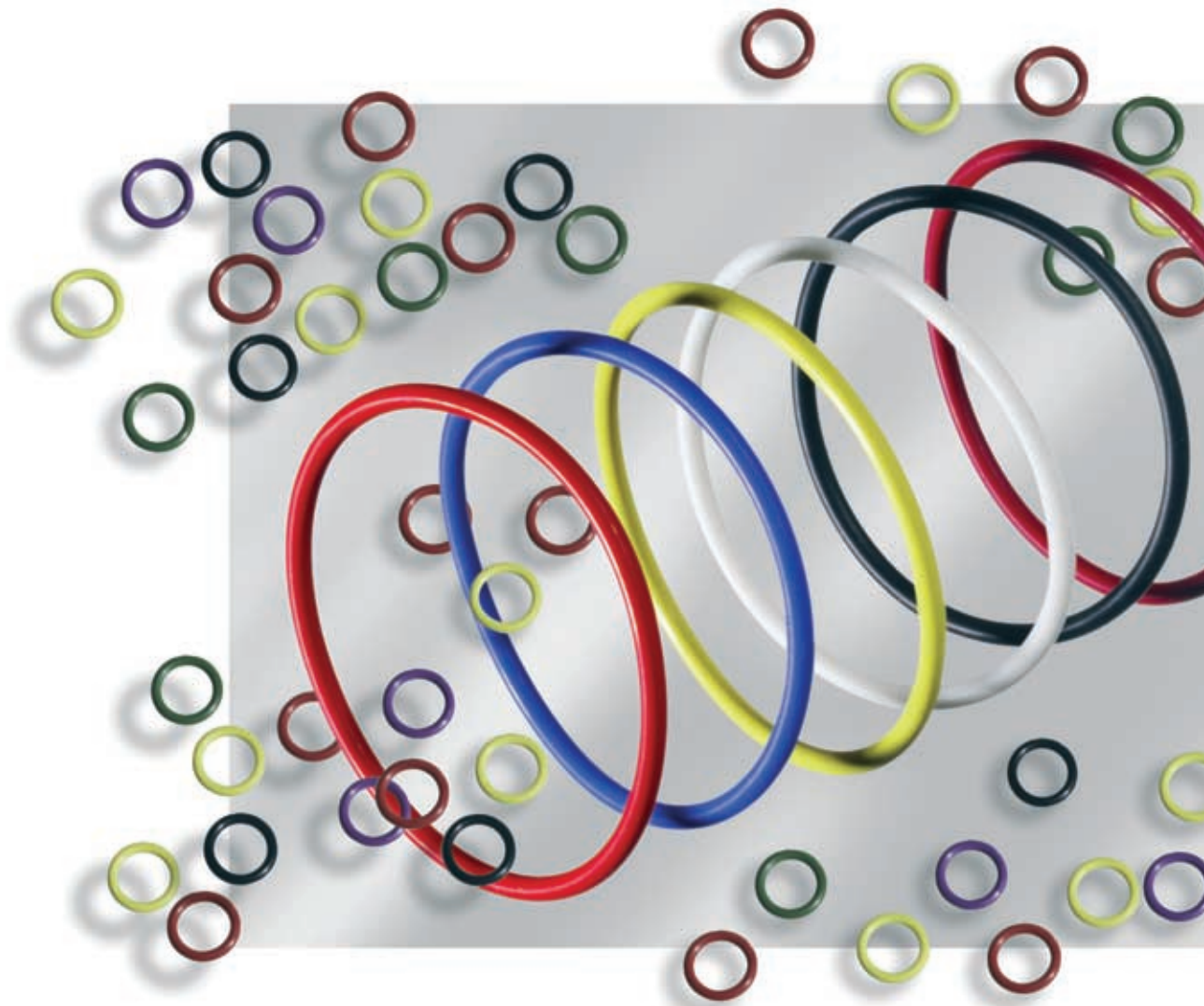




ParCoat[®]

*The smooth approach to
O-ring assembly*



ParCoat®-treated O-rings enable frictionless automatic assembly with only minimal exertion of force. During the feeding process, the rings will not stick together. Prior to installation, they can be elongated by more than 150 %, without causing the app. 5-µm-thick antifriction coating to break or tear.

Fitting components with uncoated O-rings, on the other hand, often requires assembly pressures to be exerted that are twice as high as those needed for ParCoat®-treated seals. Such high pressures may result in seal damage and jamming of assembly components. Conventional surface treatment and coating techniques, such as oiling, improve the sliding ability of the seals only insufficiently, while soiling the assembly components. Defects during the assembly process lead to additional costs for inspections and rework which clearly exceed the relatively small extra charge for ParCoat®-treated O-rings.

Parker's newly developed ParCoat® EH (standard) solution is a polymer film of merely a few micro-metres of thickness with outstanding sliding properties that is applied to the seal without degrading the elasticity of the basic compound. Depending on the contact medium, the coating may disintegrate into tiny particles some time after assembly. This disintegration will neither contaminate the medium nor lead to any malfunctions. Exposure trials involving three different test media, followed by a subsequent particle count, have confirmed that there is no difference between the media before and after exposure to ParCoat®.

ParCoat®



- Benefits**
- Clearly reduced frictional forces
 - No damage to seals during installation or assembly
 - Faster, more cost-efficient assembly process
 - 4 Seals will not stick together in automatic feeding processes
 - No soiling or contamination
 - 4 No risk of mix-ups as basic elastomer compound colour remains visible
 - Elongation capacity above 150 %
 - Suitable for nearly all standard elastomer types

Furthermore, the coating is transparent, enabling the elastomers to be identified by their specific colours, thus precluding the risk of mix-ups.

Typical areas of application are first, automatic and multiple assembly processes. Due to its minimal thickness, ParCoat® EH is not suitable for achieving permanent improvements of sliding ability in dynamic sealing applications.

ParCoat® surface treatment has been integrated into regular manufacturing processes, thus ensuring full-scale in-process controls, flexibility and short lead times. Parker produces coated O-rings from standard NBR, HNBR, EPDM, FKM and FVMQ compounds.

Application examples

Automotive engineering

- Air-conditioning lines
- Fuel system quick couplings
- Sensors, electrical connections

Industrial applications

- Instrumentation, fittings, fixtures
- Plug connectors
- Meters



Air-conditioning lines:
ConiTech Kühner GmbH Cie. KG





ParCoat® Surface Treatment Processes

ParCoat® Type	Process	Coating thickness [µm]	Appearance	Typical application			Preferred compounds	Contamination feeding	Colour	Extra costs
				- : not recommended	0 : moderately suitable	+ : suitable				
ParCoat® EH	Elastomer resin	< 5	solid, dry	++	++	+	all	no	translucent	medium
ParCoat® SIH	Si resin	< 5	solid, dry	++	++	+	EPDM NBR FKM MVQ	no	black	medium
ParCoat® LST	Varnish standard	< 5	solid, dry	++	++	+	EPDM NBR FKM MVQ	no	translucent, satinated	medium
ParCoat® LFD	Varnish FDA	5 - 10	solid, dry	++	++	+	EPDM NBR FKM MVQ	no	milky	medium
ParCoat® PLU	Plasmapolymerization USB	< 5	solid, dry	++	++	+	EPDM NBR MVQ	no	like basic compound	high
ParCoat® PLS	Plasma-polymerization standard	< 5	solid, dry	+	+	+	EPDM NBR MVQ	no	like basic compound	high
ParCoat® HA	Halogenation/Chlorination	-	solid, dry	+	+	+	unsaturated, e.g. NBR	no	like basic compound	medium
ParCoat® TFE	PTFE coating	25 - 40	solid, dry	++	++	++	all,	no	grey	very high
ParCoat® SIE	Si emulsion	-	oily	+	0	+	all, except MVQ	high	translucent	low
ParCoat® TR	Release agent (silicone-free)	-	oily	+	0	-	all	low	translucent	low
ParCoat® MO	Molykote treatment	-	relatively solid, dry	+	+	-	all	medium	grey/silver	low
ParCoat® TA	Talcum treatment	-	powdery, dry	+	0	-	all	high	white	very low

Ordering example: O-Ring 2-214 N674-70 / ParCoat® EH



Seal Group Europe O-Ring Division

Assembly pressure loads for plug connections (O-Ring 11 x 2,5)

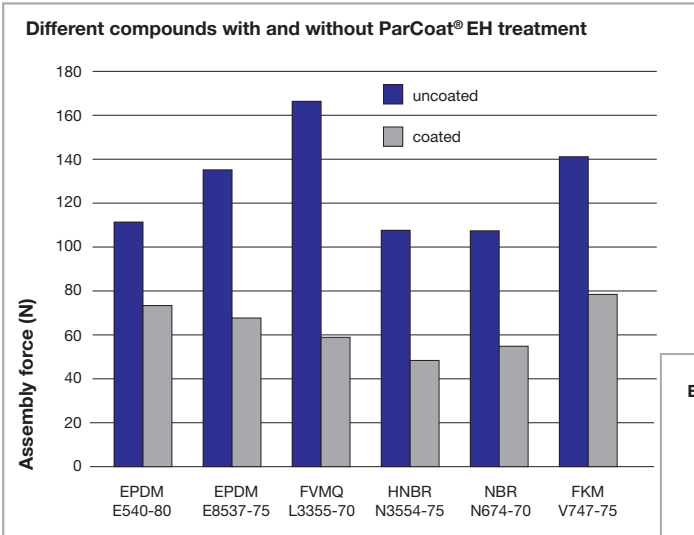


Figure 1

Depending on the type of application, ParCoat® may reduce the required assembly pressure by more than 50 % compared to uncoated O-rings or O-rings with different types of surface treatment. Figure 1 illustrates the assembly pressures required for fitting standard connections of automotive air-conditioning systems with ParCoat®-treated and uncoated O-rings. Even during repeated assembly of the same O-ring, pressures remain at the same, consistently low levels (Figure 2).

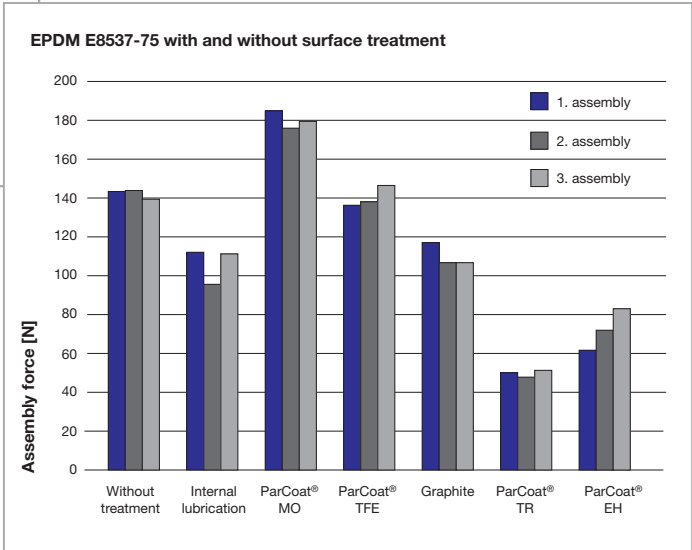


Figure 2



Parker Hannifin GmbH
 O-Ring Division Europe
 Postfach 40 · D-74383 Pleidelsheim
 Tel. +49 (0) 7144 206-0
 Fax +49 (0) 7144 23749
www.parker.com/euro_oring
 e-mail: oring_europe@parker.com