



Bulletin HY17-8822-M2/UK

# Handling, Storage and Maintenance

Effective: June 10, 2009  
Supersedes: March 27, 2009

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## Catalogue Information

This catalogue has been designed to provide maintenance information. In addition to this there is also information relating to handling, safety, proper valve storage.

## Technical Data and Dimensional Drawings

Directional Valve	See Catalogue	See Spare Parts List
P70CF/CP/LS	HY17-8546	HY17-8812-M1
F130CF	HY17-8534	HY17-8814-M1
H170CF	HY17-8545	HY17-8802-M1
L90LS	HY17-8504	HY17-8561-M1
K170LS	HY17-8557	HY17-8805-M1
K220LS	HY17-8537	HY17-8806-M1
M400LS	HY17-8535	HY17-8808-M1
M200LS	HY17-8809	HY17-8809-M1
M250LS	HY17-xxxx	HY17-xxxx-M1
M402LS	HY17-xxxx	HY17-xxxx-M1
HV08LS	HY17-8543	HY17-8804
PCL4	HY17-8357	HY17-8813-M1
PLC	HY17-8702	
PLD	HY17-8701	
PRS	HY17-8541	
QDS	HY17-8542	
VV6	HY17-8602	

### Conversion factors

1 kg	= 2.2046 lb
1 N	= 0.22481 lbf
1 bar	= 14.504 psi
1 l	= 0.21997 UK gallon
1 l	= 0.26417 US gallon
1 cm <sup>3</sup>	= 0.061024 in <sup>3</sup>
1 m	= 3.2808 feet
1 mm	= 0.03937 in
9/5 °C + 32	= °F



## WARNING – USER RESPONSIBILITY

**FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.**

This document and other information from Parker-Hannifin Corporation, its subsidiaries and authorized distributors provide product or system options for further investigation by users having technical expertise.

The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from Parker or its subsidiaries or authorized distributors.

To the extent that Parker or its subsidiaries or authorized distributors provide component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.

## Offer of Sale

Please contact your Parker representation for a detailed "Offer of Sale".

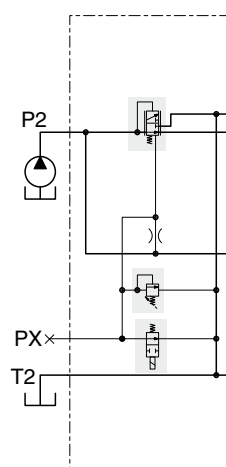
Danger zone	Ancillary Danger	Protective Measures
Area around the valve during initial start.	Danger of tube burst or high pressure oiljet.	Ensure that all high pressure and low pressure tubes/hoses are connected to the correct work ports.
Area around the valve during initial start.	Danger of flying parts.	Make sure that all tubes/fittings are correctly mounted and tightened with stated torque.
Sharp edges on the valve housing, on threads of the valve, and on the valve spool	Danger of cuts and abrasions	Only touch the valve wearing safety gloves.
Intermediate space between the control valve sections, when assembling/disassembling.	Danger of crushing limbs	Exercise care, when tightening the spool section holding screws, to ensure that all limbs are clear of the area.
Valve housing	Danger of injury due to parts flung out by spring force, during removal of screw plugs on the valve when disassembling	Carefully remove the screw plugs. When loosening screw plugs, always exert strong counter pressure.
Valve housing, connected valve components	Danger of burning on hot surfaces, during operation	Only touch the valve wearing safety gloves. Before beginning work on the valve, put it out of operation and allow it to cool down.
Area around the valve during lifting and handling operations.	Danger of damage to back and other limbs, if the valve is manually lifted or mechanically lifted in an unsuitable manner, see diagram below for examples.	Always lift the valve using a mechanical hoist (or other suitable device) adhering to the guidelines shown in the diagram below.
Connecting the valve	Danger of pressure peak	Always connect tank before pump. If the application use quick couplings a back pressure valve on the tank line (10 bar) can be used as safety valve.

## Pump Unloading Maintenance

To guarantee the correct operation of the pump unloading function, at least one on/off actuation should be carried out per work shift.

When the pump unloading function is activated (oil supply to all functions is off) different functions should be activated to ensure that the system is turned off.

If any malfunction of the emergency stop function is detected, you must immediately contact authorized service personnel.



*Inlet section with pump unloading and pilot-operated main pressure relief valve.*

## Storage Instructions

It is important that the valve, along with and any additionally supplied Parker components, are stored correctly as soon as they are received. If the instructions detailed below are not followed correctly then partial, or full, component functionality may be lost.

## Temperature Conditions

Max temperature +30 °C (+86 °F)  
Min temperature +10 °C (+50 °F)

## Humidity Conditions

Max Humidity reading 65%

## Storage Time and Environment

The maximum storage time for any valve, or ancillary component, is six calendar months.

At all times during this period the valve, or ancillary components, should be stored in a clean, sealed, container, with all ports plugged.

## General product requirements – hydraulic valves

### STORAGE PRODUCTS

Max storage time: 6 months at  $20 \pm 10$  °C and max 65% relative atmospheric humidity. Renewed function test required, if storage time is protected.

### PARTS

#### Metal parts

Parts shall be protected against corrosion.

#### Elastomer

For elastic parts of rubber or plastics the storage time is limited to max 5 years (in shop packaging) from date of manufacture (vulcanization). For Polyesteruretan the corresponding time is max 3 years.

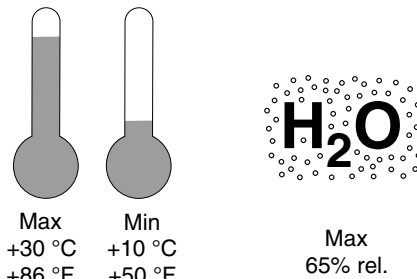
#### Storage environment:

- normal ventilating ( $1,3 \text{ m}^3/\text{h}/\text{m}^2$  floor area)
- temperature +10 to +25 °C
- relative atmospheric humidity 65%

Elastic parts, not packaged, shall be protected against:

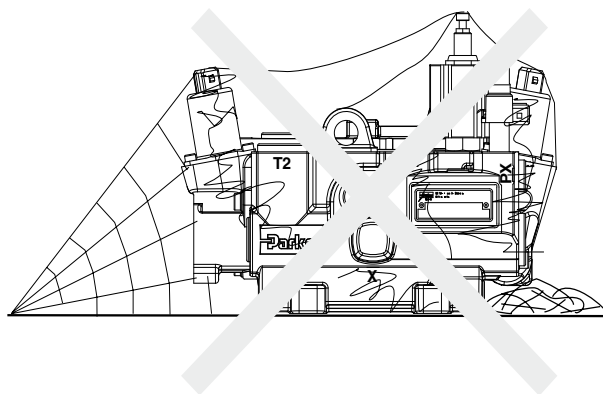
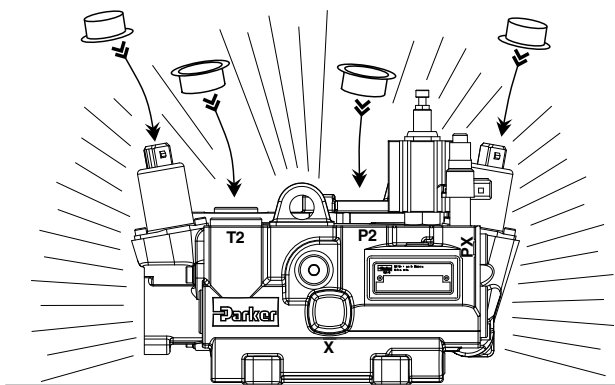
- direct sunshine and artificial striplighting.
- dissolvents, working fluids, lubricating oil, acids, disinfectants etc.
- ozone producing machines, electric motors and similar machines/ equipments which can give rise to sparks or electric discharges, by that producing ozone.

Elastomers in stock or for assembly shall be protected by wrapping or interleaving of e g paper or polyethylene film. Packing and interleaving material must not contain elasticizers or other substances that are detrimental to elastomerer. Contact between different types of elastomers or elastomers in different colours shall be avoided.



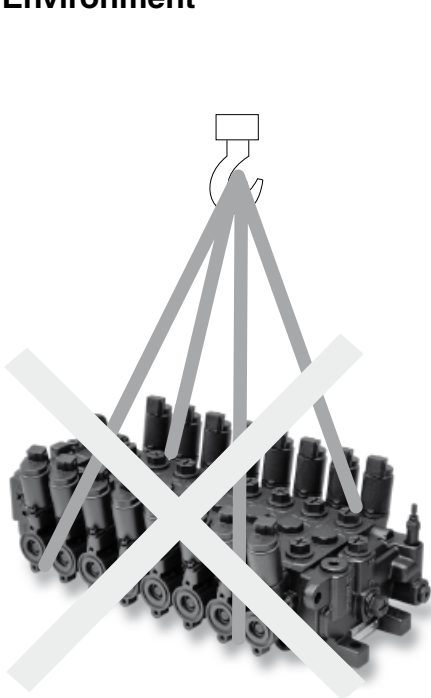
Max 6 Months

## Storage



At all times the valve, or ancillary components, should be stored in a clean, sealed, container, with all ports plugged.

## Environment



**Handling  
OK!**



## Installation Instructions

### Hose configuration

All possible effort should be made to ensure that all pipe work, and hosing, is as short and direct as possible, taking care to avoid any unnecessary bends, or kinks. Any additional length, or bends, will increase the pressure drop and therefore increase the heat generated, and reduce the overall system efficiency.

The calculation below will help you to ascertain whether you have the correct ID (Internal Diameter) pipe selected

$$V = \frac{21.2 \times Q}{d^2}$$

As a first approximation guide, for mobile machines with standard length pipes, their width should guarantee the following values of fluid speed:

Inlet pipe = 6 – 10 m/sec (19.7 – 32.8 ft/sec)

Outlet pipe = 3 – 5 m/sec (9.9 – 16.4 ft/sec)

### Assembly requirements

Tolerance for not tolerated tightening torques  $\pm 15\%$ .

Contact surfaces of seals and spools shall be oiled with hydraulic oil to facilitate mounting and increase service life.

Springs shall be mounted within one hour after having been compressed and shall be handled with care, so that they do not spring back.

Connection plane to SAE-connection may be oiled with some kind of hydraulic oil

### Connection Torque

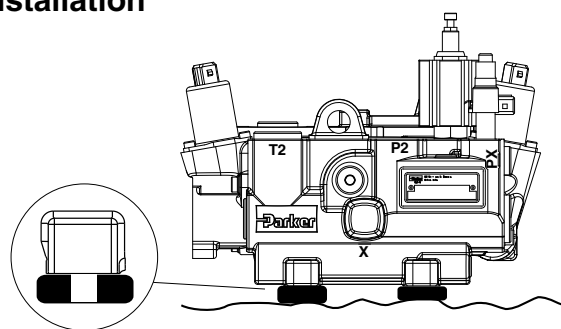
The connection torques, shown below, are guidelines of port size, and torque, relationships, if additional torque strength details have been provided with a special variant, then you must at all times use the value provided.

Port thread	Torque required [Nm]
G 1/8" UNF 7/16"	10
G 1/4" UNF 9/16" – 18	30
G 1/2" UNF 7/8" – 14	60
G 3/4" UNF 1 1/16" – 12	100
G 1" UNF 1 5/16"	100

### Installation Location

The valve can be installed in any possible orientation, as long as it is not placed under any additional stress due to its location. For this reason we recommend that the valves is located on a flat, fixed and solid base, upon the machine, where possible taking all lengths to ensure that the valve is not subjected to excess vibration or environmental factors.

### Installation

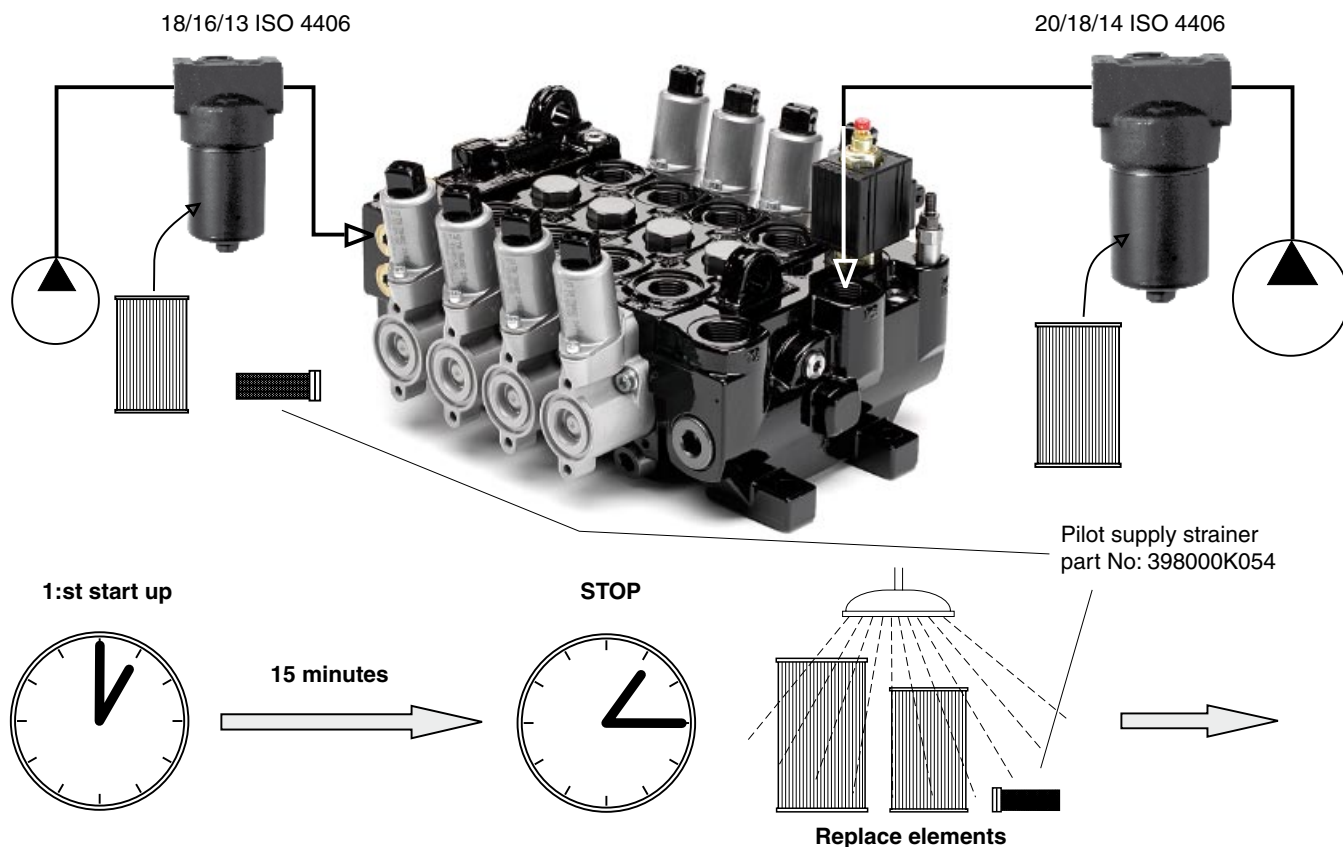


## System Requirements

### Filtration Requirements

Filtration must be arranged so that Target Contamination Class 20/18/14 according to ISO 4406 is not exceeded. For the pilot circuit, Target Contamination Class 18/16/13 according to ISO 4406 must not be exceeded.

At first start up you should run the system for 15 minutes, after this time the system should be stopped, the filters removed, and cleaned, and then replaced.



## Hydraulic Fluid Requirements

The best performance is obtained if mineral-base oil of high quality and cleanness is used in the hydraulic system. The following fluids should be used:

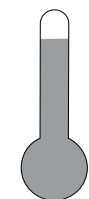
- Hydraulic fluids of type HLP-L-HM (ISO 6743) (DIN 51524)
- Oil for automatic gearboxes of Type A and engine oil type API CD can be used.

The following oil viscosities are recommended:

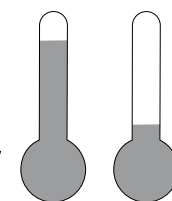
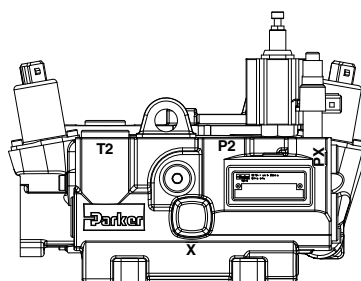
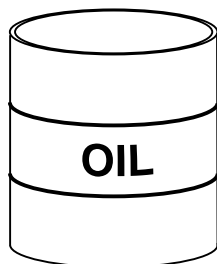
- Viscosity, function range 15-2000 mm<sup>2</sup>/s (cSt) (at start-up only)
- Viscosity, working range 15-380 mm<sup>2</sup>/s (cSt)
- Water content  
 The water content shall not exceed 0.03% (300 ppm)

**If you want to use other oils contact Parker Product Support**

**30 cSt/50 °C (122 °F)**



Max  
 +90 °C  
 +194 °F

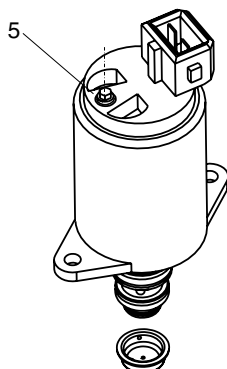


Max	Min
+90 °C	-30 °C
+194 °F	-22 °F
+90 °C	+20 °C
+194 °F	+68 °F

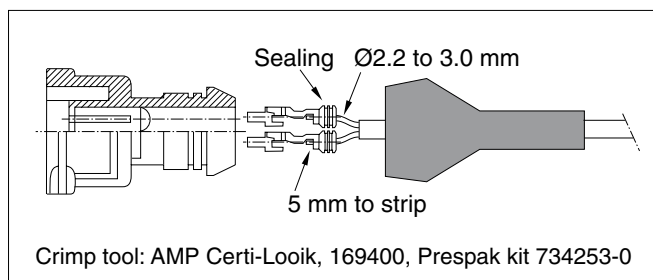
Function  
 Working

## Bleeding of solenoid valves PS25/PVC25 Only on Version [A027]

1. Start system and leave idling.
2. Unscrew the bleed-screw one full turn.
3. Actuate the solenoid on - off ten times.
4. Check escaping oil for air content. If air bubbles, repeat point 3.
5. Tighten the bleed-screw,  
 NOTE max torque 1.2 Nm (10.6 lbf-in)



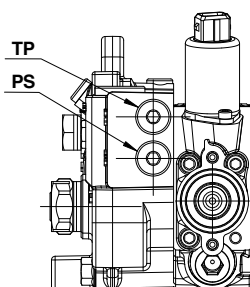
Always use intended parts to achieve IP class.



## Separate Pilot tank connection

### Important!

In combination with function "TP" in the end-section (USP) a separate tank-line must be installed and connected to the reservoir.



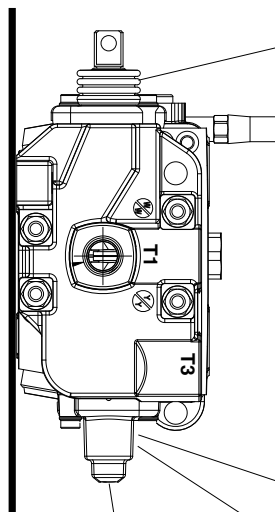
### Important!

Safety measures must be taken due to temperature of solenoid if running 100% of application operating time.

The solenoid can reach a surface temperature of 120 - 150 °C (248 - 302 °F).

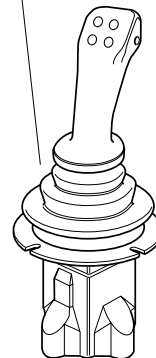
A protection shield is recommended to prevent possible injuries.

## Service



## Monthly overhaul

Defective parts must always be replaced. Only genuine part to be used.



Grease inside cap

C cap

Make a tiny hole at the cavity in this mounting position.

[illegible]

[illegible]

# Parker Worldwide

**AE – UAE, Dubai**  
Tel: +971 4 8127100  
parker.me@parker.com

**AR – Argentina, Buenos Aires**  
Tel: +54 3327 44 4129

**AT – Austria, Wiener Neustadt**  
Tel: +43 (0)2622 23501-0  
parker.austria@parker.com

**AT – Eastern Europe, Wiener Neustadt**  
Tel: +43 (0)2622 23501 900  
parker.easteurope@parker.com

**AU – Australia, Castle Hill**  
Tel: +61 (0)2-9634 7777

**AZ – Azerbaijan, Baku**  
Tel: +994 50 2233 458  
parker.azerbaijan@parker.com

**BE/LU – Belgium, Nivelles**  
Tel: +32 (0)67 280 900  
parker.belgium@parker.com

**BR – Brazil, Cachoeirinha RS**  
Tel: +55 51 3470 9144

**BY – Belarus, Minsk**  
Tel: +375 17 209 9399  
parker.belarus@parker.com

**CA – Canada, Milton, Ontario**  
Tel: +1 905 693 3000

**CH – Switzerland, Etoy**  
Tel: +41 (0) 21 821 02 30  
parker.switzerland@parker.com

**CL – Chile, Santiago**  
Tel: +56 2 623 1216

**CN – China, Shanghai**  
Tel: +86 21 2899 5000

**CZ – Czech Republic, Klecany**  
Tel: +420 284 083 111  
parker.czechrepublic@parker.com

**DE – Germany, Kaarst**  
Tel: +49 (0)2131 4016 0  
parker.germany@parker.com

**DK – Denmark, Ballerup**  
Tel: +45 43 56 04 00  
parker.denmark@parker.com

**ES – Spain, Madrid**  
Tel: +34 902 33 00 01  
parker.spain@parker.com

**FI – Finland, Vantaa**  
Tel: +358 (0)20 753 2500  
parker.finland@parker.com

**FR – France, Contamine s/Arve**  
Tel: +33 (0)4 50 25 80 25  
parker.france@parker.com

**GR – Greece, Athens**  
Tel: +30 210 933 6450  
parker.greece@parker.com

**HK – Hong Kong**  
Tel: +852 2428 8008

**HU – Hungary, Budapest**  
Tel: +36 1 220 4155  
parker.hungary@parker.com

**IE – Ireland, Dublin**  
Tel: +353 (0)1 466 6370  
parker.ireland@parker.com

**IN – India, Mumbai**  
Tel: +91 22 6513 7081-85

**IT – Italy, Corsico (MI)**  
Tel: +39 02 45 19 21  
parker.italy@parker.com

**JP – Japan, Fujisawa**  
Tel: +(81) 4 6635 3050

**KR – South Korea, Seoul**  
Tel: +82 2 559 0400

**KZ – Kazakhstan, Almaty**  
Tel: +7 7272 505 800  
parker.easteurope@parker.com

**LV – Latvia, Riga**  
Tel: +371 6 745 2601  
parker.latvia@parker.com

**MX – Mexico, Apodaca**  
Tel: +52 81 8156 6000

**MY – Malaysia, Shah Alam**  
Tel: +60 3 7849 0800

**NL – The Netherlands, Oldenzaal**  
Tel: +31 (0)541 585 000  
parker.nl@parker.com

**NO – Norway, Ski**  
Tel: +47 64 91 10 00  
parker.norway@parker.com

**NZ – New Zealand, Mt Wellington**  
Tel: +64 9 574 1744

**PL – Poland, Warsaw**  
Tel: +48 (0)22 573 24 00  
parker.poland@parker.com

**PT – Portugal, Leca da Palmeira**  
Tel: +351 22 999 7360  
parker.portugal@parker.com

**RO – Romania, Bucharest**  
Tel: +40 21 252 1382  
parker.romania@parker.com

**RU – Russia, Moscow**  
Tel: +7 495 645-2156  
parker.russia@parker.com

**SE – Sweden, Spånga**  
Tel: +46 (0)8 59 79 50 00  
parker.sweden@parker.com

**SG – Singapore**  
Tel: +65 6887 6300

**SK – Slovakia, Banská Bystrica**  
Tel: +421 484 162 252  
parker.slovakia@parker.com

**SL – Slovenia, Novo Mesto**  
Tel: +386 7 337 6650  
parker.slovenia@parker.com

**TH – Thailand, Bangkok**  
Tel: +662 717 8140

**TR – Turkey, Istanbul**  
Tel: +90 216 4997081  
parker.turkey@parker.com

**TW – Taiwan, Taipei**  
Tel: +886 2 2298 8987

**UA – Ukraine, Kiev**  
Tel: +380 44 494 2731  
parker.ukraine@parker.com

**UK – United Kingdom, Warwick**  
Tel: +44 (0)1926 317 878  
parker.uk@parker.com

**US – USA, Cleveland (industrial)**  
Tel: +1 216 896 3000

**US – USA, Lincolnshire (mobile)**  
Tel: +1 847 821 1500

**VE – Venezuela, Caracas**  
Tel: +58 212 238 5422

**ZA – South Africa, Kempton Park**  
Tel: +27 (0)11 961 0700  
parker.southafrica@parker.com

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## European Product Information Centre

Free phone: 00 800 27 27 5374  
(from AT, BE, CH, CZ, DE, DK, EE, ES, FI, FR, IE, IL, IS, IT, LU, MT, NL, NO, PL, PT, RU, SE, UK, ZA)  
Fax: +44 1442 458112

## US Product Information Centre

Free phone: 1-800-27 27 537  
www.parker.com

