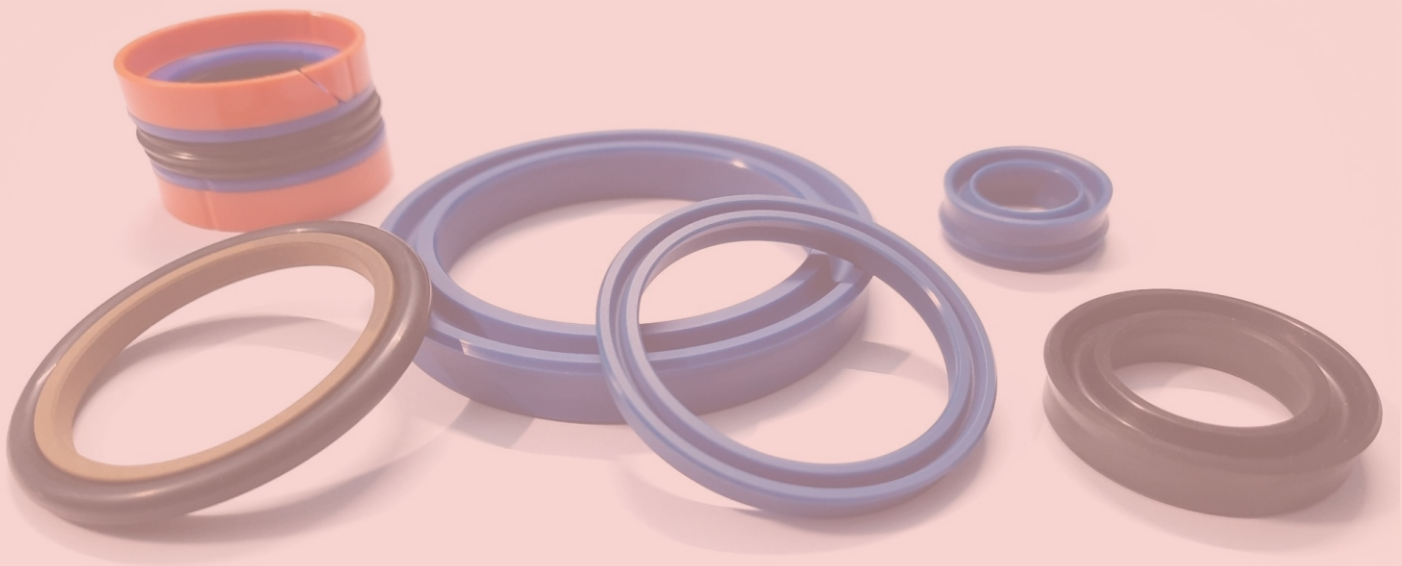


# ECO SEALS

## Material and Profile Overview





We are proud to introduce Eco Seals

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an initiative committed to working on three dimensions - innovation, solution and execution to be a one-stop source for industrial seals.

# INTRODUCTION

With our unmatched proficiency in technology, design and manufacturing processes, **Eco Seals** offers standard seals as well as engineered sealing solutions.

Working in close partnership with you, we brainstorm to innovate the best possible solution to your requirements, and then execute it from prototype to production, while also providing the much-lacking in the industry, after-sales support.

**Eco Seals** commitment to quality is backed by an assurance that comes from our experience and expertise.

From standard moulded seals to CNC turned seals, to seal kits and accessories, we provide a range of sealing solutions to optimize your productivity and keep your operations running efficiently.

## INDUSTRIES WE SERVE

- Agricultural Industry
- Automotive Industry
- Cement, Lime, Ceramic & Refractory Industry
- Chemical Industry
- Construction Industry
- Electronic Industry
- Food and Pharmaceutical Industry
- General Mechanical Engineering
- Mining Industry
- Non-ferrous Industry
- Oil & Gas Industry
- Plastic & Rubber Processing Industry
- Power Supply Industry
- Pulp & Paper Industry
- Shipbuilding Industry
- Steel Industry
- Textile Industry
- Water Supply & Water Treatment Industry
- Wood & Wood Processing Industry



Material Data Properties	Standard	Unit	POLYURETHANES							
			PU Thermoplastic polyurethane elastomer	HPU hydrolysis-resistant polyurethane	GPU polyurethane for giant seals and big cross sections	LTPU low-temperature polyurethane	SPU self-lubricated polyurethane	XPU hard polyurethane	XPHU hard hydrolysis resistant polyurethane	XSPU hard self-lubricated polyurethane
Colour			green	red	red	blue	gray	dark green	red	gray/black
Hardness	53505	Shore A	95±2	95±2	95±2	95±2	95±2			
	53505	Shore D	48±3	48±3	47±3	48±3	48±3	57±3	60±3	57±3
Density	53479	g/cm <sup>3</sup>	1,20	1,20	1,20	1,17	1,24	1,21	1,22	1,26
100% Modulus	53504	N/mm	≥12	≥13	≥11	≥12	17	≥18	≥20	24
Tensile Strength / Yield Stress	53504/ 53455	N/mm	≥40	≥50	≥45	≥50	50	≥50	≥50	45
Elongation At Break	53504/ 53455	%	≥430	≥330	≥280	≥450	380	≥400	≥350	350
Modulus Of Elasticity - Tensile Strength	53457	N/mm								
Compression Set 70°C/24h 20% Def		%	≤30	≤27	≤30	≤27	25	24	26	24
100°C/24h 20% Def		%	≤35	≤33	≤40	≤33	30	29	30	30
100°C /22h	53517	%								
175°C /24h	53517	%								
Rebound Resilience	52512	%	42	29	43	50				
Tear Strength	53515	N/mm	≤100	≤100	≤40	≤80	120	≤140	170	160
Abrasion	53516	mm <sup>3</sup>	18	17	25	15	17	18	20	20
Minimum Service Temperature		OC	-30	-20	-30	-50	-20	-30	-20	-20
Maximum Service Temperature		OC	+110	+110	+110	+110	+110	+110	+110	+110

## What Eco Seals stands for

- Assembly and dismantling time
- Bespoke and standard sealing solutions.
- Chances of damage during assembly and dismantling
- Chances of error during measurement
- Extensive knowledge and expertise in seal manufacturing and distribution.
- In-depth analysis of each individual requirement for an application-engineering oriented solution to your specific needs.
- Just-in-time manufacturing and supply of CNC turned seals up to 2500 mm in diameter.
- Ongoing R&D efforts to meet the needs of the global market with product innovations.
- Partnership throughout the design, development, testing and implementation phases.
- Provision of accessories to reduce:
- Provision of complete seal kits and repair kits.

RUBBER ELASTOMERS						THERMOPLASTICS						
<b>HNBR</b> hydrogenated acrylonitrile-butadiene	<b>NBR</b> acrylonitrile-butadiene rubber	<b>FKM</b> VITON® / fluoro-rubber	<b>S-mart EPDM</b> ethylene propylene rubber	<b>TFE/P - ALFAS</b> tetrafluoroethylene propylene rubber	<b>MVQ</b> silicone rubber	<b>POM</b> polyacetal	<b>PTFE virgin</b> polytetrafluoroethylene - virgin PTFE	<b>PTFE glass</b> PTFE + 15% Glass Fibre + 5% MoS	<b>PTFE bronze</b> PTFE + 40% Bronze	<b>PTFE carbon</b> PTFE + 25% Carbon	<b>PA</b> polyamide	<b>PAEK</b> polyaryletherketone
black	black	brown	black	black	reddish brown	black	white	gray	brown	black	black	cream
85±5	85±5	83±5	85±5	83±5	85±5							
						82	82	60	64	65	77	86
1,22	1,31	2,30	1,22	1,60	1,52	1,41	2,17	2,25	2,25	2,10	1,15	1,32
≥10	≥11	≥5	≥9	8	≥5							
≥18	≥16	≥8	≥12	13	≥7	62	27	18	22	15	65	97
≥180	≥130	≥200	≥110	200	≥130	40	300	200	280	180	120	≥50
						2600					1800	3600
≤22	≤22		≤15									
		≤20		29	≥15							
29	28	7	38		44							
20	21	15	21	19								
90	90	150	120	110								
-25	-30	-20	-50	-10	-60	-50	-200	-200	-200	-200	-40	
+150	+100	+200	+150	+200	+200	+100	+260	+260	+260	+260	+100	260



## Sealing Materials

Our sealing technology involves the use of macromolecular substances that withstand the challenges of high temperature, pressure and sliding speeds. Macromolecular substances are high molecular weight organic compounds consisting of many smaller structural units (very large number of atoms) linked together. They can be created in two ways:

**Natural:** by modifying high-molecular natural materials, such as rubber.

**Synthetic:** by depositing low-molecular elements, or monomers, through various chemical reactions. Two groups of macromolecular (polymer) substances are primarily used in sealing technology - elastomers and thermoplastics.

## Quality takes precedence

- We are committed to providing products and services that meet or exceed customer expectations.
- Towards this, we strive for:
- Stringent quality control systems.
- Continual quality improvement for our products and services.
- Continual upgrading of our processes and operations in an eco-friendly environment.
- Updating skills and competences of our human resources to keep pace with technological advancements.
- Reduction of operational losses.

























































## What sets us apart

- Use of top-quality sealing materials.
- Designs for a variety of applications and industries.
- Engineered to specifications using CMC technology.
- Delivery at short turnarounds.
- Customised inventory programmes.
- After-sales and maintenance support.

 **Piston Seals**

EK01-P	EK01-R	EK02-P	EK02-PD	EK02-R	EK02-RD	EK03-P	EK03-F
							
EK03-S	EK04-P	EK04-PD	EK05-P	EK05-R	EK05-S	EK03-P	EK03-F
							
EK06-S	EK07-P	EK08-D	EK08-E	EK08-P	EK08-DS	EK08-SD	EK08-ES
							
EK09-A	EK09-B	EK09-C	EK09-D	EK09-E	EK09-F	EK1012-T	EK1012-M
							
EK1012-S	EK1315-Y	EK16-A	EK16-B	EK16-S	EK17-P	EK17-R	EK19-F
							
EK20-R	EK21-P	EK22-P	EK22-R	EK23-A	EK23-B	EK23-C	EK23-D
							
EK24-P	EK32-P	EK35-P	EK60-F	EK61-F	EK62-R	EK63-R	EK64-R
							
EK65-R	EK66-R	EK67-P	EK68-R				
							

 **Rod Seals**

ES01-P	ES01-R	ES01-S	ES02-P	ES02-PD	ES02-R	ES02-RD	ES02-S
							
ES03-P	ES03-F	ES03-S	ES04-P	ES04-PD	ES05-P	ES05-R	ES05-S
							
ES06-P	ES06-F	ES06-S	ES07-P	ES08-P	ES08-T	ES08-R	ES08-S
							
ES09-E	ES09-D	ES09-P	ES09-ES	ES09-DS	ES1012-M	ES1012-T	E1012-S
							
ES1315-T	ES16-A	ES16-B	ES16-S	ES17-P	ES17-R	ES17-S	ES18-P
							
ES18-R	ES19-F	ES20-R	ES21-P	ES22-P	ES22-R	ES24-P	ES2527-F
							
ES2931-F	ES32-P	ES35-P	ES60-S	ES61-R	ES62-R	ES63-P	ES64-R
							

 **Wiper**



 **Guide Rings**



## Back-up Rings

EST08



EST09



EST10



EST11



EST12



EST13



## Static

ER13



ER14



ER15-P



ER16-R



ER20-P



ER35-A



### Rotary Seals

## Rotary Shaft Seals (Standard)

ER60-S



ER61-S



ER62-S



ER63-S



ER64-S



ER65-S



ER66-S



ER67-S



ER68-S



ER69-S



ER70-S



ER71-S



ER72-S



ER73-S



 **V-Rings**

EVA-P



EVA-R



EVS-P



EVS-R



EVT-R



EVX-R



 **Rotary Shaft Seals (Machined)**

ER01-P



ER01-R



ER01-A



ER01-F



ER02-P



ER02-R



ER03-P



ER03-R



ER04-A



ER05-A



 **Custom PTFE Seals**

ER09-F



ER09-FS



ER10-F



ER10-FS



ER11-F



ER12-F



ER19-F







# ECO SEALS

## Eco Seals

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