


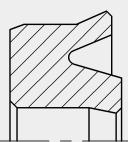



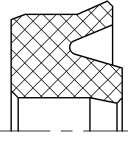





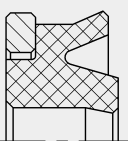



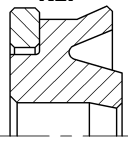




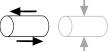



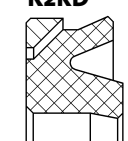


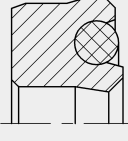
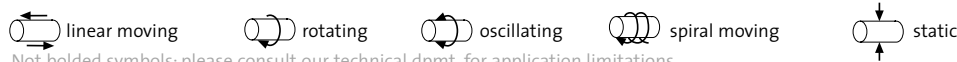


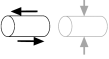
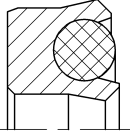

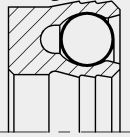
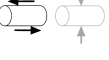
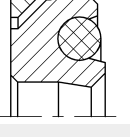

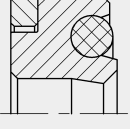
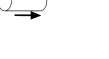
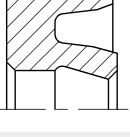
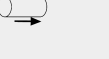
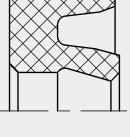
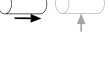
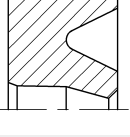

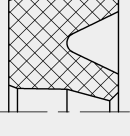
# Piston seals

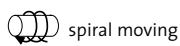
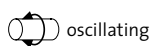
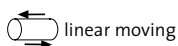
Application	Profile	Description	Temperature	max.speed	max. Pressure	Material	
  		<b>hydraulic, single acting</b> asymmetric piston seal for standard applications. design provides stable fit in the housing, ultimate sealing effect over a wide temperature range. avoids extensive drag pressure. back-to-back arrangement with guide ring in between or for double acting pistons or to separate different fluids.	-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 K1, 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> as profile K2P, but more adaptation possibilities to diverse temperatures and media by selection of suitable seal material. K2 for standard housing design.	-30 °C ... +100 °C	0,5 m/s	250 bar (3600 psi)	ECORUBBER 1	Seal part
			-30 °C ... +100 °C	0,5 m/s	250 bar (3600 psi)	ECORUBBER 1	Back-up ring
			-20 °C ... +200 °C	0,5 m/s	250 bar (3600 psi)	ECORUBBER 2	ECOTAL
			-50 °C ... +100 °C	0,5 m/s	250 bar (3600 psi)	ECORUBBER 3**	ECOTAL
			-40 °C ... +100 °C	0,5 m/s	250 bar (3600 psi)	ECORUBBER 3**	ECOMID*
			-50 °C ... +150 °C	0,5 m/s	250 bar (3600 psi)	ECORUBBER 3**	ECOFLO II
			-25 °C ... +100 °C	0,5 m/s	250 bar (3600 psi)	ECORUBBER-H	ECOTAL
			-25 °C ... +100 °C	0,5 m/s	250 bar (3600 psi)	ECORUBBER-H	ECOMID*
			-25 °C ... +150 °C	0,5 m/s	250 bar (3600 psi)	ECORUBBER-H	ECOFLO II
  		<b>hydraulic, single acting</b> asymmetric piston seal for standard applications as K1, but due to design with active back-up ring suitable for higher pressure range or larger extrusion gaps. K2 for standard housing design.	-30 °C ... +100 °C	0,5 m/s	700 bar (10.000 psi)	ECOPUR	Seal part
			-20 °C ... +100 °C	0,5 m/s	700 bar (10.000 psi)	H-ECOPUR	Back-up ring
			-20 °C ... +100 °C	0,7 m/s	700 bar (10.000 psi)	S-ECOPUR	ECOTAL/ ECOMID*
			-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> with active back-up ring suitable for high asymmetric piston seal for standard applications as K1, but due to design her pressure or larger extrusion gaps. K2PD for short housings.	-30 °C ... +100 °C	0,5 m/s	700 bar (10.000 psi)	ECOPUR	Seal part
			-20 °C ... +100 °C	0,5 m/s	700 bar (10.000 psi)	H-ECOPUR	Back-up ring
			-20 °C ... +100 °C	0,7 m/s	700 bar (10.000 psi)	S-ECOPUR	ECOTAL/ ECOMID*
			-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 K2P, but more adaptation possibilities to diverse temperatures and media by selection of suitable seal material. K2RD for short housings.	-30 °C ... +100 °C	0,5 m/s	250 bar (3600 psi)	ECORUBBER 1	Seal part
			-30 °C ... +100 °C	0,5 m/s	250 bar (3600 psi)	ECORUBBER 1	Back-up ring
			-20 °C ... +200 °C	0,5 m/s	250 bar (3600 psi)	ECORUBBER 2	ECOTAL
			-50 °C ... +100 °C	0,5 m/s	250 bar (3600 psi)	ECORUBBER 3**	ECOTAL
			-40 °C ... +100 °C	0,5 m/s	250 bar (3600 psi)	ECORUBBER 3**	ECOMID*
			-50 °C ... +150 °C	0,5 m/s	250 bar (3600 psi)	ECORUBBER 3**	ECOFLO II
			-25 °C ... +100 °C	0,5 m/s	250 bar (3600 psi)	ECORUBBER-H	ECOTAL
			-25 °C ... +100 °C	0,5 m/s	250 bar (3600 psi)	ECORUBBER-H	ECOMID*
			-25 °C ... +150 °C	0,5 m/s	250 bar (3600 psi)	ECORUBBER-H	ECOFLO II
 		<b>hydraulic, single acting</b> o-ring activated, asymmetrical piston seal. interference fit on inside 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	Seal part
			-20 °C ... +100 °C	0,5 m/s	400 bar (5800 psi)	H-ECOPUR	O ring
			-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)
			-50 °C ... +100 °C	0,5 m/s	400 bar (5800 psi)	T-ECOPUR	MOV 70 / 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!

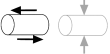
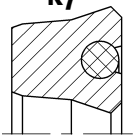

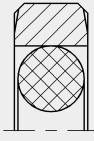

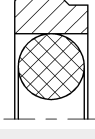

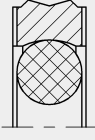

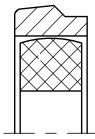

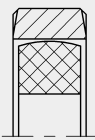
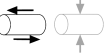
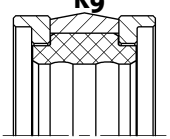


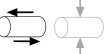
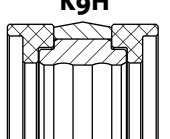

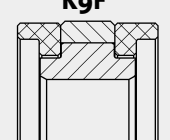
Application	Profile	Description	Temperature	max.speed	max. Pressure	Material		
		<b>PTFE-piston seal, single acting</b> O-Ring activated, asymmetrical PTFE piston seal, low friction and no stick-slip effect. good adaptation possibilities for diverse temperatures and media by selection of suitable O-Ring material, almost no dead spots as required for applications in food and 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-piston seal, single acting</b> helicoil spring activated, asymmetrical PTFE piston seal, low friction and no stick-slip effect, excellent chemical and thermal resistance, mainly used in chemical, pharma and food industry or for valves.	-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 piston seal for standard applications as K3 but due to design with active back-up ring suitable for larger extrusion gaps. K4 for short housings	-30 °C ... +100 °C	0,5 m/s	700 bar (10.000 psi)	<b>Seal part</b> ECOUPUR	<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-ECOUPUR		
			-30 °C ... +100 °C	0,5 m/s	700 bar (10.000 psi)	T-ECOUPUR		
			-20 °C ... +100 °C	0,7 m/s	700 bar (10.000 psi)	S-ECOUPUR		
			-30 °C ... +100 °C	0,5 m/s	700 bar (10.000 psi)	G-ECOUPUR		
		<b>hydraulic, single acting</b> asymmetric piston seal for standard applications as K3 but due to design with active back-up ring suitable for larger extrusion gaps or higher pressure. K4P for standard housing design	-30 °C ... +100 °C	0,5 m/s	700 bar (10.000 psi)	<b>Seal part</b> ECOUPUR	<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-ECOUPUR		
			-30 °C ... +100 °C	0,5 m/s	700 bar (10.000 psi)	T-ECOUPUR		
			-20 °C ... +100 °C	0,7 m/s	700 bar (10.000 psi)	S-ECOUPUR		
			-30 °C ... +100 °C	0,5 m/s	700 bar (10.000 psi)	G-ECOUPUR		
		<b>pneumatic, single acting</b> asymmetric piston 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)	ECOUPUR		
			-20 °C ... +110 °C	1 m/s	25 bar (360 psi)	H-ECOUPUR		
			-20 °C ... +110 °C	2 m/s	25 bar (360 psi)	S-ECOUPUR		
			-50 °C ... +110 °C	1 m/s	25 bar (360 psi)	T-ECOUPUR		
			-30 °C ... +110 °C	1 m/s	25 bar (360 psi)	G-ECOUPUR		
		<b>pneumatic, single acting</b> asymmetric piston seal, good wear resistant, for use in lubricated or dry pneumatic applications. good 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 piston seal for simple standard applications, not recommended for new designs (profile K1 preferred). also for larger cross section, easier to install.	-30 °C ... +110 °C	0,5 m/s	400 bar (5800 psi)	ECOUPUR		
			-20 °C ... +110 °C	0,5 m/s	400 bar (5800 psi)	H-ECOUPUR		
			-20 °C ... +110 °C	0,7 m/s	400 bar (5800 psi)	S-ECOUPUR		
			-50 °C ... +110 °C	0,5 m/s	400 bar (5800 psi)	T-ECOUPUR		
			-30 °C ... +110 °C	0,5 m/s	400 bar (5800 psi)	G-ECOUPUR		
		<b>hydraulic, single acting</b> as profile K6, but more adaptation possibilities for diverse temperatures and media by selection of suitable seal material. also for larger cross section, easier to install.	-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		

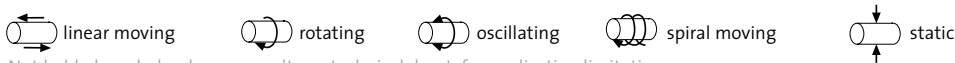


Not bolded symbols: please consult our technical dpmt. for application limitations

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

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

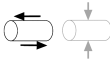


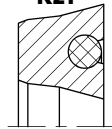
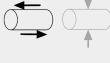


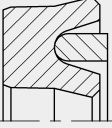



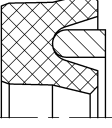



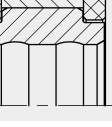
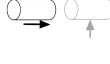


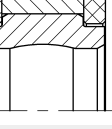
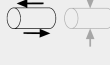


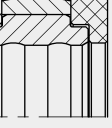
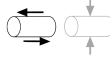


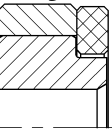
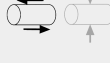


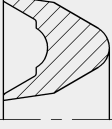
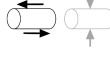


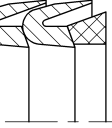
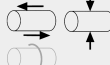


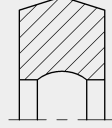
Application	Profile	Description	Temperature	max.speed	max. Pressure	Material		
		<b>hydraulic, single acting</b> O-Ring activated symmetric piston seal for simple standard applications, not recommended for new designs (profile K3 preferred)	-30 °C ... +100 °C	0,5 m/s	400 bar (5800 psi)	Seal part	O-ring	
			-20 °C ... +100 °C	0,5 m/s	400 bar (5800 psi)	ECOPUR	NBR (70 Sh.A)	
			-20 °C ... +100 °C	0,7 m/s	400 bar (5800 psi)	H-ECOPUR		
			-30 °C ... +100 °C	0,5 m/s	400 bar (5800 psi)	S-ECOPUR		
			-30 °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, double acting</b> O-Ring activated symmetric PTFE piston seal, low friction. for extreme low or high speed, suitable for positioning functions. for mobile hydraulics, machine tools, injection moulding machines, heavy hydraulics.	-30 °C ... +100 °C	10 m/s	400 bar (5800 psi)	Glide ring	O-ring	
			-20 °C ... +200 °C	10 m/s	400 bar (5800 psi)	ECOFILON 2/3/4	NBR (70 Sh.A) FPM/FKM (75) EPDM (70)** MVQ (70) MVQ 70 / ECOSIL	
			-50 °C ... +150 °C	10 m/s	400 bar (5800 psi)			
			-60 °C ... +200 °C	10 m/s	400 bar (5800 psi)			
			-60 °C ... +80 °C	10 m/s	400 bar (5800 psi)	ECOPE		
		<b>hydraulic, single acting</b> O-Ring activated asymmetric PTFE piston seal, low friction. for extreme low or high speed. suitable for positioning functions.	-30 °C ... +100 °C	10 m/s	400 bar (5800 psi)	Glide ring		
			-20 °C ... +200 °C	10 m/s	400 bar (5800 psi)	ECOFILON 2/3/4	NBR (70 Sh.A) FPM/FKM (75) EPDM (70)** MVQ (70) MVQ 70 / ECOSIL	
			-50 °C ... +150 °C	10 m/s	400 bar (5800 psi)			
			-60 °C ... +200 °C	10 m/s	400 bar (5800 psi)			
			-60 °C ... +80 °C	10 m/s	400 bar (5800 psi)	ECOPE		
		<b>hydraulic, double acting</b> O-Ring activated symmetric PU piston seal with excellent static and dynamic sealing capacity, extremely wear resistant.	-30 °C ... +100 °C	1 m/s	250 bar (3600 psi)	Glide ring		
			-20 °C ... +100 °C	1 m/s	250 bar (3600 psi)	ECOPUR	NBR 70Sh.A	
			-20 °C ... +100 °C	1 m/s	250 bar (3600 psi)	H-ECOPUR		
			-30 °C ... +100 °C	1 m/s	250 bar (3600 psi)	T-ECOPUR		
		<b>hydraulic, single acting</b> profile ring-activated asymmetric PTFE piston seal, similar to K8E, but special heavy duty design. for heavy industry hydraulics or for special housing dimensions.	-30 °C ... +100 °C	10 m/s	400 bar (5800 psi)	Glide ring		
			-20 °C ... +200 °C	10 m/s	400 bar (5800 psi)	ECOFILON 2, 3, 4	ECORUBBER 1 ECORUBBER 2 ECORUBBER 3** ECORUBBER-H	
			-50 °C ... +150 °C	1,4 m/s	400 bar (5800 psi)			
			-25 °C ... +150 °C	10 m/s	400 bar (5800 psi)			
		<b>hydraulic, double acting</b> profile ring-activated symmetric PTFE piston seal, similar to S9D, but special heavy duty design. for heavy industry hydraulics or for special housing dimensions.	-30 °C ... +100 °C	10 m/s	400 bar (5800 psi)	Glide ring		
			-20 °C ... +200 °C	10 m/s	400 bar (5800 psi)	ECOFILON 2, 3, 4	ECORUBBER 1 ECORUBBER 2 ECORUBBER 3** ECORUBBER-H	
			-50 °C ... +150 °C	10 m/s	400 bar (5800 psi)			
			-25 °C ... +150 °C	10 m/s	400 bar (5800 psi)			
		<b>hydraulic, double acting</b> profile ring-activated compact piston seal with integrated guiding elements. excellent static sealing capacity. commonly used in standard cylinders.	-30 °C ... +100 °C	0,5 m/s	400 bar (5800 psi)	Seal		
			-20 °C ... +100 °C	0,5 m/s	400 bar (5800 psi)	ECOPUR		
			-30 °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)	T-ECOPUR		
			-30 °C ... +100 °C	0,5 m/s	400 bar (5800 psi)	S-ECOPUR		
		<b>hydraulic, double acting</b> profile ring-activated compact piston seal with integrated guiding elements. excellent static and dynamic sealing capacity.	-30 °C ... +100 °C	0,5 m/s	400 bar (5800 psi)	Seal	Energizer	Back-up ring
			-20 °C ... +100 °C	0,5 m/s	400 bar (5800 psi)	ECOPUR		
			-30 °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)	T-ECOPUR		
			-30 °C ... +100 °C	0,5 m/s	400 bar (5800 psi)	S-ECOPUR		
		<b>hydraulic, double acting</b> profile ring-activated compact piston seal with integrated guiding elements. design for high pressure range, excellent static sealing capacity. mainly used in mining / tunneling industry.	-20 °C ... +100 °C	0,3 m/s	1500 bar (21700 psi)	Seal	Energizer	Back-up ring
			-30 °C ... +100 °C	0,3 m/s	1500 bar (21700 psi)	H-ECOPUR		
		<b>hydraulic, double acting</b> profile ring-activated compact PTFE piston seal with integrated guiding elements. low friction, good chemical and thermal resistance.	-30 °C ... +100 °C	1,5 m/s	500 bar (7200 psi)	Seal	Energizer	Back-up ring
			-30 °C ... +100 °C	1,5 m/s	500 bar (7200 psi)	ECOFILON 2		
			-20 °C ... +200 °C	1,5 m/s	400 bar (5800 psi)	ECOFILON 2		
			-20 °C ... +200 °C	1,5 m/s	400 bar (5800 psi)	ECOFILON 2		



\* 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, machined surface design. in back-to-back arrangement with one intermediate chevron for double sided pressure activation, in single acting applications with more intermediate chevrons possible. for heavy industry hydraulics.	-30 °C ... +100 °C	0,5 m/s	500 bar (7200 psi)	K10	K 11	K 12
			-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	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, parted surface design. in back-to-back arrangement with one intermediate chevron for double sided pressure activation, in single acting applications with more intermediate chevrons possible. for heavy industry hydraulics.	-30 °C ... +100 °C	0,5 m/s	500 bar (7200 psi)	K 10	K 11	K 12
			-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	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)	K 13	K 14	K15
			-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)			
		<b>hydraulic/pneumatic, single acting</b> simple cup seal, usually fixed on the piston by means of a clamping plate. mainly used for replacement in old hydraulic and pneumatic cylinders or for low-grade secondary applications. also used for food filling / portioning equipment.	-30 °C ... +110 °C	0,5 m/s	160 bar (2300 psi)	ECOPUR	K 11	K 12
			-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 ... +110 °C	0,5 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)			
			-50 °C ... +150 °C	0,5 m/s	160 bar (2300 psi)			
		<b>hydraulic/pneumatic, single acting</b> simple cup seal, usually fixed on the piston by means of a clamping plate. mainly used for replacement in old hydraulic and pneumatic cylinders or for low-grade secondary applications. also used for food filling / portioning equipment.	-30 °C ... +110 °C	0,5 m/s	160 bar (2300 psi)	ECOPUR	K 11	K 12
			-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 ... +110 °C	0,5 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)			
			-50 °C ... +150 °C	0,5 m/s	160 bar (2300 psi)			
		<b>hydraulic, double acting</b> space saving, compact piston seal with integrated guiding elements. excellent static sealing capacity, suitable for small housings.	-30 °C ... +100 °C	0,5 m/s	250 bar (3600 psi)	Seal part	Back-up ring	
			-20 °C ... +100 °C	0,5 m/s	250 bar (3600 psi)			
			-40 °C ... +100 °C	0,5 m/s	250 bar (3600 psi)			
			-20 °C ... +100 °C	0,7 m/s	250 bar (3600 psi)			
		<b>hydraulic, double acting</b> space saving, compact piston seal with integrated guiding elements. excellent static sealing capacity, good adaptation possibilities for diverse temperatures and media by selection of suitable material. suitable for small housings.	-30 °C ... +100 °C	0,5 m/s	250 bar (3600 psi)	Seal part	Back-up ring	
			-30 °C ... +100 °C	0,5 m/s	250 bar (3600 psi)			
			-20 °C ... +200 °C	0,5 m/s	250 bar (3600 psi)			
			-20 °C ... +200 °C	0,5 m/s	250 bar (3600 psi)			
		<b>PTFE-piston seal, single acting</b> finger-spring activated, asymmetrical PTFE piston 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)	Seal part	Spring	
			-200 °C ... +260 °C	15 m/s	160 bar (2300 psi)			
			-200 °C ... +260 °C	15 m/s	160 bar (2300 psi)			
			-200 °C ... +80 °C	15 m/s	200 bar (2900 psi)			
		<b>hydraulic, double acting</b> space saving, compact piston seal, suitable for standard O-Ring housings. advantage compared to O-Ring: integrated active back-up rings for high pressure, design with interference fit on outside diameter prevents twisting in dynamic applications.	-30 °C ... +100 °C	0,5 m/s	700 bar (10.000 psi)	Seal part	Back-up ring	
			-25 °C ... +100 °C	0,5 m/s	700 bar (10.000 psi)			
			-20 °C ... +200 °C	0,5 m/s	700 bar (10.000 psi)			
			-25 °C ... +150 °C	0,5 m/s	700 bar (10.000 psi)			



Application	Profile	Description	Temperature	max. speed	max. Pressure	Material			
  		<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)	ECOPUR	Seal part	O-ring	
			-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			
  		<b>hydraulic, single acting</b> symmetric piston seal with support ring for simple applications to serve repair purpose, not recommended for new designs (profile K1 preferred). retainer ring in angled design possible.	-30 °C ... +100 °C	0,5 m/s	400 bar (5800 psi)	ECOPUR	Seal part	Support ring	
			-20 °C ... +100 °C	0,5 m/s	400 bar (5800 psi)	H-ECOPUR			
			-40 °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			
  		<b>hydraulic, single acting</b> symmetric piston seal as K22, 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)	ECORUBBER 1	Seal part	Support ring	
			-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 ... +100 °C	0,5 m/s	160 bar (2300 psi)	ECORUBBER 3**			
			-40 °C ... +100 °C	0,5 m/s	160 bar (2300 psi)	ECORUBBER 3**			
			-50 °C ... +150 °C	0,5 m/s	160 bar (2300 psi)	ECORUBBER 3**			
			-25 °C ... +100 °C	0,5 m/s	160 bar (2300 psi)	ECORUBBER-H			
			-25 °C ... +100 °C	0,5 m/s	160 bar (2300 psi)	ECORUBBER-H			
			-25 °C ... +150 °C	0,5 m/s	160 bar (2300 psi)	ECORUBBER-H			
			-25 °C ... +150 °C	0,5 m/s	160 bar (2300 psi)	ECORUBBER-H			
  		<b>hydraulic, double acting</b> profile ring-activated compact piston seal with integrated back-up rings, excellent static sealing capacity. external guiding elements required.	-30 °C ... +100 °C	0,5 m/s	400 bar (5800 psi)	ECOPUR	Seal	Energizer	Back-up rings
			-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			
  		<b>hydraulic, double acting</b> profile ring-activated compact piston seal with integrated back-up rings. excellent static and dynamic sealing capacity. external guiding elements required.	-30 °C ... +100 °C	0,5 m/s	400 bar (5800 psi)	ECOPUR	Seal	Energizer	Back-up rings
			-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			
  		<b>hydraulic, double acting</b> profile ring-activated compact piston seal with integrated back-up rings. design for high pressure range, excellent static sealing capacity. mainly used in mining / tunneling industry. external guiding elements required.	-20 °C ... +100 °C	0,3 m/s	1500 bar (21000 psi)	H-ECOPUR	Seal	Energizer	Back-up rings
			-30 °C ... +100 °C	0,3 m/s	1500 bar (21000 psi)	G-ECOPUR			
  		<b>hydraulic, double acting</b> profile ring-activated compact PTFE piston seal with integrated back-up rings. low friction, good chemical and thermal resistance. external guiding elements required.	-30 °C ... +100 °C	1,5 m/s	500 bar (7200 psi)	ECOFLO 2	Seal	Energizer	Back-up rings
			-30 °C ... +100 °C	1,5 m/s	500 bar (7200 psi)	ECOFLO 2			
			-20 °C ... +200 °C	1,5 m/s	400 bar (5800 psi)	ECOFLO 2			
			-20 °C ... +200 °C	1,5 m/s	400 bar (5800 psi)	ECOFLO 2			
			-20 °C ... +200 °C	1,5 m/s	400 bar (5800 psi)	ECOFLO 2			
			-20 °C ... +200 °C	1,5 m/s	400 bar (5800 psi)	ECOFLO 4			
  		<b>hydraulic, single acting</b> chevron ring with flexible lip design. replacement part for standard commercial housings (male and female adapter mainly made of metal).	-30 °C ... +110 °C	0,5 m/s	500 bar (7200 psi)	ECOPUR	Seal	Energizer	Back-up rings
			-20 °C ... +110 °C	0,5 m/s	500 bar (7200 psi)	H-ECOPUR			
			-50 °C ... +110 °C	0,5 m/s	500 bar (7200 psi)	T-ECOPUR			
			-20 °C ... +110 °C	0,7 m/s	500 bar (7200 psi)	S-ECOPUR			
			-30 °C ... +110 °C	0,5 m/s	500 bar (7200 psi)	G-ECOPUR			
			-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 ... +150 °C	0,5 m/s	250 bar (3600 psi)	ECORUBBER 3**			
			-25 °C ... +150 °C	0,5 m/s	250 bar (3600 psi)	ECORUBBER H			
  		<b>hydraulic, single acting</b> chevron sealing set, design with extremely flexible sealing lips for difficult operating conditions like bad guiding, large tolerance range. available as total chevron sealing set as well as intermediate chevrons only (in case of metal male and female adapters).	-30 °C ... +100 °C	0,5 m/s	500 bar (7200 psi)	ECOPUR	Seal	Collar	Back-up ring
			-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 piston 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	Seal part		
			-20 °C ... +110 °C	0,4 m/s	400 bar (5800 psi)	H-ECOPUR			
			-50 °C ... +110 °C	0,4 m/s	400 bar (5800 psi)	T-ECOPUR			
			-20 °C ... +110 °C	0,5 m/s	400 bar (5800 psi)	S-ECOPUR			
			-30 °C ... +110 °C	0,4 m/s	400 bar (5800 psi)	G-ECOPUR			