

## Seals for reciprocating application

Design	Ref.	Pressure (bar)	Temp. (°C)	Speed (m/s)	Material	Dimensions metr. inch	
	K 30	Piston seal	400	-30 to +100	15	PTFE-bronze-compound/NBR 70	■ ■
	K 31	Piston seal	400	-30 to +100	15	PTFE-bronze-compound/NBR 70	■ ■
	K 04	Piston seal	160	-30 to +100	2	PTFE-bronze-compound/NBR 70	■ ■
	K 01	Piston seal	400	-30 to +100	0,5	NBR-impregnated fabric/polyester-elastomer/POM	■ ■
	K 12	Piston seal	400	-30 to +100	0,5	NBR-impregnated fabric/POM	■ ■
	K 02	Piston seal	400	-30 to +100	0,5	NBR-impregnated fabric	■ ■
	K 13	Piston seal	400	-30 to +100	0,5	NBR/NBR-impregn. fabric/POM	■ ■
	K 14	Piston seal	400	-30 to +100	0,5	NBR/NBR-impregn. fabric/POM	■ ■
	K 16	Piston seal	400	-30 to +100	0,5	NBR/NBR-impregn. fabric/POM	■ ■
	K 06	Piston seal	400	-30 to +100	0,5	NBR/NBR-impregn. fabric	■ ■
	K 07	Piston seal	700	-30 to +100	0,5	NBR/NBR-impregn. fabric/POM	■ ■
	K 08	Piston seal	700	-30 to +100	0,5	NBR/NBR-impregn. fabric/POM	■ ■
	K 20	Piston seal	500	-30 to +100	0,5	NBR/NBR-impregn. fabric/POM	■ ■
	K 21	Piston seal	700	-30 to +100	0,5	NBR/NBR-impregn. fabric/POM	■ ■
	K 03	Piston seal	300	-30 to +100	0,5	NBR/polyester-elastomer/POM	■ ■
	K 22	Piston seal	350	-30 to +100	0,5	NBR impregnated fabric/NBR/POM	■ ■
	K 10	Piston seal	150	-30 to +100	0,5	NBR/POM	■ ■
	K 24	Piston seal	400	-30 to +100	0,5	AU/NBR/POM	■ ■
	K 25	Piston seal	700	-30 to +100	0,5	NBR-impregnated fabric/NBR/POM	■ ■
	K 05	Piston seal	500	-30 to +100	0,5	NBR/polyester-elastomer/POM	■ ■
	K 09	Piston seal	500	-30 to +100	0,5	NBR/polyester-elastomer/POM	■ ■
	K 15	Piston seal	40	-30 to +100	0,5	NBR 80/metal	■ ■
	K 17	Piston seal	60	-30 to +100	0,5	NBR 90/metal	■ ■
	K 18	Piston seal	10	-30 to +100	1	NBR 70/metal	■ ■
	S 30	Rod seal	400	-30 to +100	15	PTFE-bronze-compound/NBR 70	■ ■
	S 31	Rod seal	400	-30 to +100	15	PTFE-bronze-compound/NBR 70	■ ■
	S 06	Rod seal	160	-30 to +100	2	PTFE-bronze-compound/NBR 70	■ ■
	S 01	Rod seal	400	-30 to +100	0,5	NBR impregnated fabric/NBR/polyesterelastomer/POM	■ ■
	S 02	Rod seal	400	-30 to +100	0,5	NBR-impregnated fabric/NBR/polyesterelastomer/POM	■ ■
	S 03	Rod seal	400	-30 to +100	0,5	NBR-impregnated fabric/NBR/polyesterelastomer/POM	■ ■
	S 04	Rod seal	400	-30 to +100	0,5	NBR-impregnated fabric/NBR/polyesterelastomer/POM	■ ■
	S 13	Piston-/Rod seal	400	-30 to +100	0,5	NBR-impregnated fabric	■ ■
	S 14	Rod seal	400	-30 to +100	0,5	NBR-impregnated fabric	■ ■
	S 15	Rod seal	400	-30 to +100	0,5	NBR-impregnated fabric	■ ■
	S 12	Rod seal	700	-30 to +100	0,5	NBR/NBR-impregn. fabric/POM	■ ■
	S 05	Piston-/Rod seal	200	-30 to +100	0,5	NBR/NBR-impregn. fabric	■ ■
	S 07	Rod seal	400	-30 to +100	0,5	NBR/NBR-impregn. fabric/POM	■ ■
	MA 13	Rod seal	250	-30 to +100	0,5	NBR-impregnated fabric	■ ■

Design	Ref.	Pressure (bar)	Temp. (°C)	Speed (m/s)	Material	Dimensions metr. inch	
	MA 14	Piston seal	700	-30 to +100	0,5	NBR-impregnated fabric/NBR/POM	■ ■
	MA 15	Piston-/Rod seal	180	-30 to +100	0,5	NBR/NBR-impregn. fabric	■ ■
	MA 16	Rod seal	400	-30 to +100	0,5	NBR/NBR-impregn. fabric/POM	■ ■
	MA 17	Piston seal	400	-30 to +100	0,5	NBR/NBR-impregn. fabric/POM	■ ■
	MA 18	Piston seal	400	-30 to +100	0,5	NBR/NBR-impregn. fabric/POM	■ ■
	MA 21	Piston-/Rod seal	160	-30 to +100	0,5	NBR 90	■ ■
	MA 22	Piston-/Rod seal	100	-30 to +100	0,5	NBR 90	■ ■
	MA 23	Piston seal	80	-30 to +100	0,5	NBR 75	■ ■
	MA 24	Rod seal	160	-30 to +100	0,5	NBR 90	■ ■
	MA 25	Piston-/Rod seal	300	-40 to +100	0,5	AU 92	■ ■
	MA 28	Piston seal	400	-40 to +100	0,5	AU 92	■ ■
	MA 30	Rod seal	400	-40 to +100	0,5	AU 92	■ ■
	MA 39	Rod seal	400	-40 to +100	0,5	AU 92	■ ■
	MA 41	Rod seal	400	-40 to +100	0,5	AU 92/POM	■ ■
	MA 36	Piston-/Rod seal	400	-40 to +100	0,5	AU 92	■ ■
	MA 35	Rod seal	400	-40 to +100	0,5	AU 92	■ ■
	MA 37	Rod seal	400	-40 to +100	0,5	AU 92/POM	■ ■
	MA 42	Piston-/Rod seal	400	-30 to +100	0,5	AU 92/NBR 70	■ ■
	MA 43	Rod seal	350	-150 to +250	15	PTFE-compounds spring steel AISI 301	■ ■
	MA 44	Piston seal	350	-150 to +250	15	PTFE-compounds spring steel AISI 301	■ ■
	MA 31	Piston seal	40	-30 to +100	0,5	NBR 90	■ ■
	MA 32	Rod seal	40	-30 to +100	0,5	NBR 90	■ ■
	A 40	Wiper	-40 to +100	4	NBR 90	■ ■	
	A 41	Wiper	-40 to +100	4	NBR 90	■ ■	
	A 50	Wiper	-40 to +100	4	NBR 90	■ ■	
	A 52	Wiper	-40 to +100	0,5	NBR 90	■ ■	
	AD 51	Double Wiper	-40 to +100	1	NBR 90	■ ■	
	AD 53	Double Wiper	-40 to +100	1	NBR 90	■ ■	
	AM 43	Wiper	-40 to +100	1	NBR 90 / steel DIN 1624	■ ■	
	AM 45	Wiper	-40 to +100	1	NBR 90 / steel DIN 1624	■ ■	
	A 42	Wiper	-40 to +100	2	AU 92	■ ■	
	A 47	Wiper	-40 to +100	2	AU 92	■ ■	
	AD 48	Double Wiper	-30 to +100	1	AU 92	■ ■	
	AD 70	Double Wiper	-30 to +100	2	AU 98/ NBR 70	■ ■	
	AD 71	Double Wiper	-30 to +100	2	AU 98/ NBR 70	■ ■	
	AM 44	Wiper	-40 to +100	2	AU 92/ steel DIN 1624	■ ■	
	AM 54	Wiper	-40 to +100	1	AU 92/ steel DIN 1624	■ ■	
	ADM 55	Double Wiper	-40 to +100	1	AU 92/ steel DIN 1624	■ ■	
	A 80	Wiper	-30 to +100	15	PTFE/bronze NBR 70	■ ■	
	AD 60	Double Wiper	-30 to +100	15	PTFE/bronze NBR 70	■ ■	
	AD 61	Double Wiper	-30 to +100	15	PTFE/bronze NBR 70	■ ■	
	FUR 02	Piston guide ring	-60 to +200	15	PTFE-compounds	■ ■	
	FUR 04	Piston guide ring	-40 to +130	0,5	POM/glas-compound	■ ■	
	FUR 06	Piston guide ring	-50 to +130	0,5	polyester-based fabric laminate	■ ■	
	FUR 01	Rod guide ring	-60 to +200	15	PTFE-compounds	■ ■	
	FUR 03	Rod guide ring	-40 to +130	0,5	POM/glas-compound	■ ■	
	FUR 05	Rod guide ring	-50 to +130	0,5	polyester-based fabric laminate	■ ■	
	FUB 01	Guide strip Piston-/Rod	-60 to +200	15	PTFE-compounds	■ ■	

## Seals for rotating application

Design	Ref.	Material	Dimensions metr. inch		
	WDR	Rotary shaft seal	NBR FPM VMQ EPDM ACM	Nat./intern. standards up to 600 mm o.d.	■ ■
	WCL	Rotary shaft seal	Metal case + NBR + FPM + VMQ + Leather + PTFE	From 50 mm up to 1700 mm o.d. nearly any size	■ ■
	VIA	Rotary shaft seal	FPM 80	Nat./intern. standards up to 600 mm o.d.	■ ■
	WEPO	Rotary shaft seal	PTFE-carbon-compound	Any size up to 1300 mm o.d.	■ ■
	WCP 21	Rotary shaft seal	Metal case from stainless steel AISI 316L + FPM	From 30 mm up to 500 mm o.d. nearly any size	■ ■
	WE	Rotary shaft seal	NBR NBR-impregnated fabric + steel spring	Up to 1800 mm o.d.	■ ■
	WE 5	Rotary shaft seal	Other elastomers + stainless steel spring	AISI 304	■ ■
	WE 6	Rotary shaft seal	Pure elastomer without fabric reinforcement		■ ■
	WE 7	Rotary shaft seal			■ ■
	VR	V-Ring	NBR 60 FPM 70		■ ■
	VA	V-Ring		3 - 2000 mm shaft diameter	■ ■
	VS	V-Ring		5 - 199 mm shaft diameter	■ ■
	VE	V-Ring		450 - 2000 mm shaft diameter	■ ■
	VL	V-Ring		140 - 400 mm shaft diameter	■ ■
	VRM 1	Radial seal	NBR	Up to 250 mm o.d.	■ ■
	VRM 2	Radial seal	Other elastomers		■ ■
	MA 47	Radial U-ring	PTFE, PTFE-compounds	Up to 1300 mm o.d.	■ ■
	WDI 32	Radial seal inside sealing	PTFE-compounds NBR	Up to 1300 mm o.d.	■ ■
	WDA 32	Radial seal outside sealing	PTFE-compounds NBR	Up to 1300 mm o.d.	■ ■
		GLAND PACKING Braid-Over-Braid			■ ■
		GLAND PACKING Interlocked			■ ■
		GLAND PACKING Plaited			■ ■

## Seals for rotating application

Design	Ref.	Material	Dimensions metr. inch	
	WA	Rotary shaft seal	NBR 70/ steel DIN EN 10270-1	■ ■
	WAS	Rotary shaft seal	NBR 70/ steel DIN EN 10270-1	■ ■
	WB	Rotary shaft seal	NBR 70/ steel DIN EN 10270-1	■ ■
	WBS	Rotary shaft seal	NBR 70/ steel DIN EN 10139	■ ■
	WC	Rotary shaft seal	NBR 70/ steel DIN EN 10139	■ ■
	WCS	Rotary shaft seal	NBR 70/ steel DIN EN 10139	■ ■
	WAO	Rotary shaft seal	NBR 70/ steel DIN EN 10139	■ ■
	WBO	Rotary shaft seal	NBR 70/ steel DIN EN 10139	■ ■
	WAK	Rotary shaft seal	NBR 70/ steel DIN EN 10270-1	■ ■
	WAG	Rotary shaft seal	NBR 70/ steel DIN EN 10270-1	■ ■
	WAY	Rotary shaft seal	FPM 80/ steel DIN EN 10270-1	■ ■
	WASY	Rotary shaft seal	FPM 80/ steel DIN EN 10270-1	■ ■
	WAX	Rotary shaft seal	NBR 70/ steel DIN EN 10270-1	■ ■
	WAD	Rotary shaft seal	NBR 70/ steel DIN EN 10270-1	■ ■
	WBD	Rotary shaft seal	NBR 70/ steel DIN EN 10270-1	■ ■
	WES	Rotary Shaft Seal	NBR 80/FPM 80/ fabric/steel 1.4301	■ ■
		Cassette Seals		■ ■
		Deep Groove Ball Bearing		■ ■
		Cylindrical Roller Bearing		■ ■
		Tapered Roller Bearing Assembly		■ ■
		Tapered Roller Bearing		■ ■
		Spherical Roller Bearing		■ ■
		HEAVY DUTY MECHANICAL FACE SEALS Seal groups with duo-cone metal rings outside and toric rings		■ ■
		HEAVY DUTY MECHANICAL FACE SEALS Seal groups with metal rings 'L' shaped and square rubber rings		■ ■
		Static Seals		■ ■
	OR	O-ring		■ ■
	XR	X-ring		■ ■
	FLR	Washer		■ ■
	MIR	Valve seal		■ ■
	STU	Back-up-ring		■ ■
	MA 45	U-ring outside sealing		■ ■
	MA 46	U-ring inside sealing		■ ■
	FOR	Custom-moulding		■ ■
	RS	Cord		■ ■
	US	Bonded seal		■ ■
	VER	Cover seal		■ ■
	SR	Circlip		■ ■
	BOX	Cord service box		■ ■
	BOX	O-Ring-Sortiment		■ ■

### Material indication according to ISO 1629

Elastomer	Trade-names®	
NR	Natural rubber	Natsyn, Cariflex IR
IR	Isoprene rubber	
SBR	Styrene-butadiene rubber	Buna Hills, Polysar S, Solprene
BR	Butadiene rubber	Buna CB, Polybutadien K
IR	Isobutylene-isoprene rubber	Polysar Butyl, Esso-Butyl
EPDM	Ethylene-propylene-terpolymer	Keltan, Buna AP, Dutral
NBR	Acrylonitrile-butadiene rubber	Perbunan, Polysar-Krynac
ECO	Epichlorohydrin rubber	Herclor, Hydrin
CR	Chloroprene rubber	Baypren, Neoprene
CSM	Chlorosulfonated polyethylene	Hypalon
AU, EU	Polyurethane	Urepan, Desmopan
HNBR	Hydrous acrylonitrile-butadiene rubber	Therban, Zelpol
Q	Silikon rubber	Silopren
J	Fluorosilicone rubber	Silastic
MVQ	Fluorinated rubber	Viton, Fluorel, Tecnoflon
FKM	Polyacrylate rubber	Hycar
ACM	Perfluorinated rubber	Kalrez, Perlast
FFKM	Polytetrafluoroethylene	Teflon, Hostafon
PTFE	Polyoxymethylene	Delrin, Hostafon
(POM)	Polyamide	Ultramid,
(PA)	Polyesterelastomer	Hytel, Ultradur
(1.4301, 1.4310, 1.4571)	Stainless steel	
	Stainless steel	
	Stainless steel	Elgiloy, trade-name registered by Elgiloy Corp.