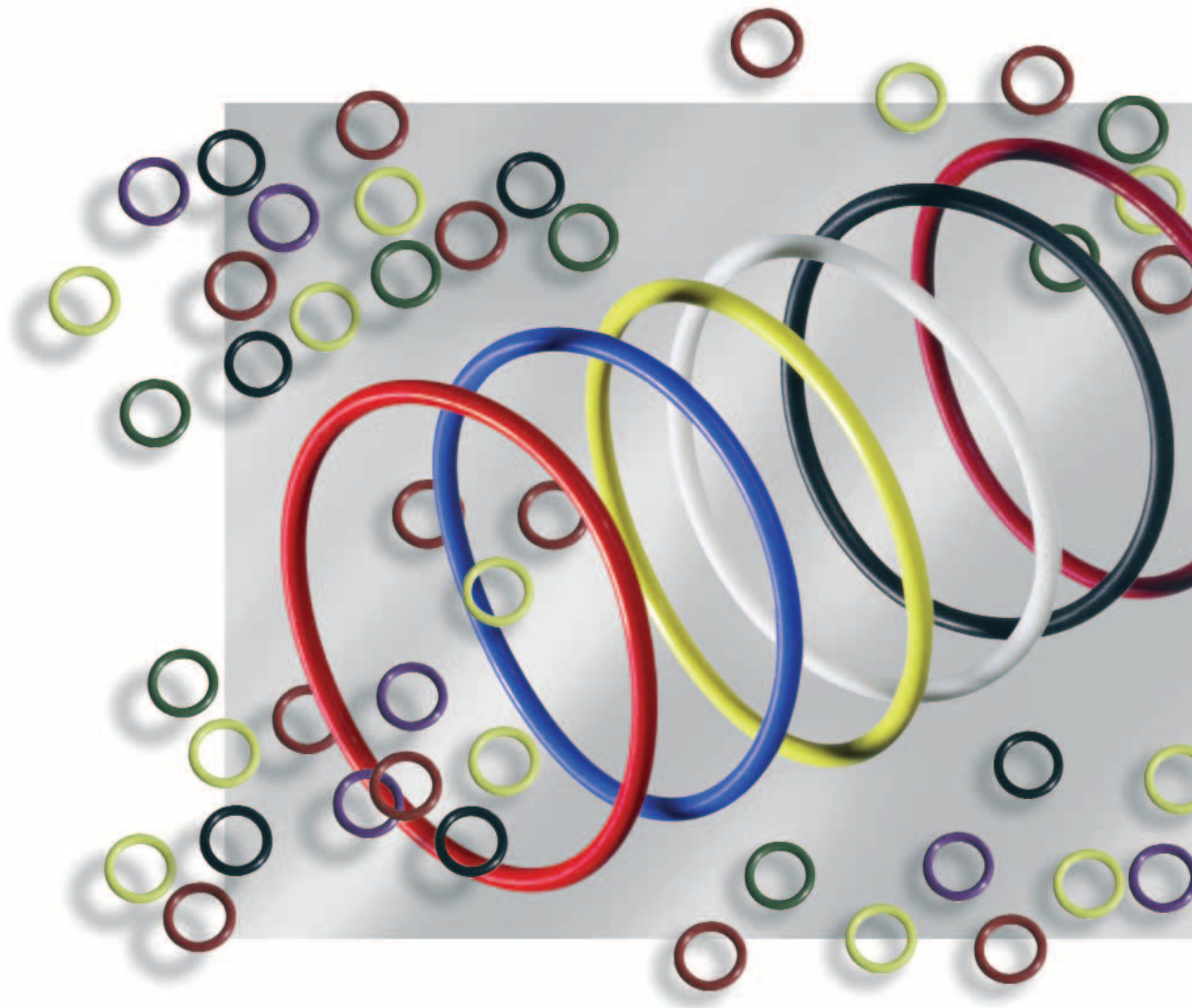




ParCoat[®]

*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 – depending on the respective version – they can be elongated by more than 150 %, without causing the roughly 5-µm-thick anti-friction 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
 - Reduction of gas permeability
 - Seals will not stick together in automatic feeding processes
 - No soiling or contamination
 - No risk of mix-ups since basic elastomer colour remains visible with transparent ParCoat® coatings
 - Elongation capacity above 150 %, depending on ParCoat® version used
 - Suitable for nearly all standard elastomer types
 - Available in various colours

In addition, transparent versions of ParCoat® coatings are available, 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, for example, is not suitable for achieving permanent improvements of sliding ability in dynamic sealing applications.

ParCoat® surface treatment for the most common ParCoat® coatings has been integrated into regular manufacturing processes, thus ensuring full-scale in-process controls, flexibility and short lead times. Parker produces coated O-rings in nearly all marketable materials.

- Application examples**
- Automotive engineering**
 - Air-conditioning lines
 - Fuel system quick couplings
 - Sensors, electrical connections
 - Industrial applications**
 - Instrumentation, fittings, fixtures
 - Plug connectors
 - Meters
 - Fittings



Air-conditioning lines:
ConiTech Kühner GmbH Cie. KG





ParCoat® Coatings and Surface Treatment Processes

ParCoat® Type	Process	Coating thickness [µm]	Appearance	Typical application			Preferred compounds	Contamination feeding	Colour
				- : not recommended	0 : moderately suitable	+ : suitable			
ParCoat® EH	Elastomer resin	< 5	solid, dry	++	++	+	all	no	translucent
ParCoat® SIH	Multi-component varnish	> 5	solid, dry	++	++	++	EPDM NBR FKM VMQ	no	black, translucent
ParCoat® LST	Varnish standard	> 5	solid, dry	++	++	+	EPDM NBR FKM VMQ	no	translucent, satinated
ParCoat® SFR	Varnish silicone-free	5 - 10	solid, dry	++	++	+	EPDM NBR FKM VMQ	no	milky, translucent
ParCoat® PLU	Plasma-polymerisation USP	-	solid, dry	++	++	+	EPDM NBR VMQ	no	like basic compound
ParCoat® PLS	Plasma-polymerisation standard	-	solid, dry	+	+	+	EPDM NBR VMQ	no	like basic compound
ParCoat® HA	Halogenation/Chlorination	-	solid, dry	+	+	+	unsaturated, e.g. NBR	no	like basic compound
ParCoat® TFE	PTFE coating	25 - 40	solid, dry	++	++	++	all	no	grey and other colours
ParCoat® SIE	Si-Emulsion	-	oily	+	0	+	all, except VMQ	high	translucent
ParCoat® FDA	Varnish (silicone-free)	20 - 30	solid, dry	++	+	+	all	no	translucent
ParCoat® KTW	Elastomer resin	< 5	solid, dry	++	+	+	EPDM HNBR NBR FKM FVMQ	no	translucent

Further ParCoat® coatings and surface treatment processes on request
 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)

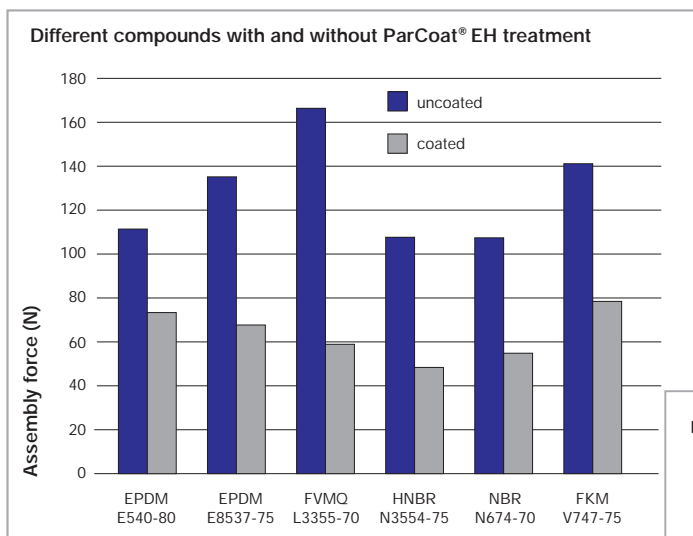


Figure 1

Depending on the type of application, ParCoat® EH 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® EH-treated and uncoated O-rings. Even during repeated assembly of the same O-ring, pressures remain at the same, consistently low levels (Figure 2).

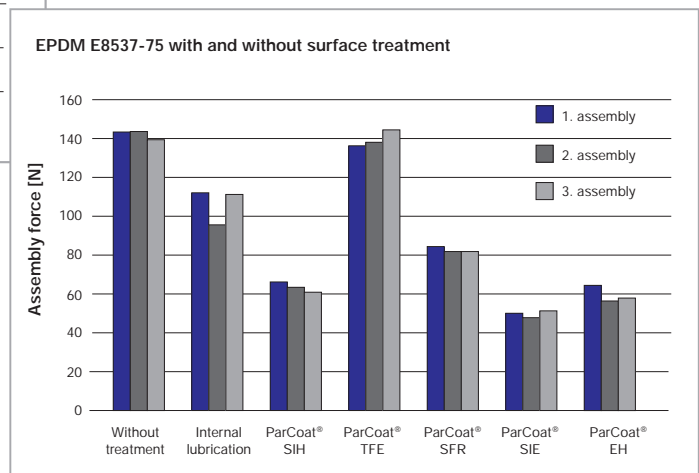


Figure 2



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