


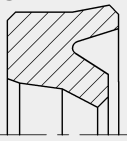
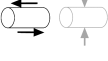


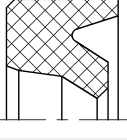


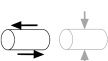

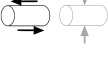


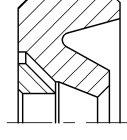
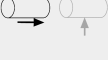

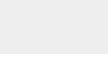
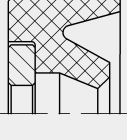



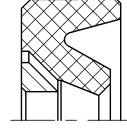
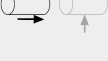
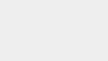
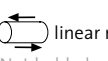
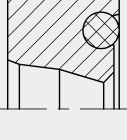


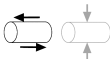
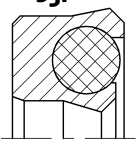

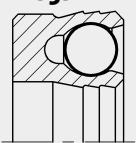
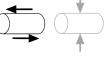
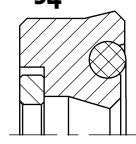
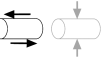
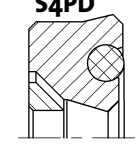
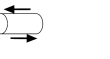
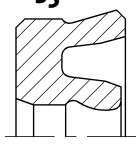
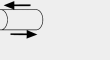
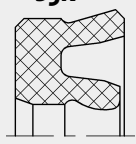
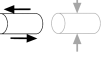
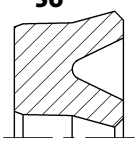

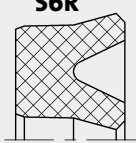
# Rod Seals

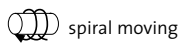
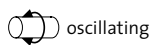
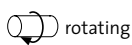
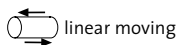
Application	Profile	Description	Temperature	max.speed	max. Pressure	Material		
  		<b>hydraulic, single acting</b> asymmetric rod seal for standard applications. interference fit on outside diameter maintains stable fit in the housing. design provides ultimate sealing effect over a wide temperature range and good backpumping ability. also used as secondary seal in combination with PTFE-seal type S9.	-30 °C ... +110 °C	0,5 m/s	400 bar (5800 psi)	ECOPUR		
			-20 °C ... +110 °C	0,5 m/s	400 bar (5800 psi)	H-ECOPUR		
			-20 °C ... +110 °C	0,7 m/s	400 bar (5800 psi)	S-ECOPUR		
			-50 °C ... +110 °C	0,5 m/s	400 bar (5800psi)	T-ECOPUR		
			-30 °C ... +110 °C	0,5 m/s	400 bar (5800 psi)	G-ECOPUR		
  		<b>hydraulic, single acting</b> as profile S01-P, but more adaptation possibilities for diverse temperatures and media by selection of suitable seal material.	-30 °C ... +100 °C	0,5 m/s	160 bar (2300 psi)	ECORUBBER 1		
			-20 °C ... +200 °C	0,5 m/s	160 bar (2300 psi)	ECORUBBER 2		
			-50 °C ... +150 °C	0,5 m/s	160 bar (2300 psi)	ECORUBBER 3**		
			-25 °C ... +150 °C	0,5 m/s	160 bar (2300 psi)	ECORUBBER-H		
			-60 °C ... +200 °C	-	-	ECOSIL		
  		<b>hydraulic, single acting</b> asymmetric rod seal for standard applications as S1, but due to design with active back-up ring suitable for larger extrusion gaps or higher pressure range. S02-P for standard housing design	-30 °C ... +100 °C	0,5 m/s	700 bar (10.000 psi)	ECOPUR	<a href="#">Back-up ring</a> ECOTAL/ ECOMID*	
			-20 °C ... +100 °C	0,5 m/s	700 bar (10.000 psi)	H-ECOPUR		
			-20 °C ... +100 °C	0,7 m/s	700 bar (10.000 psi)	S-ECOPUR		
			-40 °C ... +100 °C	0,5 m/s	700 bar (10.000 psi)	T-ECOPUR		
			-30 °C ... +100 °C	0,5 m/s	700 bar (10.000 psi)	G-ECOPUR		
  		<b>hydraulic, single acting</b> asymmetric rod seal for standard applications as S1, but due to design with active back-up ring suitable for larger extrusion gaps or higher pressure range. S2PD for short housings	-30 °C ... +100 °C	0,5 m/s	700 bar (10.000 psi)	ECOPUR	<a href="#">Back-up ring</a> ECOTAL/ ECOMID*	
			-20 °C ... +100 °C	0,5 m/s	700 bar (10.000 psi)	H-ECOPUR		
			-20 °C ... +100 °C	0,7 m/s	700 bar (10.000 psi)	S-ECOPUR		
			-40 °C ... +100 °C	0,5 m/s	700 bar (10.000 psi)	T-ECOPUR		
			-30 °C ... +100 °C	0,5 m/s	700 bar (10.000 psi)	G-ECOPUR		
  		<b>hydraulic, single acting</b> as profile S2, but more adaptation possibilities for diverse temperatures and media by selection of suitable seal material. S2R for standard housing design	-30 °C ... +100 °C	0,5 m/s	250 bar (3600 psi)	ECORUBBER 1	<a href="#">Back-up ring</a> ECOTAL* ECOMID* ECOFLON 2 ECOTAL* ECOMID* ECOFLON 2 ECOTAL* ECOMID* ECOFLON 2 ECOTAL* ECOMID* ECOFLON 2	
			-30 °C ... +100 °C	0,5 m/s	250 bar (3600 psi)	ECORUBBER 1		
			-20 °C ... +200 °C	0,5 m/s	250 bar (3600 psi)	ECORUBBER 2		
			-50 °C ... +100 °C	0,5 m/s	250 bar (3600 psi)	ECORUBBER 3**		
			-40 °C ... +100 °C	0,5 m/s	250 bar (3600 psi)	ECORUBBER 3**		
			-50 °C ... +150 °C	0,5 m/s	250 bar (3600 psi)	ECORUBBER 3**		
			-25 °C ... +100 °C	0,5 m/s	250 bar (3600 psi)	ECORUBBER-H		
			-25 °C ... +100 °C	0,5 m/s	250 bar (3600 psi)	ECORUBBER H		
			-25 °C ... +150 °C	0,5 m/s	250 bar (3600 psi)	ECORUBBER H		
  		<b>hydraulic, single acting</b> as profile S02-P, but more adaptation possibilities for diverse temperatures and media by selection of suitable seal material. S2RD for short housings	-30 °C ... +100 °C	0,5 m/s	250 bar (3600 psi)	ECORUBBER 1	<a href="#">Back-up ring</a> ECOTAL* ECOMID* ECOFLON 2 ECOTAL* ECOMID* ECOFLON 2 ECOTAL* ECOMID* ECOFLON 2	
			-30 °C ... +100 °C	0,5 m/s	250 bar (3600 psi)	ECORUBBER 1		
			-20 °C ... +200 °C	0,5 m/s	250 bar (3600 psi)	ECORUBBER 2		
			-50 °C ... +100 °C	0,5 m/s	250 bar (3600 psi)	ECORUBBER 3**		
			-40 °C ... +100 °C	0,5 m/s	250 bar (3600 psi)	ECORUBBER 3**		
			-50 °C ... +150 °C	0,5 m/s	250 bar (3600 psi)	ECORUBBER 3**		
			-25 °C ... +100 °C	0,5 m/s	250 bar (3600 psi)	ECORUBBER-H		
			-25 °C ... +100 °C	0,5 m/s	250 bar (3600 psi)	ECORUBBER H		
			-25 °C ... +150 °C	0,5 m/s	250 bar (3600 psi)	ECORUBBER H		
  		<b>hydraulic, single acting</b> O-Ring activated, asymmetrical rod seal. interference fit on outside diameter maintains stable fit in the housing. design provides ultimate sealing effect. especially suitable for short stroke applications (e.g. spindle seals, coupling actuators...)	-30 °C ... +100 °C	0,5 m/s	400 bar (5800 psi)	ECOPUR	<a href="#">O ring</a> NBR (70 Sh A) NBR (70 Sh A) NBR (70 Sh A) NBR (70 Sh A) NBR (70 Sh A)	
			-20 °C ... +100 °C	0,5 m/s	400 bar (5800 psi)	H-ECOPUR		
			-30 °C ... +100 °C	0,5 m/s	400 bar (5800 psi)	T-ECOPUR		
			-20 °C ... +100 °C	0,7 m/s	400 bar (5800 psi)	S-ECOPUR		
			-30 °C ... +100 °C	0,5 m/s	400 bar (5800 psi)	G-ECOPUR		



Not bolded symbols: please consult our technical dpmt. for application limitations

\* ECOTAL up to ø260 mm, ECOMID above ø260 mm  
 \*\* attention: not suitable for mineral oils !

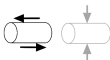
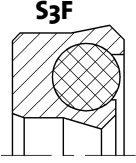
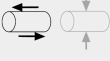
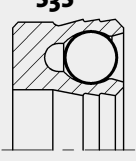
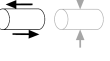
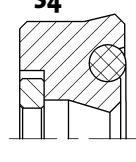

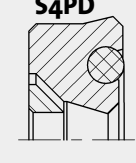
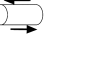
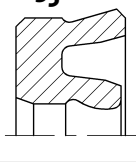
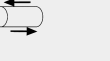
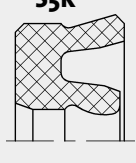
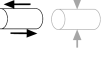
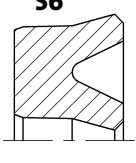

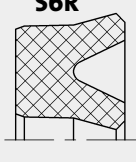
Application	Profile	Description	Temperature	max.speed	max. Pressure	Material		
		<b>PTFE-rodseal, single acting</b> O-Ring activated, asymmetrical PTFE rod seal, low friction, good dry running properties and adaptation possibilities for diverse temperatures and media by selection of suitable O-Ring material, almost no dead spots as required for applications in food & pharma industry.	-20 °C ... +200 °C	1 m/s	100 bar (1450 psi)	<b>Seal part</b> ECOFLON 1	<b>O-Ring</b> FPM/FKM (75 Sh A)	
			-20 °C ... +200 °C	1 m/s	160 bar (2300 psi)	ECOFLON 2	FPM/FKM (75 Sh A)	
			-25 °C ... +150 °C	1 m/s	100 bar (1450 psi)	ECOFLON 1	ECORUBBER-H	
			-25 °C ... +150 °C	1 m/s	160 bar (2300 psi)	ECOFLON 2	ECORUBBER-H	
			-60 °C ... +80 °C	0,5 m/s	200 bar (2900 psi)	ECOPE	MVQ 70 / ECOSIL	
			-60 °C ... +200 °C	1 m/s	100 bar (1450 psi)	ECOFLON 1	MVQ 70 / ECOSIL	
			-60 °C ... +200 °C	1 m/s	160 bar (2300 psi)	ECOFLON 2	MVQ 70 / ECOSIL	
		<b>PTFE-rodseal, single acting</b> helicoil spring activated, asymmetrical PTFE rod seal, low friction and good dry running properties, excellent chemical and thermal resistance, mainly used in chemical, pharma and food industry.	-200 °C ... +260 °C	1 m/s	100 bar (1450 psi)	<b>Seal part</b> ECOFLON 1	<b>Spring</b> 1.4310	
			-200 °C ... +260 °C	1 m/s	160 bar (2300 psi)	ECOFLON 2	1.4310	
			-200 °C ... + 80 °C	0,5 m/s	200 bar (2900 psi)	ECOPE	1.4310	
		<b>hydraulic, single acting</b> asymmetric rod seal for standard applications as S3, but due to design with active back-up ring suitable for larger extrusion gaps or higher pressure range. S04-P for standard housing design	-30 °C ... +100 °C	0,5 m/s	700 bar (10.000 psi)	<b>Seal part</b> ECOPUR	<b>O-ring</b> NBR (70 Sh.A)	<b>Back-up</b> ECOTAL/ ECOMID*
			-20 °C ... +100 °C	0,5 m/s	700 bar (10.000 psi)	H-ECOPUR		
			-30 °C ... +100 °C	0,5 m/s	700 bar (10.000 psi)	T-ECOPUR		
			-20 °C ... +100 °C	0,7 m/s	700 bar (10.000 psi)	S-ECOPUR		
			-30 °C ... +100 °C	0,5 m/s	700 bar (10.000 psi)	G-ECOPUR		
		<b>hydraulic, single acting</b> asymmetric rod seal for standard applications as S3, but due to design with active back-up ring suitable for larger extrusion gaps or higher pressure range. S4PD for short housings.	-30 °C ... +100 °C	0,5 m/s	700 bar (10.000 psi)	<b>Seal part</b> ECOPUR	<b>O-ring</b> NBR (70 Sh.A)	<b>Back-up</b> ECOTAL/ ECOMID*
			-20 °C ... +100 °C	0,5 m/s	700 bar (10.000 psi)	H-ECOPUR		
			-30 °C ... +100 °C	0,5 m/s	700 bar (10.000 psi)	T-ECOPUR		
			-20 °C ... +100 °C	0,7 m/s	700 bar (10.000 psi)	S-ECOPUR		
			-30 °C ... +100 °C	0,5 m/s	700 bar (10.000 psi)	G-ECOPUR		
		<b>pneumatic, single acting</b> asymmetric rod seal, extremely wear resistant, for use in lubricated or dry pneumatic applications. special design of sealing lip allows retention of initial lubricating film.	-30 °C ... +110 °C	1 m/s	25 bar (360 psi)	ECOPUR		
			-20 °C ... +110 °C	1 m/s	25 bar (360 psi)	H-ECOPUR		
			-20 °C ... +110 °C	2 m/s	25 bar (360 psi)	S-ECOPUR		
			-50 °C ... +110 °C	1 m/s	25 bar (360 psi)	T-ECOPUR		
			-30 °C ... +110 °C	1 m/s	25 bar (360 psi)	G-ECOPUR		
		<b>pneumatic, single acting</b> as profile S5R, good wear resistance and adaptation possibilities for diverse temperatures and media by selection of suitable seal material. special design of sealing lip allows retention of initial lubricating film.	-30 °C ... +80 °C	1 m/s	25 bar (360 psi)	ECORUBBER 1		
			-20 °C ... +200 °C	1 m/s	25 bar (360 psi)	ECORUBBER 2		
			-50 °C ... +150 °C	1 m/s	25 bar (360 psi)	ECORUBBER 3**		
			-25 °C ... +150 °C	1 m/s	25 bar (360 psi)	ECORUBBER-H		
		<b>hydraulic, single acting</b> symmetric rod seal for simple standard applications, not recommended for new designs (profile S1 should be preferred).	-30 °C ... +110 °C	0,5 m/s	400 bar (5800 psi)	ECOPUR		
			-20 °C ... +110 °C	0,5 m/s	400 bar (5800 psi)	H-ECOPUR		
			-20 °C ... +110 °C	0,7 m/s	400 bar (5800 psi)	S-ECOPUR		
			-50 °C ... +110 °C	0,5 m/s	400 bar (5800 psi)	T-ECOPUR		
			-30 °C ... +110 °C	0,5 m/s	400 bar (5800 psi)	G-ECOPUR		
		<b>hydraulic, single acting</b> as profile S6, but more adaptation possibilities for diverse temperatures and media by selection of suitable seal material.	-30 °C ... +100 °C	0,5 m/s	160 bar (2300 psi)	ECORUBBER 1		
			-20 °C ... +200 °C	0,5 m/s	160 bar (2300 psi)	ECORUBBER 2		
			-50 °C ... +150 °C	0,5 m/s	160 bar (2300 psi)	ECORUBBER 3**		
			-25 °C ... +150 °C	0,5 m/s	160 bar (2300 psi)	ECORUBBER-H		
			-60 °C ... +200 °C	-	-	ECOSIL		

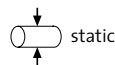
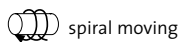
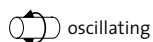
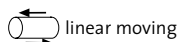


Not bolded symbols: please consult our technical dpmt. for application limitations

\* ECOTAL up to ø260 mm, ECOMID above ø260 mm

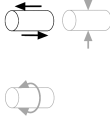
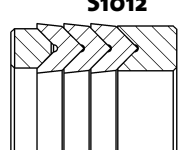
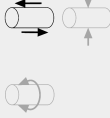
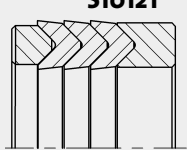
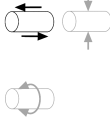
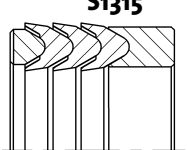

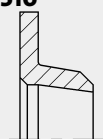
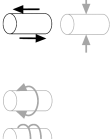
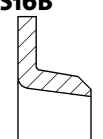
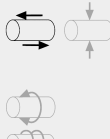
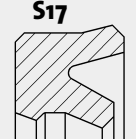
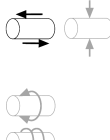
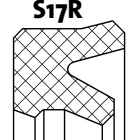
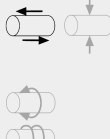
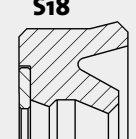
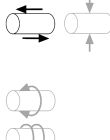
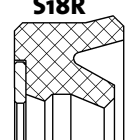
\*\* attention: not suitable for mineral oils !

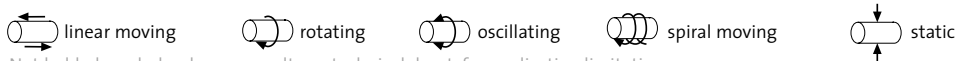
Application	Profile	Description	Temperature	max.speed	max. Pressure	Material		
		<b>PTFE-rodseal, single acting</b> O-Ring activated, asymmetrical PTFE rod seal, low friction, good dry running properties and adaptation possibilities for diverse temperatures and media by selection of suitable O-Ring material, almost no dead spots as required for applications in food & pharma industry.	-20 °C ... +200 °C	1 m/s	100 bar (1450 psi)	<b>Seal part</b> ECOFLON 1	<b>O-Ring</b> FPM/FKM (75 ShA)	
			-20 °C ... +200 °C	1 m/s	160 bar (2300 psi)	ECOFLON 2	FPM/FKM (75 ShA)	
			-25 °C ... +150 °C	1 m/s	100 bar (1450 psi)	ECOFLON 1	ECORUBBER-H	
			-25 °C ... +150 °C	1 m/s	160 bar (2300 psi)	ECOFLON 2	ECORUBBER-H	
			-60 °C ... +80 °C	0,5 m/s	200 bar (2900 psi)	ECOPE	MVQ 70 / ECOSIL	
			-60 °C ... +200 °C	1 m/s	100 bar (1450 psi)	ECOFLON 1	MVQ 70 / ECOSIL	
		<b>PTFE-rodseal, single acting</b> helicoil spring activated, asymmetrical PTFE rod seal, low friction and good dry running properties, excellent chemical and thermal resistance, mainly used in chemical, pharma and food industry.	-200 °C ... +260 °C	1 m/s	100 bar (1450 psi)	<b>Seal part</b> ECOFLON 1	<b>Spring</b> 1.4310	
			-200 °C ... +260 °C	1 m/s	160 bar (2300 psi)	ECOFLON 2	1.4310	
			-200 °C ... + 80 °C	0,5 m/s	200 bar (2900 psi)	ECOPE	1.4310	
		<b>hydraulic, single acting</b> asymmetric rod seal for standard applications as S3 but due to design with active back-up ring suitable for larger extrusion gaps or higher pressure range. S4 for standard housing design	-30 °C ... +100 °C	0,5 m/s	700 bar (10.000 psi)	<b>Seal part</b> ECOPUR	<b>O-ring</b> NBR (70 Sh.A)	<b>Back-up</b> ECOTAL/ ECOMID*
			-20 °C ... +100 °C	0,5 m/s	700 bar (10.000 psi)	H-ECOPUR		
			-30 °C ... +100 °C	0,5 m/s	700 bar (10.000 psi)	T-ECOPUR		
			-20 °C ... +100 °C	0,7 m/s	700 bar (10.000 psi)	S-ECOPUR		
			-30 °C ... +100 °C	0,5 m/s	700 bar (10.000 psi)	G-ECOPUR		
		<b>hydraulic, single acting</b> asymmetric rod seal for standard applications as S3 but due to design with active back-up ring suitable for larger extrusion gaps or higher pressure range. S4PD for short housings.	-30 °C ... +100 °C	0,5 m/s	700 bar (10.000 psi)	<b>Seal part</b> ECOPUR	<b>O-ring</b> NBR (70 Sh.A)	<b>Back-up</b> ECOTAL/ ECOMID*
			-20 °C ... +100 °C	0,5 m/s	700 bar (10.000 psi)	H-ECOPUR		
			-30 °C ... +100 °C	0,5 m/s	700 bar (10.000 psi)	T-ECOPUR		
			-20 °C ... +100 °C	0,7 m/s	700 bar (10.000 psi)	S-ECOPUR		
			-30 °C ... +100 °C	0,5 m/s	700 bar (10.000 psi)	G-ECOPUR		
		<b>pneumatic, single acting</b> asymmetric rod seal, extremely wear resistant, for use in lubricated or dry pneumatic applications. special design of sealing lip allows retention of initial lubricating film.	-30 °C ... +110 °C	1 m/s	25 bar (360 psi)	ECOPUR		
			-20 °C ... +110 °C	1 m/s	25 bar (360 psi)	H-ECOPUR		
			-20 °C ... +110 °C	2 m/s	25 bar (360 psi)	S-ECOPUR		
			-50 °C ... +110 °C	1 m/s	25 bar (360 psi)	T-ECOPUR		
			-30 °C ... +110 °C	1 m/s	25 bar (360 psi)	G-ECOPUR		
		<b>pneumatic, single acting</b> as profile S5R, good wear resistance and adaptation possibilities for diverse temperatures and media by selection of suitable seal material. special design of sealing lip allows retention of initial lubricating film.	-30 °C ... +80 °C	1 m/s	25 bar (360 psi)	ECORUBBER 1		
			-20 °C ... +200 °C	1 m/s	25 bar (360 psi)	ECORUBBER 2		
			-50 °C ... +150 °C	1 m/s	25 bar (360 psi)	ECORUBBER 3**		
			-25 °C ... +150 °C	1 m/s	25 bar (360 psi)	ECORUBBER-H		
		<b>hydraulic, single acting</b> symmetric rod seal for simple standard applications, not recommended for new designs (profile S1 should be preferred).	-30 °C ... +110 °C	0,5 m/s	400 bar (5800 psi)	ECOPUR		
			-20 °C ... +110 °C	0,5 m/s	400 bar (5800 psi)	H-ECOPUR		
			-20 °C ... +110 °C	0,7 m/s	400 bar (5800 psi)	S-ECOPUR		
			-50 °C ... +110 °C	0,5 m/s	400 bar (5800 psi)	T-ECOPUR		
			-30 °C ... +110 °C	0,5 m/s	400 bar (5800 psi)	G-ECOPUR		
		<b>hydraulic, single acting</b> as profile S6, but more adaptation possibilities for diverse temperatures and media by selection of suitable seal material.	-30 °C ... +100 °C	0,5 m/s	160 bar (2300 psi)	ECORUBBER 1		
			-20 °C ... +200 °C	0,5 m/s	160 bar (2300 psi)	ECORUBBER 2		
			-50 °C ... +150 °C	0,5 m/s	160 bar (2300 psi)	ECORUBBER 3**		
			-25 °C ... +150 °C	0,5 m/s	160 bar (2300 psi)	ECORUBBER-H		
			-60 °C ... +200 °C	-	-	ECOSIL		



Not bolded symbols: please consult our technical dpmt. for application limitations

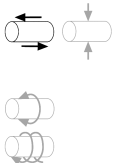
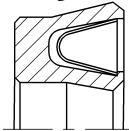
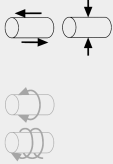
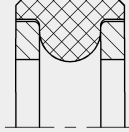
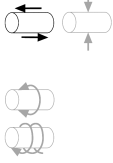
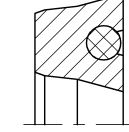
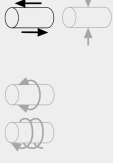

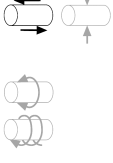
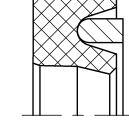
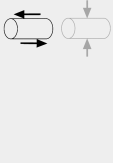
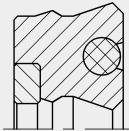
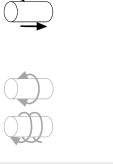
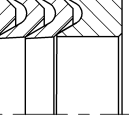
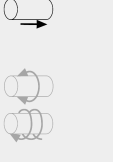


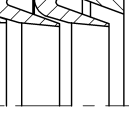


\* ECOTAL up to ø260 mm, ECOMID above ø260 mm  
\*\* attention: not suitable for mineral oils !

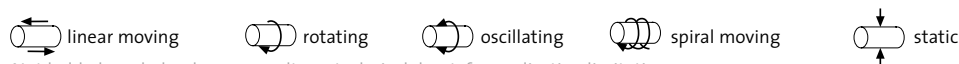
Application	Profile	Description	Temperature	max.speed	max. Pressure	Material
		<b>hydraulic, single acting</b> chevron sealing set, parting surface design. for heavy industry hydraulics.	-30 °C ... +100 °C	0,5 m/s	500 bar (7200 psi)	S10 S11 S12 ECOTAL/ ECOMID* ECO- FLON 2
			-20 °C ... +100 °C	0,5 m/s	500 bar (7200 psi)	
			-40 °C ... +100 °C	0,5 m/s	500 bar (7200 psi)	
			-20 °C ... +100 °C	0,7 m/s	500 bar (7200 psi)	
			-30 °C ... +100 °C	0,5 m/s	500 bar (7200 psi)	
			-30 °C ... +100 °C	0,5 m/s	250 bar (3600 psi)	
			-20 °C ... +200 °C	0,5 m/s	250 bar (3600 psi)	
			-50 °C ... +150 °C	0,5 m/s	250 bar (3600 psi)	
-25 °C ... +150 °C	0,5 m/s	250 bar (3600 psi)				
		<b>hydraulic, single acting</b> chevron sealing set, machined surface design. for heavy industry hydraulics.	-30 °C ... +100 °C	0,5 m/s	500 bar (7200 psi)	S10 S11 S12 ECOTAL/ ECOMID* ECO- FLON 2
			-20 °C ... +100 °C	0,5 m/s	500 bar (7200 psi)	
			-40 °C ... +100 °C	0,5 m/s	500 bar (7200 psi)	
			-20 °C ... +100 °C	0,7 m/s	500 bar (7200 psi)	
			-30 °C ... +100 °C	0,5 m/s	500 bar (7200 psi)	
			-30 °C ... +100 °C	0,5 m/s	250 bar (3600 psi)	
			-20 °C ... +200 °C	0,5 m/s	250 bar (3600 psi)	
			-50 °C ... +150 °C	0,5 m/s	250 bar (3600 psi)	
-25 °C ... +150 °C	0,5 m/s	250 bar (3600 psi)				
		<b>hydraulic, single acting</b> chevron sealing set, design with flexible sealing lips, good sealing ability in higher pressure range. for heavy industry hydraulics, water-hydraulic systems.	-30 °C ... +100 °C	0,5 m/s	600 bar (8700 psi)	S13-T S14-T S15-T ECOTAL/ ECOMID*
			-20 °C ... +100 °C	0,5 m/s	600 bar (8700 psi)	
			-40 °C ... +100 °C	0,5 m/s	600 bar (8700 psi)	
			-20 °C ... +100 °C	0,7 m/s	600 bar (8700 psi)	
			-30 °C ... +100 °C	0,5 m/s	600 bar (8700 psi)	
		<b>hydraulic/pneumatic, single acting</b> simple hat seal, usually fixed in housing with clamp flange. mainly used for replacement in old hydraulic and pneumatic cylinders or for secondary applications.	-30 °C ... +110 °C	0,5 m/s	160 bar (2300 psi)	ECOPUR H-ECOPUR T-ECOPUR S-ECOPUR ECORUBBER 1 ECORUBBER-H ECORUBBER 2 ECORUBBER 3**
			-20 °C ... +110 °C	0,5 m/s	160 bar (2300 psi)	
			-50 °C ... +110 °C	0,5 m/s	160 bar (2300 psi)	
			-20 °C ... +110 °C	0,7 m/s	160 bar (2300 psi)	
			-30 °C ... +100 °C	0,5 m/s	160 bar (2300 psi)	
			-25 °C ... +150 °C	0,5 m/s	160 bar (2300 psi)	
			-20 °C ... +200 °C	0,5 m/s	160 bar (2300 psi)	
-50 °C ... +150 °C	0,5 m/s	160 bar (2300 psi)				
		<b>hydraulic/pneumatic, single acting</b> simple hat seal, usually fixed in housing with clamp flange. mainly used for replacement in old hydraulic and pneumatic cylinders or for secondary applications.	-30 °C ... +110 °C	0,5 m/s	160 bar (2300 psi)	ECOPUR H-ECOPUR T-ECOPUR S-ECOPUR ECORUBBER 1 ECORUBBER-H ECORUBBER 2 ECORUBBER 3**
			-20 °C ... +110 °C	0,5 m/s	160 bar (2300 psi)	
			-50 °C ... +110 °C	0,5 m/s	160 bar (2300 psi)	
			-20 °C ... +110 °C	0,7 m/s	160 bar (2300 psi)	
			-30 °C ... +100 °C	0,5 m/s	160 bar (2300 psi)	
			-25 °C ... +150 °C	0,5 m/s	160 bar (2300 psi)	
			-20 °C ... +200 °C	0,5 m/s	160 bar (2300 psi)	
-50 °C ... +150 °C	0,5 m/s	160 bar (2300 psi)				
		<b>hydraulic, single acting</b> asymmetric rod seal with additional sealing- respectively stabilizing lip. interference fit on outside diameter maintains stable fit in the housing. design mainly used for telescopic cylinders, mobile hydraulic or for special housing dimensions.	-30 °C ... +110 °C	0,5 m/s	400 bar (5800 psi)	ECOPUR H-ECOPUR S-ECOPUR T-ECOPUR G-ECOPUR
			-20 °C ... +110 °C	0,5 m/s	400 bar (5800 psi)	
			-20 °C ... +110 °C	0,7 m/s	400 bar (5800 psi)	
			-50 °C ... +110 °C	0,5 m/s	400 bar (5800 psi)	
			-30 °C ... +110 °C	0,5 m/s	400 bar (5800 psi)	
		<b>hydraulic, single acting</b> as profile S17, but more adaptation possibilities for diverse temperatures and media by selection of suitable seal material.	-30 °C ... +110 °C	0,5 m/s	160 bar (2300 psi)	ECORUBBER 1 ECORUBBER 2 ECORUBBER 3** ECORUBBER-H
			-20 °C ... +110 °C	0,5 m/s	160 bar (2300 psi)	
			-50 °C ... +150 °C	0,5 m/s	160 bar (2300 psi)	
			-25 °C ... +150 °C	0,5 m/s	160 bar (2300 psi)	
		<b>hydraulic, single acting</b> asymmetric rod seal as S17, but due to design with active back-up ring suitable for larger extrusion gaps or higher pressure range.	-30 °C ... +100 °C	0,5 m/s	600 bar (8700 psi)	Seal part Back-up ring ECOTAL/ ECOMID*
			-20 °C ... +100 °C	0,5 m/s	600 bar (8700 psi)	
			-20 °C ... +100 °C	0,7 m/s	600 bar (8700 psi)	
			-40 °C ... +100 °C	0,5 m/s	600 bar (8700 psi)	
			-30 °C ... +100 °C	0,5 m/s	600 bar (8700 psi)	
		<b>hydraulic, single acting</b> asymmetric rod seal with additional sealing- respectively stabilizing lip and back ring. good adaptation possibilities for diverse temperatures and media by selection of suitable seal material, due to design with active back-up ring suitable for larger extrusion gaps or higher pressure range.	-30 °C ... +100 °C	0,5 m/s	250 bar (3600 psi)	Seal part Back-up ring ECOTAL/ ECOMID ECOFLON 2
			-30 °C ... +100 °C	0,5 m/s	250 bar (3600 psi)	
			-20 °C ... +200 °C	0,5 m/s	250 bar (3600 psi)	
			-40 °C ... +100 °C	0,5 m/s	250 bar (3600 psi)	
			-40 °C ... +100 °C	0,5 m/s	250 bar (3600 psi)	
			-50 °C ... +150 °C	0,5 m/s	250 bar (3600 psi)	
			-20 °C ... +100 °C	0,5 m/s	250 bar (3600 psi)	
			-20 °C ... +100 °C	0,5 m/s	250 bar (3600 psi)	
			-20 °C ... +150 °C	0,5 m/s	250 bar (3600 psi)	



Not bolded symbols: please consult our technical dpmt. for application limitations

\* ECOTAL up to ø260 mm, ECOMID above ø260 mm  
 \*\* attention: not suitable for mineral oils !

Application	Profile	Description	Temperature	max.speed	max. Pressure	Material
		<b>PTFE-rodseal, single acting</b> finger spring activated, asymmetrical PTFE rod seal, low friction and good dry running properties, excellent chemical and thermal resistance, mainly used in chemical, pharma and food industry.	-200 °C ... +260 °C	15 m/s	100 bar (1450 psi)	<b>Seal part</b> ECOFILON 1 1.4310
			-200 °C ... +260 °C	15 m/s	160 bar (2300 psi)	ECOFILON 2 1.4310
			-200 °C ... +260 °C	15 m/s	160 bar (2300 psi)	ECOFILON 3 1.4310
			-200 °C ... +80 °C	15 m/s	200 bar (2900 psi)	ECOPE 1.4310
		<b>hydraulic, double acting</b> space saving, compact rod seal, fits standard O-Ring housings. advantage compared to O-Ring: integrated active back-up rings for high pressure, design with interference fit on outside diameter maintains non-twisting in dynamic applications.	-30 °C ... +100 °C	0,5 m/s	700 bar (10000 psi)	<b>Seal part</b> ECORUBBER 1 ECOTAL/ ECORUBBER-H ECOMID*
			-20 °C ... +100 °C	0,5 m/s	700 bar (10000 psi)	ECORUBBER 2 ECOPAЕК/ ECORUBBER-H ECOFLON
			-20 °C ... +200 °C	0,5 m/s	700 bar (10000 psi)	
			-25 °C ... +150 °C	0,5 m/s	700 bar (10000 psi)	
		<b>hydraulic, single acting</b> O-Ring activated symmetric rod seal with sharp-edged sealing lips, good sealing effect for high viscosity fluids, not recommended for new designs (profile S3 preferred).	-30 °C ... +100 °C	0,5 m/s	400 bar (5800 psi)	<b>Seal part</b> ECOPUR NBR (70 Sh.A)
			-20 °C ... +100 °C	0,5 m/s	400 bar (5800 psi)	H-ECOPUR NBR (70 Sh.A)
			-30 °C ... +100 °C	0,5 m/s	400 bar (5800 psi)	T-ECOPUR NBR (70 Sh.A)
			-20 °C ... +100 °C	0,7 m/s	400 bar (5800 psi)	S-ECOPUR NBR (70 Sh.A)
			-30 °C ... +100 °C	0,5 m/s	400 bar (5800 psi)	G-ECOPUR NBR (70 Sh.A)
		<b>hydraulic, single acting</b> symmetric rod seal with support ring for simple applications to serve repair purpose, not recommended for new designs (profile S1 preferred). retainer ring in angled design possible.	-30 °C ... +100 °C	0,5 m/s	400 bar (5800 psi)	<b>Seal part</b> ECOPUR
			-20 °C ... +100 °C	0,5 m/s	400 bar (5800 psi)	H-ECOPUR
			-20 °C ... +100 °C	0,7 m/s	400 bar (5800 psi)	S-ECOPUR
			-40 °C ... +100 °C	0,5 m/s	400 bar (5800 psi)	T-ECOPUR
			-30 °C ... +100 °C	0,5 m/s	400 bar (5800 psi)	G-ECOPUR
		<b>hydraulic, single acting</b> symmetric rod seal as S22, but more adaptation possibilities for diverse temperatures and media by selection of suitable seal material. retainer ring in angled design possible.	-30 °C ... +100 °C	0,5 m/s	160 bar (2300 psi)	<b>Seal part</b> ECORUBBER 1 ECOTAL
			-30 °C ... +100 °C	0,5 m/s	160 bar (2300 psi)	ECORUBBER 1 ECOMID
			-20 °C ... +200 °C	0,5 m/s	160 bar (2300 psi)	ECORUBBER 2 ECOFLON 2
			-50 °C ... +100 °C	0,5 m/s	160 bar (2300 psi)	ECORUBBER 3** ECOTAL
			-40 °C ... +100 °C	0,5 m/s	160 bar (2300 psi)	ECORUBBER 3** ECOMID
			-50 °C ... +150 °C	0,5 m/s	160 bar (2300 psi)	ECORUBBER 3** ECOFLON 2
			-25 °C ... +100 °C	0,5 m/s	160 bar (2300 psi)	ECORUBBER-H ECOTAL
			-25 °C ... +100 °C	0,5 m/s	160 bar (2300 psi)	ECORUBBER-H ECOMID
			-25 °C ... +150 °C	0,5 m/s	160 bar (2300 psi)	ECORUBBER-H ECOFLON 2
		<b>hydraulic, single acting</b> O-Ring activated rod seal with additional stabilizing lips and integrated active back ring for larger extrusion gaps, mainly used in mining industry.	-30 °C ... +100 °C	0,5 m/s	700 bar (10000 psi)	<b>Seal</b> ECOPUR NBR (70 Sh.A)
			-20 °C ... +100 °C	0,5 m/s	700 bar (10000 psi)	H-ECOPUR NBR (70 Sh.A)
			-30 °C ... +100 °C	0,5 m/s	700 bar (10000 psi)	T-ECOPUR NBR (70 Sh.A)
			-20 °C ... +100 °C	0,7 m/s	700 bar (10000 psi)	S-ECOPUR NBR (70 Sh.A)
			-30 °C ... +100 °C	0,5 m/s	700 bar (10000 psi)	G-ECOPUR NBR (70 Sh.A)
		<b>PTFE chevron set, single acting</b> optimized for low pressure, unequal angled chevron design results in good contact pressure even in low pressure range. external spring pretension necessary. mainly used in chemical, pharma and food industry.	-200 °C ... +260 °C	1,5 m/s	100 bar (1450 psi)	<b>S 25</b> ECO-FLON 2
						<b>S 26</b> ECOFLON 1
		<b>PTFE chevron set, single acting</b> optimized for high pressure, equal angled chevron design suitable for high pressure range. external spring pretension necessary. mainly used in chemical, pharma and food industry.	-200 °C ... +260 °C	1,5 m/s	315 bar (4500 psi)	<b>S 29</b> ECO-FLON 2
						<b>S 30</b> ECOFLON 1
		<b>hydraulic, single acting</b> chevron set, design with extremely flexible sealing lips for difficult operating conditions (bad guiding, large tolerance range). available as total chevron set as well as intermediate chevrons only (in case of metal male and female adaptors).	-30 °C ... +100 °C	0,5 m/s	500 bar (7200 psi)	<b>Collar</b> ECOPUR
			-20 °C ... +100 °C	0,5 m/s	500 bar (7200 psi)	H-ECOPUR
			-40 °C ... +100 °C	0,5 m/s	500 bar (7200 psi)	T-ECOPUR
			-20 °C ... +100 °C	0,7 m/s	500 bar (7200 psi)	S-ECOPUR
			-30 °C ... +100 °C	0,5 m/s	500 bar (7200 psi)	G-ECOPUR
		<b>hydraulic, double acting</b> compact rod seal with almost no dead spots as required for applications in food and pharma industry, also commonly used as O-Ring replacement, because design with interference fit on outside diameter maintains non-twisting in dynamic applications.	-30 °C ... +110 °C	0,4 m/s	400 bar (5800 psi)	ECOPUR
			-20 °C ... +110 °C	0,4 m/s	400 bar (5800 psi)	H-ECOPUR
			-20 °C ... +110 °C	0,5 m/s	400 bar (5800 psi)	S-ECOPUR
			-50 °C ... +110 °C	0,4 m/s	400 bar (5800 psi)	T-ECOPUR
			-30 °C ... +110 °C	0,4 m/s	400 bar (5800 psi)	G-ECOPUR



Not bolded symbols: please consult our technical dpmt. for application limitations

\* ECOTAL up to ø260 mm, ECOMID above ø260 mm  
\*\* attention: not suitable for mineral oils!