
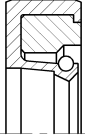

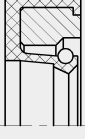
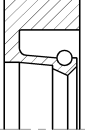

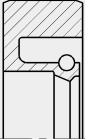

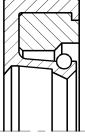

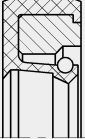
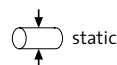
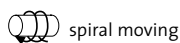
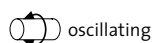
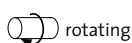



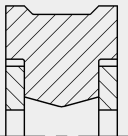
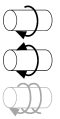
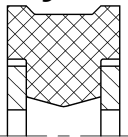

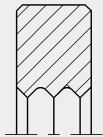

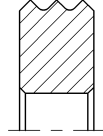

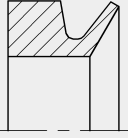
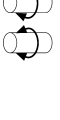
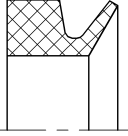
Rotary seals

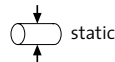
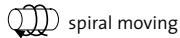
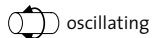
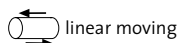
Application	Profile	Description	Temperature	max.speed	max. Pressure	Material	
	R1 	single acting rotary shaft seal spring loaded lip seal with retainer ring for press-fit installation into axially open housings. wide range of applications in every sector of industry, mainly as protecting element for bearings.	-30 °C ... +80 °C	5 m/s	0,5 bar (7 psi)	Seal part ECOPUR	Energizer ECOTAL/ ECOMID*
			-20 °C ... +80 °C	5 m/s	0,5 bar (7 psi)	H-ECOPUR	
			-40 °C ... +80 °C	5 m/s	0,5 bar (7 psi)	T-ECOPUR	
			-20 °C ... +80 °C	6 m/s	0,5 bar (7 psi)	S-ECOPUR	
			-30 °C ... +80 °C	5 m/s	0,5 bar (7 psi)	G-ECOPUR	
	R1R 	single acting rotary shaft seal spring loaded lip seal with retainer ring for press-fit installation into axially open housings. good adaptation possibilities for diverse temperatures and media by selection of suitable seal material. wide range of applications in every sector of industry, mainly as protecting element for bearings.	-30 °C ... +80 °C	10 m/s	0,5 bar (7 psi)	Seal part ECORUBBER 1	Energizer ECOTAL/ ECOMID* METAL ECOTAL METAL ECOTAL METAL
			-25 °C ... +80 °C	10 m/s	0,5 bar (7 psi)	ECORUBBER-H	
			-20 °C ... +200 °C	15 m/s	0,5 bar (7 psi)	ECORUBBER 2	
			-50 °C ... +80 °C	10 m/s	0,5 bar (7 psi)	ECORUBBER 3**	
			-50 °C ... +150 °C	10 m/s	0,5 bar (7 psi)	ECORUBBER 3**	
			-50 °C ... +80 °C	5 m/s	0,2 bar (3 psi)	ECOSIL	
			-60 °C ... +200 °C	5 m/s	0,2 bar (3 psi)	ECOSIL	
	R1AF 	single acting rotary shaft seal spring loaded lip seal with solid outer section for axially open housings with clamping plate fixation. mainly used for rolling mills, large gear mechanisms in heavy duty machinery, for shipbuilding industry and civil engineering.	-30 °C ... +110 °C	5 m/s	0,5 bar (7 psi)	ECOPUR	
			-20 °C ... +110 °C	5 m/s	0,5 bar (7 psi)	H-ECOPUR	
			-50 °C ... +110 °C	5 m/s	0,5 bar (7 psi)	T-ECOPUR	
			-20 °C ... +110 °C	6 m/s	0,5 bar (7 psi)	S-ECOPUR	
			-30 °C ... +100 °C	5 m/s	0,5 bar (7 psi)	G-ECOPUR	
			-30 °C ... +100 °C	10 m/s	0,5 bar (7 psi)	ECORUBBER 1	
			-25 °C ... +150 °C	10 m/s	0,5 bar (7 psi)	ECORUBBER-H	
			-20 °C ... +200 °C	15 m/s	0,5 bar (7 psi)	ECORUBBER 2	
			-50 °C ... +150 °C	10 m/s	0,2 bar (3 psi)	ECORUBBER 3**	
			-60 °C ... +200 °C	5 m/s	0,2 bar (3 psi)	ECOSIL	
				R1AS 	single acting rotary shaft seal split version of a spring loaded lip seal with solid outer section for axially open housings with clamping plate fixation. mainly used for repair purpose on rolling mills, large gear mechanisms in heavy duty machinery, for shipbuilding industry and civil engineering.	-30 °C ... +110 °C	
-20 °C ... +110 °C	5 m/s	0,5 bar (7 psi)				H-ECOPUR	
-50 °C ... +110 °C	5 m/s	0,5 bar (7 psi)				T-ECOPUR	
-20 °C ... +110 °C	6 m/s	0,5 bar (7 psi)				S-ECOPUR	
-30 °C ... +100 °C	5 m/s	0,5 bar (7 psi)				G-ECOPUR	
-30 °C ... +100 °C	10 m/s	0,5 bar (7 psi)				ECORUBBER 1	
-25 °C ... +150 °C	10 m/s	0,5 bar (7 psi)				ECORUBBER-H	
-20 °C ... +200 °C	15 m/s	0,5 bar (7 psi)				ECORUBBER 2	
-50 °C ... +150 °C	10 m/s	0,2 bar (3 psi)				ECORUBBER 3**	
-60 °C ... +200 °C	5 m/s	0,2 bar (3 psi)				ECOSIL	
	R2 	single acting rotary shaft seal as profile R1, but with additional dust lip to avoid ingress of dust and dirt.				-30 °C ... +80 °C	5 m/s
			-20 °C ... +80 °C	5 m/s	0,5 bar (7 psi)	H-ECOPUR	
			-40 °C ... +80 °C	5 m/s	0,5 bar (7 psi)	T-ECOPUR	
			-20 °C ... +80 °C	6 m/s	0,5 bar (7 psi)	S-ECOPUR	
			-30 °C ... +80 °C	5 m/s	0,5 bar (7 psi)	G-ECOPUR	
	R2R 	single acting rotary shaft seal as profile R1R, but with additional dust lip to avoid ingress of dust and dirt.	-30 °C ... +80 °C	10 m/s	0,5 bar (7 psi)	Seal part ECORUBBER 1	Energizer ECOTAL/ ECOMID* METAL ECOTAL ECOTAL METAL
			-25 °C ... +80 °C	10 m/s	0,5 bar (7 psi)	ECORUBBER-H	
			-20 °C ... +200 °C	15 m/s	0,5 bar (7 psi)	ECORUBBER 2	
			-50 °C ... +80 °C	10 m/s	0,5 bar (7 psi)	ECORUBBER 3**	
			-50 °C ... +150 °C	10 m/s	0,5 bar (7 psi)	ECORUBBER 3**	
			-50 °C ... +80 °C	5 m/s	0,2 bar (3 psi)	ECOSIL	
			-60 °C ... +200 °C	5 m/s	0,2 bar (3 psi)	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!


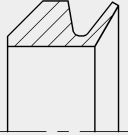

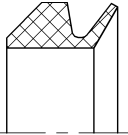

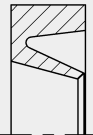
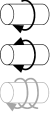
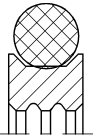

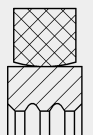
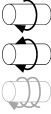
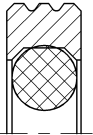

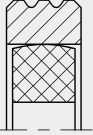
Application	Profile	Description	Temperature	max.speed	max. Pressure	Material	
		double acting rotary seal rotary seal with integrated backup rings for pivoting motion in hydraulic systems. interference fit on outside diameter maintains stable fit in the housing, backup rings permit larger extrusion gap / higher pressure. mainly used for rotary pivots on excavators, grabs	-30 °C ... +100 °C	0,2 m/s	400 bar (5800 psi)	ECOPUR	Seal part
			-20 °C ... +100 °C	0,2 m/s	400 bar (5800 psi)	H-ECOPUR	Back ring
			-40 °C ... +100 °C	0,2 m/s	400 bar (5800 psi)	T-ECOPUR	ECOTAL/ ECOMID*
			-20 °C ... +100 °C	0,3 m/s	400 bar (5800 psi)	S-ECOPUR	
			-30 °C ... +100 °C	0,2 m/s	400 bar (5800 psi)	G-ECOPUR	
		double acting rotary seal as profile R3 but more adaptation possibilities for diverse temperatures and media by selection of suitable seal material.	-30 °C ... +100 °C	0,2 m/s	250 bar (3600 psi)	ECORUBBER 1	Seal part
			-30 °C ... +100 °C	0,2 m/s	250 bar (3600 psi)	ECORUBBER 1	Back rings
			-25 °C ... +100 °C	0,2 m/s	250 bar (3600 psi)	ECORUBBER-H	ECOTAL
			-25 °C ... +100 °C	0,2 m/s	250 bar (3600 psi)	ECORUBBER-H	ECOMID*
			-20 °C ... +200 °C	0,2 m/s	250 bar (3600 psi)	ECORUBBER 2	ECOFLOX
		double acting rotary seal space saving rotary seal for pivoting motion in hydraulic systems. interference fit on outside diameter maintains stable fit in the housing, dynamic sealing lips on inside diameter.	-30 °C ... +110 °C	0,2 m/s	160 bar (2300 psi)	ECOPUR	
			-20 °C ... +110 °C	0,2 m/s	160 bar (2300 psi)	H-ECOPUR	
			-50 °C ... +110 °C	0,2 m/s	160 bar (2300 psi)	T-ECOPUR	
			-20 °C ... +110 °C	0,3 m/s	160 bar (2300 psi)	S-ECOPUR	
			-30 °C ... +110 °C	0,2 m/s	160 bar (2300 psi)	G-ECOPUR	
			-30 °C ... +100 °C	0,2 m/s	100 bar (1450 psi)	ECORUBBER 1	
			-25 °C ... +150 °C	0,2 m/s	100 bar (1450 psi)	ECORUBBER-H	
			-20 °C ... +200 °C	0,2 m/s	100 bar (1450 psi)	ECORUBBER 2	
			-50 °C ... +150 °C	0,2 m/s	100 bar (1450 psi)	ECORUBBER 3**	
		double acting rotary seal space saving rotary seal for pivoting motion in hydraulic systems. interference fit on inside diameter maintains stable fit in the housing, dynamic sealing lips on outside diameter.	-30 °C ... +110 °C	0,2 m/s	160 bar (2300 psi)	ECOPUR	
			-20 °C ... +110 °C	0,2 m/s	160 bar (2300 psi)	H-ECOPUR	
			-50 °C ... +110 °C	0,2 m/s	160 bar (2300 psi)	T-ECOPUR	
			-20 °C ... +110 °C	0,3 m/s	160 bar (2300 psi)	S-ECOPUR	
			-30 °C ... +110 °C	0,2 m/s	160 bar (2300 psi)	G-ECOPUR	
			-30 °C ... +100 °C	0,2 m/s	100 bar (1450 psi)	ECORUBBER 1	
			-25 °C ... +150 °C	0,2 m/s	100 bar (1450 psi)	ECORUBBER-H	
			-20 °C ... +200 °C	0,2 m/s	100 bar (1450 psi)	ECORUBBER 2	
			-50 °C ... +150 °C	0,2 m/s	100 bar (1450 psi)	ECORUBBER 3**	
		axially acting rotary seal elastic, excellent wear resistant V-Ring with interference fit on the shaft, rotates with the shaft, sealing axially against shaft collars, thrust blocks or the outer race of roller bearings, protecting the bearing against dust, dirt, oil splash, watersplash and similar media. acting as a seal and slinger ring.	-30 °C ... +110 °C	25 m/s	-	ECOPUR	
			-20 °C ... +110 °C	25 m/s	-	H-ECOPUR	
			-50 °C ... +110 °C	25 m/s	-	T-ECOPUR	
			-20 °C ... +110 °C	25 m/s	-	S-ECOPUR	
			-30 °C ... +110 °C	25 m/s	-	G-ECOPUR	
			-30 °C ... +110 °C	25 m/s	-	G-ECOPUR	
		axially acting rotary seal elastic, good wear resistant V-Ring as profile R6, but more adaptation possibilities for diverse temperatures and media by selection of suitable seal material.	-30 °C ... +100 °C	25 m/s	-	ECORUBBER 1	
			-20 °C ... +200 °C	25 m/s	-	ECORUBBER 2	
			-50 °C ... +150 °C	25 m/s	-	ECORUBBER 3**	
			-25 °C ... +150 °C	25 m/s	-	ECORUBBER-H	
			-25 °C ... +150 °C	25 m/s	-	ECORUBBER-H	

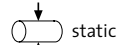
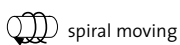
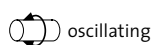
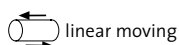


Not bolded symbols: please consult our technical dpmt. for application limitations

* ECOTAL up to ø260 mm, ECOMID above ø260 mm

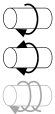
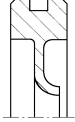

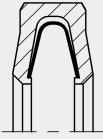

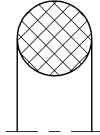

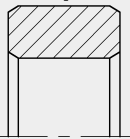
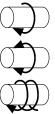
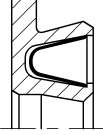

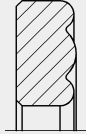
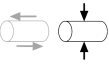
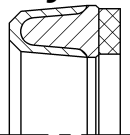

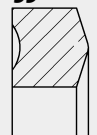
** attention: not suitable for mineral oils !

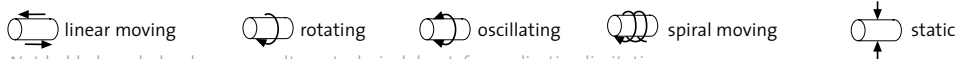
Application	Profile	Description	Temperature	max.speed	max. Pressure	Material	
	R7 	axially acting rotary seal elastic, excellent wear resistant V-Ring with interference fit on the shaft, rotates with the shaft, sealing axially against shaft collars, thrust blocks or the outer race of roller bearings, protecting the bearing against dust, dirt, oil splash, watersplash and similar media. acting as a seal- and slingerring.	-30 °C ... +110 °C	25 m/s	-	ECOPUR	
			-20 °C ... +110 °C	25 m/s	-	H-ECOPUR	
			-50 °C ... +110 °C	25 m/s	-	T-ECOPUR	
			-20 °C ... +110 °C	25 m/s	-	S-ECOPUR	
			-30 °C ... +110 °C	25 m/s	-	G-ECOPUR	
	R7R 	axially acting rotary seal elastic, good wear resistant V-Ring as profile R7, but more adaptation possibilities for diverse temperatures and media by selection of suitable seal material.	-30 °C ... +100 °C	25 m/s	-	ECORUBBER 1	
			-20 °C ... +200 °C	25 m/s	-	ECORUBBER 2	
			-50 °C ... +150 °C	25 m/s	-	ECORUBBER 3**	
			-25 °C ... +150 °C	25 m/s	-	ECORUBBER-H	
	R8 	single acting rotary seal springless rotary lip seal with arbitrary preload on inside and outside diameter in order to design the seal to different specific needs.	upon application	upon application	upon application	all materials possible	
	R9F 	double acting rotary seal O-ring activated, low friction PTFE rotary seal. mainly used in applications with alternating pressure from one side of the seal to the other, such as hose reels, swivel joints, rotating track rings and machine tool hydraulics. good chemical and thermal resistance achievable by selection of suitable O-Ring material.	-30 °C ... +100 °C	0,4 m/s	350 bar (5000 psi)	Glide ring ECOFLON 2,3,4	Energizer NBR (70Sh.A) ECORUBBER 1
			-30 °C ... +100 °C	0,4 m/s	350 bar (5000 psi)	ECOFLON 2,3,4	
			-30 °C ... +80 °C	0,4 m/s	350 bar (5000 psi)	ECOPE	
	R9FS 	double acting rotary seal as profile R9F, but with a profile ring energizer instead of the O-ring. For heavy duty applications and non standard housings.	-30 °C ... +100 °C	0,4 m/s	350 bar (5000 psi)	Glide ring ECOFLON 2,3,4	Energizer NBR (70Sh.A) ECORUBBER 1
			-30 °C ... +100 °C	0,4 m/s	350 bar (5000 psi)	ECOFLON 2,3,4	
			-30 °C ... +80 °C	0,4 m/s	350 bar (5000 psi)	ECOPE	
	R10F 	double acting rotary seal O-ring activated, low friction PTFE rotary seal. mainly used in applications with alternating pressure from one side of the seal to the other, such as hose reels, swivel joints, rotating track rings and machine tool hydraulics. good chemical and thermal resistance achievable by selection of suitable O-Ring material.	-30 °C ... +100 °C	0,4 m/s	350 bar (5000 psi)	Glide ring ECOFLON 2,3,4	Energizer NBR (70Sh.A) ECORUBBER 1
			-30 °C ... +100 °C	0,4 m/s	350 bar (5000 psi)	ECOFLON 2,3,4	
			-30 °C ... +80 °C	0,4 m/s	350 bar (5000 psi)	ECOPE	
	R10FS 	double acting rotary seal as profile R10F, but with a profile ring energizer instead of the O-ring. For heavy duty applications and non standard housings.	-30 °C ... +100 °C	0,4 m/s	350 bar (5000 psi)	Glide ring ECOFLON 2,3,4	Energizer NBR (70Sh.A) ECORUBBER 1
			-30 °C ... +100 °C	0,4 m/s	350 bar (5000 psi)	ECOFLON 2,3,4	
			-30 °C ... +80 °C	0,4 m/s	350 bar (5000 psi)	ECOPE	



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
	R11F 	single acting PTFE rotary seal space saving rotary seal, deformed sealing lip acts selfadjusting on increasing temperature. for axially open housings with clamping plate fixation, elastic secondary seal or integrated O-ring necessary for static sealing in the housing. excellent chemical and thermal resistance, suitable for high speed applications.	-200°C ... +260°C	20 m/s	5 bar (70 psi)	ECOFLON 2,3,4
	R12F 	single acting PTFE flange seal fingerspring activated flange seal, excellent chemical and thermal resistance, mainly used on flanges, fittings or pivoting joints in chemical industry.	-200°C ... +260°C	15 m/s	300 bar (4300 psi)	Seal ECOFLON 2,3,4 Spring 1.4310
	R13 	O-Ring well known, simple O-Ring with proven reliability in multiple applications in every sector of industry. excellent adaptation possibilities for diverse temperatures and media by selection of suitable seal material. mainly used as static seal or as preloading element for PTFE-seals. for most dynamic applications we recommend to prefer profiles like S20/K20 or S35/K35.	-30 °C ... +110 °C -20 °C ... +110 °C -50 °C ... +110 °C -20 °C ... +110 °C -30 °C ... +110 °C -30 °C ... +100 °C -20 °C ... +200°C -50 °C ... +50 °C -25 °C ... +150 °C -200°C .. +260°C	- - - - - - - - - -	600 bar (8700 psi) 600 bar (8700 psi) 600 bar (8700 psi) 600 bar (8700 psi) 600 bar (8700 psi) 160 bar (2300 psi) 160 bar (2300 psi) 160 bar (2300 psi) 160 bar (2300 psi) 160 bar (2300 psi)	ECOPUR H-ECOPUR T-ECOPUR S-ECOPUR G-ECOPUR ECORUBBER 1 ECORUBBER 2 ECORUBBER 3** ECORUBBER-H ECOFLON 1
	R14 	Square ring well known, simple square ring, mainly used for static applications or as gaskets. excellent adaptation possibilities for diverse temperatures and media by selection of suitable seal material.	upon application	upon application	upon application	all materials possible
	R19F 	single acting PTFE rotary seal fingerspring activated PTFE seal with integrated clamping flange on the back of seal for clamping fixation, acting as anti-twist device. excellent chemical and thermal resistance. suitable for relatively high pressure and high speed, however, allowable pressure and speed depend on each other, it is not recommended to use all maximum values simultaneously.	-200 °C ... +260 °C upon application	2 m/s upon application	150 bar (2100 psi) upon application	Seal ECOFLON 2,3,4 all other materials possible Spring 1.4310 1.4310
	R20 	single acting flange seal flange seal for static applications, suitable for high pressure range. direction of pressurization (from inside or outside) must be indicated when ordering the seal.	-30 °C ... +110 °C -20 °C ... +110 °C -50 °C ... +110 °C -20 °C ... +110 °C -30 °C ... +110 °C	- - - - -	800 bar (11600 psi) 800 bar (11600 psi) 800 bar (11600 psi) 800 bar (11600 psi) 800 bar (11600 psi)	ECOPUR H-ECOPUR T-ECOPUR S-ECOPUR G-ECOPUR
	R30 	Valve stem seal with PTFE jacket for low friction, rubber energizer automatically increases preload as it senses leakage. mainly used as valve seal in oil industry/offshore applications.	-20 °C ... +100 °C -25 °C ... +100 °C -20 °C ... +200 °C -25 °C ... +200 °C	0,5 m/s 0,5 m/s 0,5 m/s 0,5 m/s	500 bar (7200 psi) 500 bar (7200 psi) 1000 bar (14500 psi) 1000 bar (14500 psi)	Seal ECORUBBER 2 ECORUBBER-H ECOFLON ECOTAL ECOPAЕК ECOPAЕК Cover ECOFLON ECOTAL ECOPAЕК ECOPAЕК Backup ECOTAL ECOTAL ECOPAЕК ECOPAЕК
	R35 	single acting flange seal flange seal for static applications, suitable for high pressure range. direction of pressurization (from inside or outside) must be indicated when ordering the seal.	-30 °C ... +110 °C -20 °C ... +110 °C -50 °C ... +110 °C -20 °C ... +110 °C -30 °C ... +110 °C -30 °C ... +100 °C -20 °C ... +200 °C -50 °C ... +150 °C -25 °C ... +150 °C -60 °C ... +200 °C	- - - - - - - - - -	800 bar (11600 psi) 800 bar (11600 psi) 800 bar (11600 psi) 800 bar (11600 psi) 800 bar (11600 psi) 250 bar (3600 psi) 250 bar (3600 psi) 250 bar (3600 psi) 250 bar (3600 psi) 250 bar (3600 psi)	ECOPUR H-ECOPUR T-ECOPUR S-ECOPUR G-ECOPUR ECORUBBER 1 ECORUBBER 2 ECORUBBER 3** ECORUBBER H ECOSIL



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

* ECOTAL up to ø260 mm, ECOMID above ø260 mm
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