



aerospace  
climate control  
electromechanical  
filtration  
fluid & gas handling  
hydraulics  
**pneumatics**  
process control  
sealing & shielding



# Rotary Actuators

PV Series - Vane type

Catalogue PDE2648TCUK February 2012



ENGINEERING YOUR SUCCESS.

PDE2648TCUK

## PV Rotary Actuators

### How do vane rotary actuators work



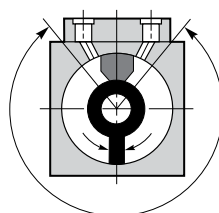
Vane actuators provide the maximum amount of output torque from the smallest possible envelope size. They convert pneumatic pressure into rotary motion for a wide variety of industrial applications.

A short cylindrical chamber encloses a vane attached to a central shaft. Air pressure is applied to one side of the vane. The opposite side of the vane is connected to exhaust. This produces rotation of the vane and thus the central shaft. Due to vane actuator design there will always be some internal bypass in these units and therefore they should not be used as a brake or to support loads.

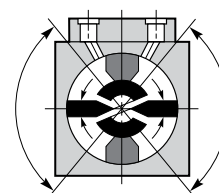
Two basic styles are available. Single vane models have a maximum rotation of 280°, while the double vane units produce twice the torque output from identical envelope dimensions and have a maximum rotation of 100°.

### Technical information

Type		Double acting actuator
Standard Rotation (tolerance $\pm 1^\circ$ )	Single vane	0 to 275°, size 10 to 11 0 to 280°, size 22 to 23
	Double vane	0 to 95°, size 10 to 11 0 to 100°, size 22 to 33
Temperature		-10°C to +80°C
Air supply		Lubricated or non-lubricated
Pressure range		2 to 10 bar max



Single vane  
280° rotation



Double vane  
100° rotation

### Materials:

End cap	: Hard anodised aluminium
Tubing	: Hard anodised aluminium smooth profile
Shaft	: Stainless steel
Bearing	: PTFE coated bearing
Vane	: Hard anodised aluminium extrusion
Seals	: Nitrile

### Through rod facility size 22 and 33

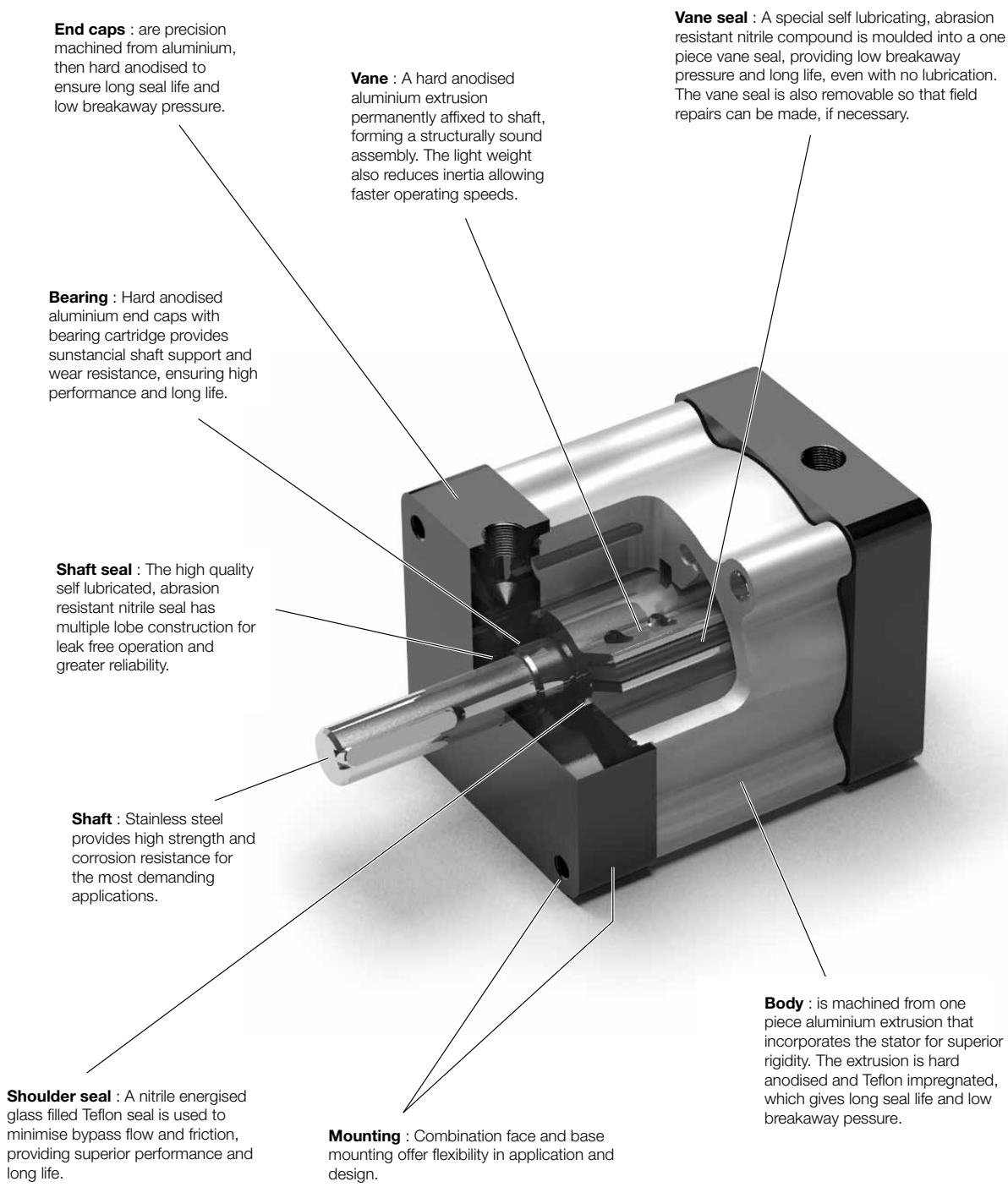
The two larger sizes of Vane Actuators are through rod as standard. The through rod facility enables linkages to be connected to both ends of the unit, maximising the design flexibility.

This also enables the unit to be equipped with a kit providing full adjustment of the angle of rotation. The kit can be supplied complete with or without inductive sensors.

These options can be assembled when ordered the actuator or can be added later.

PDE2648TCUK  
**PV Rotary Actuators**

**Features**



**PDE2648TCUK**  
**PV Rotary Actuators**

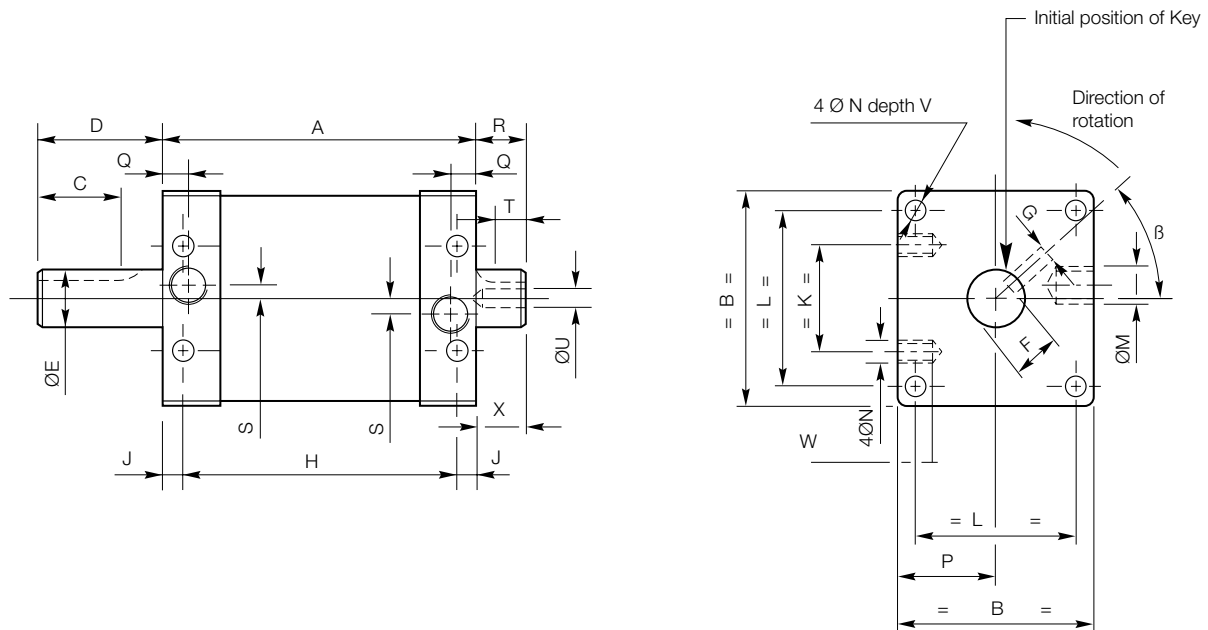
**Technical Information**

Size	Max rotation (o)	Torque Nm			Max. breakaway pressure (bar)	Max. radial load (N)	Max. thrust load (N)	Unit weight (kg)	Adjustment kit weight (kg)
		3 bar	5 bar	6 bar					
10	275	0.25	0.49	0.69	1.7	40	15	0.16	-
	95	0.54	1.09	1.47					
11	275	0.54	1.09	1.47	1.3	40	15	0.20	-
	95	1.28	2.40	3.05					
22	280	2.46	4.92	6.39	1.0	100	40	0.70	0.35
	100	5.90	10.92	13.27					
33	280	5.90	11.47	14.47	1.0	200	70	1.60	0.45
	100	13.76	25.12	30.96					

**Note:** PV series vane actuators have a permissible bypass leakage rate of 0.1 dm<sup>3</sup>/s at 7 bar.

The choice of the size depends upon the pressure and the external constraints - a safety factor of 30% is required for the selection.

**Basic dimensions**



$\beta = 42.5^\circ$  for sizes 10 & 11  
 $40^\circ$  for sizes 22 & 33

Size	A	B	C	D	ØE (f7)	F	G ((P9))	H	J	K	L	ØM	N	P	Q	R	S	T	ØU	V	W	X
10	35	41	15.5	22	8	6.8	2	25	5	19	31	M5	M4	20.5	5	1	4.2	-	-	6	8	-
11	51	41	15.5	22	8	6.8	2	41	5	19	31	M5	M4	20.5	5	1	4.2	-	-	6	8	-
22	82	63.5	25.5	36	12	9.5	4	69	6.5	32	51	G1/8	M6	31.8	8	18	0	10	M5	11	10	15
33	112	76	30	45	20	16.5	6	98	7	38	62	G1/4	M8	38.0	9	18	0	11	M6	11	12	15



**PDE2648TCUK**  
**PV Rotary Actuators**

**Vane actuator with angle adjustemnt size 22 and 33**

The kit is assembled at the rear of the actuator and provides adjustment of:-

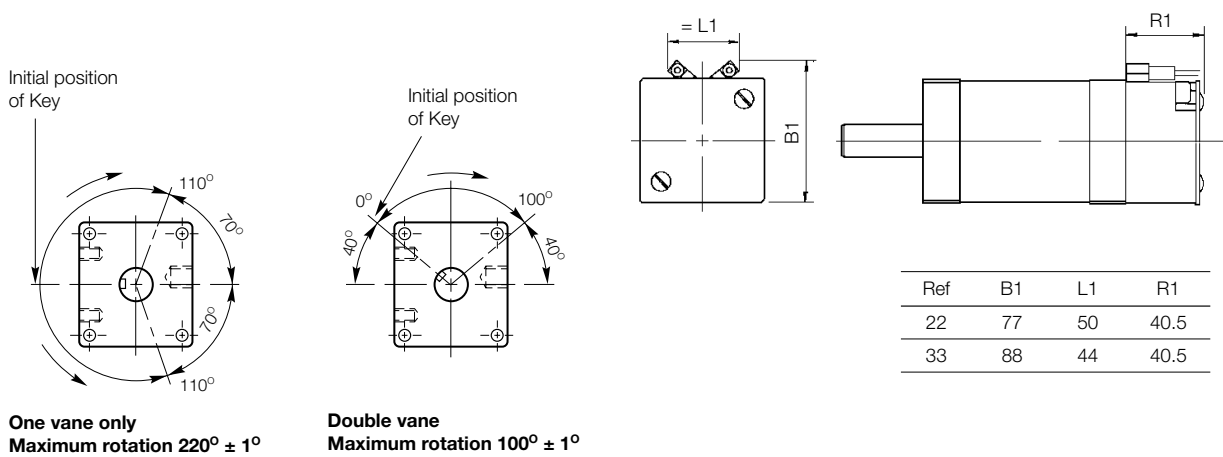
-0 to 100° for the double vane actuator

-0 to 220° for the single vane actuator

End stop cushioning is provided by buffers

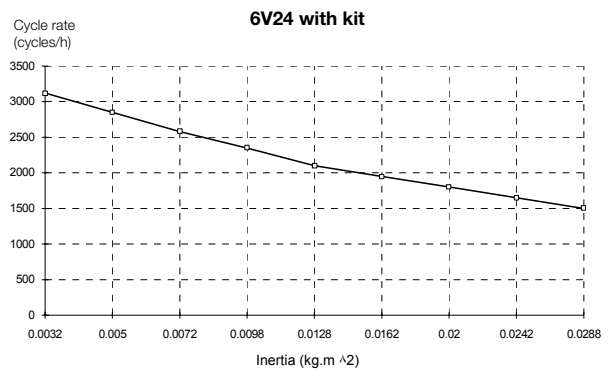
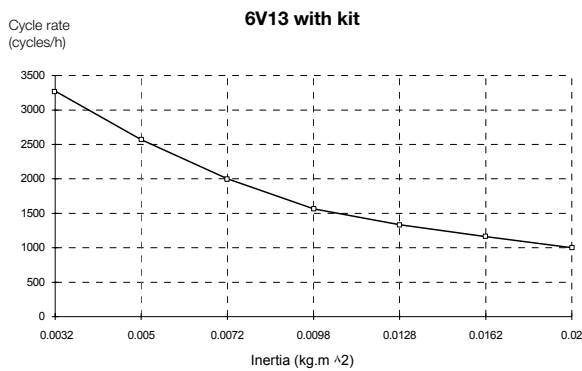
Inductive sensors M8 with 90° plug-in and LED facility (PNP or NPN) can be added to the kit for end stop detection.

The angle adjustment is attained by moving the end stops at the rear of the actuator. To facilitate this adjustment there is a position indicating disk on the rear face of the unit.



**One vane only**  
**Maximum rotation 220° ± 1°**

**Double vane**  
**Maximum rotation 100° ± 1°**



**Inertia calculation**

$I = M \times d^2$   
 $I = \text{kg} \cdot \text{m}^2$   
 $d = \text{meter } M = \text{kg}$

**Note:** Maximum length of lever: Size 22 = 50 mm (d)  
 Size 33 = 60 mm (d)



PDE2648TCUK  
**PV Rotary Actuators**

**How to order**

**Part nos. basic units**

Size	Part no.	Max. rotation	Type	Shaft
10	6V5100010F-275	275°	Single	Not Through Rod
	6V5100010F-095	95°	Double	
11	6V5200010F-275	275°	Single	
	6V5200010F-095	95°	Double	
22	6V1300030F-275	280°	Single	Through Rod
	6V1300030F-100	100°	Double	
33	6V2400030F-275	280°	Single	
	6V2400030F-100	100°	Double	

**Part nos. basic units**

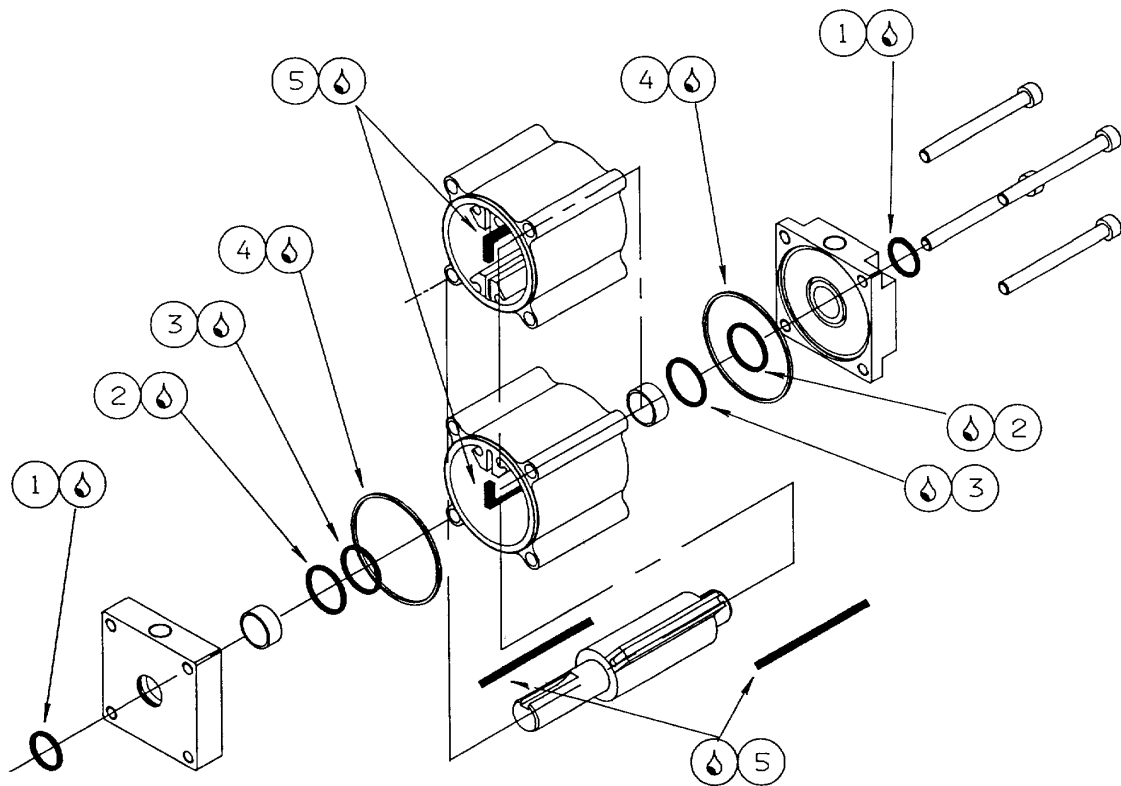
Size	Part no.	Max. rotation	Type	Options
22	6V1357630F-220	220°	Single	Angle adjustment kit
	6V1357730F-100	100°	Double	
	6V1357635F-220	220°	Single	As above + PNP Sensors + plug
	6V1357735F-100	100°	Double	
	6V1357636F-220	220°	Single	As above + NPN Sensors + plug
	6V1357736F-100	100°	Double	
33	6V2457630F-220	220°	Single	Angle adjustment kit
	6V2457730F-100	100°	Double	
	6V2457635F-220	220°	Single	As above + PNP Sensor + plug
	6V2457735F-100	100°	Double	
	6V2457636F-220	220°	Single	As above + NPN Sensor + plug
	6V2457736F-100	100°	Double	

**Part nos. angle adjustment and sensor kits**

Size	Part no.	Options
22	6V03570	Angle adjustment kit
	6V03575	Angle adjustment kit with sensors PNP
	6V03576	Angle adjustment kit with sensors NPN
33	6V04570	Angle adjustment kit
	6V04575	Angle adjustment kit with sensors PNP
	6V04576	Angle adjustment kit with sensors NPN

PDE2648TCUK  
**PV Rotary Actuators**

**Repair Kits**



Lubricate with grease Parker ref : **3099**

Size	Type	Part no.	Components				
			1 Shaft seal	2 Teflon seal	3 Shoulder seal	4 'O' ring	5 Vane seal
10	Single	PSK-PV10	2	2	2	2	2
10	Double	PSK-PV10D	2	2	2	2	4
11	Single	PSK-PV11	2	2	2	2	2
11	Double	PSK-PV11D	2	2	2	2	4
22	Single	PSK-PV22	2	2	2	2	2
22	Double	PSK-PV22D	2	2	2	2	4
33	Single	PSK-PV33	2	2	2	2	2
33	Double	PSK-PV33D	2	2	2	2	4

## Parker Worldwide

### Europe, Middle East, Africa

**AE – United Arab Emirates,**  
Dubai

Tel: +971 4 8127100  
parker.me@parker.com

**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

**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

**BY – Belarus,** Minsk

Tel: +375 17 209 9399  
parker.belarus@parker.com

**CH – Switzerland,** Etoy

Tel: +41 (0)21 821 87 00  
parker.switzerland@parker.com

**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: +34 902 330 001  
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

**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

**IT – Italy,** Corsico (MI)

Tel: +39 02 45 19 21  
parker.italy@parker.com

**KZ – Kazakhstan,** Almaty

Tel: +7 7272 505 800  
parker.easteurope@parker.com

**NL – The Netherlands,** Oldenzaal

Tel: +31 (0)541 585 000  
parker.nl@parker.com

**NO – Norway,** Asker

Tel: +47 66 75 34 00  
parker.norway@parker.com

**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

**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

**TR – Turkey,** Istanbul

Tel: +90 216 4997081  
parker.turkey@parker.com

**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

**ZA – South Africa,** Kempton Park

Tel: +27 (0)11 961 0700  
parker.southafrica@parker.com

### North America

**CA – Canada,** Milton, Ontario

Tel: +1 905 693 3000

**US – USA,** Cleveland

Tel: +1 216 896 3000

### Asia Pacific

**AU – Australia,** Castle Hill

Tel: +61 (0)2-9634 7777

**CN – China,** Shanghai

Tel: +86 21 2899 5000

**HK – Hong Kong**

Tel: +852 2428 8008

**IN – India,** Mumbai

Tel: +91 22 6513 7081-85

**JP – Japan,** Tokyo

Tel: +81 (0)3 6408 3901

**KR – South Korea,** Seoul

Tel: +82 2 559 0400

**MY – Malaysia,** Shah Alam

Tel: +60 3 7849 0800

**NZ – New Zealand,** Mt Wellington

Tel: +64 9 574 1744

**SG – Singapore**

Tel: +65 6887 6300

**TH – Thailand,** Bangkok

Tel: +662 186 7000 99

**TW – Taiwan,** Taipei

Tel: +886 2 2298 8987

### South America

**AR – Argentina,** Buenos Aires

Tel: +54 3327 44 4129

**BR – Brazil,** Sao Jose dos Campos

Tel: +55 800 727 5374

**CL – Chile,** Santiago

Tel: +56 2 623 1216

**MX – Mexico,** Apodaca

Tel: +52 81 8156 6000

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, SK, UK, ZA)



### Parker Hannifin Manufacturing Ltd

Tachbrook Park Drive

Tachbrook Park,

Warwick, CV34 6TU

United Kingdom

Tel: +44 (0) 1926 317 878

Fax: +44 (0) 1926 317 855

parker.uk@parker.com

www.parker.com