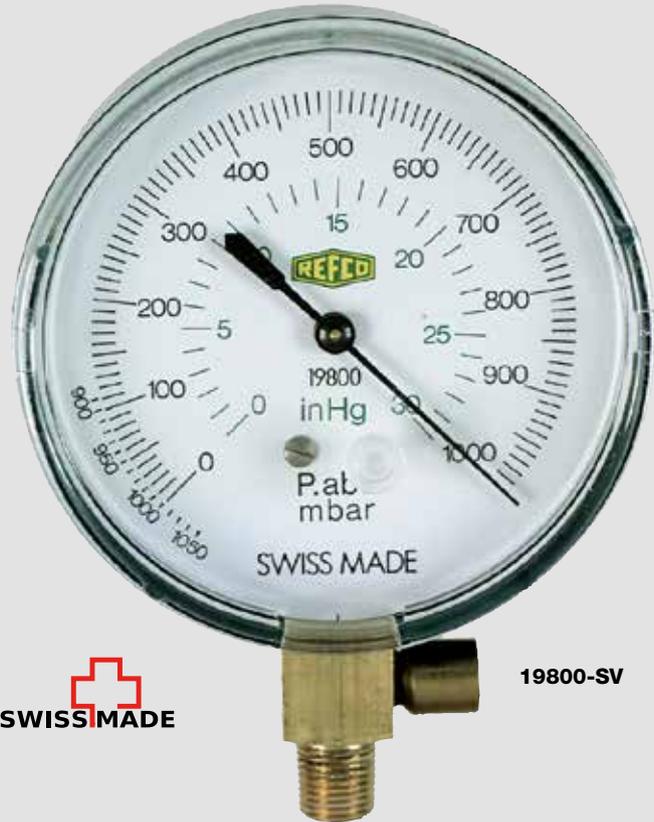
# Vacuum Gauges

## Mechanical Vacuum Gauges

### 19800-SV

- Full range Mechanical Vacuum gauge
- Complete with replaceable safety relief device if positive pressure is introduced into gauge
- 3 ¼" outside diameter for easy to read, more accurate reading than a compound gauge
- ½" NPT bottom connection
- Zero point adjustable
- Scales in 1000 - 0 mbar and 30" - 0 Hg

Designation	Description	Part No.
19800-SV	Mechanical Vacuum gauge with replaceable safety relief device	9882473



19800-SV



19801

### 19801

- Full range Mechanical Vacuum gauge with pointer that indicates maximum vacuum reading attained during a given operation
- Readjustable after each use by a thumbscrew
- Complete with replaceable safety relief device if positive pressure is introduced into gauge
- 4" outside diameter for easy reading, more accurate reading than a compound gauge
- ½" G bottom connection
- Scale in 1000 - 0 mbar
- Zero point adjustable

Designation	Description	Part No.
19801	Mechanical Vacuum gauge with maximum pressure indicator pointer and replaceable safety relief device	9882474

## Spare Parts

### for Mechanical Vacuum Gauges

Designation	Description	Part No.
19803/2	Adapter ½" G female x ¼" SAE, with integrated gasket, packaged 2 per	4687098
19805-12/2	Replaceable safety valve for 19800-SV and 19801, packaged 2 per	4687078



19803



19805-12

## Electronic Vacuum Gauge

### REF-VAC

Latest measuring instrument for continuous reading of measured values during the evacuation process out in the field as well as in the laboratory. Thanks to the large LCD display, the changing data can always be read easily. The vacuum gauge can be set to the main vacuum units such as microns, mbar, Pa, Torr, mTorr, psi, and inHG. It can accurately display the vacuum from 18'000 - 0 microns. The unit also has a practical hook for hanging and conforms to the IP classification IP 54.

- Sensor Type: Thermistor
- Vacuum Range: 0-18000 microns
- Display-Resolution: 0-20: 0.2 micron  
21-200: 1 micron  
201-500: 5 micron
- Units: microns, mbar, Pa, Torr, mTorr, psi, inHG
- Accuracy: +/-10% - 100 microns  
+/-6% - 101-750 microns
- Connector Type: Standard male 1/4 inch SAE
- Operating Temp.: 32°F-104°F
- Auto Shutoff: After 10 min. if vacuum value greater than 18000 microns  
After 30 min. if vacuum value less than 18000 microns
- Battery Life: 40 hours
- Overpressure: Max. 500 psi
- Hanging hook included

**Part No 4686712**

Designation	Description	Part No.
<b>REF-VAC-T</b>	Forged female flare branch tee 3x1/4"SAE, with O-ring	<b>4687845</b>

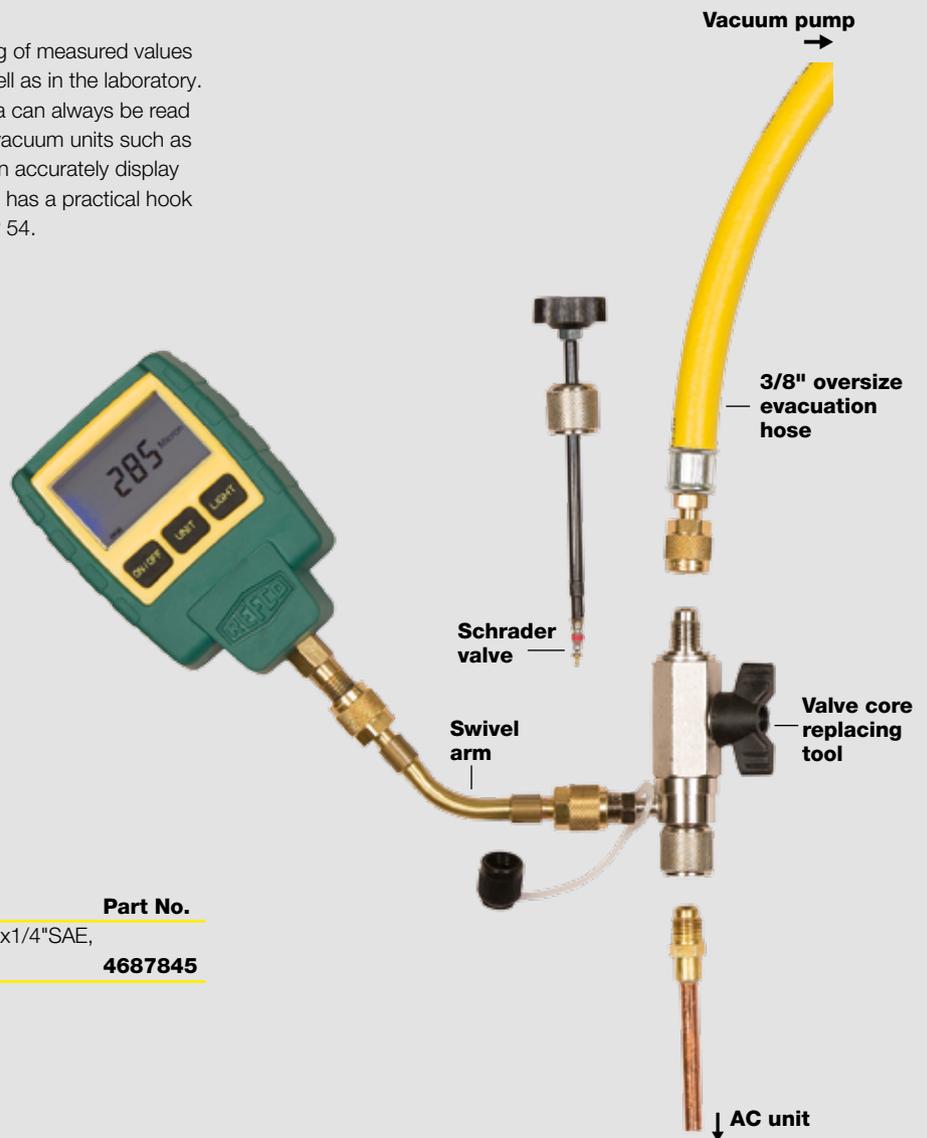


**REF-VAC-T**

Designation	Description	Part No.
<b>SWIVEL-ARM-1/4"SAE-N</b>	Swivel arm 1/4" SAE	<b>4687631</b>



**SWIVEL-ARM**



# Wireless TAP Set

## TAP

### Wireless Temperature and Pressure Gauge Set

The new wireless digital pressure and temperature gauge set TAP is a user friendly measuring instrument to measure temperature and pressure from the low and high sides of air conditioning and refrigeration systems.

- Quick and easy connection to pressure source and temperature measuring point.
- The wireless K-type temperature clamp, equipped with digital display, is applicable for pipe diameters from 1/4" to 1 5/8".
- Measurements and calculation of superheat or subcooling can be shown on pressure gauge display and / or on your mobile device.
- Up to 6 TAP devices can be monitored on your mobile device.
- Create report on mobile phone and send by e-mail to your office.
- Use of common AAA batteries.
- TAP is delivered in a handy case either as single or double set.



### Features and Benefits

-  Display on pressure gauge
-  Display on temperature clamp
-  Wireless no cable needed
-  No smart device needed
-  IOS compatible
-  Android compatible
-  Synchronized with App
-  Calculate superheat and subcooling
-  Reports stored on smart device and E-mailed
-  Library of over 50 refrigerants stored
-  Connect up to 6 pressure gauges and temperature clamps
-  Pressure Gauge and Temperature Clamp stand alone
-  Refrigerant updates available via Micro USB connection



TAP-DOUBLE-SET



## Technical Specification

### TAP Pressure Gauge

<b>Refrigerant:</b>	More than 50 refrigerant tables included
<b>Pressure range:</b>	Up to 870 psi
<b>Accuracy:</b>	≤ 1.0 % FS
<b>Resolution:</b>	0.1 psi
<b>Units:</b>	psi / bar / kPa / MPa
<b>Backlit LCD display:</b>	1-9/16" x 1-3/16"
<b>Automatic power save mode:</b>	Configurable: 10 min / 20 min / Off
<b>Low battery indication:</b>	When battery level is less 30%
<b>Power:</b>	Battery 4 x AAA
<b>Battery life:</b>	40 h
<b>Interface:</b>	Micro USB
<b>Connection fitting:</b>	1/4" SAE
<b>Including adapters:</b>	1/4" SAE female/female
<b>Size:</b>	5" x 2-1/4" x 1-11/32"
<b>Weight:</b>	7 oz

### TAP Temperature Clamp

<b>Type:</b>	K-Type
<b>Temperature range:</b>	-40°F to +257°F
<b>Accuracy:</b>	± 1.8°F
<b>Resolution:</b>	0.2°F
<b>Temperature units:</b>	°F / °C
<b>Backlit LCD display:</b>	1-3/8" x 19/32"
<b>Power:</b>	Battery 3 x AAA
<b>Battery life:</b>	50 h
<b>Jaw range:</b>	1/4" to 1 5/8"
<b>Size:</b>	6-3/8" x 1-9/16" x 3-9/64"
<b>Weight:</b>	6 oz

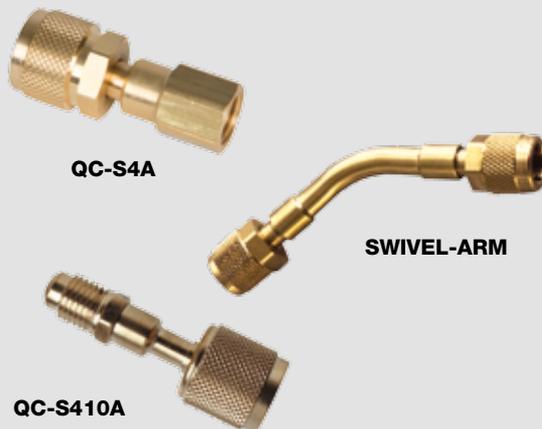
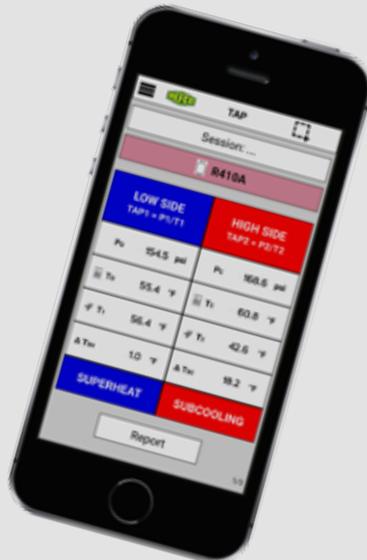
### App Requirements

<b>IOS:</b>	Version 8.0 or higher
<b>Android:</b>	Version 4.4 or higher

Get the App for iPhone, iPad on App Store™, for Android on Play Store

### Further available accessories (optional)

<b>SWIVEL-ARM-1/4"SAE-N</b>	Swivel arm 1/4" SAE	<b>4687631</b>
<b>QC-S410A/2</b>	Adapter with core depressor, 1/4" SAE x 5/16"SAE, 2 pcs	<b>4687095</b>
<b>QC-S4A-1/4"SAE/2</b>	Quick coupler straight 1/4" SAE x 1/4" SAE, 2 pcs.	<b>4687823</b>
<b>QC-S4A-5/16"SAE/2</b>	Quick coupler straight 1/4" SAE x 5/16" SAE, 2 pcs.	<b>4687824</b>
<b>TAP-MARKING-RING-SET</b>	Marking rings for TAP 4x5 pcs. per size	<b>4687793</b>
<b>TAP-SET-CASE</b>	Case for TAP-SET	<b>4687860</b>
<b>TAP-DOUBLE-SET-CASE</b>	Case for TAP-DOUBLE-SET	<b>4687859</b>



Designation	Description	Part No.
<b>TAP-SET</b>	<ul style="list-style-type: none"> <li>1 TAP Pressure Gauge</li> <li>1 TAP Temperature Clamp</li> <li>1 SAE 1/4" female/female adapter</li> <li>1 USB Cable</li> <li>7 Batteries</li> <li>1 Manual</li> <li>1 Case</li> </ul>	<b>4687788</b>
<b>TAP-DOUBLE-SET</b>	<ul style="list-style-type: none"> <li>2 TAP Pressure Gauges</li> <li>2 TAP Temperature Clamps</li> <li>2 SAE 1/4" female/female adapter</li> <li>1 USB Cable</li> <li>14 Batteries</li> <li>1 Manual</li> <li>1 Case</li> </ul>	<b>4687789</b>
<b>TAP</b>	<ul style="list-style-type: none"> <li>Pressure Gauge</li> </ul>	<b>4687787</b>
<b>TAP-CLAMP</b>	<ul style="list-style-type: none"> <li>Temperature Clamp</li> </ul>	<b>4687785</b>

# Manifolds

## DIGIMON - Digital Manifold

### DIGIMON-SE

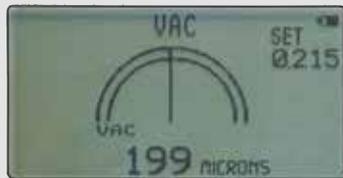
User friendly 2-way and 4-way digital manifold for the efficient and safe maintenance and operation of air conditioning and refrigeration systems. The latest generation is characterized by its compact design and sturdy construction. The modern display allows for, superheating, subcooling, vacuum levels and leakage test to be shown along with the pressure and temperature reading. Additionally, in analog mode, the digital figures are displayed visually. The DIGIMON meets the most important requirements for a digital manifold and is available in various versions. Available accessories include K-Type thermocouple as well as an external vacuum sensor.

- 48 refrigerant tables incl. R410A, R744(CO2), R1234yf
- Analog and digital display
- Accuracy: class 1.0
- Pressure resolution: 0.5 psi / 0.01 bar / 1kPa / 0.001 MPa
- Pressure gauge from -14 psi to 870 psi
- Direct calculation and display of superheat and subcool
- 2 precise K-Type temperature sensors
- Internal and external vacuum sensor
- Leak Test function
- Backlit LCD display with multiple protection
- User Friendly operation
- Fiber reinforced ergonomic knobs
- Automatic power-save mode
- Low battery indicator
- Continuous measuring rate

Part No. 4686749

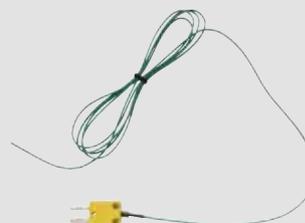


DIGIMON-VAC



Vacuum indication with DIGIMON-VAC

Designation	Description	Part No.
<b>DIGIMON-CLAMP</b>	K-Type thermocouple clamp	<b>4681466</b>
<b>DIGIMON-SENSOR-K-TYPE</b>	K-Type temperature sensor	<b>4681394</b>
<b>DIGIMON-SE-CASE</b>	Carrying case with storage compartment for the digital manifold	<b>4686730</b>
<b>DIGIMON-VAC</b>	External vacuum sensor	<b>4686713</b>



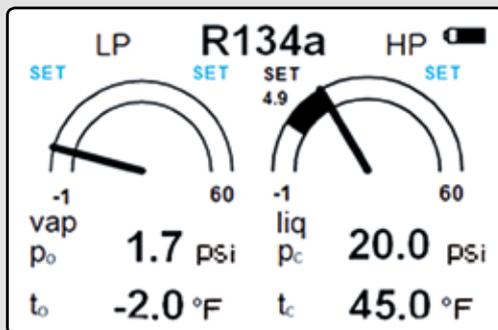
DIGIMON-SENSOR-K-TYPE



DIGIMON-CLAMP



**DIGIMON-SE**  
patent pending



**DIGIMON-SE Analog Display**

## 2-WAY DIGITAL MANIFOLD

Designation	Description	Part No.
<b>DIGIMON-SE-8</b>	Digital 2-way manifold, with 2 K-type temperature sensors, packed in a sturdy plastic case	<b>4686749</b>
<b>DIGIMON-SE-3</b>	Digital 2-way manifold, 5' set hoses, packed in a sturdy plastic case	<b>4686750</b>
<b>DIGIMON-SE-3-CLAMP</b>	as above including, K-Type thermocouple clamp	<b>4684589</b>
<b>DIGIMON-SE-3-CLAMP-VAC</b>	as above including, K-Type thermocouple clamp + vacuum gauge	<b>4684590</b>

## 4-WAY DIGITAL MANIFOLD

Designation	Description	Part No.
<b>DIGIMON4-3-CLAMP-VAC</b>	Combination of DIGIMON4, DIGIMON-CLAMP and DIGIMON-VAC	<b>4684591</b>



**DIGIMON4**

## DIGIMON-SE Accessory Chart

Designation	2-way manifold	4-way manifold	5 foot hose set	Case	K-Type thermocouple	K-Type clamp	Vacuum gauge	Part No.
<b>DIGIMON-SE-8</b>	X			X	X2			<b>4686749</b>
<b>DIGIMON-SE-3</b>	X		X	X	X2			<b>4686750</b>
<b>DIGIMON-SE-3-CLAMP</b>	X		X	X	X2	X2		<b>4684589</b>
<b>DIGIMON-SE-3-CLAMP-VAC</b>	X		X	X	X2	X2	X	<b>4684590</b>
<b>Digimon4-3-CLAMP-VAC</b>		X	X	X	X2	X2	X	<b>4684591</b>

# Manifolds

## REFCO Manifolds

### General Information

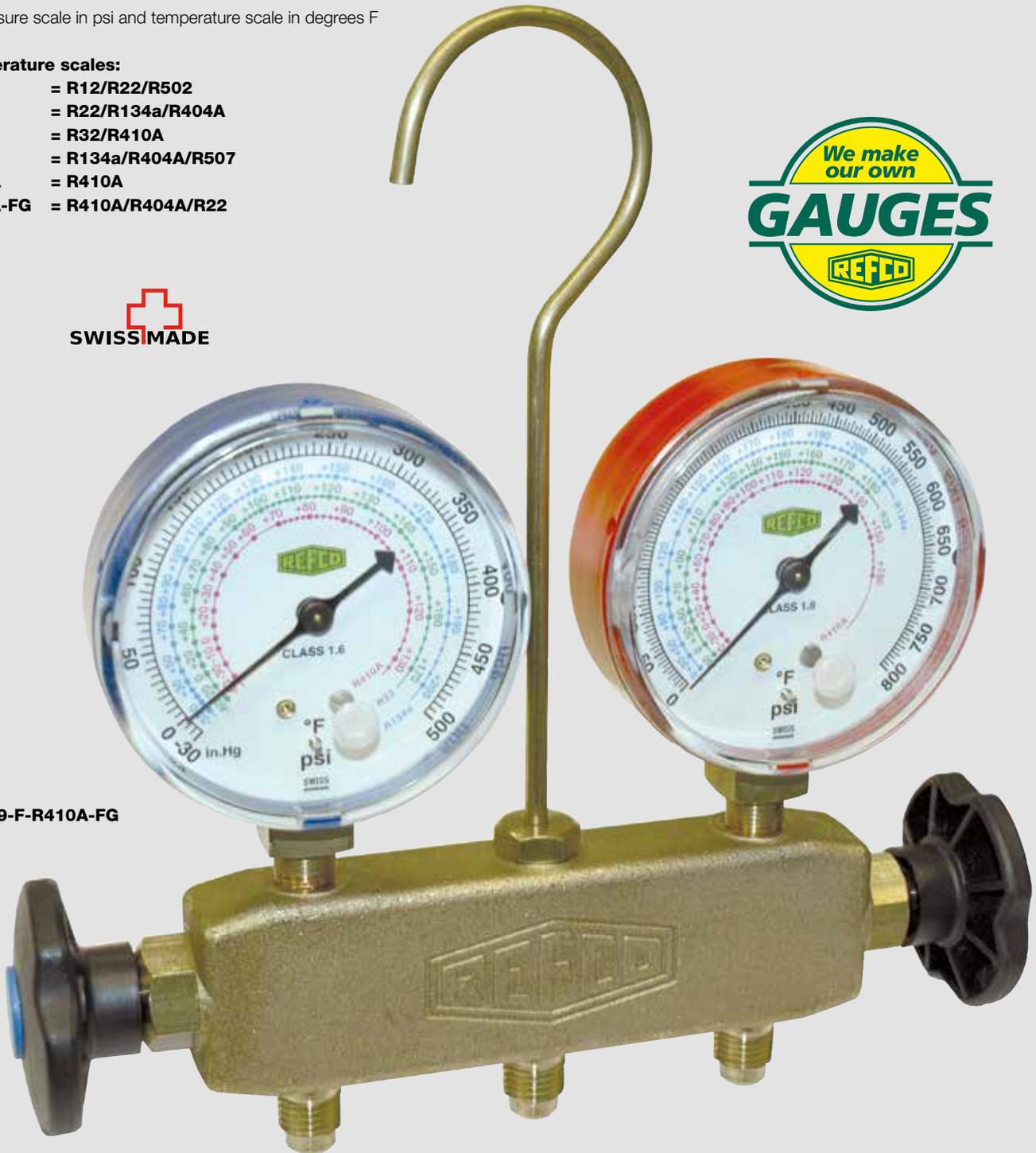
F- pressure scale in psi and temperature scale in degrees F

#### Temperature scales:

R12	= R12/R22/R502
R22	= R22/R134a/R404A
R32	= R32/R410A
R134a	= R134a/R404A/R507
R410A	= R410A
R410A-FG	= R410A/R404A/R22



APEX-9-F-R410A-FG



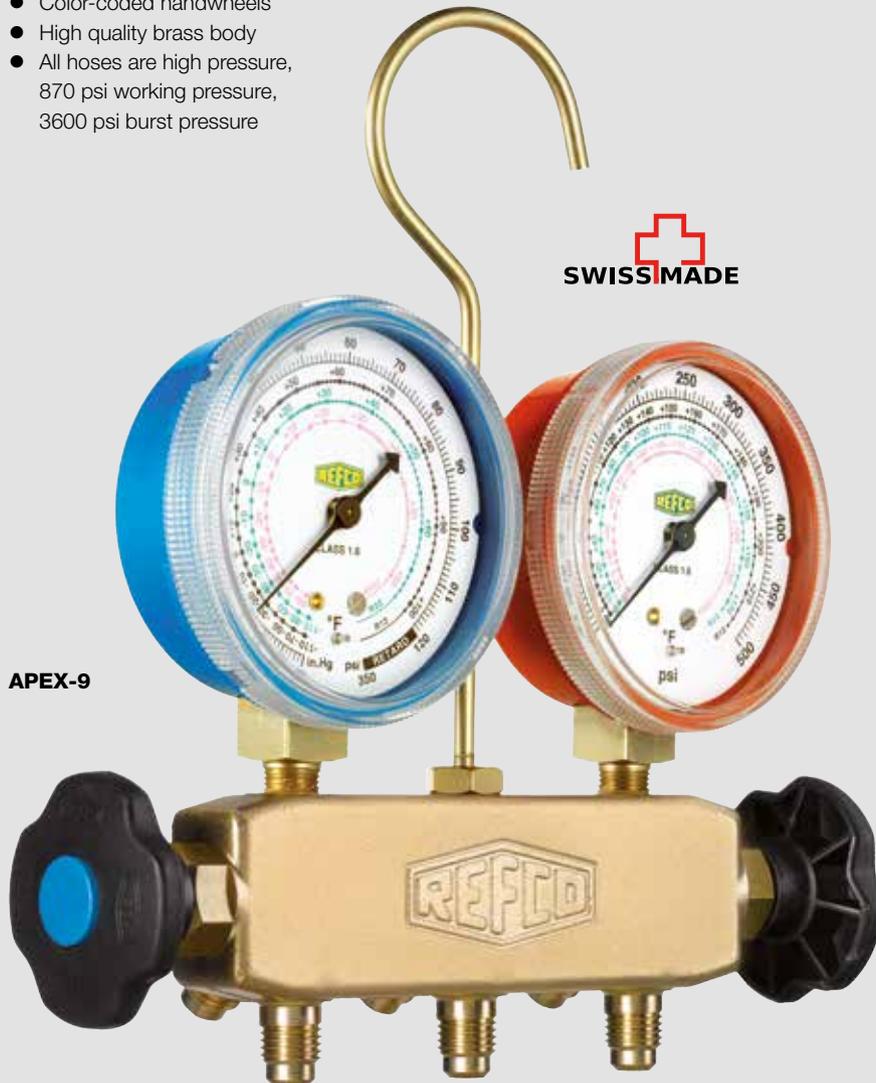
## APEX Manifolds

## R410A Manifold

### Standard Two-Way Brass Manifold

- Class 1.6 bourdon tube gauges (KM), easy to read, zero point adjustable, pulse free and color-coded
- Two piece, O-ring seal piston style valve, repairable
- Swivel hook and 45° hose anchors
- Color-coded handwheels
- High quality brass body
- All hoses are high pressure, 870 psi working pressure, 3600 psi burst pressure

- Same features but with all metal housing gauges (M2)
- R410A manifold with refrigerant scales R22/R134a/R410A



APEX-9



APEX-9



APEX-9

Designation	Hoses	Packaging	Part No.
APEX-9-F-R12	none	blister package	4675458
APEX-9-F-R22	none	blister package	4675466
APEX-9-F-R134a	none	blister package	4675475
APEX-7-F-R12	3' set	blister package	4675377
APEX-7-F-R22	3' set	blister package	4675386
APEX-7-F-R134a	3' set	blister package	4675394
APEX-7-F-R12-CCL-60	5' set	blister package	4675416
APEX-7-F-R22-CCL-60	5' set	blister package	4675424
APEX-7-F-R134a-CCL-60	5' set	blister package	4675432
APEX-7-F-R32-CCL-60	5' set	blister package	4687455

Designation	Hoses	Packaging	Part No.
APEX-9-F-R410A-FG	none	blister package	4675483
APEX-7-F-R410A-FG	3' set	blister package	4675407
APEX-7-F-R410A-FG-CCL-60	5' set	blister package	4675440
APEX-7-F-R410A-FG-CA-CCL-60	5' set	blister package	4686280

# Manifolds

## BM Series Manifolds

### Premium Two-Way Manifold

- All metal housing Class 1.6 bourdon tube gauges (M2), easy to read, zero point adjustable, pulse free and color coded
- Two-piece, O-ring seal piston style valve
- Extra large sight glass to view refrigerant movement
- Swivel hook and 45° hose anchors
- Anodized high quality aluminum body
- Color coded handwheels
- All hoses are high pressure, 870 psi working pressure, 3600 psi burst pressure

Designation	Hoses	Packaging	Part No.
<b>BM2-8-F-R22</b>	none	cardboard box	<b>4506490</b>
<b>BM2-8-F-R134a</b>	none	cardboard box	<b>9884439</b>
<b>BM2-6-F-R22</b>	3' set	cardboard box	<b>4506502</b>
<b>BM2-6-F-R22-CCL-60</b>	5' set	cardboard box	<b>4506520</b>
<b>BM2-6-F-R22-CCL-72</b>	6' set	cardboard box	<b>4506554</b>
<b>BM2-3-F-R22</b>	3' set	plastic case	<b>4506562</b>



**BM2-8**

### R410A Manifold – Two-Way BM Series

- All the same features as the standard BM series manifolds except higher pressure gauges (M2). Low side gauge pressure to 500 psi and high side gauge pressure to 800 psi
- Comes standard with ¼" SAE charging hoses

Designation	Hoses	Packaging	Part No.
<b>BM2-8-F-R410A</b>	none	cardboard box	<b>4506571</b>
<b>BM2-6-F-R410A</b>	3' set	cardboard box	<b>4503261</b>
<b>BM2-6-F-R410A-CCL-60</b>	5' set	cardboard box	<b>4505710</b>
<b>BM2-6-F-R410A-CCL-72</b>	6' set	cardboard box	<b>4506589</b>
<b>BM2-3-F-R410A</b>	3' set	plastic case	<b>4505239</b>
<b>BM2-3-F-R410A-CCL-60</b>	5' set	plastic case	<b>4505433</b>
<b>BM2-3-F-R410A-CCL-72</b>	6' set	plastic case	<b>4506597</b>

- R410A Manifold with refrigerant scales R410A/R134a/R22

Designation	Hoses	Packaging	Part No.
<b>BM2-8-F-R410A-FG</b>	none	cardboard box	<b>4662535</b>
<b>BM2-6-F-R410A-FG-CCL-60</b>	5' set	cardboard box	<b>4662526</b>
<b>BM2-6-F-R410A-FG-CA-CCL-60</b>	5' set	cardboard box	
	w/ball valve		<b>4665305</b>



**BM2-8**

## Premium Four-Way Manifolds

- Charge and evacuate an A/C or refrigeration system without having to connect and disconnect hoses, saving time and money
- All metal housing Class 1.6 bourdon tube gauges (M2), easy to read, zero point adjustable, pulse free and color-coded
- Two piece, O-ring seal piston style valve
- Extra large sight glass to view refrigerant movement
- Swivel hook and 45° hose anchors
- Anodized high quality aluminum body
- Color coded handwheels
- All hoses are high pressure, 870 psi working pressure, 3600 psi burst pressure



BM4-3

M2-GS



Designation	Hoses	Packaging	Part No.
BM4-3-F-R12	3' set	plastic case	4506627
BM4-3-F-R22	3' set	plastic case	4506643
BM4-3-F-R410A-FG-CCL-60	5' set	plastic case	4675335

Designation	Description	Part No.
M2-GS	Rubber protection for gauges Ø 68 mm	4677451

# Manifolds

## Glycerin Filled

### Two-Way Manifold Set

- Class 1.6 Glycerin filled bourdon tube gauges (GR), easy to read, zero point adjustable, color coded
- Two-piece, O-ring seal piston style valve
- Extra large sight glass to view refrigerant movement
- Swivel hook and 45° hose anchors
- Anodized high quality aluminum body
- Color coded handwheels
- All hoses are high pressure, 870 psi working pressure, 3600 psi burst pressure



GM2-8



Designation	Hoses	Packaging	Part No.
GM2-8-F-R12	none	cardboard box	4507061
GM2-8-F-R134a	none	cardboard box	4507071
GM2-6-F-R12-CCL-60	5' set	cardboard box	4507100
GM2-6-F-R134a-CCL-60	5' set	cardboard box	4507118

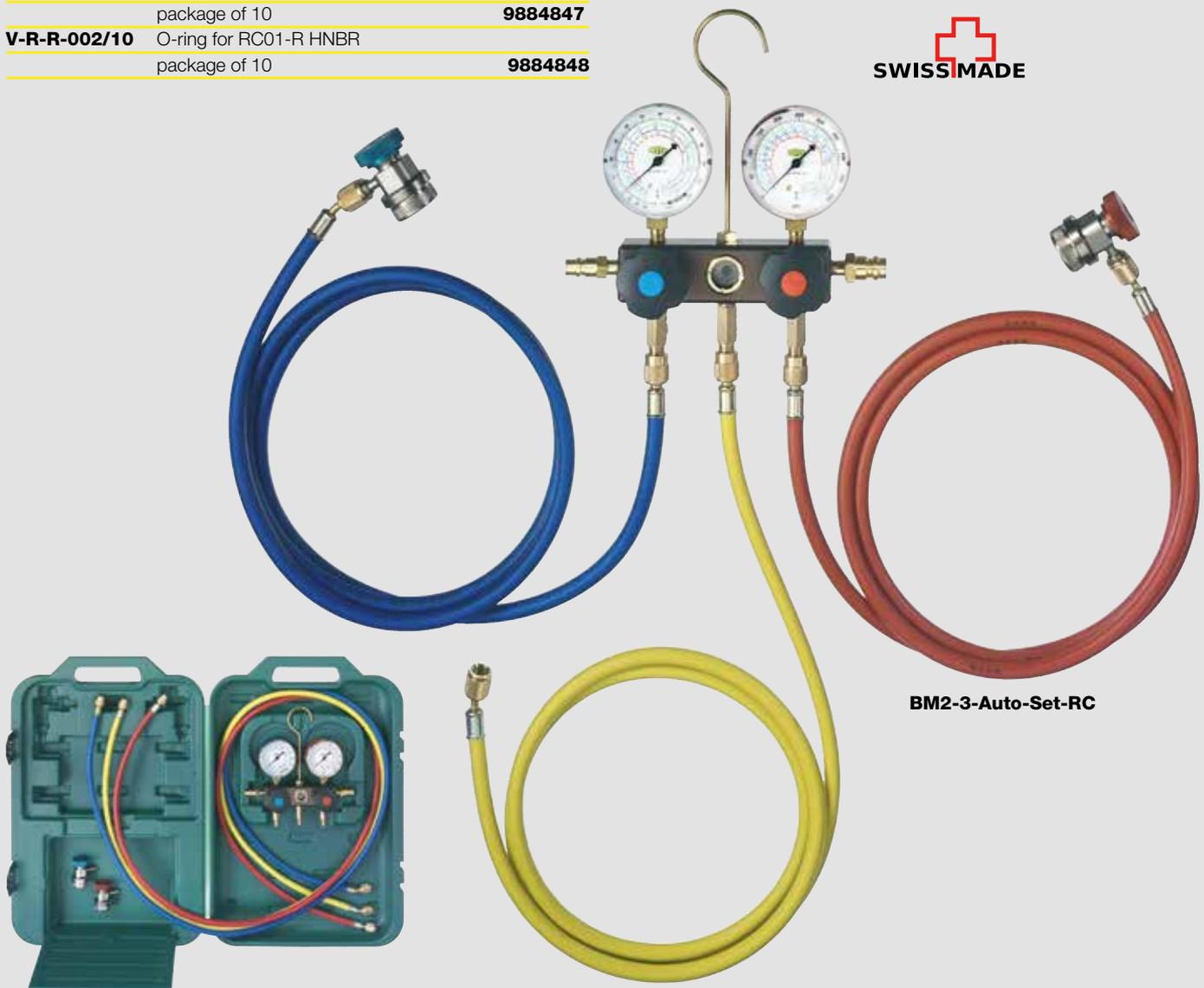
## Automotive Manifold Set

- All the same features as the standard BM series manifold except the manifold comes with high and low pressure automotive valve couplers.

Designation	Hoses	Packaging	Part No.
<b>BM2-3-F-Auto-Set-R134a-RC</b>	6' set	plastic case	<b>4506601</b>

- Replacement Auto Set Service Couplers

Designation	Description	Part No.
<b>RC01-B</b>	Blue automotive service-valve, ¼" SAE Auto Connection	<b>9884949</b>
<b>RC01-R</b>	Red automotive service-valve, ¼" SAE Auto Connection	<b>9884948</b>
<b>V-R-B-001/10</b>	O-ring for RC01-B HNBR package of 10	<b>9884847</b>
<b>V-R-R-002/10</b>	O-ring for RC01-R HNBR package of 10	<b>9884848</b>

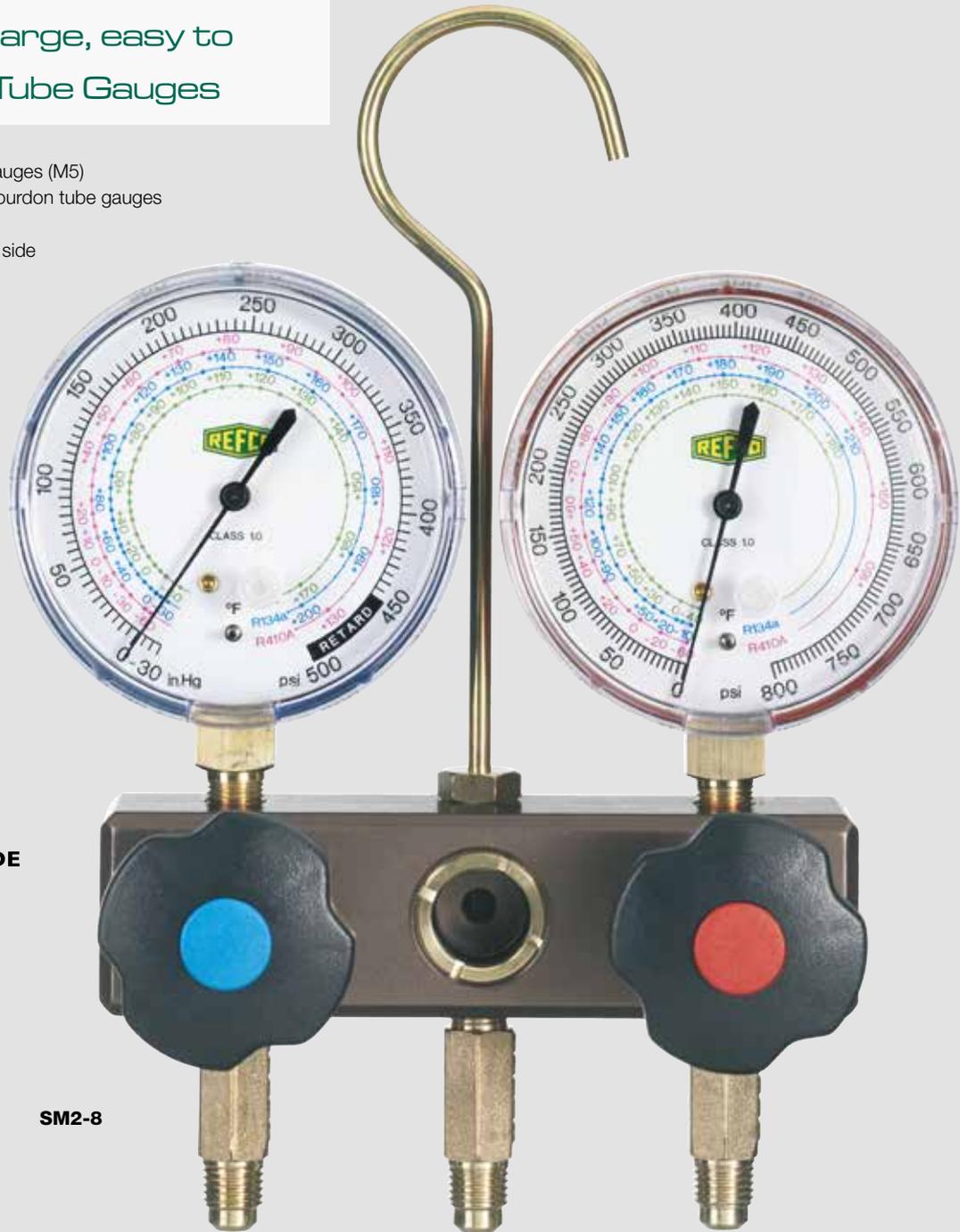
**BM2-3-Auto-Set-RC**

**BM2-3-Auto-Set**

# Manifolds

Manifolds with large, easy to read Bourdon Tube Gauges

- Easy to read 3 1/4" (80 mm) gauges (M5)
- All metal housing Class 1.0 bourdon tube gauges
- Retard protection
- Color-coded for high and low side
- Pulse/vibration free
- Zero point adjustable
- Two-piece, O-ring seal piston style valve
- Extra large sight glass
- Swivel hook and 45° hose anchors
- Anodized high quality aluminum body
- Color-coded handwheels
- All hoses are high pressure, 870 psi working pressure, 3600 psi burst pressure



SM2-8

Designation	Hoses	Packaging	Part No.
SM2-8-F-R410A-FG	none	cardboard box	4675343
SM2-6-F-R410A-FG-CCL-60	5' set	cardboard box	4675351
SM2-3-F-R410A-FG-CCL-60	5' set	plastic case	4675369





## Manifolds with Bellow Type Oil Filled Gauges

Bellow type gauges are the most accurate found in the industry today. Bellow type gauges are accurate within 1% all the way around the gauge dial, extremely over pressure resistant and pulse free. There is no oil or glycerin fill nipple on these gauges to have weepage, seepage or leakage from.

### DELUXE Two-Way Oil Filled Manifolds Bellow Type

- Oil-filled, bellow type, Class 1.0 accuracy gauges (R3). Gauges are accurate within 1% all the way around the gauge face
- Made from anodized aluminum
- No plastic
- No fill nipple on the top of the gauge to allow leakage
- Pulse/vibration free
- Extremely over-pressure resistant. Gauge will withstand 2 1/2 times over-pressurization
- Zero point adjustable
- Easy to read 2 3/4" gauges (R3)
- Color-coded for high and low side
- Two-piece, O-ring seal piston style valve
- Extra large sight glass to view refrigerant movement
- Swivel hook and 45° hose anchors
- Anodized high quality aluminum body
- Color-coded handwheels
- All hoses are high pressure, 870 psi working pressure, 3600 psi burst pressure



**M2-8-DELUXE**



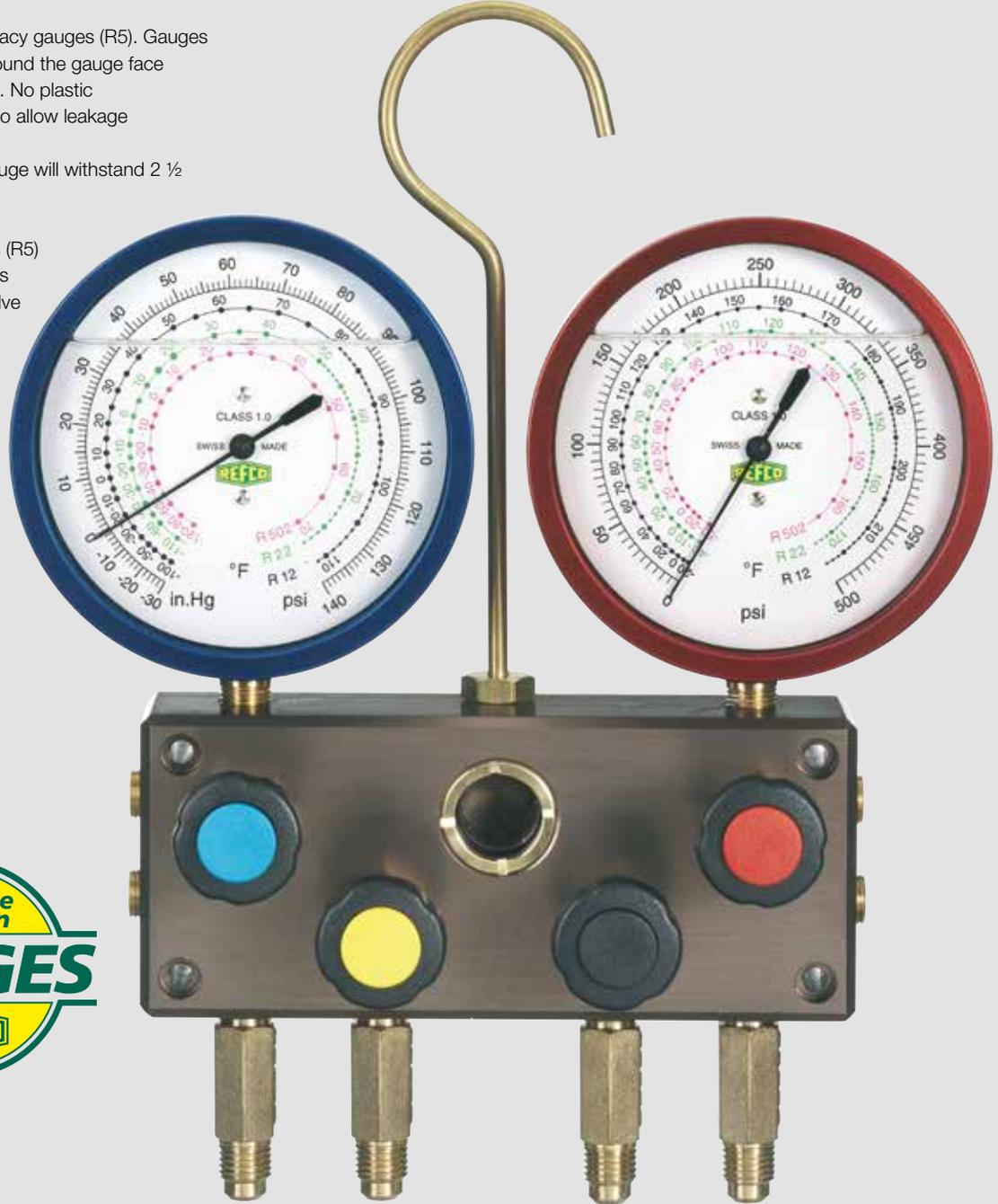
Designation	Hoses	Packaging	Part No.
<b>M2-8-DELUXE-F-R12</b>	none	cardboard box	<b>4505817</b>
<b>M2-8-DELUXE-F-R22</b>	none	plastic case	<b>4667498</b>
<b>M2-8-DELUXE-F-R410A-FG</b>	none	plastic case	<b>4675491</b>
<b>M2-3-DELUXE-F-R12-CCL-60</b>	5' set	plastic case	<b>4505809</b>
<b>M2-3-DELUXE-F-R22-CCL-60</b>	5' set	plastic case	<b>4667510</b>
<b>M2-3-DELUXE-F-R134a-CCL-60</b>	5' set	plastic case	<b>4506759</b>
<b>M2-3-DELUXE-F-R410A-FG-CCL-60</b>	5' set	plastic case	<b>4662543</b>
<b>M2-3-DELUXE-F-R410A-FG-CA-CCL-60</b>	5' set w/ball valve	plastic case	<b>4663727</b>

# Manifolds

## DELUXE Four-Way Oil Filled Manifolds Bellow Type



- Oil-filled, bellow type, Class 1.0 accuracy gauges (R5). Gauges are accurate within 1% all the way around the gauge face
- Gauge housing is anodized aluminum. No plastic
- No fill nipple on the top of the gauge to allow leakage
- Pulse/vibration free
- Extremely over-pressure resistant. Gauge will withstand 2 1/2 times over-pressurization
- Zero point adjustable
- Extra large, easy to read 3 1/4" gauges (R5)
- Color-coded high and low side gauges
- Two-piece, O-ring seal piston style valve
- Extra large sight glass to view refrigerant movement
- Swivel hook and 45° hose anchors
- Anodized high quality aluminum body
- Color-coded handwheels
- All hoses are high pressure, 870 psi working pressure, 3600 psi burst pressure
- Manifolds that come with hose sets also come with one 3/8" SAE yellow vacuum line 60" long with a working pressure of 465 psi and burst pressure of 2250 psi



**M4-8-DELUXE**



Designation	Hoses	Packaging	Part No.
<b>M4-3-DELUXE-F-R12-CCL-60</b>	5' set	plastic case	<b>4505477</b>
<b>M4-3-DELUXE-F-R410A-FG-CCL-60</b>	5' set	plastic case	<b>4669997</b>



## SUPERDELUXE Two-Way Manifold

- For the engineer looking for the highest quality manifold
- Oil-filled, bellow type, Class 1.0 accuracy gauges. Gauges are accurate within 1% all the way around the gauge face
- Pulse/vibration free
- Extremely over-pressure resistant. Gauge will withstand 2 ½ times over-pressurization
- Made from high quality eloxed aluminum
- Zero point adjustable
- Two-piece, O-ring seal piston style valve
- Extra large sight glass to view refrigerant movement
- Swivel hook and 45° hose anchors
- Color-coded handwheels
- All hoses are high pressure, 870 psi working pressure, 3600 psi burst pressure



Designation	Hoses	Packaging	Part No.
<b>MK-2-3-F-R12</b>	5' set	plastic case	<b>4506848</b>
<b>MK-2-3-F-R134a</b>	5' set	plastic case	<b>4506856</b>



**MK-2-3**

# Manifolds

## JUMBO-STAR

$\frac{3}{8}$ " Bores and Connections

Super High Flow Manifold

### Standard Two-Way Manifold - High Flow

- $\frac{3}{8}$ " SAE bores all the way through the body to allow for increased flow over normal  $\frac{1}{4}$ " SAE machined body. Standard  $\frac{3}{8}$ " connections also
- Saves time and money during charging, recovery and vacuum operations
- Compact brass body with extra large sight glass
- All metal housing Class 1.6 bourdon tube gauges (M2), easy to read, zero point adjustable, pulse free and color-coded
- Two-piece, O-ring seal piston style valve
- Swivel hook 45° hose anchors
- Color-coded handwheels
- All hoses  $\frac{3}{8}$ " SAE connections, 465 psi working pressure, 2250 psi burst pressure



### JUMBO-STAR

Designation	Hoses	Packaging	Part No.
JUMBO-STAR-2-3-F-R12	$\frac{3}{8}$ " 3' set	plastic case	4668109
JUMBO-STAR-2-3-F-R134a	$\frac{3}{8}$ " 3' set	plastic case	4668117
JUMBO-STAR 2-3-F-R410A-FG	$\frac{3}{8}$ " 3' set	plastic case	4686417

## REF-CLASS-GAUGE

The digital pressure test gauge takes the concept of an analog gauge, and brings it to a new level, as only digital calibrators can do. The REF-CLASS-GAUGE combines the accuracy of digital with the simplicity of an analog gauge. It achieves high level performance, ease-of-use and features unmatched in the pressure measurement world.

The versatility of this high-end product is to your benefit. The REF-CLASS-GAUGE allows you to test the pressure of gauges on your own and helps to save costs. For instance the digital manifold "DIGIMON" can easily be calibrated in-house.

The REF-CLASS-GAUGE offers a comfortable and compact solution to perform pressure calibration on-site. The setup is fast and straightforward, through a menu-driven display with minimal test and intuitive functions. A carrying case protects this precision device perfectly.

- Simple generation of test pressure on-site, in lab or in the shop floor
- For testing, setting and calibrating of any pressure gauge
- Pneumatic pressure generation of -950 mbar 500 psi
- Ergonomic handling
- Precise alignment through fine-control valve
- Accuracy: 0.05% FS (incl. calibration certificate) for pressure- and temperature measurement
- Rugged stainless steel case meets NEMA 4/IP65
- Data logger function
- Data interpretation software available on demand

**Part No. 4682293**



**REF-CLASS-GAUGE**



**The REF-CLASS-GAUGE is used to verify the correct calibration of your manifold gauges or any gauges pressure reading. Make sure you are meeting the exact standards of the equipment your servicing!**

# Manifolds

## Manifold Spare Parts

Spare Handwheels for Two-Way Manifold Series:

Designation	Description	Part No.
<b>M2-6-09-B+R</b>	Blue, Red handwheel	<b>4687080</b>
<b>M2-7-SET-B+R</b>	Blue, Red handwheel	<b>4687079</b>



Spare Handwheels for Four-Way Manifold Series:

Designation	Description	Part No.
<b>M4-6-09-B</b>	Blue handwheel	<b>4490976</b>
<b>M4-6-09-N</b>	Black handwheel	<b>4490984</b>
<b>M4-6-09-Y</b>	Yellow handwheel	<b>4491000</b>
<b>M4-7-SET-B+N+R+Y</b>	Blue, Black, Red, Yellow handwheel	<b>4687094</b>



Hook for all manifolds apart from the DIGIMON:

Designation	Description	Part No.
<b>M4-6-10</b>	Hook for manifold	<b>9882584</b>



**M4-6-10**

Complete Manifold Valve Replacement Kit:

Designation	Description	Part No.
<b>M2-10-95-R/2</b>	Package of 2 replacement valves	<b>4687104</b>
<b>M2-10-95-R/4</b>	Package of 4 replacement valves	<b>4687105</b>



**M2-10-95-R**



Replacement Valve Seat Assembly:

Designation	Description	Part No.
<b>M4-6-04-R/4</b>	Package of 4 valve seat assemblies	<b>4687093</b>
<b>M4-6-04-R/10</b>	Package of 10 valve seat assemblies	<b>4662624</b>
<b>M4-6-04-JUMBO</b>	Single valve seat assembly for JUMBO-STAR	<b>4666726</b>



Sight Glass Replacement Parts:

Designation	Description	Part No.
<b>M4-6-11</b>	Sight glass w/O-ring and brass threaded ring for R410A manifolds	<b>4491018</b>
<b>M4-6-11-T</b>	Special sight glass threaded ring installation tool	<b>4493169</b>



Hose holder for REFCO manifolds:

Designation	Description	Part No.
<b>A-31452-Y</b>	Y-plug hose holder for manifolds	<b>4665118</b>



Plastic Carrying Multi-Case:

Designation	Description	Part No.
<b>M4-6-15</b>	Carrying case with storage compartment for 2- and 4-way REFCO manifolds made of sturdy plastic	<b>4666106</b>



Rubber protection for gauges:

Designation	Description	Part No.
<b>M2-GS</b>	Rubber protection for gauges Ø 68 mm, set of 1 red and 1 blue	<b>4677451</b>

# Charging Hoses

## Charging and Testing Hoses



Features of REFCO Charging hoses include:

- Standard 870 psi working pressure, 3600 psi burst pressure making the REFCO charging hoses good for all refrigerants including R410A
- Eight sided crimp ensures maximum hose life
- Neoprene seals
- Knurled brass nut for easy finger tightening
- Multiple lengths available
- Color coded for convenience
- Available in packs of 3 (one red, one yellow and one blue hose) or individually



CL-36-Y

## Sets of 3

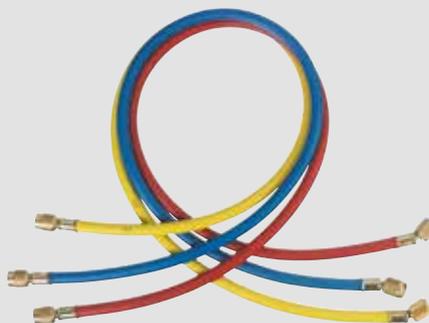
Premium REFCO Charging Hoses with 1/4" SAE Fittings

Designation	Description	Part No.
<b>CCL-36</b>	Set of 3 - 36"	<b>9881278</b>
<b>CCL-48</b>	Set of 3 - 48"	<b>9881277</b>
<b>CCL-60</b>	Set of 3 - 60"	<b>9881276</b>
<b>CCL-72</b>	Set of 3 - 72"	<b>9881275</b>

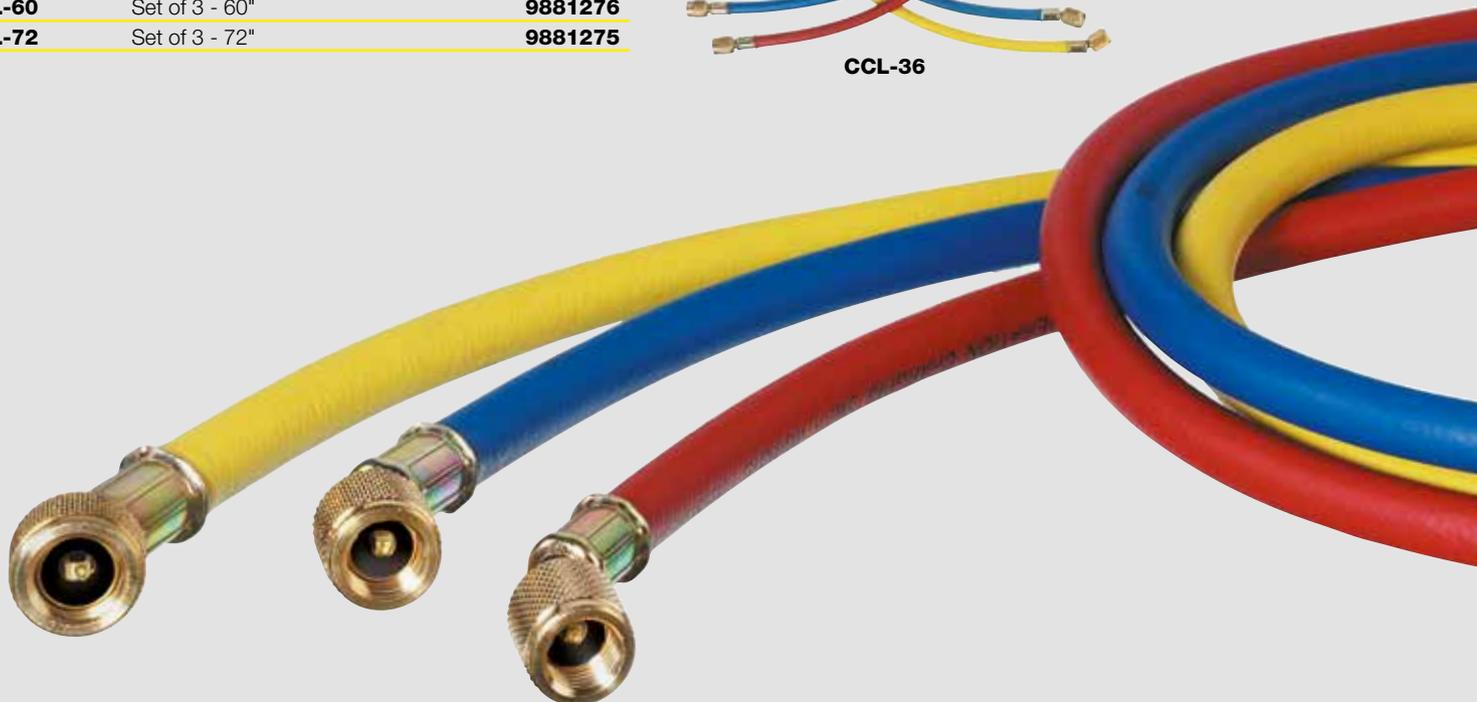
## Individual Charging Hoses

Premium REFCO Charging Hoses with 1/4" SAE Fittings

Designation	Description	Part No.
<b>CL-36-Y</b>	36" Yellow hose	<b>9881271</b>
<b>CL-36-R</b>	36" Red hose	<b>9881262</b>
<b>CL-36-B</b>	36" Blue hose	<b>9881253</b>
<b>CL-48-Y</b>	48" Yellow hose	<b>9881270</b>
<b>CL-48-R</b>	48" Red hose	<b>9881261</b>
<b>CL-48-B</b>	48" Blue hose	<b>9881252</b>
<b>CL-60-Y</b>	60" Yellow hose	<b>9881269</b>
<b>CL-60-R</b>	60" Red hose	<b>9881260</b>
<b>CL-60-B</b>	60" Blue hose	<b>9881251</b>
<b>CL-72-Y</b>	72" Yellow hose	<b>9881268</b>
<b>CL-72-R</b>	72" Red hose	<b>9881259</b>
<b>CL-72-B</b>	72" Blue hose	<b>9881250</b>



CCL-36





## Environmentally Friendly REFCO Charging Hoses with Special Barrier Protection

Features include:

- All of the features of the standard charging hose but are made from a special material which prevents virtually any permeation of refrigerant, yet remain flexible and easy to work with
- Meets SAE J2196 for permeation allowance

### Sets of 3

Designation	Description	Part No.
<b>CCL-36-J2196</b>	Set of 3 - 36"	<b>9884728</b>
<b>CCL-60-J2196</b>	Set of 3 - 60"	<b>9884729</b>
<b>CCL-72-J2196</b>	Set of 3 - 72"	<b>9884730</b>



**CCL-36**

## Individual Charging Hoses

Designation	Description	Part No.
<b>CL-36-Y-J2196</b>	36" Yellow hose	<b>9884719</b>
<b>CL-36-R-J2196</b>	36" Red hose	<b>9884720</b>
<b>CL-36-B-J2196</b>	36" Blue hose	<b>9884721</b>
<b>CL-60-Y-J2196</b>	60" Yellow hose	<b>9884722</b>
<b>CL-60-R-J2196</b>	60" Red hose	<b>9884723</b>
<b>CL-60-B-J2196</b>	60" Blue hose	<b>9884724</b>
<b>CL-72-Y-J2196</b>	72" Yellow hose	<b>9884725</b>
<b>CL-72-R-J2196</b>	72" Red hose	<b>9884726</b>
<b>CL-72-B-J2196</b>	72" Blue hose	<b>9884727</b>



**CL-36-R-J2196**



**QC-S410A**

Adapter to take a hose from 1/4" SAE to 5/16" SAE (1/2"-20UNF)

Designation	Description	Part No.
<b>QC-S410A/2</b>	Adapter with core depressor 1/4" SAE male x 5/16" SAE female Packaged 2 per	<b>4687095</b>



**P-509**



**P-509-T**



**P-513**

## Spare Parts for REFCO 1/4" SAE Charging Hoses

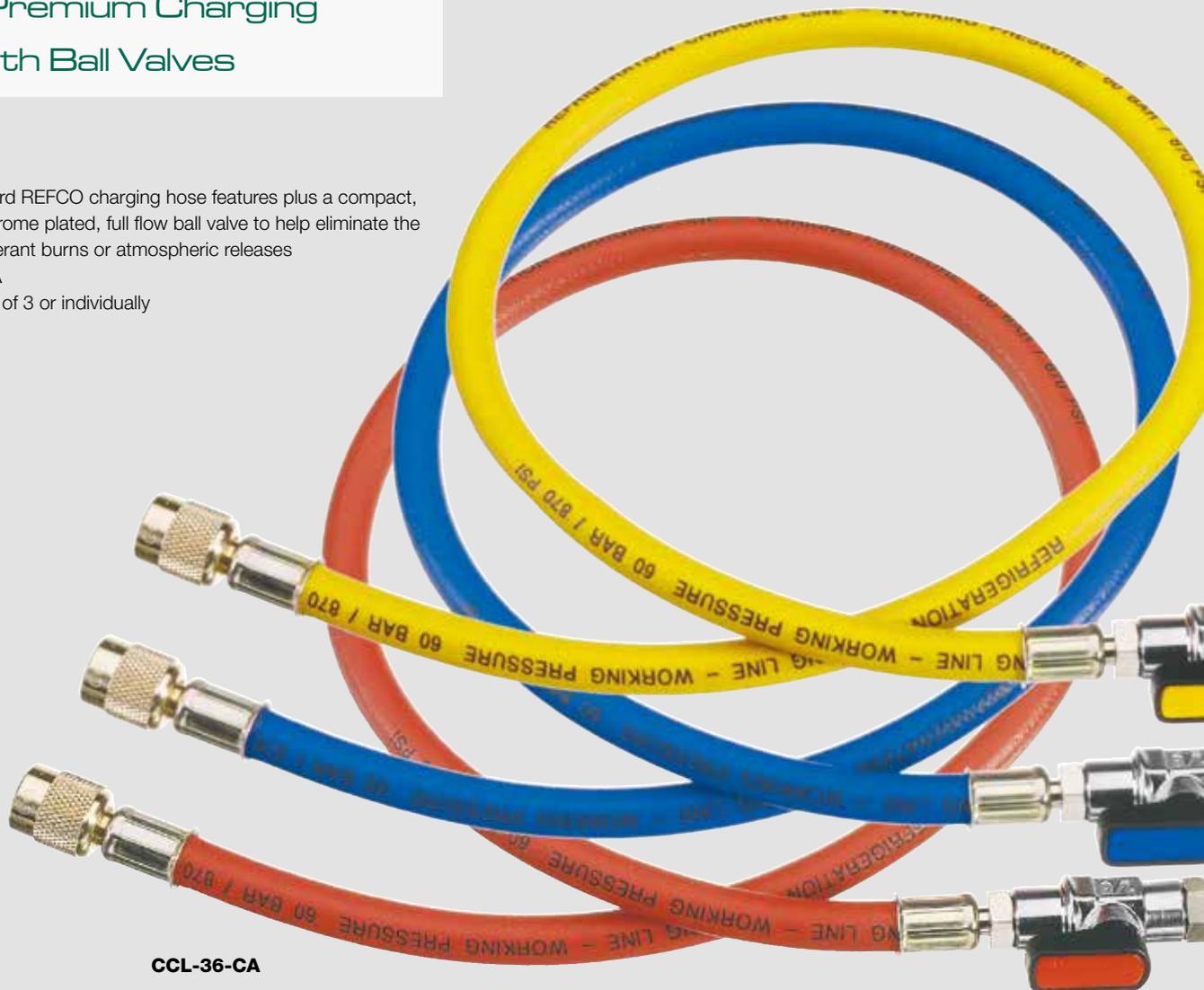
Designation	Description	Part No.
<b>P-509/10</b>	Ten neoprene gaskets for 1/4" SAE hoses	<b>9880872</b>
<b>P-509-T/10</b>	Ten Teflon gaskets for 1/4" SAE hoses	<b>9880871</b>
<b>P-513/10</b>	Ten core depressors for Schrader valves	<b>9880869</b>

# Charging Hoses

## REFCO Premium Charging Hoses with Ball Valves

Features include:

- All of the standard REFCO charging hose features plus a compact, color-coded, chrome plated, full flow ball valve to help eliminate the chance of refrigerant burns or atmospheric releases
- Good for R410A
- Available in sets of 3 or individually



**CCL-36-CA**



**CA-CCL-36**

### Sets of 3

Premium REFCO charging hose with ball valve and flexible length of hose between ball valve and fitting. 1/4" SAE on both ends.

Designation	Description	Part No.
<b>CCL-36-CA</b>	Set of 3 - 36" w/CA valve	<b>4668559</b>
<b>CCL-60-CA</b>	Set of 3 - 60" w/CA valve	<b>4668533</b>

Premium REFCO charging hose with ball valve

Designation	Description	Part No.
<b>CA-CCL-36</b>	Set of 3 - 36" w/ball valve	<b>4493614</b>
<b>CA-CCL-60</b>	Set of 3 - 60" w/ball valve	<b>4493622</b>
<b>CA-CCL-72</b>	Set of 3 - 72" w/ball valve	<b>4493631</b>



## Individual Charging Hoses

Premium REFCO charging hoses with ball valve

Designation	Description	Part No.
<b>CA-CL-9-B-M</b>	9" Blue hose w/ball valve	<b>4682056</b>
<b>CA-CL-9-R-M</b>	9" Red hose w/ball valve	<b>4682047</b>
<b>CA-CL-9-Y-M</b>	9" Yellow hose w/ball valve	<b>4682039</b>
<b>CA-CL-36-Y</b>	36" Yellow hose w/ball valve	<b>4492936</b>
<b>CA-CL-60-Y</b>	60" Yellow hose w/ball valve	<b>4492961</b>
<b>CA-CL-60-R</b>	60" Red hose w/ball valve	<b>4492952</b>
<b>CA-CL-60-B</b>	60" Blue hose w/ball valve	<b>4492944</b>
<b>CA-CL-72-Y</b>	72" Yellow hose w/ball valve	<b>4492995</b>
<b>CA-CL-72-R</b>	72" Red hose w/ball valve	<b>4492987</b>
<b>CA-CL-72-B</b>	72" Blue hose w/ball valve	<b>4492979</b>



**CA-CL-9**

**CA-CL-36**



## REFCO Ball Valves

Ball Valve with 1/4" SAE male and female fittings, core depressor and knurled nut



**CA-1/4"SAE-Y**

Designation	Description	Part No.
<b>CA-1/4"SAE-Y</b>	Yellow ball valve with male & female 1/4" fittings	<b>4493738</b>
<b>CA-1/4"SAE-R</b>	Red ball valve with male & female 1/4" fittings	<b>4493533</b>
<b>CA-1/4"SAE-B</b>	Blue ball valve with male & female 1/4" fittings	<b>4493525</b>

# Charging Hoses

## REFCO Magic Seal Charging Hoses

Magic Seal charging hose features:

- Built in valve automatically closes when disconnecting the charging hose from the system, preventing refrigerant loss and burning of the skin
- One side straight connection, other side 45° bended
- Standard 870 psi working pressure and 3600 psi burst pressure make the hose good for all refrigerants including R410A
- Eight sided crimp ensures maximum life
- Knurled brass nut for easy finger tightening
- Neoprene seals
- Multiple lengths available
- Color-coded for convenience

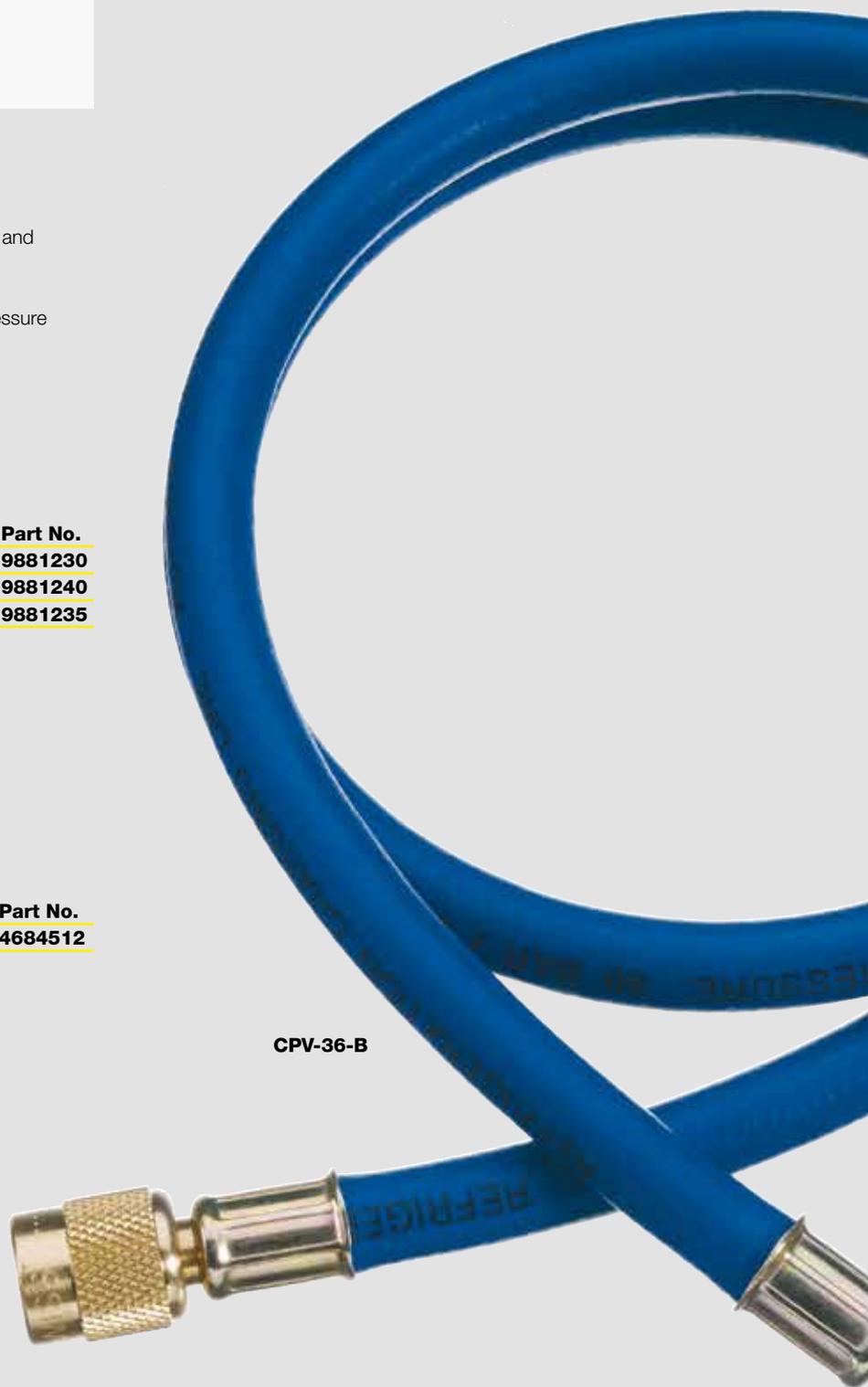
Designation	Description	Part No.
<b>CPV-60-Y</b>	60" Yellow hose w/built in shut off valve	<b>9881230</b>
<b>CPV-60-R</b>	60" Red hose w/built in shut off valve	<b>9881240</b>
<b>CPV-60-B</b>	60" Blue hose w/built in shut off valve	<b>9881235</b>

Designation	Description	Part No.
<b>CPV-DS</b>	Gasket set for CPV hoses	<b>4684512</b>

## Sets of 3

Magic Seal charging hose

Designation	Description	Part No.
<b>CPV-CCL-60</b>	Set of 3 - 60" w/built in shut off valve	<b>4495421</b>





## REFCO 3/8" SAE Charging Hoses

Features of the 3/8" SAE charging hose are as follows:

- Standard 465 psi working pressure, 2250 psi burst pressure
- Eight sided crimp to ensure maximum hose life
- Knurled brass nut for easy finger tightening
- Multiple hose lengths available
- Color-coded for convenience

Designation	Description	Part No.
<b>HCL6-60-Y</b>	60" 3/8" SAE Yellow hose	<b>9881313</b>



**HCL6-60-Y**

## Spare Parts for REFCO 3/8" SAE Charging Hoses

Designation	Description	Part No.
<b>P-510/10</b>	10 Neoprene O-rings for 3/8" SAE charging hoses Packaged 10 per	<b>9880870</b>
<b>A-40513/10</b>	Core depressor for 3/8" SAE charging hoses Packaged 10 per	<b>9884813</b>



**A-40513**

# Leak Detection

## REF-LOCATOR

### Electronic Leak Detector

The requirements for leak detectors are constantly increasing and in order to keep up with the newest developments and technologies, we have developed the REF-LOCATOR. This high-end unit fulfills all the specifications and requirements which are expected from a modern leak detector today.

The basis of solid electrolyte sensor technology sets new standards in the area of leak detection. The sensor has a higher than average life cycle of approximately 10 years, which is a large advantage over conventional leak detectors. With the large LCD display, one is always informed about the ongoing activities.

Through the adjustment of the 3 sensitivity levels, it is easy to localize large leaks. In addition, the inspection light is ideal for having a good overview, even in the dark. The REF-LOCATOR is delivered in a practical, rugged case.



#### Technical Data:

Sensitivity:	0.05 oz/yr (1.4 g/year) All HFC's incl. R410A, R404A, R407C & R134a 0.025 oz/yr (0.7 g/year) HCFC R22 0.03 oz/yr (0.9 g/year) HFO R-1234yf
Standards	SAE-J2791 (R-134a), SAE-J2913 (R-1234yf)
Certifications:	Complies to standard SAE-J2791, SAE-J2913 EN14624:2012, CE, ROHS, ASHRAE Standard 173
Inspection light:	3 white LED's and 3 UV - auto shut off in 5 minutes
Sensor life:	>10 years/4000 hours
Sensor Technology:	Solid electrolyte semi-conductor
Warm-up time:	approx. 30 seconds
Response time:	instantaneous
Display:	BTN-LCD with 10 segment color "pie graph" showing leak size
Sensitivity levels:	MAX- 0.15oz/yr (4 g/yr) MED- 0.25 oz/yr (7 g/yr) MIN- 0.5 oz/yr (14 g/yr)
Mute function:	Silent mode – Display shows leak indication
Power supply:	4 AA Alkaline or 4 AA NiMH Batteries
Battery life:	2.5 hours
IP-classification:	54
Probe length:	17"
Dimensions:	10 x 3 x 2.5 in
Weight:	1.3 lb

Part No. 4686714



**New with both UV and LED lights to help find refrigerant leaks! For REF-LOCATOR and TRACE-LOCATOR. No UV enhancement eyeglasses needed.**



REF-LOCATOR

### Spare Parts for REF-LOCATOR

Designation	Description	Part No.
<b>LOCATOR-FILTER/5</b>	spare filter (set of 5 pieces)	<b>4686821</b>
<b>REF-LOCATOR-CASE</b>	plastic case	<b>4686707</b>
<b>REF-LOCATOR-TV-01</b>	test vial	<b>4686705</b>
<b>LOCATOR-LED-UV/6</b>	Spare LED UV (set of 6 pieces)	<b>4687034</b>
<b>LOCATOR-LED-WHITE/6</b>	Spare LED white (set of 6 pieces)	<b>4686828</b>

## TRACE-LOCATOR

### Electronic Leak Detector

The leak detector for professional leak detection with trace gas 95/5 (95% nitrogen, 5% hydrogen), featuring the latest technology. The 95/5 trace gas is environmentally friendly, non-toxic, nonflammable and non-corrosive. The gas escapes at the leaky spot which then can easily be localized with the TRACE-LOCATOR. In addition, after evacuating the unit, the nitrogen in the trace gas binds with the possible remaining moisture. Additionally, during and after the leak detection, no environmentally harmful refrigerants will leak out. Due to the low density of hydrogen which is lighter than air, even minor leakages can be detected quickly. By means of a colored pie chart, the large LCD display, always shows the latest data. The TRACE-LOCATOR is delivered in a practical, rugged case.



TRACE-LOCATOR

### Spare Parts for TRACE-LOCATOR

Designation	Description	Part No.
<b>LOCATOR-FILTER/5</b>	spare filter (set of 5 pieces)	<b>4686821</b>
<b>TRACE-LOCATER-CASE</b>	plastic case	<b>4686708</b>
<b>TRACE-LOCATOR-TV-01</b>	test vial	<b>4686703</b>
<b>LOCATOR-LED-UV/6</b>	Spare LED UV (set of 6 pieces)	<b>4687034</b>
<b>LOCATOR-LED-WHITE/6</b>	Spare LED white (set of 6 pieces)	<b>4686828</b>

#### Technical Data:

Sensitivity:	less than 5ppm (N <sub>2</sub> /H <sub>2</sub> tracer gas)
Certifications:	Fulfills the limits of standard EN35422 The tracer gas conforms to article 6, paragraph 3 of the EU directive 2006/40/EG Pending SAE-J2970 certification
Inspection light:	3 white LED's and 3 UV - auto shut off in 5 minutes.
Sensor life:	1000 hours
Sensor Technology:	Solid electrolyte semi-conductor
Warm-up time:	approx. 30 seconds
Response time:	instantaneous
Display:	BTN-LCD with 10 segment color "pie graph" showing leak size Backlight included
Sensitivity levels:	3 levels
Mute function:	Silent mode - display shows leak indication visually
Power supply:	4 AA Alkaline or 4 AA NiMH Batteries
Battery life:	4.5 hours
IP-classification:	54
Probe length:	17"
Dimensions:	10 x 3 x 2.5 in
Weight:	1.3 lb

**Part No. 4686715**

# Leak Detection

STARTEK

Electronic Leak Detector for all  
Halogenated Refrigerants



- Extremely compact design concept similar to a cell phone
- Ergonomical design focused on performance and simplicity of operation
- Microprocessor controlled unit and state of the art microelectronics
- Detects all halogenated refrigerants **incl. R410A**
- Certified to SAE J1627 standard
- Simple one-button operation
- Two sensitivity levels using a double-click computer mouse action
- One touch reset-mode
- High performance true mechanical pump to provide positive airflow through the sensing tip
- Leak indication using both variable frequency audible and visual alarm
- Automatic shut-off after extended period of non-use to preserve battery life
- Battery life indicator
- Prevents incorrect readings by providing visual and audible warning followed by an automating shut-off when battery reaches a critical level
- State of the art sensor technology for higher reliability and longer life time
- Includes a practical belt clip holster that also protects the unit in your tool box
- Specially designed 12" flexible probe for easy reach
- Additional replacement sensor included inside the battery compartment
- **Packed up in a sturdy plastic case**



STARTEK

#### Technical Data:

Dimensions:	6 x 1.4 x 2.1 inch
Weight:	6.7 oz
Batteries:	2 x AA batteries
Battery lifetime:	40 hours
Sensitivity:	less than 0.1 oz/year
Sensor lifetime:	approx. 30 hours
Operating temperature:	32 °F to 125 °F
Warm up time:	less than 2 seconds
Response time:	instantaneous
Reset time:	instantaneous
Probe length:	12 inches
Warranty:	2 years

**Part No. 4507917**

Designation	Description	Part No.
<b>ES-02</b>	Replacement sensor (Pack of 2)	<b>4507577</b>
<b>STARTEK-CASE</b>	Replacement carrying case	<b>4664333</b>



**STARTEK-C**

## STARTEK-C

### Electronic Leak Detector for Combustible Gases

- This Combustible Gas Leak Detector with its new state of the art design is the most technologically advanced of its kind
- The STARTEK-C's low power requirements, small size and high sensitivity combine to create a tool which is easy to handle and ultra effective at locating even the most difficult-to-find leaks
- The STARTEK-C's long life sensor will detect concentrations of combustible gases as low as 5 ppm
- It is sensitive to all combustible gases
- The STARTEK-C also features a low sensitivity mode, enabling quick and easy location of large combustible gas leaks
- **Packed up in a sturdy plastic case**



#### Technical Data:

Dimensions:	6 x 1.4 x 2.1 inch
Weight:	6.7 oz
Batteries:	2 x AA batteries
Battery lifetime:	11 hours
Sensitivity:	less than 50 ppm (Propane, Isobutane, Methane, Natural Gas)
Sensor lifetime:	less than 1 year normal use
Operating temperature:	32 °F to 125 °F
Warm up time:	45 seconds (conditioned sensor)
Calibration:	automatic
Response time:	5 seconds
Reset time:	5 seconds or more depending on gas concentration
Probe length:	12 inches
Warranty:	2 years

**Part No. 4660664**

Designation	Description	Part No.
<b>ES-C</b>	Replacement sensor	<b>4660672</b>
<b>STARTEK-C-CASE</b>	Replacement carrying case	<b>4665593</b>

# Charging Scale

## Charging Scale

### OCTA-WIRELESS

This reliable, electronic charging scale transmits the measurement data to the wireless display, allowing for mobile operation of the scale within a radius of 33 ft. The light, solid, aluminum housing along with the slim design, make the OCTA-WIRELESS particularly suitable for large refrigerant cylinders. Through the convenient, wireless control panel, the OCTA-WIRELESS can easily be programmed or recalibrated. REF-METER-OCTA-PLUS, the automatic charging system, is an ideal addition to the OCTA-WIRELESS. The wireless electronic charging scale is delivered in a durable carrying pouch.

#### Technical Data:

Capacity:	220 lbs
Platform:	Diameter 12.6 in Height 1.75 in
Accuracy:	+/-0.5 %
Resolution:	0.1 oz, 0.005 lbs
Power Supply:	2x 4 AAA- batteries
Battery lifetime:	60 h control panel + platform
Weight:	1.2 lbs with batteries
Signal range:	33 ft

**Part No. 4686663**

### OCTA-WIRELESS-KIT

Combination kit including OCTA-WIRELESS and REF-METER-OCTA-PLUS.

**Part No. 4686742**

### OCTA-WIRELESS-CONTROL-BOX

Control Box for OCTA-WIRELESS

**Part No. 4686752**



**REF-METER-OCTA-PLUS**



**OCTA-WIRELESS**



**OCTA-WIRELESS-KIT**

### REF-METER-OCTA-PLUS

Automatic charging module for the OCTA-WIRELESS and REF-METER-OCTA. It is suitable for all refrigerants. Through a visual and an acoustic signal the exact programmed filling weight is achieved.

#### Technical Data:

Charging Port:	¼" SAE
Max. Valve operating pressure:	500 psi, 34 bar
Power supply:	4 x 1,5 V AA Alkaline Batteries
Battery lifetime:	> 200 hours
Materials:	Valve Body Brass, Seal Neoprene-W
Operating temperature:	0 °C to 50 °C / 32 °F to 122 °F
Weight:	1.2 lbs with batteries
Dimensions:	8.6 x 6.6 x 1.9 inch

**Part No. 4681823**



## REF-METER-OCTA

REF-METER-OCTA is a new electronic refrigerant scale built in high quality, sturdy and modern design.

- New design
- Sturdy aluminium platform
- Unique cable auto reel
- Easy to read LCD display
- Compact and lightweight (5.5 lbs)
- Large refrigerant cylinder platform
- Extremely high accuracy
- Programmable
- Field calibratable
- Supplied in a carrying pouch

### Technical Data:

Capacity:	220 lbs
Platform:	diameter 12.6 inches
Accuracy:	±0.5%
Resolution:	0.005 lbs, 0.1 oz
Power supply:	Four AAA batteries
Battery lifetime:	30 hours

**Part No. 4679462**



## REF-METER-OCTA CONTROL-BOX

Control Box for REF-METER-OCTA

**Part No. 4686813**



## REF-METER-OCTA-KIT

Combination kit including REF-METER-OCTA and REF-METER-OCTA-PLUS

**Part No. 4681989**



# Gas Pressure Test Kit

## GAS PRESSURE TEST KIT

**Precision test instrument used to accurately set manifold pressure for Natural and L.P. Gas**

- Includes sensitive diaphragm gauge that is calibrated in inches of water column and ounces per square inch for extreme accuracy
- Scale in 0-35" W.C.
- Kit includes brass barb fitting on gauge, rubber tube and nipple for easy connection to system manifold
- High impact carrying case
- Easier to use than a manometer

Designation	Description	Part No.
<b>GPK-35</b>	Gas Pressure Test Kit	<b>4683477</b>

### Spare Parts:

<b>GPK-35-01</b>	Gauge with barb fitting for GPK	<b>4680096</b>
<b>GPK-35-02</b>	Hose with nipple fitting for GPK	<b>4680087</b>
<b>GPK-35-03</b>	Rubber nipple for GPK	<b>4680109</b>
<b>GPK-35-04</b>	Barb fitting for GPK	<b>4680079</b>
<b>GPK-35-SIGHT-GLASS</b>	Gauge cover for GPK	<b>4680117</b>



**GPK-35**

# Thermometers



## Digital Thermometers

### Infrared Non-Contact Thermometer

The LP-88 is a rugged and practical infrared thermometer with a pistol grip, which allows for contact free temperature measurement. Various temperatures can efficiently be measured within a room. The built-in laser pointer simplifies the measurement by marking the measurement area with two red laser points.

This infrared thermometer is delivered in a durable, protective case.

#### Technical Data:

Temperature range:	-76 °F-1000 °F
Operating temperature:	32 °F-122 °F
Resolution:	0.1 °F
Accuracy:	± 2% of display or 4 °F Depending on which is greater
Battery life:	18 h
Distance spot:	12.1
IP classification:	54
Automatic shut-off:	after 15 seconds of inactivity
Emissivity	0.95- adjustable 0,1 to 1 in .01-steps
Weight:	0.4 lbs incl. 2x AAA batteries

Part No. 4686697



LP-88

## Digital Pocket Test Thermometer

This thermometer comes with an easy to read LCD digital readout, is battery operated, switchable from Fahrenheit to Celsius and comes with a protective sheath with clip.

- Range -40 °F to 300 °F
- Accuracy ±2°F
- Resolution 0.1 °F

Designation	Description	Part No.
DT-150	Pocket Test Thermometer	9884365



DT-150

## K-type thermocouple clamp

- Temperature range -40 °F to +257 °F
- Jaw range ¼" - 1 ½"
- Resolution 1 °F

Designation	Description	Part No.
DIGIMON-CLAMP	K-type thermocouple clamp	4681466



DIGIMON-CLAMP

# Video Scope

## REF-SCOPE

### Video inspection camera

The Inspection Camera REF-SCOPE® Insightvision is designed for the visual analysis of unreachable or hard to reach areas.

The Inspection camera is crucial for a clear, internal inspection of engines, A/C systems, interior structures of walls and other industrial and similar applications. Optical imaging and illumination is provided by a full color image sensor and 6 LED lamps which are controlled by an on/off rotary switch.

**Part No. 4679705**



### Technical Data:

Display	3.5" (8.9 cm) TFT digital panel Resolution 320 x 240 pixel
LCD backlight	LED
Image orientation	Normal- and mirroring display
Camera Head & Distal tip diameter	0.39" (10 mm)
Shaft length	42" (107 cm)
Shaft	water resistant
Video output	RCA phono jack
Weight	0.55 lb / 250 g (without batteries)
Power source	4 Alkaline AA batteries (3 hours full functional operation)
Attachments	cleaning material, batteries, AV cable, mirror, hook, extra strong magnet



**REF-SCOPE**

**REF-SCOPE-MIRROR**



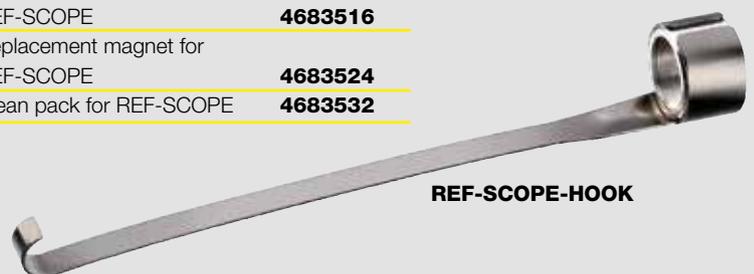
**REF-SCOPE-MAGNET**



**REF-SCOPE-CLEAN**

### Spare Parts

Designation	Description	Part No.
<b>REF-SCOPE-MIRROR</b>	Replacement mirror for REF-SCOPE	<b>4683507</b>
<b>REF-SCOPE-HOOK</b>	Replacement hook for REF-SCOPE	<b>4683516</b>
<b>REF-SCOPE-MAGNET</b>	Replacement magnet for REF-SCOPE	<b>4683524</b>
<b>REF-SCOPE-CLEAN</b>	Clean pack for REF-SCOPE	<b>4683532</b>



**REF-SCOPE-HOOK**

# Tools

## Tube Cutters

The new, durable telescopic tube cutter accurately cuts copper tubing

- Four roller tracking system keeps tube from threading
- Smooth turning of adjustment knob
- Full-stop feed system prevents wheels and rollers from coming into contact
- Heavy duty
- High quality
- Includes spare cutting wheel

Designation	Description	Part No.
<b>RS-16</b>	Tube cutter 1/8" to 5/8"	<b>4682722</b>
<b>RS-25</b>	Tube cutter 1/8" to 1"	<b>4682730</b>
<b>RS-35</b>	Tube cutter 1/8" to 1 3/8"	<b>4682748</b>
<b>RS-42</b>	Tube cutter 1/8" to 1 5/8"	<b>4682756</b>
<b>RS-67</b>	Tube cutter 1/4" to 2 5/8"	<b>4686904</b>
<b>RS-001/3</b>	Spare cutting wheel for tube cutter Packaged 3 per	<b>4687097</b>



<b>RFA-209-01/3</b>	Spare blades for RFA-209-STYLO-HD and RS tube cutter series, made of tough long life cobalt (set of 3 pieces)	<b>4687065</b>
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**RS-67**



**RS-42**



**RS-35**



**RS-25**



**RS-16**

Designation	Description	Part No.
<b>14338</b>	REFCO roller for tubing construction. Useful for brazed or sweat type connections	<b>9881622</b>



**14338**

## Pinch Off Tools

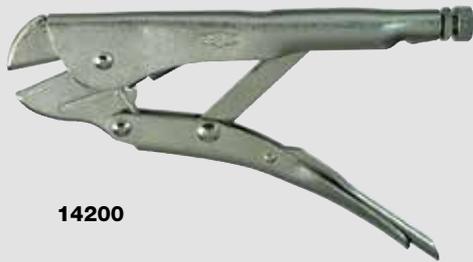


14285

Designation	Description	Part No.
14285	Up to 3/8" diameter suction tubes	9881530
RFA-105-FF	Pinch off tools for 1/4", 3/8" and 1/2"	9881528
14200	Pinch off pliers up to 3/8" O.D.	9881527
14215	Capillary tube cutter, without swaging the tube	9881087



RFA-105-FF



14200



14215



14210

## Recovery-Service

### Piercing Pliers

Designation	Description	Part No.
14210	Piercing pliers with changeable piercing needle and access fitting	9881526
14210-01/10	Package of 10 spare needles	4665550



RFA-209-STYLO

RFA-209-STYLO-HD



BR-4IN1

Designation	Description	Part No.
BR-4IN1	Cleaning brush 4 in 1	4677621

## Tubing Tools

Designation	Description	Part No.
RFA-209	Inner-Outer reamer	9881649
RFA-209-STYLO	Tube deburring tool, rotate blade	9883750
RFA-209-STYLO-HD	Heavy duty deburring tool with rotating blade Removes rough or irregular edges of steel, aluminium, copper and plastic Replaceable blades made of tough long life cobalt	4687051
RFA-209-01/3	Spare blades for RFA-209-STYLO-HD and RS tube cutter series, made of tough long life cobalt (set of 3 pieces)	4687065



RFA-209



RFA-209-01/3

# Tools

## 45 Degree Flaring Tools



525-F

Designation	Description	Part No.
<b>525-F</b>	Flaring and burnishing in one tool. Sizes from 3/16" to 5/8" O.D.	<b>9881571</b>
<b>RF-888-Z</b>	45° Eccentric flaring tool in inch-sizes. Made of forged high quality steel for tubes with an outside-diameter of: 3/16", 1/4", 5/16", 3/8", 1/2", 5/8", 3/4". Supplied in a sturdy plastic case	<b>4506171</b>
<b>RF-275-FS</b>	Flaring and swaging tool for tubes with an outside-diameter of: 3/16", 1/4", 5/16", 3/8", 1/2", 5/8". Supplied in a plastic case	<b>9881575</b>
<b>RF-175-FS</b>	45° Flaring and swaging tool in inch-sizes. Made of forged high quality steel for tubes with an outside-diameter of: 1/8", 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", 5/8", 3/4". Supplied in a sturdy plastic case	<b>4506198</b>



RF-888-Z



RF-275-FS



RF-175-FS



BS-6

## Tube Bending Springs

Designation	Description (Outside diameter of tube)	Part No.
<b>BS-4</b>	1/4"	<b>9881648</b>
<b>BS-5</b>	5/16"	<b>9881642</b>
<b>BS-6</b>	3/8"	<b>9881641</b>
<b>BS-7</b>	7/16"	<b>9881640</b>
<b>BS-8</b>	1/2"	<b>9881639</b>
<b>BS-10</b>	5/8"	<b>9881638</b>
<b>BS-12</b>	3/4"	<b>9881637</b>



## Tube Benders

Designation	Description	Part No.
<b>RFA-364-FH-08</b>	1/2"	<b>9881667</b>
<b>RFA-364-FH-10</b>	5/8"	<b>9881666</b>
<b>RFA-364-FH-12</b>	3/4"	<b>9881665</b>
<b>RFA-368-FH</b>	Triple-header tube bender. Bends all tubes with an outside diameter of 1/4", 5/16" and 3/8" to a 90-degree bend	<b>9881657</b>



**RFA-368-FH**



**RFA-364-FH**



**TELL-7-AD**



**TELL-7**

Designation	Description	Part No.
<b>TELL-7</b>	Cross-Bow type tube bender set for easy, ergonomic handling. For following outside diameters: 1/4", 5/16", 3/8", 1/2", 5/8", 3/4", 7/8". Supplied with tube cutter in a sturdy plastic case.	<b>4666076</b>
<b>TELL-7-BA-1/4"</b>	Bending adapter 1/4"	<b>4669432</b>
<b>TELL-7-BA-5/16"</b>	Bending adapter 5/16"	<b>4669440</b>
<b>TELL-7-BA-3/8"</b>	Bending adapter 3/8"	<b>4669458</b>
<b>TELL-7-BA-1/2"</b>	Bending adapter 1/2"	<b>4669466</b>
<b>TELL-7-BA-5/8"</b>	Bending adapter 5/8"	<b>4669475</b>
<b>TELL-7-BA-3/4"</b>	Bending adapter 3/4"	<b>4669483</b>
<b>TELL-7-BA-7/8"</b>	Bending adapter 7/8"	<b>4669491</b>
<b>TELL-7-SB</b>	Short bar	<b>4669416</b>
<b>TELL-7-LB</b>	Long bar	<b>4669407</b>
<b>TELL-7-HANDLE</b>	Handle complete	<b>4669513</b>
<b>TELL-7-AD</b>	Reverse bend adapter	<b>4669679</b>



**TELL-7**

# Tools

## Expander Tool Set

### HY-EX-6

New Hydraulic Expander tool kit with 6 expander heads to cover all size tubes of 3/8", 1/2", 5/8", 3/4", 7/8", 1 1/8" diameter. This set includes a sturdy deburring tool and is delivered in a handy plastic case. Using hydraulic power this lightweight expander makes a perfect expansion of copper and aluminium tubing with only a few pumps.

This tool offers you the following features:

- Easy single hand operation:  
Hydraulic mechanism and release button make one-handed swages possible. Simply select the correct laser-engraved expander head, thread it on the tool and make a quality swage.
- Small space capable:  
A compact, pistol shape allows it to fit into the smallest and hard to reach spots.
- 120° angle:  
Requires less power to pump, provides a natural wrist angle.
- Interchangeable heads:  
Fits all common HVAC/R size copper tubing.  
Compatible with REFCO expander systems:  
Perfect accessory to upgrade existing manual expander kits.
- Includes deburring tool RFA-209-STYLO-HD:  
Allows easy installation for expander heads.

#### Specifications:

Dimensions:	Length: 10", width: 1.75", height: 5"
Weight:	2.6 lbs
Tube materials:	Soft tubing only: copper, aluminium, brass

**Part No. 4687047**



### HY-OIL

Hydraulic oil for HY-EX, 50 ml

**Part No. 4687579**



## Spare heads

Spare heads	Spare heads	Part No.
Designation		
HY-EX-1/4"	1/4"	4687344
HY-EX-5/16"	5/16"	4687346
HY-EX-3/8"	3/8"	4687367
HY-EX-1/2"	1/2"	4687366
HY-EX-5/8"	5/8"	4687365
HY-EX-3/4"	3/4"	4687368
HY-EX-7/8"	7/8"	4687369
HY-EX-1"	1"	4687345
HY-EX-1 1/8"	1 1/8"	4687370
HY-EX-1 1/4"	1 1/4"	4687478
HY-EX-1 3/8"	1 3/8"	4687347
HY-EX-1 1/2"	1 1/2"	4687477
HY-EX-1 5/8"	1 5/8"	4687348



HY-EX-6

## Expander Tool Set

Designation	Description	Part No.
<b>14297-RF</b>	Expander tool set. Complete with expander plier and 6 heads in steel box. Tube sizes $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{5}{8}$ ", $\frac{3}{4}$ ", $\frac{7}{8}$ " and $1\frac{1}{8}$ " diameter	<b>4677817</b>

Spare heads		Part No.
Designation		
<b>14297-RF-<math>\frac{3}{8}</math>"</b>	$\frac{3}{8}$ "	<b>4669709</b>
<b>14297-RF-<math>\frac{1}{2}</math>"</b>	$\frac{1}{2}$ "	<b>4669717</b>
<b>14297-RF-<math>\frac{5}{8}</math>"</b>	$\frac{5}{8}$ "	<b>4669726</b>
<b>14297-RF-<math>\frac{3}{4}</math>"</b>	$\frac{3}{4}$ "	<b>4669734</b>
<b>14297-RF-<math>\frac{7}{8}</math>"</b>	$\frac{7}{8}$ "	<b>4669742</b>
<b>14297-RF-1"</b>	1"	<b>4669750</b>
<b>14297-RF-<math>1\frac{1}{8}</math>"</b>	$1\frac{1}{8}$ "	<b>4669768</b>
<b>14297-RF-<math>1\frac{3}{8}</math>"</b>	$1\frac{3}{8}$ "	<b>4669776</b>
<b>14297-RF-<math>1\frac{5}{8}</math>"</b>	$1\frac{5}{8}$ "	<b>4669785</b>



**14297-RF**

# Tools

## Ratchet wrench

The new, high-quality fine tooth ratchet wrench with 72-teeth gear provide always a perfect working angle. Developed for the demanding HVAC/R service engineer.

### SW-127-C

- Requires less work room for ratcheting
- Quick ratcheting action with reverse levers at both ends
- Heat treated chrome forged body for increased durability
- Square: 1/4" x 3/8"
- Square: 3/16" x 5/16"

**Part No. 4687626**



**SW-127-C**

### SW-127-C-BOX/10

- Counter display containing 10 pcs. per box.

**Part No. 4687869**

**SW-127-C-BOX**



### SW-127-OFFSET

- With 25° angulation
- Requires less work room for ratcheting
- Quick ratcheting action with reverse levers at both ends
- Heat treated chrome forged body for increased durability
- Square: 1/4" x 3/8"
- Square: 3/16" x 5/16"

**Part No. 4687628**



**SW-127-OFFSET**

### SW-127-OFFSET-BOX/10

- Counter display containing 10 pcs. per box.

**Part No. 4687868**

**SW-127-OFFSET-BOX**



### SW-124-C

- Requires less work room for ratcheting
- Quick ratcheting action with reverse levers at both ends
- Heat treated chrome forged body for increased durability
- 9/16" hex for dust cap on valves and for bolts on compressors
- 1/2" hex for screws
- 1/4" square for valves
- 3/16" square for refrigerant cylinders

**Part No. 4687627**



**SW-124-C**



**RFA-127-C**



**RFA-124-C**



**RFA-127-OFFSET**



**KKS-38**

Designation	Description	Part No.
<b>RFA-124-C</b>	Ratchet wrench. Hex openings 1/2" and 5/16" on one end and square 3/16" and 1/4" on the other end	<b>9881467</b>
<b>RFA-127-C</b>	Ratchet wrench. 1/4" by 3/16" at one end and 3/8" by 5/16" at the other end	<b>9881466</b>
<b>RFA-127-OFFSET</b>	Offset wrench	<b>4506201</b>
<b>KKS-38</b>	Ratchet wrench with extendable reversible L-shape handle, ideal if space is tight, 3/8" square. Blister packaging.	<b>4667413</b>

# Valve Core Replacing Tools



## Valve Core Tools

### 1/4" and 5/16" SAE



**32525**



**32515**



**32520**



**A-32000**



**32525-5/16\"/>**



**A-31999-R/10**



**A-31999-G/10**

- Used for faster vacuum, charging and recovery
- Designed to remove and replace Schrader valve cores without losing refrigerant charge
- Increases evacuation and charging speeds by creating unrestricted access to the system
- 32525 and 32525-5/16" have a blank off valve and a 360° movable vacuum gauge access port which allows for easy access in tight spaces
- 5/16" is similar to 1/4" valve core tool but for use with R410A systems and mini splits with larger service ports

## Valve Core Tools for 1/4" SAE

Designation	Description	Part No.
<b>32525</b>	Vacuum/Charging Valve with adjustable vacuum port	<b>4687701</b>
<b>32515</b>	Vacuum/Charging Valve with vacuum port	<b>9880894</b>
<b>32520</b>	Valve Core replacing Tool	<b>9880893</b>
<b>32520-555</b>	Replacement O-ring set 32525/32515	<b>9880892</b>
<b>A-32000</b>	Valve core Tool Contains 6 extra cores and 1 extracore remover and tap	<b>9880890</b>

## Valve Core Tools for 5/16" SAE

Designation	Description	Part No.
<b>32525-5/16" SAE</b>	Vacuum/Charging Valve with adjustable vacuum port	<b>4687740</b>
<b>32515-1/2"-20 UNF (5/16" SAE)</b>	Vacuum/Charging Valve with vacuum port	<b>4660915</b>
<b>32520-1/2"-20 UNF (5/16" SAE)</b>	Valve Core replacing Tool	<b>4660923</b>
<b>32520-1/2"-20 UNF (5/16" SAE)-555</b>	Replacement O-ring set 32525/32515	<b>4661245</b>
<b>A-31999-R/10</b>	Valve core red, packaged 10 per	<b>9883488</b>
<b>A-31999-G/10</b>	Valve core green, packaged 10 per	<b>9880864</b>

# Tools

## Access Valves - 1/4" SAE and 5/16" SAE

Designation	Description	Part No.
<b>A-33010</b>	Access control valve 1/4" SAE	<b>4681636</b>
<b>A-33410</b>	Access control valve R410A (5/16" SAE)	<b>4681645</b>
<b>A-31004/10</b>	Extended copper tube, diameter 1/4" Packaged 10 per	<b>9883544</b>
<b>A-31006/10</b>	With swaged tube suitable for 3/8" diameter Packaged 10 per	<b>9884830</b>
<b>NFT5-4/10</b>	Quick seal 1/4" SAE flare cap with gasket Packaged 10 per	<b>9884244</b>
<b>NFT-118/10</b>	Quick seal cap with built-in core remover 1/4" SAE Packaged 10 per	<b>9884961</b>



**A-31004**



**NFT5-4**



**NFT-118**



**A-33010**

## Solenoid Valve Operating Magnet

- The quickest and easiest way to operate solenoid valves manually
- Converts electronically operated solenoid valves into hand operated valves in seconds
- Proven design that fits about 90% of solenoid valves
- Opening is 18 mm or 0.75 inch

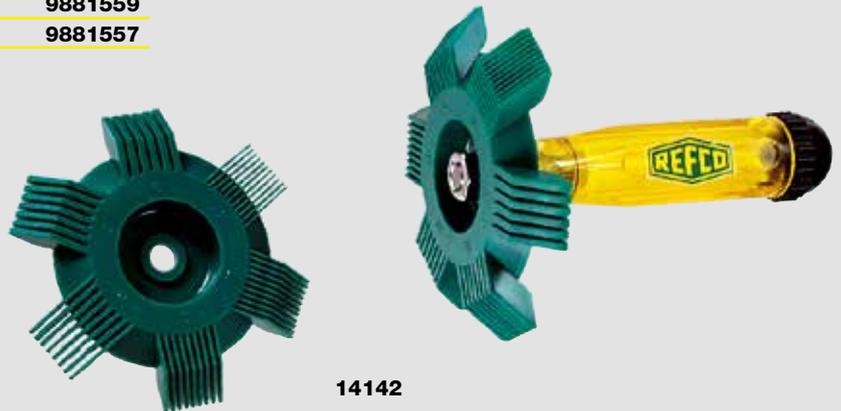
Designation	Description	Part No.
<b>SVOM-18</b>	Solenoid valve operating magnet	<b>4660507</b>



**SVOM-18**

## General Tools

Designation	Description	Part No.
14142	Fin comb, 6 in 1 with sizes marked on the comb. <b>Comes with additional spare head in bag</b>	9881562
14144	Fin comb for cleaning and straightening fins quickly and easily. Adjustable tension	9881561
14225	Circular pocket mirror, telescopic 1 1/2" diameter	9881560
21702	REFCO charging oil pump. Pumps one quart of oil in 20 strokes	9881559
21751	Change oil pump	9881557



14142



14144



14225



21702



21751

# Tools

## Punch Type Swaging Tools

Designation	Description	Part No.
	(Tube inside diameter)	
<b>T21002</b>	1/8"	<b>9881620</b>
<b>T21003</b>	3/16"	<b>9881619</b>
<b>T21004</b>	1/4"	<b>9881618</b>
<b>T21005</b>	5/16"	<b>9881617</b>
<b>T21006</b>	3/8"	<b>9881616</b>
<b>T21007</b>	7/16"	<b>9881615</b>
<b>T21008</b>	1/2"	<b>9881614</b>
<b>T21010</b>	5/8"	<b>9881613</b>
<b>T21012</b>	3/4"	<b>9881612</b>
<b>T21014</b>	7/8"	<b>9881611</b>
<b>T21018</b>	1 1/8"	<b>9881610</b>
<b>T21000</b>	Complete set of seven tools from 1/8" to 1/2"	<b>9881609</b>
<b>T21100</b>	Complete Bar covers all sizes from 1/8" to 1/2" in one tool	<b>9881608</b>



Designation	Description	Part No.
<b>TW-8</b>	The complete torque wrenches kit in a handy case Torque: 10-80 ft/lbs Size of wrenches: 17, 19, 22, 24, 26, 27, 29 mm	<b>4666034</b>



## INVERTER CHECK-KIT

The Inverter Check-Kit is an invaluable tool for the analysis of problems with Duct Free Mini Split Systems. The kit is designed to be used in both installation and maintenance of Duct Free Systems.

The Inverter Check-Kit performs two basic functions. First it will tell you if the phase outputs in the inverter are operating correctly. Secondly, the data flow function tells you if there is data flowing in both directions between the indoor and outdoor sections. Since inverters are controlled by solid state boards that do multiple functions, the Inverter Check-Kit will tell you if there is a bad board and help you identify if the indoor, outdoor or both boards are not functioning correctly.

The inverter phase checker will indicate whether the Inverter board is faulty and by implication (if the inverter works then the compressor must be faulty) whether the compressor is faulty but it will not work if there are faults on both.

The kit comes complete with the electronic module with a set of leads for testing the serial communication links, as well as a selection of cables and connectors for the power output terminals of the inverter.

Designation	Dimension	Part No.
<b>INVERTER-CHECK-KIT</b>	3.19 x 2.87 x 1.10 inch	<b>4678571</b>



**INVERTER-CHECK-KIT**



## 16868

Ergonomic Piezo igniting head brazing torch for propane and Map Pro gas cylinder.

- Pressure adjustment function
- Safety locking system
- Focused cyclone flame with high temperature
- Removable flame diffuser

**16868**

**Part No. 4684066**



## TOOLBAG

Superior quality tool bag designed with the professional trades person in mind. It provides maximum convenience and durability suitable for even the most demanding work environments.

- Large pockets for quick and easy access
- 600 Denier polyester cordura
- Lightweight design
- Reinforced points of wear
- Strong handle

**Part No. 4683078**



**TOOLBAG**

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1212648	M2-001	23	4506589	BM2-6-F-R410A-CCL-72	36
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4492987	CA-CL-72-R	51	4507100	GM2-6-F-R12-CCL-60	38
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4506198	RF-175-FS	66	4661589	RL-2-3000	13
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Part No.	Designation	Pg	Part No.	Designation	Pg	Part No.	Designation	Pg
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# Swiss manifold

HVAC/R  
Service Products



## With premium Bourdon Type Gauges

Gauge internals are all brass no plastic pieces

2 3/4" outside ø

Accuracy class 1.6



## Color-coded

For easy high and low side identification



Zero point adjustable



REFCO branded knobs

## All REFCO hoses are SWISS Made

- Suitable for all common refrigerants
- Supplied with neoprene gaskets
- Available sizes: 36", 60", 72"



Handwheel



Complete valve set including piston

High quality brass body made in Switzerland

  
**SWISSMADE**

## Warranty policy:

Products are warranted at the time of sale, to be free of defects due to manufacturing workmanship and materials and/or operation due to normal operating conditions. If products are found defective within 2 years of factory shipment, the factory must be called before executing the warranty. This warranty does not cover defects due to improper installation, failure to exercise normal maintenance, or against the consequences or uses for which our products are not designed. REFCO's sole expressed obligation(s) is to repair, replace or issue credit at our option, any of the products determined by REFCO to have been defective during the expressed warranty period. Unless otherwise specified by REFCO or an

authorized agent all products must be returned to REFCO to be considered for warranty purpose(s). Labor and installation charges of any kind are not covered under this warranty. Products repaired or replaced under this warranty are warranted only through the remainder of the original warranty. An RMA # is required for any item considered for warranty. This express warranty is in lieu of and excludes all other express or implied warranties, guarantees, or representations, merchantability and fitness for a particular purpose, by operation of law or otherwise. REFCO shall not be liable for any indirect or consequential damages of any nature whatsoever.



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