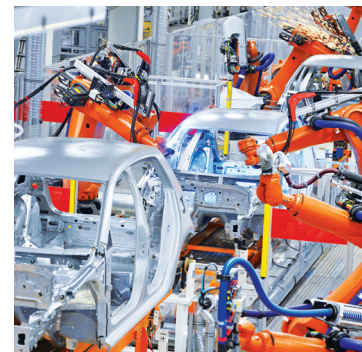




E0-2 Fittings

The Original - Proven worldwide millions of times



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ToughShield™ Plus

THIS IS DURABILITY

ToughShield™ Plus

*Excepcional resistencia a la corrosión
Estándar de galvanizado propio de Zink-
Nickel
Para todos los racores de acero y adaptadores*

Parker permite a sus socios aumentar la productividad y la rentabilidad, al tiempo que construye un entorno sostenible. Esto refleja el compromiso de Parker de ayudar a resolver los mayores retos de ingeniería del mundo.

www.toughshield.com



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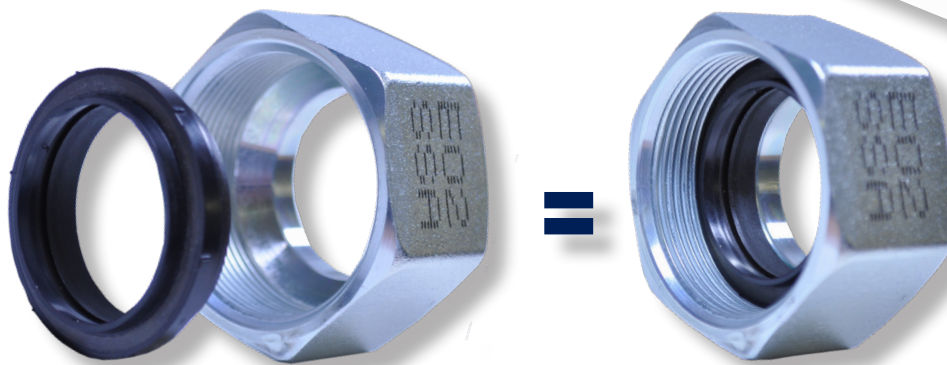
EO-2 – as Advantageous Today as in the past decades

The Parker High Pressure Connectors Europe Division is an important innovator in fluid technology. In 1991 the Company registered a ground-breaking development with a patent for the EO-2 fittings series. Since then EO-2 has logically augmented the metal-sealing cutting ring system.

The typical feature of EO-2 fittings is the large-volume elastomeric seal on the tube side. It guarantees the constant functioning and freedom from leakage of the complete fitting system. Even in extreme constant operation with strong vibrations over many years, retightening of EO-2 fittings is not necessary.

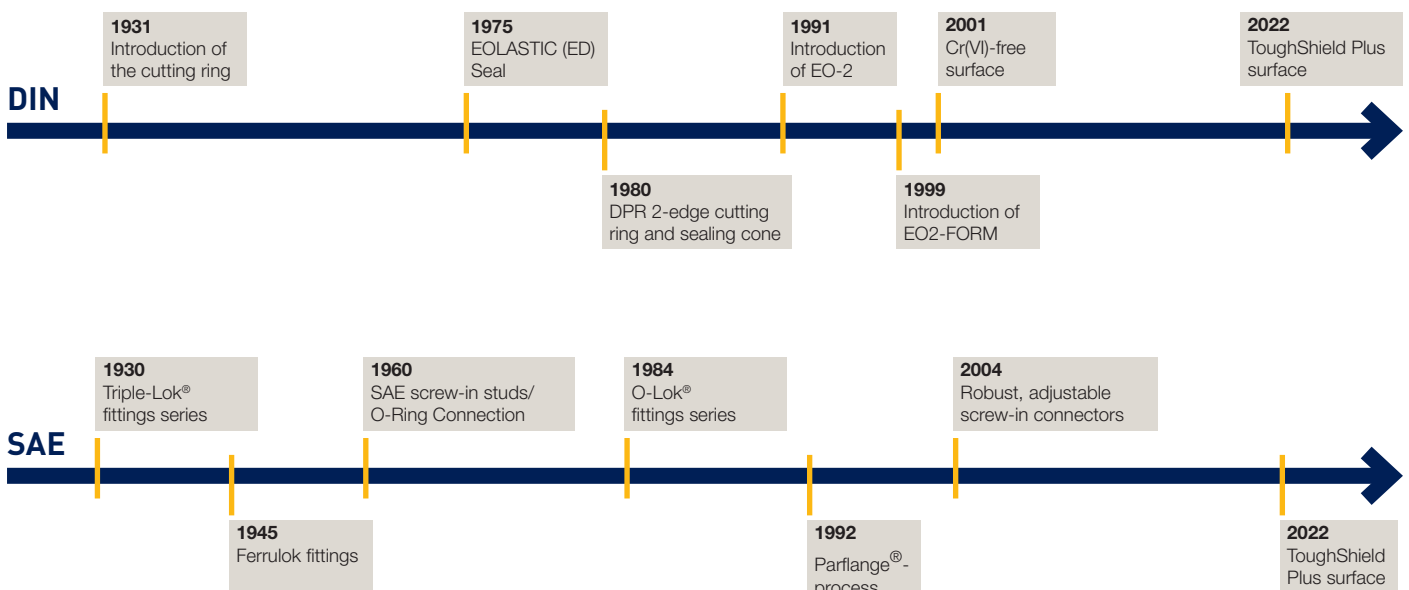
of EO-2 are convincing as ever. The metric design of EO-2 fittings meets the established standards for 24° cutting ring fittings, for example ISO 8434, DIN 2353 and DIN 3861. This means that EO-2 components are deployable in practically every country in the world in many markets and are available from the many branches of the Parker distributor network everywhere.

Their reliability in the last decades has continually strengthened trust in the EO-2 series. For the advantages



Nut and functional cartridge, a strong team 25 years!

Every innovation is the customer's advantage



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EO-2 – A Marvel of Fittings Technology

Everything in the functional nut

- Sealing and retaining rings are integrated into the EO-2 functional nut
- Best protection against fluid loss and assembly errors

Reliable, unambiguous control of assembly

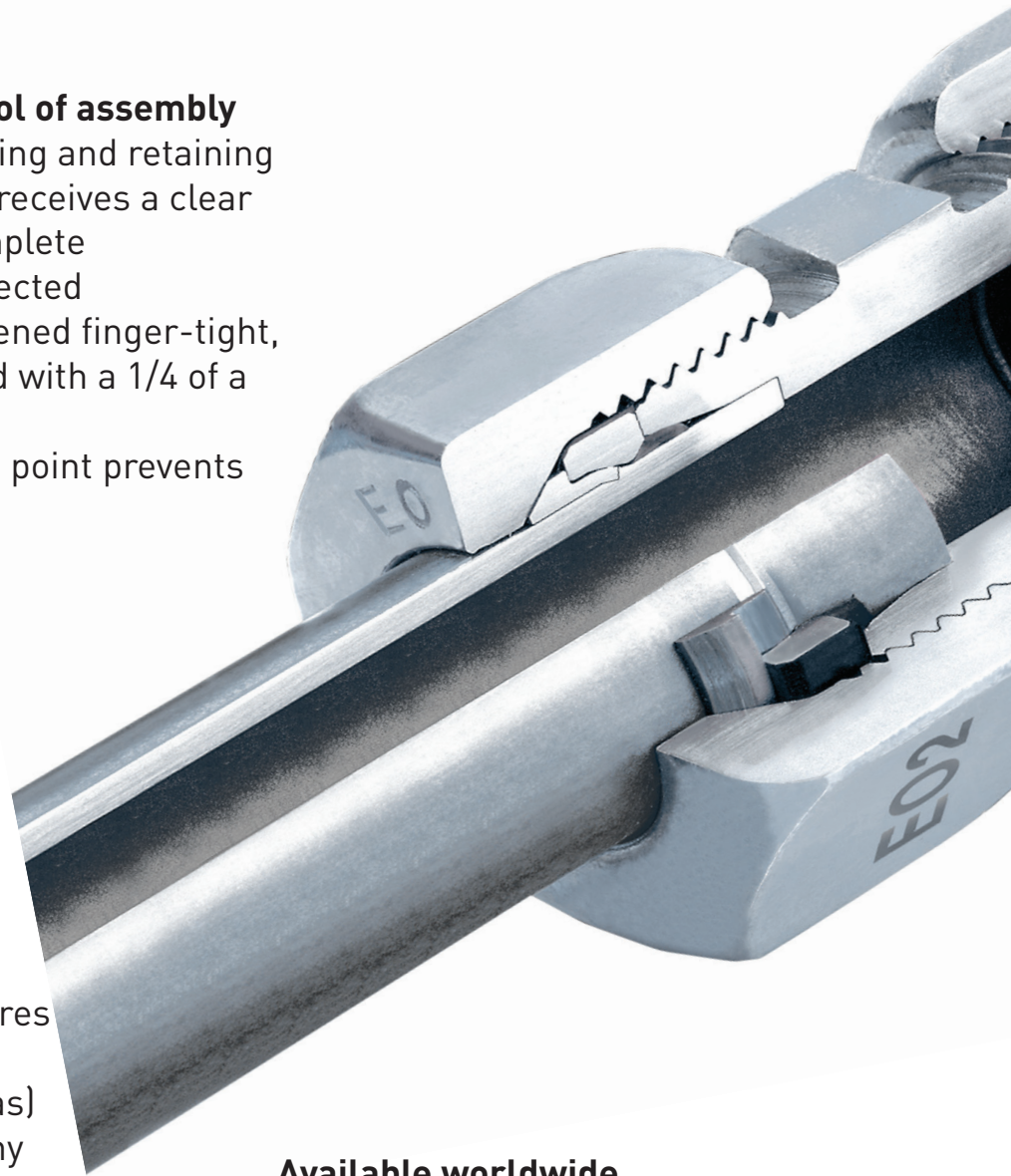
- Is the gap between the sealing and retaining ring closed, the assembler receives a clear signal that assembly is complete
- The connection can be inspected
- If the functional nut is tightened finger-tight, the connection is completed with a 1/4 of a turn
- The clearly perceptible stop point prevents dangerous over-tightening

Strong sealing properties and durable

- The elastomeric seal as the primary sealing element ensures freedom from leaks even with low-viscosity media (water, gas)
- No retightened even after many years of continuous operation

Available worldwide

- EO-2 meets the standards for 24° cutting ring fittings
- EO-2 available worldwide



Assembly costs

- Reduced assembly costs and times
- Pre-assembly takes only 1.4 seconds with the EOMAT machine
- The assembly and repair of tube lines can be carried out with commercially available assembly tools

Repeat assembly

- EO-2 fittings can be dis-assembled and re-assembled as often as required
- Damaged seals can be changed simply and quickly - a contribution to simplified maintenance

No false leakage

- EO-2 steel fittings are assembled without lubrication
- So there is no irritation caused by lubricant escaping

Universally usable

- EO-2 functional nuts are usable with every type, series and dimension of the broad EO fittings programme
- Advantages: simple procurement and more flexibility in the design

EO-2 Assembly Machines – Efficient and Precise

For the assembly of EO-2 fittings Parker offers a variety of efficient assembly machines as required.



EOMAT KARRYMAT

- Transportable assembly unit. Weight approx. 28 kg
- Does not need an electricity supply
- Ideal for general maintenance, tube installations on-site, repairs and machine overhaul.



EOMAT ECO

- Transportable assembly unit. Weight approx. 30 kg
- Electro-hydraulic assembly machine
- For the economic manufacture of 100 assemblies per day



EOMAT UNI

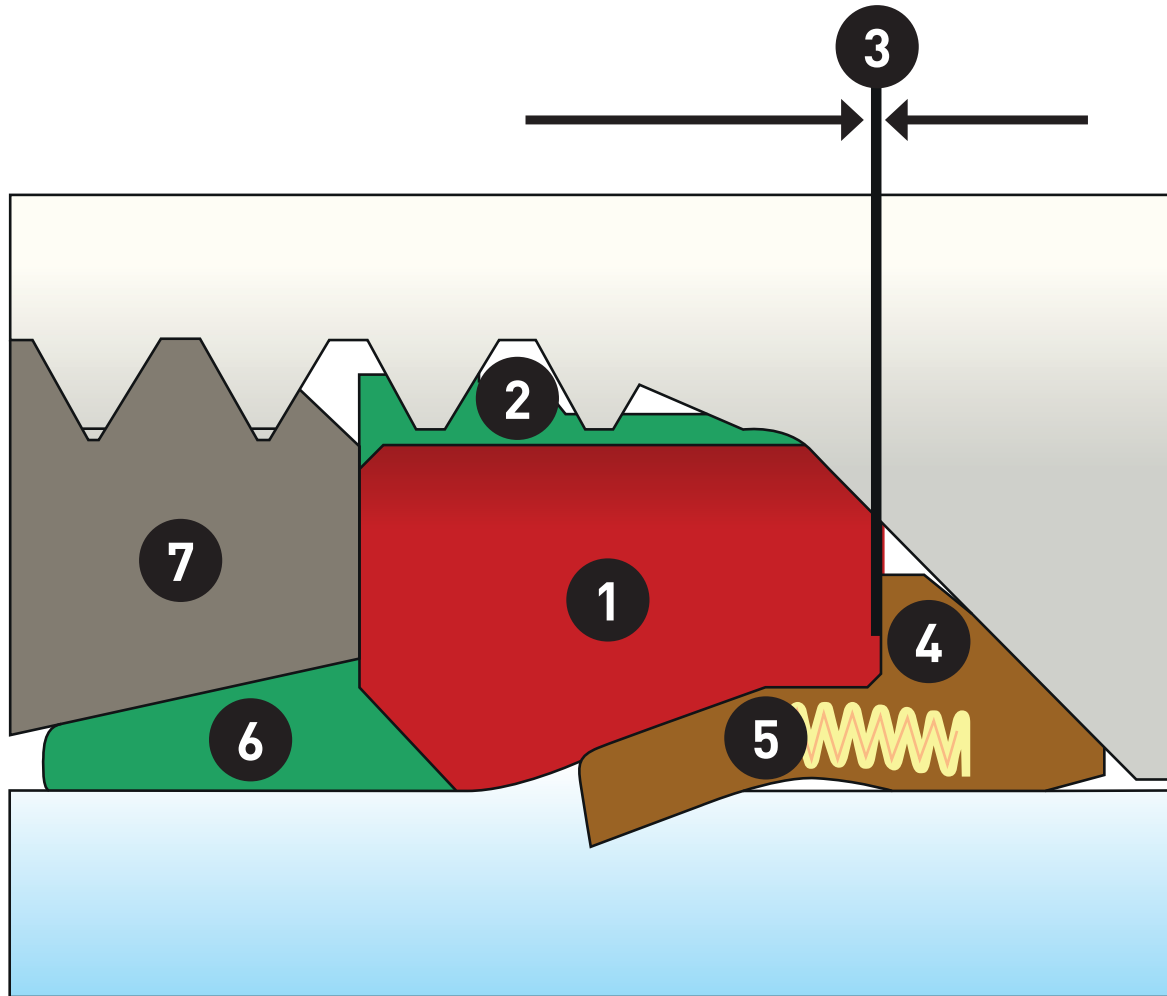
- Transportable assembly unit. Weight approx. 66 kg
- Electro-hydraulic assembly machine
- For the assembly of EO-2 and EO Progressive Ring and Triple-Lok® fittings from 6-42 mm
- Very fast assembly times
- Very suitable for workshop use



EOMAT PRO

- Transportable assembly unit. Weight approx. 90 kg
- Rapid, powerful hydraulic drive
- For the economic series assembly of Parker tube connectors EO-2 and EO Progressive Ring
- Compact assembly head for narrow and complex tube bends
- Stroke-controlled unit for precise and reproducible assembly results
- Automatic and manual operation provided

The E0-2 System in detail



- 1** The metallic seal body makes possible an “up-to-dead-stop” feature to prevent over- or under-assembly. The soft sealing cannot be destroyed in the process.
- 2** Optimised installation space without gaps/dead volume in order to prevent seal damage such as gap extrusion/abrasion.
- 3** Inspection is as simple as checking if the gap between retaining ring and sealing ring is completely closed. The tube end does not have to be disassembled out of the fitting for bite inspection.
- 4** The cutting ring has a purely retaining function - it has no sealing function. The cut is predefined by the design.
- 5** The spring effect results from geometry of the cutting ring, material and heat treatment. The spring effect provides permanent compensation for flexural vibration and settling effects in the thread of the fitting nut.
- 6** Large volume soft seal as the primary sealing element.
- 7** No force effect in the cone. No damage of fitting body.

EO-2 – Universally Deployable Worldwide

EO-2 fittings have been successfully installed for decades. Here is a small extract from the wide variety of application examples:

Transportation

In these highly complex designs the quality of every component must be right, otherwise stoppage of the complete installation threatens. The high product quality of the fitting and low expenditure for maintenance and servicing lead to many manufacturers installing EO-2 fittings in their corrosion-resistant stainless steel version.



Mobile hydraulics

In mobile cranes, tube lines to bridge long distances or to connect clear connection points such as e.g. hydraulic pumps, are installed. Instead of time- and cost-intensive welding the piping, EO-2 fittings form the connecting elements. The elastomeric sealing of EO-2 components prevents leakage and guarantees, even under difficult conditions, trouble-free operation of the vehicle.



Agriculture

In this application field, installation conditions and tight bend radii often present big challenges. Nevertheless it provides a good sector for the installation of EO-2 fittings. There is no need to consider any clamping length for machine assembly and thanks to the comprehensive product range, neither larger nor smaller tube diameters, nor thick tube walls, present any problems.



Machine tools

Despite the vibrations that occur in multiple shift operations, machine tools must work reliably and trouble-free. In this sector the special design of the EO-2 fitting is a great help. The special sealing lip geometry supports the sealing function by the effect of the system pressure. Under dynamic loading too, the integrated soft seal in the inside of the fitting cone provides a high level of sealing.



The Kirow Company's Experience Report

There are many reasons why EO-2 fittings have proved so successful throughout the world in many market segments of hydraulic application technology. The example of the German company Kirow Ardelt exemplifies the advantages of the EO-2 system.

Kirow Ardelt is the world leader in railway cranes. It also manufactures transportation systems for docks and rubber-tyred slag transporters for steel and aluminium mills. Klaus Wintersig, who is the designer for controls, hydraulics and pneumatics at Kirow Ardelt, gets to the heart of the exacting requirements of manufacturers: "Our customers want maintenance-free equipment which does not lose a single drop of oil - even under the strong vibrations to which our vehicles are exposed during operation."

When EO-2 was presented for the first time to Kirow Ardelt development management in 1991, the company in Leipzig, Saxony, showed immediate interest. This was because the EO-2 series, built on the classical cutting ring principle, has an elastomeric seal integrated into the fitting system - a totally new development. This primary

sealing element acts between the internal cone of the fitting body and the tube surface and so here blocks the only potential leakage path. Thanks to its large cross-section, the seal profile safely closes off, also where there are unfavourable tolerances - and even when these are present in low-viscosity media such as gases and water. So the "sweating", so much feared by users can be excluded at connection points.

When it comes to the word "user", Klaus Wintersig praises the EO-2 system assembly inspection. "Due to the design, a defined depth of cut is dictated by the EO-2 fitting. If the gap between the sealing and retaining ring is closed, the assembler senses very clearly that the assembly is complete and the user can start assembly inspection."

Its functional nut is another advantage of the EO-2 system. Such important components as the retaining ring and seal are integrated into the nut and are pretty well unloseable. "With this design, potential assembly errors are completely avoided and assembly times reduced", says a convinced Wintersig.

Because Kirow Ardelt's cranes and vehicles are used throughout the world and if a repair requires rapid replacement of fittings, there is another argument in favour of the EO-2 series. Replacement can be very quickly provided world-wide through the comprehensive distributor network of Parker Hanniifin. In case of doubt, EO-2 types can be replaced by other standard fittings.



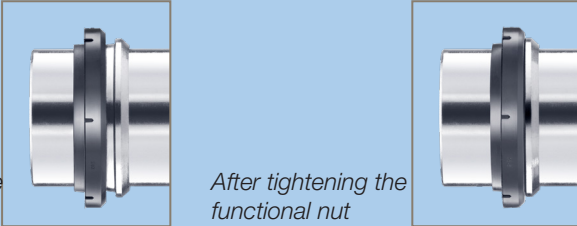
*Klaus Wintersig
Kirow Ardelt - Chief Engineer*



EO-2 fittings are very vibration resistant and thus support the reliability of Kirow transportation vehicles.

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EO-2 – Everything You always Wanted to Know

<p>How high are the nominal pressures?</p>	<p>EO-2 fittings are suitable for use up to 800 bar (PN) in S Series and up to 500 bar (PN) in L Series. This means that the requirements of DIN/ISO are significantly exceeded. Due to the increased pressure ranges, deployment of the L Series is also possible when for design reasons, only the S Series was considered in the past. This reduces not only costs and assembly personnel but also has special advantages in tight installation spaces because of the L Series' smaller dimension.</p>
<p>Why are the threads smoothly coated?</p>	<p>The threads of the standard smooth-coated retaining nuts are additionally treated with EO-LUB from dimensions 25S/28L. By this means the tightening forces of EO-2 fittings are reduced by about 25% and so contribute to preventing under-assembly.</p>
<p>How high is the sealing capacity?</p>	<p>The elastomeric seal acts as the primary sealing element. Even low-viscosity media such as water and gas are hermetically sealed. So hydraulic lines do not "sweat" at their connection points.</p>
<p>What is the long-term behaviour?</p>	<p>The soft-sealing EO-2 fitting must not be re-tightened even after many years' continuous use.</p>
<p>Is there a noticeable assembly dead-stop?</p>	<p>As soon as the gap between the two rings is closed, the EO-2 fitting is ready for assembly inspection and installation. Once the functional nut has been spanner-tightened, it is sufficient to tighten the connection by a 1/4 or 1/6 of a turn. The clearly perceptible dead-stop increases the feeling of safety and effectively prevents dangerous over-tightening.</p> <p>Assembly inspection is simple and clear - the assembly is then complete when the gap between the sealing and retaining rings is closed. The tube end can then remain in the fitting.</p> <div style="text-align: center;">  </div>
<p>How much does assembly cost?</p>	<p>With less than 10 seconds cycle time, pre-assembly with the EOMAT machine is the most economical method. The actual assembly process lasts only about 1.4 seconds. The pre-assembly costs for the EO-2 connection are very low.</p>
<p>Is the assembly safe?</p>	<p>Individual parts such as seals and retaining rings for the assembly cannot be forgotten, mixed up or used the wrong way round. This contributes to minimising assembly expenses and avoiding assembly mistakes. With standard cutting ring fittings, typical assembly errors such as mix-ups, installing cutting rings the wrong way round and pre-assembly tool wear can lead to stoppages. Because of the simple handling these typical causes of stoppage are substantially eliminated.</p>
<p>Are repeat assemblies possible?</p>	<p>EO-2 fittings can be loosened and remade as often as required. The sensitive sealing surface of the fitting is not worn because of this and furthermore does not dilate. Damaged seals can be simply exchanged. All spare seals are marked (e.g. 12L) and cannot become mixed up.</p>
<p>What advantages do the EOMAT pre-assembly machines offer?</p>	<p>During usage of the EOMAT machines no wear occurs on pre-assembly tools. This saves cost and expenditure, on regular testing and the exchange of worn pre-assembly tools. With traditional cutting ring connectors, assembly with severely worn pre-assembly tools can lead to leaks and in extreme cases to tubes being torn out.</p>
<p>How does assembly function on site?</p>	<p>For the assembly and repair of tube lines on site, ordinary spanners are sufficient. Changes to tube lines or the installation of additional components such as diagnostic connections, ball valves or T-fittings, are achieved within minutes.</p>

Parker Worldwide

Europe, Middle East, Africa

AE – United Arab Emirates,
Dubai

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

AT – Austria, St. Florian

Tel: +43 (0)7224 66201
parker.austria@parker.com

AZ – Azerbaijan, Baku

Tel: +994 50 2233 458
parker.azerbaijan@parker.com

BE/NL/LU – Benelux,

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

BG – Bulgaria, Sofia

Tel: +359 2 980 1344
parker.bulgaria@parker.com

BY – Belarus, Minsk

Tel: +48 (0)22 573 24 00
parker.poland@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, Piraeus

Tel: +30 210 933 6450
parker.greece@parker.com

HU – Hungary, Budaörs

Tel: +36 23 885 470
parker.hungary@parker.com

IE – Ireland, Dublin

Tel: +353 (0)1 466 6370
parker.ireland@parker.com

IL – Israel

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

IT – Italy, Corsico (MI)

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

KZ – Kazakhstan, Almaty

Tel: +7 7273 561 000
parker.easteurope@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

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: +48 (0)22 573 24 00
parker.poland@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

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, Toluca

Tel: +52 72 2275 4200

EMEA Product Information Centre

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(from AT, BE, CH, CZ, DE, DK, EE, ES, FI, FR, IE, IL,
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Toll-free number: 1-800-27 27 537

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