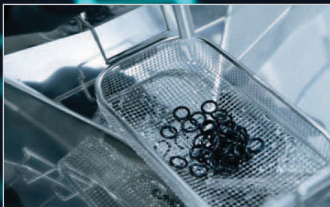


# Surface Technology

INNOVATIVE COATINGS AND TREATMENTS BY TRELLEBORG



# General Introduction

Trelleborg Sealing Solutions has invested significantly in research to optimize surface finishes with coatings, solutions and modifications for specific requirements and applications, including optimizing friction characteristics and minimizing wear, reducing maintenance downtime and extending seal lifetimes.

Trelleborg creates innovative coatings and treatments with thickness often measured in nanometers, maintaining the original properties – including the color, elasticity, and dimension - of the untreated seal.



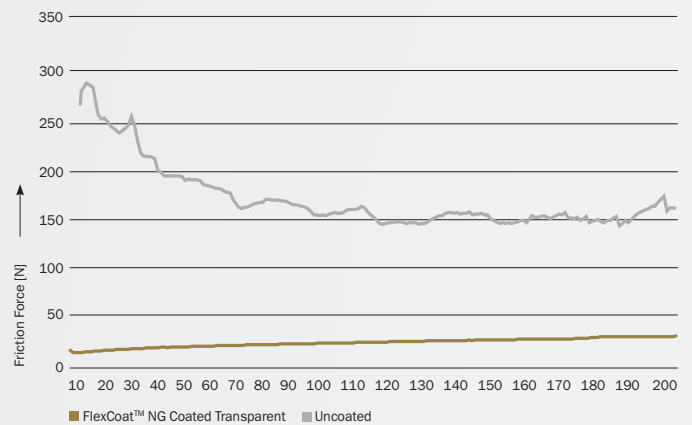
# FlexCoat™

FlexCoat™ micro-thin high-performance coatings and surface modifications provide the ultimate choice, optimizing friction characteristics during assembly and in dynamic applications. We offer a broad portfolio of standard friction-reducing coatings and custom specific friction-reduction solutions.

## PROPERTIES AND BENEFITS

- Improved handling properties due to reduced stickiness and lower friction
- Saves time and enhances safety and security of assembly
- Cleaner process reduces time and cost for maintenance in comparison to uncoated, powder and non-dry coatings
- Process-safe installation through colored coatings
- Cost-effective solutions compared to customized self-lubricating compounds
- Extended service life due to better wear properties
- Thickness typically up to 20 µm<sup>1</sup>
- PFAS-free\* formulations available

## ASSEMBLY FORCE REDUCTION - FlexCoat™



## FlexCoat™ options and attributes

Derivatives	Type and Appearance	Application	UV Indicator	Temperature Range	Approvals	Compatible with Base Elastomers
<b>PFAS FREE</b> NG	PFAS-free*, transparent or color <sup>2</sup>	Friction reduction in dynamic applications	Yes	-40 °C to +200 °C/ -40 °F to +392 °F	-	All elastomer types
LF	PTFE coating, transparent or color <sup>2</sup>	Friction reduction in light dynamic applications	Yes	-40 °C to +150 °C/ -40 °F to +302 °F	VDA 232-101	All elastomer types, no silicone/fluorosilicone
PF	Polysiloxane, transparent	Friction reduction	Yes	-40 °C to +180 °C/ -40 °F to +356 °F	-	All elastomer types, no silicone/fluorosilicone
FF	PTFE coating, milky transparent	Friction reduction	No	-40 °C to +150 °C/ -40 °F to +302 °F	FDA Code of Federal Regulations-Title 21, VDA 232-101, DVGW, W270, Coating Guideline UBA	All elastomer types
AMF	PTFE coating, transparent or color <sup>2</sup>	Assembly and separation	Yes	-40 °C to +180 °C/ -40 °F to +356 °F	-	All elastomer types, no silicone/fluorosilicone

<sup>1</sup>The coating thickness is not quoted as a capability criterion but is for guidance only, deviations are possible depending on part geometry; hardness (surface) +4 IRHD possible.

<sup>2</sup>Typical colors available, custom colors upon request.

\*PFAS are not intentional ingredients in FlexCoat™ NG. To the best of our knowledge and based on available information, this coating does not contain PFAS. However, it cannot be guaranteed that it may not contain trace amounts of PFAS that occur unintentionally.

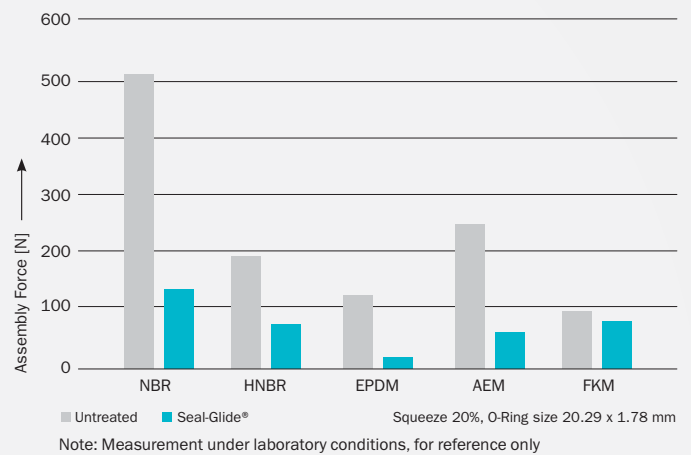
# Seal-Glide®

Seal-Glide® is an innovative surface treatment that significantly reduces the friction and stickiness of elastomers. The thickness of the treatment is typically less than 450 nm, maintaining the original properties of the untreated seal (color, elasticity, dimension).

## PROPERTIES AND BENEFITS

- For applications where assembly and separation is key, Seal-Glide® provides a cost-effective solution
- Seal-Glide® reduces handling time especially in high-volume, semi and fully automated assembly lines
- Seal-Glide® keeps your equipment clean and reduces cleaning downtime
- Increased efficiency through better feeding rates
- Enhanced and more predictable assembly processes
- Easier to handle due to reduced friction, stickiness and wear of seals
- PFAS-free\*

## ASSEMBLY FORCE REDUCTION - Seal-Glide®



## Seal-Glide® options and attributes

Derivatives	Type	Appearance	UV Indicator	Temperature Range	Approvals	Compatible with Base Elastomers	Notes
<b>Seal-Glide® Industrial</b>	Polysiloxane, PFAS-free*	Transparent, smooth	No	Respective to base material	-	All elastomer types	No color possible
<b>Seal-Glide® Nano</b>	Polysiloxane, PFAS-free*	Transparent, smooth	No	Respective to base material	-	All elastomer types	No color possible
<b>Seal-Glide® Medical</b>	Polysiloxane, PFAS-free*	Transparent, smooth	No	Respective to base material	ISO 10993-5 and USP 87, European Regulation (EC) 1935/2004, US FDA Code of Federal Regulations 21, §175.300	All elastomer types	No color possible

### Further Information

To find our complete Seal-Glide® portfolio visit [www.trelleborg.com/seals/seal-glide](http://www.trelleborg.com/seals/seal-glide) or scan the QR code.

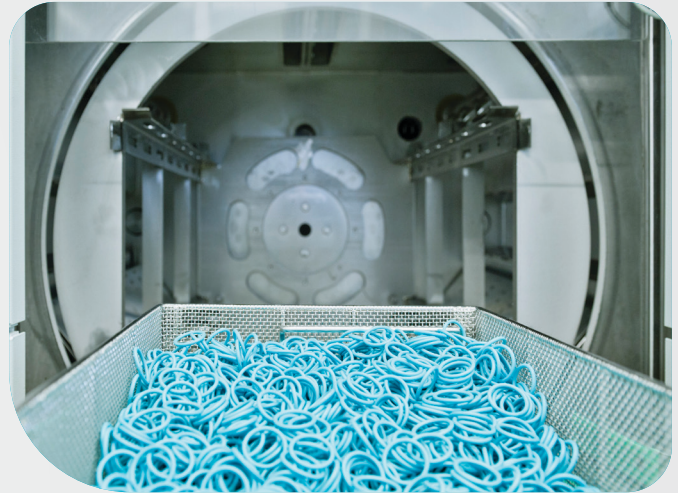


# FlexClean™

FlexClean™ solutions are elastomeric seals that can be offered to various cleanliness standards. These include seals that conform to paint-wetting impairment substances (PWIS/LABS) requirements, maximum allowed particle sizes of 400 µm or 200 µm based on ISO 16232 or seals washed and packed in cleanroom class 5 according to ISO 14644-1.

## PROPERTIES AND BENEFITS

- Minimal infiltration of particles and contamination
- Increased application safety
- Industry specific cleanliness requirements can be offered on request
- Packaging conforms to specific cleanliness classification
- Cleaning can be certified by appropriate laboratory tests and reports
- Trelleborg offers full transparency in the documentation of the test methods and the results



## FlexClean® options and attributes

Classification	Maximum Permissible Particle Size	Permissible Residue Contamination Mass (Gravimetry) per 1000 cm² Seal Surface
Cleanliness Class 1	200 µm	3 mg
Cleanliness Class 2	400 µm	5 mg
Cleanliness customized	on request	on request

Classification	According to Standards and Specification
PWIS (LABS) conformity	VW, Festo, Dürr, VDMA
Class 5 Cleanroom Quality	ISO 14644-1

Trelleborg is a world leader in engineered polymer solutions that protect essential applications in demanding environments. Its innovative solutions accelerate performance for customers in a sustainable way.

Trelleborg Sealing Solutions is a leading developer, manufacturer and supplier of precision seals, bearings and custom-molded polymer components. It focuses on meeting the most demanding needs of aerospace, automotive and general industrial customers with innovative solutions.

[WWW.TRELLEBORG.COM/SEALS](http://WWW.TRELLEBORG.COM/SEALS)



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If you'd like to talk to Trelleborg Sealing Solutions, find your local contact at: [www.trelleborg.com/seals/worldwide](http://www.trelleborg.com/seals/worldwide)