



NEW PRODUCTS

Sealing Technologies



NEW PRODUCTS TECHNICAL CATALOG

PRODUCT RANGE

	PRODUCT NAME	DRAWING	APPLICATION	MATERIAL	CODE	PRESSURE (max) bar	TEMPERATURE (max) oC	SLIDING SPEED (max) - m/sn	PAGE
K39	Rod Seal		Rod	NBR FABRIC NBR	NB8001 FB8001	250	-30/+105	0.5	14
K44	Piston Seal		Piston	PU POM	PU9201 PM9901	400	-30/+100	0.5	16
K46	Compact Set		Piston	PU POM NBR	PU9201 PM9901 NB7001	400	-30/+100	0.5	18
K48	Piston Seal		Piston	NBR TPE POM	NB8001 TP5501 PM9901	700	-30/+105	0.3	20
K49	Piston Seal		Piston	PU NBR	PU6001 NB8001	400	-30/+100	0.5	22
K61	Pneumatic Compact Seal		Piston	NBR NBR POM AL	NB8001 NB7001 PM9901 AL9901	12	-30/+105	1.0	24
K64	Pneumatic Rod Seal		Rod	PU	PU9201	16	-30/+80	1.0	26
K65	Pneumatic Piston Seal		Piston	NBR	NB7001	12	-30/+105	1.0	28
K76	Spiral Guide		Piston Rod	POLYESTER PHENOLIC	PH6502		-40/+120	1.0	30
K78	Piston Rod Guide Ring		Piston Rod	PHENOLIC ARAMID	PH6504		-40/+200	5.0	32
K85	Static Seal			PU	PU9401	500	-35/+110		34
K86	Static Seal			PU	PU9201	500	-40/+100		36
K87	Fluid Connector Seal			NBR	NB8501	400	-30/+105		38
K94	Wiper		Rod	PU	PU9401		-35/+110	1.0	40
K98	Piston Rod Seal		Piston Rod	PU NBR	PU9201 NB7001	400	-30/+100	0.5	42
K101	External Wiper		Piston	PU	PU9201		-40/+100	1.0	44

PRODUCT RANGE

	PRODUCT NAME	DRAWING	APPLICATION	MATERIAL	CODE	PRESSURE (max) bar	TEMPERATURE (max) oC	SLIDING SPEED (max) - m/sn	PAGE
K103	Double Wiper		Rod	PU	PU9201		-40/+100	1.0	46
K106	Pneumatic Wiper		Rod	NBR	NB8001	12	-30/+105	1.0	48
K130	Pneumatic Rod Seal		Rod	NBR	NB8001	12	-30/+105	1.0	50
K501	Piston Seal		Piston	PA NBR	PA9904 NB7001	500	-30/+105	1.0	52
K504	Compact Piston Seal		Piston	NBR FABRIC NBR POM	NB8001 FB8001 PM9901	500	-30/+105	0.5	54
K505	Piston Seal		Piston	NBR FABRIC NBR POM	NB8001 FB8001 PM9901	500	-30/+105	0.5	56
K518	Compact Piston Seal		Piston	NBR TPE POM	NB8001 TP7301 PM9905	400	-30/+105	0.5	58
K704	Rod Seal		Rod	PTFE NBR	PT6003 NB8001	400	-30/+105	5.0	62
K705	Wiper		Rod	PTFE NBR	PT6003 NB7001		-30/+105	5.0	64
K706	Wiper		Rod	PTFE NBR	PT6003 NB7001		-30/+105	5.0	66
K709	Rod Seal		Rod	PTFE NBR	PT6003 NB7001	400	-30/+105	5.0	68
K715	Pneumatic Rod Seal		Rod	PTFE NBR	PT6005 NB7001	40	-30/+105	5.0	70
K716	Wiper		Rod	PTFE NBR	PT6003 NB7001		-30/+105	5.0	72
K755	Piston Seal		Rod	PTFE NBR	PT6003 NB8001	400	-30/+105	5.0	74
K761	Pneumatic Piston Seal		Piston	PTFE NBR	PT6005 NB7001	40	-30/+105	5.0	76
K762	Piston Seal		Piston	PTFE NBR	PT6003 NB8001	400	-30/+105	5.0	78



TECHNICAL INFORMATION

THERMOPLASTICS

POLYTETRAFLUOROETHYLENE-PTFE

This material is known as Teflon, the trademark of DUPONT Company. PTFE material does have the lowest coefficient of friction. Due to the low friction coefficient and high wear resistance, it performs well on poorly lubricating conditions as well as high sliding speeds. PTFE can be used in temperatures between -200°C to +260°C. It has very good resistance to all chemicals except alkaline metals, high pressure-temperature chlorotrifluor and basic fluorines. Hardness and elasticity make the material to be used widely in hydraulic applications. Depending onto the application; glass, graphite, carbon, MoS₂ and bronze filled PTFE can be used to increase mechanical and physical properties. The influence of the hydraulic media, the behavior in contact with the counter surface and the form stability depending on the operating temperature are the important properties when selecting the PTFE compound among the others.

POLYAMIDE-PA

This material is known as Nylon 6. It can be used in temperatures between -30°C to +120°C, for short period of applications this can be increased up to +140°C. Polyamide is able to work on poorly lubricating conditions and does have high wear resistance. It is commonly used as guiding elements in hydraulic and pneumatic systems. Special additives can increase the mechanical and physical properties of the material depending on the application.

POLYOXYMETHYLENE - POLYACETAL (POM)

It has excellent form stability between temperatures -40°C to +100°C, for short period of applications this can be increase up to +140°C. It is commonly used as guide and backup rings in hydraulic and pneumatic systems. It is being safely used in mineral oils, HFA and HFB type of oils. For the guide ring, glass filled POM is used due to its high contact pressure value.

THERMOPLASTIC ELASTOMERS

THERMOPLASTIC POLYESTER ELASTOMER (TPE)

Polyester Elastomers are widely used as backup ring and header ring material with the sealing elements in hydraulic and pneumatic systems due to their chemical structure. It has excellent resistance to hydraulic oils and has high extrusion resistance compared to the other materials. It can be used in temperatures between -40°C to 120°C.

CHARACTERISTIC PROPERTIES OF RUBBER MATERIALS

Physical Properties	NBR	HNBR	FKM	MVQ	EPDM	CR	SBR	NR	PU	PTFE	TPE	POM
TENSILE STRENGTH	3	2	4	6	4	3	1	1	1	5	5	5
ELONGATION AT BREAK	2	2	3	4	3	2	1	1	1	5	5	5
FLEXIBILITY	2	2	4	3	3	3	1	1	2	5	5	5
WEAR RESISTANCE	2	2	4	5	3	2	2	2	1	1	1	1
TEAR RESISTANCE	3	2	3	6	3	2	2	2	1	1	1	1
AGING RESISTANCE	3	2	1	1	1	2	3	3	2	1	3	3
OZONE RESISTANCE	3	3	1	1	1	2	4	4	2	1	3	3
FUEL RESISTANCE	1	1	1	5	5	2	6	6	6	1	2	2
GREASE&HYDRAULIC OIL RESISTANCE	1	1	1	3	4	3	6	6	1	1	1	1
ACID RESISTANCE	4	4	1	5	1	2	3	3	6	1	4	4
ALKALI RESISTANCE	3	3	1	5	2	2	3	3	6	1	4	4
HOT WATER RESISTANCE	3	3	4	5	2	3	3	3	3	1	3	3
MAX. OPERATING TEMPERATURE	105	150	225	200	145	100	100	100	100	260	120	110
MIN. OPERATING TEMPERATURE	-30	-30	-30	-60	-40	-45	-50	-60	-30	-200	-40	-40

1 Excellent 2 Very good 3 Good 4 Medium 5 Low 6 Poor

UNIT, QUANTITY AND GENERAL TOLERANCES

FURTHER OFFICIAL DERIVED UNITS IN MECHANICS

QUANTITY	UNITS	OFFICIAL UNITS ALSO USED
Angular momentum	N . m . s	
Torque	Nm	
Revolutions per minute	2 . x . rad / s	s ⁻¹
Modulus of elasticity	Pa	N / mm ² , bar
Enthalpy	J	Kj
Specific enthalpy	J / kg	kJ / kg
Entropy	J / K	kJ / K
Specific entropy	J / kg . K	kJ / kg . K
Geometrical moment of inertia	m ⁴	cm ⁴
Force	N	kN, MN
Gas constant	J / kg . K	kJ / kg . K
Calorific value	J / kg, J / m ³	kJ / kg, kJ / m ³
Momentum	N . s	
Mass moment of inertia	kg . m	g . m, t . m ²
Moment	N . m	
Unit conductance	W / m . K ⁴	
Volume specific	m ³ / kg	
Coefficient of heat transfer	W / m . K	
Heat capacity	J / K	kJ / K
Heat capacity specific	J / kg . K	kJ / kg . K
Thermal conductivity	W / m . K	
Section modulus	m ³	cm ³

CONVERSION TABLE

FORCE 1 Newton (N) = 1 kg m/s ²				ENERGY, WORK, AMOUNT OF HEAT Nm = 1 Joule (J) = 1 Ws					POWER 1 Watt (W) = 1 Nm/s = 1 J/s			
N	kp	dyn		Nm	kWh	kpm	cal		W	kW	PS	
1 N	1	0.102	10 ⁵	1 Nm	1	0.278x10 ⁻⁶	0.102	0.238	1 W	1	10 ⁻³	1.36x10 ⁻³
1 kp	9.81	1	9.81x10 ⁵	1 kWh	3.6x10 ⁶	1	0.367x10 ⁶	0.86x10 ⁶	1 kW	10 ³	1	1.36
1 dyn	10 ⁻⁵	1.02x10 ⁻⁶	1	1 kpm	9.81	2.72x10 ⁻⁶	1	2.335	1 PS	736	0.736	1
				1 cal	4.19	1.17x10 ⁻⁶	0.428	1				

PRESSURE MECHANICAL STRESS 1 Pascal (Pa) = 1 N/m ² ; 1 Mpa (106 Pa) = 1 N/mm ² = 0.102 kp/mm ²							
	Pa	MPa	bar	kp / cm ²	mm Hg	atm	mWs
1 Pa=1 N/m ²	1	10 ⁻⁶	10 ⁻⁵	1.02x10 ⁻⁵	7.50x10 ⁻³	9.87x10 ⁻⁶	1.02x10 ⁻⁴
1 Mpa=1 N/mm ²	10 ⁶	1	10	10.2	7.50x10 ³	9.87	102
1 bar	10 ⁵	0.10	1	1.02	750	0.987	10.2
1 kp/cm ² (at)	9.81x10 ⁴	9.81x10 ⁻²	0.981	1	736	0.968	10
1 mm Hg (Torr)	133	1.33x10 ⁻⁴	1.33x10 ⁻³	1.36x10 ⁻³	1	1.32x10 ⁻³	1.36x10 ⁻²
1 atm	1.013x10 ⁵	0.1013	1.013	1.033	760	1	10.33
1 mWs	9.81x10 ³	9.81x10 ⁻³	9.81x10 ⁻²	0.1	73.6	9.68x10 ⁻²	1

TOLERANCES FOR MACHINED PARTS OF THERMOPLASTICS

NOMINAL DIMENSION	TOLERANCES ACCORDING TO DIN 7168 "MEDIUM"	RESTRICTED WORKING TOLERANCES
≤ 6	±0.1	0.10
6 < ≤ 30	±0.2	0.15
30 < ≤ 65	±0.3	0.20
65 < ≤ 120	±0.3	0.30
120 < ≤ 200	±0.5	0.40

Extract from DIN 7168.

TOLERANCES FOR ELASTOMERS

NOMINAL DIMENSION	CLASS M1		CLASS M2		CLASS M3		CLASS M4	
	F	C	F	C	F	C	F	C

Permissible deviations of dimensions in mm.

≤ 6.3	±0.10	±0.10	±0.15	±0.20	±0.25	±0.40	±0.50	±0.50
6.3 < ≤ 10	±0.10	±0.15	±0.20	±0.20	±0.30	±0.50	±0.70	±0.70
10 < ≤ 16	±0.15	±0.20	±0.20	±0.25	±0.40	±0.60	±0.80	±0.80
16 < ≤ 25	±0.20	±0.20	±0.25	±0.35	±0.50	±0.80	±1.00	±1.00
25 < ≤ 40	±0.20	±0.25	±0.35	±0.40	±0.60	±1.00	±1.30	±1.30
40 < ≤ 63	±0.25	±0.35	±0.40	±0.50	±0.80	±1.30	±1.60	±1.60
63 < ≤ 100	±0.35	±0.40	±0.50	±0.70	±1.00	±1.60	±2.00	±2.00
100 < ≤ 160	±0.40	±0.50	±0.70	±0.80	±1.30	±2.00	±2.50	±2.50

Permissible deviations in %.

160 <	0.30		0.50		0.80		1.50	1.50
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Extract from ISO 3302-1.



NEW PRODUCTS



K39 is a single acting rod seal which consists of reinforced cotton fabric and nitrile rubber vulcanized together forming an integral sealing element.

PRODUCT ADVANTAGES

- Functions even with poor surfaces
- Reinforced cotton fabric base prevents the seal from extrusion
- Good sealing at low pressures

APPLICATION

Mobile hydraulics and Standard cylinders

MALZEME		KODU
NBR	80 SHORE A	NB8001
COTTON FABRIC NBR		FB8001

OPERATING CONDITIONS

MEDIA	Mineral oils (DIN 51524)	HFA and HFB	HFC
TEMPERATURE	-30°C +105°C	+5°C +60°C	-20°C +50°C
PRESSURE	≤250 Bar	≤250 Bar	≤250 Bar
SPEED	≤0.5 m/sn	≤0.5 m/sn	≤0.5 m/sn

Note: The above data are maximum values and cannot be used at the same time.

SURFACE ROUGHNESS

		Ra	Rmax
Sliding Surface	Ød	≤0.4 µm	≤3.2 µm
Groove Base	ØD	≤1.6 µm	≤10 µm
Groove Flanks	B	≤3.2 µm	≤16 µm

Note: It is recommended to have 50% to 90% of the working surface material contact area value.

INSTALLATION

K39 is to be assembled into open grooves if rod diameter is less than 40 mm. It is very important that the assembly tools must be of soft material and have no sharp edges. Before installation the sealing elements must be oiled with system oil.

NOTES

The permissible sealing gap values of K39 rod seal is given in the below table.

PERMISSIBLE SEALING GAP

Pressure (Bar)	Smax (mm)
150	0.2
250	0.1

Note: The largest sealing gap value occurring on the non-pressurized side of the seal does have a vital importance for the function of the seal and in this respect it is quite important to use the S value lower than the above indicated numbers.



K44 is a three piece single acting sealing set which consist of one main sealing component, one thermoplastic back-up ring and one POM piston ring.

PRODUCT ADVANTAGES

- One piece open groove piston design
- Superior static and dynamic sealing
- Back-up ring prevents problems caused by sealing gap
- High abrasion resistance

APPLICATION

Standard cylinders.

MATERIAL	CODE
PU	PU9201
POM	PM9901

OPERATING CONDITIONS			
MEDIA	Mineral oils (DIN 51524)	HFA and HFB	HFC
TEMPERATURE	-30°C +100°C	+5°C +50°C	-20°C +50°C
PRESSURE	≤400 Bar	≤400 Bar	≤400 Bar
SPEED	≤0.5 m/sn	≤0.5 m/sn	≤0.5 m/sn

Note: The above data are maximum values and cannot be used at the same time.

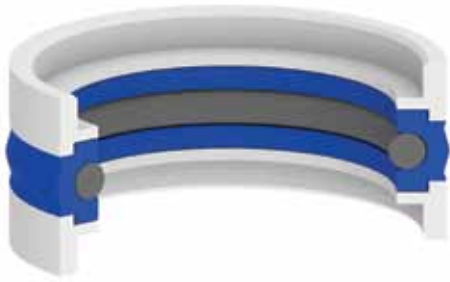
SURFACE ROUGHNESS		Ra	Rmax
Sliding Surface	Ød	≤0.4 µm	≤3.2 µm
Groove Base	ØD	≤1.6 µm	≤10 µm
Groove Flanks	B	≤4 µm	≤16 µm

INSTALLATION

K44 Piston Seal assembles and operates in open grooves with its own POM piston ring. It is very important that the assembly tools must be soft material and have no sharp edges. POM segments not to stretch much while assembling.

NOTES

Easily assembled into one-piece piston by hand. Open groove design gives advantage for easy machining and reduce the machining cost.



K46 is a four piece double acting compact seal consisting of polyurethane sealing ring with NBR energizer O-ring and two special profile guide rings made of thermoplastic to absorb transverse forces.

PRODUCT ADVANTAGES

- Superior sealing performance
- No requirement for an additional guide ring due to the compact design
- Economic sealing and guiding solution
- Simple groove design, one-piece piston possible
- Reducing piston machining cost due to low cross-section thickness
- Easy installation

APPLICATION

Agricultural machinery, industrial applications.

MATERIAL		CODE
PU	92 SHORE A	PU9201
POM		PM9901
NBR	70 SHORE A	NB7001

OPERATING CONDITIONS			
MEDIA	Mineral oils (DIN 51524)	HFA and HFB	HFC
TEMPERATURE	-30°C +100°C	+5°C +50°C	-20°C +50°C
PRESSURE	≤400 Bar	≤400 Bar	≤400 Bar
SPEED	≤0.5 m/sn	≤0.5 m/sn	≤0.5 m/sn

Not: The above data are maximum values and cannot be used at the same time.

SURFACE ROUGHNESS		Ra	Rmax
Sliding Surface	Ød	≤0.4 µm	≤3.2 µm
Groove Base	ØD	≤1.6 µm	≤6.3 µm
Groove Flanks	B	≤3.2 µm	≤16 µm

Not: It is recommended to have 50% to 90% of the working surface material contact area value.

INSTALLATION

Easily assembled into one-piece piston because the back-up rings and guide rings are produced in split forms. It is very important that the assembly tools must be of soft material and have no sharp edges. Before installation the sealing element must be oiled with system oil.



K48 is a four piece double acting heavy duty piston seal which consists of one TPE profile ring, one elastomeric nitrile rubber to pre load sealing element and two thermoplastic back-up rings.

PRODUCT ADVANTAGES

- Simple groove design
- Superior performance in high and variable pressure
- Long service life
- Very good sealing performance at shock pressures
- High resistance to abrasion
- Ultimate resistance in water based fluids.

APPLICATION

- Mining industry
- Heavy duty applications

MATERIAL		CODE
NBR	80 SHORE A	NB8001
POM		PM9901
TPE		TP5501

OPERATING CONDITIONS		
MEDIA	Mineral oils (DIN 51524)	HFA and HFB
TEMPERATURE	-30°C +105°C	+5°C +60°C
PRESSURE	≤700 Bar	≤700 Bar
SPEED	≤0.3 m/sn	≤0.3 m/sn

Note: The above data are maximum values and cannot be used at the same time.

SURFACE ROUGHNESS		Ra	Rmax
Sliding Surface	Ød	≤0.4 µm	≤3.2 µm
Groove Base	ØD	≤1.6 µm	≤10 µm
Groove Flanks	B	≤3.2 µm	≤16 µm

Note: It is recommended to have 50% to 90% of the working surface material contact area value.

INSTALLATION

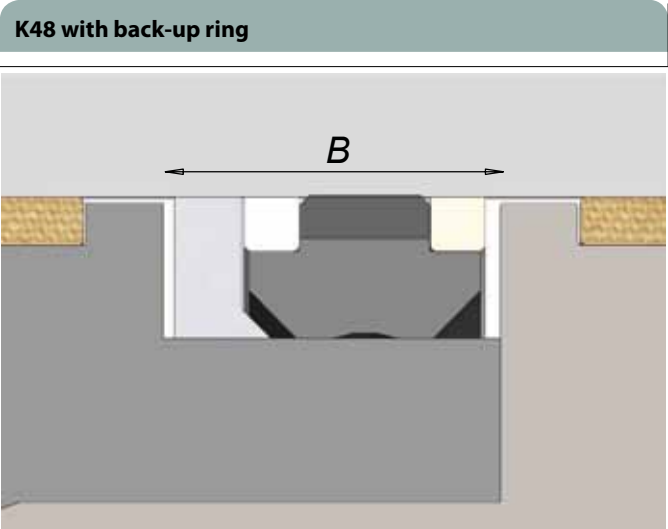
Easily assembled into one-piece piston because the back-up rings are been produced in split forms. It is very important that the assembly tools must be of soft material and have no sharp edges. Before installation the sealing element must be oiled with system oil.

NOTES

It is recommended to choose suitable material and quantity for guiding element regarding the purpose of application.

PERMISSIBLE SEALING GAP	
Pressure (Bar)	Smax (mm)
P≤350	0.45
350<P≤700	0.25

Note: The largest sealing gap value occurring on the non-pressurized side of the seal does have a vital importance for the function of the seal and in this respect it is quite important to use the S value lower than the above indicated numbers.



If a back up ring is used in unpressurized side, the seal could resist up to 1500 bar static pressure.

Note: Please add "a" to B dimension.

ØD	a
≤200	4 mm
>200	5 mm



K49 is a two piece double acting sealing set which consists of a special design polyurethane seal ring and a NBR elastomer ring as energizer.

PRODUCT ADVANTAGES

- Superior static and dynamic sealing
- Ability to move without vibration even at low running speeds
- No twisting in the house due to rectangular profile
- Standardized housing according to ISO 7425-1
- Easy installation
- Low axial housing heights

APPLICATION

- Construction machinery
- Agricultural machinery
- Injection molding machines
- General industrial applications

MATERIAL		CODE
PU	60 SHORE D	PU6001
NBR	80 SHORE A	NB8001

OPERATING CONDITIONS

MEDIA	Mineral oils (DIN 51524)	HFA and HFB	HFC
TEMPERATURE	-30°C +100°C	+5°C +50°C	-20°C +50°C
PRESSURE	≤400 Bar	≤400 Bar	≤400 Bar
SPEED	≤0.5 m/sn	≤0.5 m/sn	≤0.5 m/sn

Not: The above data are maximum values and cannot be used at the same time.

SURFACE ROUGHNESS

		Ra	Rmax
Sliding Surface	Ød	≤0.4 µm	≤4 µm
Groove Base	ØD	≤1.6 µm	≤10 µm
Groove Flanks	B	≤3.2 µm	≤16 µm

Note: It is recommended to have 50% to 90% of the working surface material contact area value.

INSTALLATION

Easily assembled on one-piece piston. It is very important that the assembly tools must be of soft material and have no sharp edges. Before installation the sealing element must be oiled with system oil.

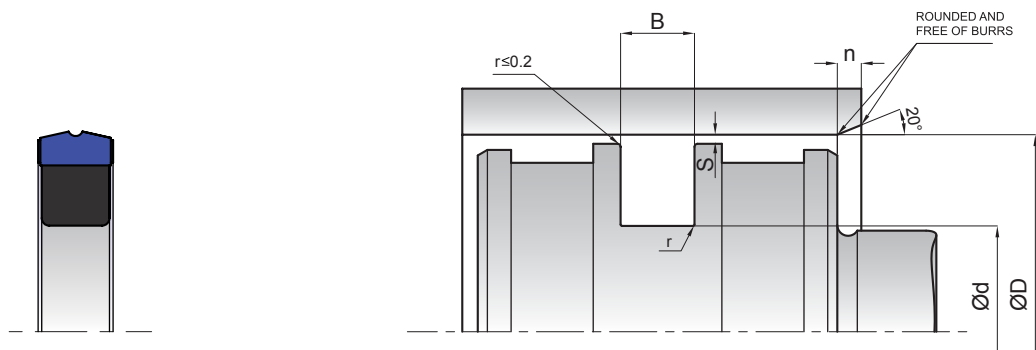
NOTES

It is recommended choosing suitable material and quantity for guiding element regarding the purpose of application.

PERMISSIBLE SEALING GAP

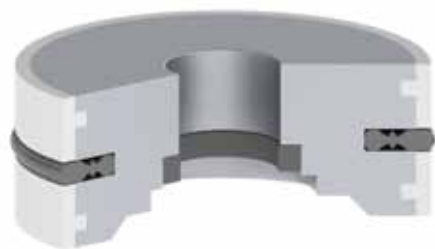
B (mm)	Smax (mm)		
	150 Bar	250 Bar	400 Bar
3.2	0.30	0.20	-
4.2	0.40	0.30	-
6.3	0.50	0.40	0.25
8.1	0.60	0.50	0.35

Note: The largest sealing gap value occurring on the non-pressurized side of the seal does have a vital importance for the function of the seal an in this respect it is quite important to use the S value lower than the above indicated numbers.



NO	D(H10)	d(h9)	B(+0.2/-0.0)	n	r
K49 025-017.5	25	17.5	3.2	2	0.2
K49 028-020.5	28	20.5	3.2	2	0.2
K49 032-024.5	32	24.5	3.2	2	0.2
K49 040-029	40	29	4.2	2.5	0.4
K49 045-034	45	34	4.2	2.5	0.4
K49 050-039	50	39	4.2	2.5	0.4
K49 055-039.5	55	39.5	6.3	2.5	0.4
K49 055-044	55	44	4.2	2.5	0.4
K49 060-044.5	60	44.5	6.3	3	0.4
K49 060-049	60	49	4.2	2.5	0.4
K49 063-047.5	63	47.5	6.3	3	0.4
K49 063-052	63	52	4.2	2.5	0.4
K49 065-049.5	65	49.5	6.3	3	0.4
K49 065-054	65	54	4.2	2.5	0.4
K49 070-054.5	70	54.5	6.3	3	0.4
K49 070-059	70	59	4.2	2.5	0.4
K49 075-059.5	75	59.5	6.3	3	0.4
K49 080-064.5	80	64.5	6.3	3	0.4
K49 085-069.5	85	69.5	6.3	3	0.4
K49 090-074.5	90	74.5	6.3	3	0.4
K49 095-079.5	95	79.5	6.3	3	0.4
K49 100-079	100	79	8.1	5	0.4
K49 100-084.5	100	84.5	6.3	3	0.4
K49 110-089	110	89	8.1	5	0.4
K49 110-094.5	110	94.5	6.3	3	0.4
K49 115-094	115	94	8.1	5	0.4
K49 120-099	120	99	8.1	5	0.4
K49 125-104	125	104	8.1	5	0.4
K49 125-104/1	125	104	10.5	7	0.4
K49 130-109	130	109	8.1	5	0.4
K49 140-119	140	119	8.1	5	0.4
K49 150-129	150	129	8.1	5	0.4
K49 160-139	160	139	8.1	5	0.4
K49 180-159	180	159	8.1	5	0.4
K49 200-179	200	179	8.1	5	0.4

Please contact our customer service for the dimensions out of our stock list.



K61 is a double acting pneumatic compact seal which consists of two POM guide rings, one NBR sealing element (dynamic and static) and an aluminium body.

PRODUCT ADVANTAGES

- Ready to fit complete piston
- High abrasion resistance
- Easy installation
- Long service life

APPLICATION

Steel and aluminium pneumatic cylinders.

MATERIAL		CODE
NBR	70 SHORE A	NB7001
NBR	80 SHORE A	NB8001
POM		PM9901
ALUMINIUM		AL9901

OPERATING CONDITIONS

MEDIA	Prepared, dried and de-oiled or oilless air
TEMPERATURE	-30°C +105°C
PRESSURE	≤12 Bar
SPEED	≤1.0 m/sn

Note: The above data are maximum values and cannot be used at the same time.

SURFACE ROUGHNESS

R_{max}

Sliding Surface	∅D	≤4 μm
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INSTALLATION

K61 is pushed onto the piston rod on the clamping flange towards the rod and fixed by fastening. The nut has to be secured. The sliding surface and the cylinder bore should be oiled with oil that must not go into the reaction with the sealing element during the installation process.

NOTES

Before installation the sealing element must be oiled with system oil. Pay attention not to deform the sealing element during installation. Chamfer at the cylinder bore must be proper and free of burrs.



K64 is a single acting pneumatic rod seal ensuring that foreign particles are not introduced into the pneumatic cylinders. The lip is designed in a particular way that it functions as a rod seal and wiper.

PRODUCT ADVANTAGES

- Superior sealing effect
- Superior wiping effect
- Low dynamic friction
- Minimal space requirement
- Highly wear resistant

APPLICATION

Compact and special small cylinders.

MATERIAL		CODE
PU	92 SHORE A	PU9201

OPERATING CONDITIONS	
MEDIA	Prepared, dried and de-oiled compressed air
TEMPERATURE	-30°C +80°C
PRESSURE	≤16 Bar
SPEED	≤1.0 m/sn

Note: The above data are maximum values and cannot be used at the same time.

SURFACE ROUGHNESS

SURFACE ROUGHNESS		Rmax
Sliding Surface	Ød	≤4 µm
Groove Base	ØD	≤10 µm
Groove Flanks	B	≤15 µm

INSTALLATION

It can be assembled into closed groove without any tools. K64 does not need additional element such as circlip for axial fitting within the housing. We recommend using special assembly tool. It is very important that the assembly tools must be of soft material and have no sharp edges. Before installation the sealing element must be oiled with system oil.

K65**PNEUMATIC PISTON SEAL**

K65 is a double acting pneumatic piston seal designed to work in low axial housing heights.

PRODUCT ADVANTAGES

- Easy installation
- Low friction
- Superior sealing effect

APPLICATION

Short stroke pneumatic cylinders and valves.

MATERIAL		CODE
NBR	70 SHORE A	NB7001

OPERATING CONDITIONS	
MEDIA	Prepared, dried and de-oiled compressed air
TEMPERATURE	-30°C +105°C
PRESSURE	≤12 Bar
SPEED	≤1.0 m/sn

Note: The above data are maximum values and cannot be used at the same time.

SURFACE ROUGHNESS**Rmax**

Sliding Surface	∅d	≤4 μm
Groove Base	∅D	≤10 μm
Groove Flanks	B	≤15 μm

INSTALLATION

K65 can be snapped by hand into the housing grooves provided. In case of using an assembly tool make sure that it is of soft material and have no sharp edges. Before installation the sealing element must be oiled with system oil. Special lubrication should be used on the sliding surface in case of having dried media.

NOTES

For special applications that require high temperatures, K65 can be produced in FKM material.



K76 is a piston-rod guide strip designed to be used both for rod and piston guiding in hydraulic applications.

PRODUCT ADVANTAGES

- Good cushioning effect
- Low friction coefficient
- Able to run dry behind the sealing element
- Very good dimensional stability within operating temperatures
- Easy assembly
- Wide range of dimensions
- Can be used in medium and heavy duty applications

APPLICATION

Mobile hydraulics.

MATERIAL	CODE
POLYESTER PHENOLIC	PH6502

OPERATING CONDITIONS			
MEDIA	Mineral oils (DIN 51524)	HFA and HFB	HFC
TEMPERATURE	-40°C +120°C	+5°C +60°C	-20°C +50°C
PRESSURE	≤100 N/mm ²	≤100 N/mm ²	≤100 N/mm ²
SPEED	≤1.0 m/sn	≤1.0 m/sn	≤1.0 m/sn

Note: The above data are maximum values and cannot be used at the same time. Surface contact pressure value is given for static applications and its 270 N/mm².

SURFACE ROUGHNESS		Ra	Rmax
Sliding Surface	∅D-∅d	≤0.4 μm	≤3.2 μm
Groove Base	∅Db-∅dp	≤1.6 μm	≤10 μm
Groove Flanks	B	≤3.2 μm	≤16 μm

INSTALLATION

Easily assembled into the housing by hand. It is very important that the assembly tools must be of soft material and have no sharp edges. Before installation guide ring must be oiled with system oil.

NOTES

To prevent hydrodynamic pressure k gap k dimension for K76 can be seen at catalog pages.



K 78 is a piston - rod guide ring designed to be used in heavy duty hydraulic and pneumatic systems.

PRODUCT ADVANTAGES

- Able to work at high temperatures
- High dimension stability during the operating temperatures
- Easy assembly
- Wide range of dimensions
- Safely usage in heavy and medium duty applications

APPLICATION

Iron and steel industry, mobile hydraulics and heavy duty cylinders.

MATERIAL

CODE

PHENOLIC ARAMID

PH6504

OPERATING CONDITIONS

MEDIA	Mineral oils (DIN 51524)	HFA and HFB	HFC
TEMPERATURE	-40°C +200°C	+5°C +60°C	-20°C +50°C
STATIC CONTACT PRESSURE	≤344 N/mm ²	≤344 N/mm ²	≤344 N/mm ²
DYNAMIC CONTACT PRESSURE	≤120 N/mm ²	≤120 N/mm ²	≤120 N/mm ²
SPEED	≤5 m/sn	≤5 m/sn	≤5 m/sn

SURFACE ROUGHNESS

Ra

Rmax

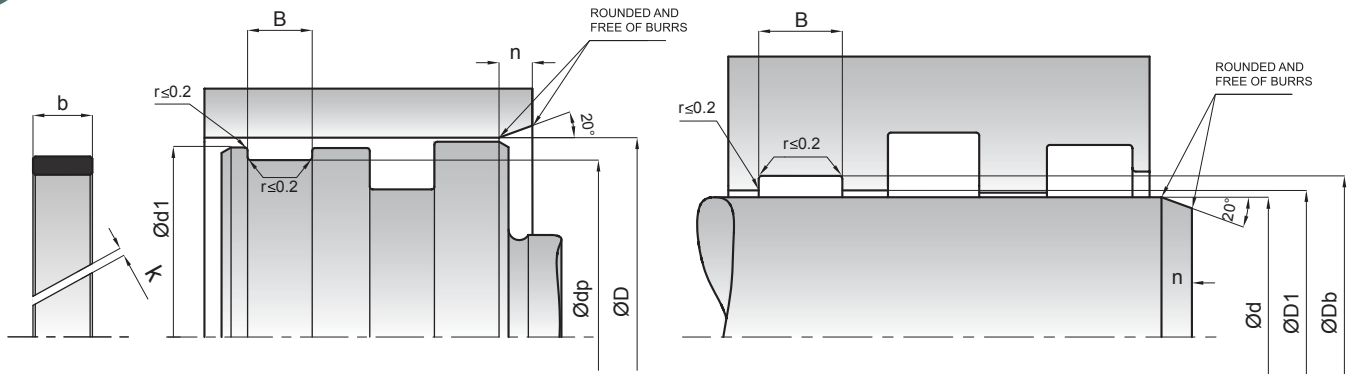
Sliding Surface	Ød	≤0.4 µm	≤3.2 µm
Groove Base	ØD	≤1.6 µm	≤10 µm
Groove Flanks	B	≤3.2 µm	≤16 µm

INSTALLATION

Easily assembled into the housing by hand. It is very important that the assembly tools must be of soft material and have no sharp edges. Before installation the wiper must be oiled with system oil.

NOTES

To avoid hydrodynamic pressure k interval is given. No force should be applied against the curvature of product upon assembly.

K78
PISTON - ROD GUIDE RING


NO	d(f8) dp(h8)	Db(H8) D(H9)	B(-0/+0.2)	b	d1(h9)	D1(H9)	k
K78-110	110	115	9.7	9.5	113.2	111.8	3.5
K78-110/1	110	115	15	14.8	113.2	111.8	3.5
K78-115	115	120	9.7	9.5	118.2	116.8	3.5
K78-115/1	115	120	15	14.8	118.2	116.8	3.5
K78-120	120	125	9.7	9.5	123.2	121.8	3.5
K78-120/1	120	125	15	14.8	123.2	121.8	3.5
K78-125	125	130	9.7	9.5	128.2	126.8	3.5
K78-125/1	125	130	15	14.8	128.2	126.8	3.5
K78-130	130	135	9.7	9.5	133.2	131.8	3.5
K78-130/1	130	135	15	14.8	133.2	131.8	3.5
K78-135	135	140	9.7	9.5	138.2	136.8	3.5
K78-135/1	135	140	15	14.8	138.2	136.8	3.5
K78-140	140	145	9.7	9.5	143.2	141.8	3.5
K78-140/1	140	145	15	14.8	143.2	141.8	3.5
K78-140/3	140	145	20	19.8	143.2	141.8	3.5
K78-145	145	150	9.7	9.5	148.2	146.8	3.5
K78-145/1	145	150	15	14.8	148.2	146.8	3.5
K78-150	150	155	15	14.8	153.2	151.8	3.5
K78-150/1	150	155	9.7	9.5	153.2	151.8	3.5
K78-155	155	160	9.7	9.5	158.2	156.8	3.5
K78-155/1	155	160	9.7	9.5	158.2	156.8	3.5
K78-160/1	160	165	15	19.8	163.2	161.8	3.5
K78-164	164	170	9.7	9.5	167.2	165.8	3.5
K78-165	165	170	9.7	9.5	168.2	166.8	3.5
K78-175	175	180	9.7	9.5	178.2	176.8	3.5
K78-175/1	175	180	15	14.8	178.2	176.8	3.5
K78-180	180	185	15	14.8	183.2	181.8	3.5
K78-184	184	190	15	14.8	187.2	185.8	3.5
K78-185	185	190	9.7	9.5	188.2	186.8	3.5
K78-185/1	185	190	15	14.8	188.2	186.8	3.5
K78-194	194	200	20	19.8	197.2	195.8	3.5
K78-195	195	200	9.7	9.5	198.2	196.8	3.5
K78-195/1	195	200	15	14.8	198.2	196.8	3.5
K78-209	209	215	20	19.8	213.2	210.8	3.5
K78-219	219	225	20	19.8	217.2	220.8	3.5

Please contact our customer service for the dimensions out of our stock list.



K85 is a double acting cover seal specially designed for static applications.

PRODUCT ADVANTAGES

- High operating pressures
- Interchangeable for o-ring and o-ring with back-up ring
- Easy and secure installation
- No need for additional back-up ring
- High wear resistant

APPLICATION

All the hydraulic applications that o-rings are being used.

MATERIAL		CODE
PU	94 SHORE A	PU9401

OPERATING CONDITIONS			
MEDIA	Mineral oils (DIN 51524)	HFA and HFB	HFC
TEMPERATURE	-35°C +110°C	+5°C +50°C	-20°C +50°C
PRESSURE	≤500 Bar	≤500 Bar	≤500 Bar

Note: The above data are maximum values and cannot be used at the same time.

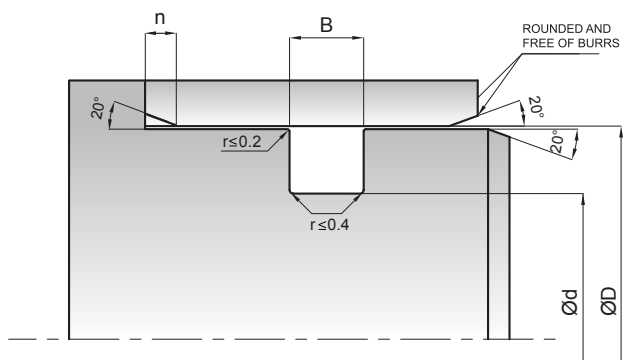
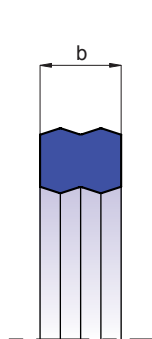
SURFACE ROUGHNESS		Ra	Rmax
Sliding Surface	Ød	≤0.8 µm	≤3.2 µm
Groove Base	ØD	≤1.6 µm	≤6.3 µm
Groove Flanks	B	≤6.3 µm	≤16 µm

INSTALLATION

Easily assembled by hand. It is very important that the assembly tools must be of soft material and have no sharp edges. Before installation the sealing element must be oiled with system oil.

NOTES

K85 is a double acting cover seal for outer sealing. The difficulties faced during an o-ring assembly such as twisting, ripping was solved with this design. It can be used without a back-up ring at high pressures. Due to the material, K85 does have good wear resistance to extrusion and shows good sealing performance in double acting applications.



NO	D(H8)	d(h9)	B(-0/+0.2)
K85-018	18	14	5.8
K85-022	22	19.1	3.5
K85-025	25	22.1	3.5
K85-030	30	25.5	4.5
K85-035	35	30.5	4.5
K85-040	40	35.2	5.4
K85-044	44	39.5	4.5
K85-050/1	50	44.6	6.2
K85-050	50	45.4	5.4
K85-054	54	49.5	4.5
K85-058	58	53.4	3.9
K85-068	68	63.5	4.5
K85-070	70	64.6	6.2
K85-075	75	69.6	6.2
K85-076	76.4	70	5.5
K85-085	85	81.5	4.5
K85-086	86	81.5	4.5
K85-086/1	86.4	80	5.5
K85-100	100	94.4	5.3
K85-111	111.4	105	5.5
K85-115	115	106.6	8.5
K85-125	125	116.6	8.5
K85-133	133.4	125	7
K85-148	148.4	140	7
K85-158	158.4	150	7
K85-165	165	156.6	8.5
K85-188	188.2	180	7
K85-200	200	191.6	8.5
K85-225	225	213	10.7
K85-250	250	235	10.7
K85-250/1	250	238	10.7
K85-280	280	268	10.7
K85-320	320	308	10.7

Please contact our customer service for the dimensions out of our stock list.



K86 is a static sealing element designed to replace o-ring+back-up ring combination.

PRODUCT ADVANTAGES

- High operating pressures
- High reliability
- Interchangeable for O-ring and O-ring with back-up ring
- Easy and secure installation
- No need for additional back-up ring
- High wear resistance
- Availability to be used in a wide range of diameters
- Reliable sealing even with ovality of the tube

APPLICATION

All the hydraulic applications that O-rings are being used.

MATERIAL		CODE
PU	92 SHORE A	PU9201

OPERATING CONDITIONS			
MEDIA	Mineral oils (DIN 51524)	HFA and HFB	HFC
TEMPERATURE	-40°C +100°C	+5°C +50°C	-20°C +50°C
PRESSURE	≤500 Bar	≤500 Bar	≤500 Bar

Note: The above data are maximum values and cannot be used at the same time.

SURFACE ROUGHNESS		Ra	Rmax
Sliding Surface	Ød	≤0.8 µm	≤3.2 µm
Groove Base	ØD	≤1.6 µm	≤6.3 µm
Groove Flanks	B	≤6.3 µm	≤16 µm

INSTALLATION

Easily assembled by hand. It is very important that the assembly tools must be of soft material and have no sharp edges. Before installation the sealing element must be oiled with system oil.

NOTES

K86 is a single acting seal static sealing. K86 can used on pulsating systems.



K87 fluid connector seal is specially designed for static applications.

PRODUCT ADVANTAGES

- Long service life with superior sealing performance
- No twisting in the groove
- Dimensional stability under pressure
- Provides better sealing performance compared to metal-metal application

APPLICATION

Threaded fasteners

MATERIAL		CODE
NBR	85 SHORE A	NB8501

OPERATING CONDITIONS			
MEDIA	Mineral oils (DIN 51524)	HFA and HFB	HFC
TEMPERATURE	-30°C +105°C	+5°C +50°C	-20°C +50°C
PRESSURE	≤400 Bar	≤400 Bar	≤400 Bar

SURFACE ROUGHNESS		Ra	Rmax
Sliding Surface	Ød	≤0.8 µm	≤3.2 µm
Groove Base	ØD	≤1.6 µm	≤6.3 µm
Groove Flanks	B	≤6.3 µm	≤16 µm

INSTALLATION

Attention must be paid not to deform the product during the assembly over thread; assembly tools must be used when needed.



K94 is a single acting wiper ensuring that foreign particles are not introduced into the hydraulic system.

PRODUCT ADVANTAGES

- Very good wiping performance
- Simple, easy-construction groove
- No twisting in the housing
- Specially designed to prevent hydrodynamic pressure build-up
- Specially designed to provide excellent sealing against big particles, humidity and water
- Used in heavy conditions by the good mechanical properties of Polyurethane material

APPLICATION

Mining industry, heavy-duty , concrete pumps, mobile applications, telescopic cylinders.

SURFACE ROUGHNESS

		Ra	Rmax
Sliding Surface	Ød	≤0.4 µm	≤3.2 µm
Groove Base	ØD	≤1.6 µm	≤10 µm
Groove Flanks	B	≤3.2 µm	≤16 µm

Note: It is recommended to have 50% to 90% of the working surface material contact area value.

INSTALLATION

Easily installed to closed type groove. We recommend using special assembly tool (See section; Hydraulic Sealing Elements General Installation Information). It is very important that the assembly tools must be of soft material and have no sharp edges.

MATERIAL

CODE

PU	94 SHORE A	PU9401
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OPERATING CONDITIONS

MEDIA	Mineral oils (DIN 51524)	HFA and HFB	HFC
TEMPERATURE	-35°C +110°C	+5°C +50°C	-20°C +50°C
SPEED	≤1.0 m/sn	≤1.0 m/sn	≤1.0 m/sn

Note: The above data are maximum values and cannot be used at the same time.



K98 is a single acting piston - rod seal and designed to have symmetrical lips in order to be used both for rod and piston applications. O-ring acts as a spring and provides sealing contact under low pressures and shock pressures.

PRODUCT ADVANTAGES

- Good sealing performance under low pressures and shock pressures
- Superior static and dynamic sealing effect
- Easy assembly into closed grooves
- Simple groove design
- Economical sealing solution

APPLICATION

Fork-lift trucks, injection moulding machines, agricultural machinery and standard cylinders.

MATERIAL		CODE
NBR	70 SHORE A	NB7001
PU	92 SHORE A	PU9201

OPERATING CONDITIONS			
MEDIA	Mineral oils (DIN 51524)	HFA and HFB	HFC
TEMPERATURE	-30°C +100°C	+5°C +50°C	-20°C +50°C
PRESSURE	≤400 Bar	≤400 Bar	≤400 Bar
SPEED	≤0.5 m/sn	≤0.5 m/sn	≤0.5 m/sn

Note: The above data are maximum values and cannot be used at the same time.

SURFACE ROUGHNESS		Ra	Rmax
Sliding Surface	Ød	≤0.4 µm	≤3.2 µm
Groove Base	ØD	≤1.6 µm	≤10 µm
Groove Flanks	B	≤3.2 µm	≤16 µm

Note: It is recommended to have 50% to 90% of the working surface material contact area value.

INSTALLATION

Easily assembled into closed grooves according to the minimum diameter values that are given in the below table. Open grooves or special assembly tools should be used for the values that are outside this table. It is very important that the assembly tools must be of soft material and have no sharp edges. Before installation the wiper must be oiled with system oil.

MINIMUM DIAMETER VALUES FOR CLOSED TYPE OF GROOVES

(D-d)/2 (mm)	4	5	6	7.7	10	12.5	15
dmin (mm)	25	30	40	50	80	100	105

NOTES

The permissible sealing gap values of K98 piston -rod seal is given in the below table.

PERMISSIBLE SEALING GAP

t=(D-d)/2	Smax		Smax (mm)
	150 Bar	250 Bar	400 Bar
t≤5	0.30	0.20	0.15
t≤5	0.35	0.25	0.20

Note: The largest sealing gap value occurring on the non-pressurized side of the seal does have a vital importance for the function of the seal and in this respect it is quite important to use the S value lower than the above indicated numbers.



K101 is a single acting wiper ensuring that foreign particles are not introduced into the hydraulic cylinders. The lip is designed in a particular way that it reliably wipes off the dirt but leaves a residual oil film on the rod.

PRODUCT ADVANTAGES

- Good wiping effect
- Simple groove design
- No twisting in the housing
- Economical sealing solution
- Easy installation

APPLICATION

Agricultural machinery, single acting cylinders in industrial equipment.

MATERIAL		CODE
PU	92 SHORE A	PU9201

OPERATING CONDITIONS			
MEDIA	Mineral oils (DIN 51524)	HFA and HFB	HFC
TEMPERATURE	-40°C +100°C	+5°C +50°C	-20°C +50°C
SPEED	≤1.0 m/sn	≤1.0 m/sn	≤1.0 m/sn

Note: The above data are maximum values and cannot be used at the same time.

SURFACE ROUGHNESS		Ra	Rmax
Sliding Surface	Ød	≤0.4 µm	≤3.2 µm
Groove Base	ØD	≤1.6 µm	≤10 µm
Groove Flanks	B	≤3.2 µm	≤16 µm

INSTALLATION

It is very important that the assembly tools must be of soft material and have no sharp edges.



K103 is a single acting double wiper ensuring that foreign particles are not introduced into the hydraulic cylinders. The lip is designed in a particular way that it reliably wipes off the dirt but leaves a residual oil film on the rod.

PRODUCT ADVANTAGES

- Good wiping effect
- Wide range of dimensions
- No twisting in the housing
- Wiper lip reliably wipes away dirt and leaves a residual oil film on the retracting rod.
- Double lip makes additional protection to prevent the particles to enter into the cylinder
- Easy installation

APPLICATION

Construction machinery, fork-lift trucks, injection moulding machines, agricultural machinery and standard cylinders.

MATERIAL		CODE
PU	92 SHORE A	PU9201

OPERATING CONDITIONS			
MEDIA	Mineral oils (DIN 51524)	HFA and HFB	HFC
TEMPERATURE	-40°C +100°C	+5°C +50°C	-20°C +50°C
SPEED	≤1.0 m/sn	≤1.0 m/sn	≤1.0 m/sn

Note: The above data are maximum values and cannot be used at the same time.

SURFACE ROUGHNESS		Ra	Rmax
Sliding Surface	Ød	≤0.4 µm	≤3.2 µm
Groove Base	ØD	≤1.6 µm	≤10 µm
Groove Flanks	B	≤3.2 µm	≤16 µm

INSTALLATION

Generally, wiper can be easily fitted into the closed housing by deforming into a kidney shape. It is very important that the assembly tools must be of soft material and have no sharp edges. Before installation the wiper must be oiled with system oil.



K106 is a single acting pneumatic wiper ensuring that foreign particles do not penetrate into the pneumatic cylinders. The lip is designed in a particular way that it functions as a rod seal and wiper.

PRODUCT ADVANTAGES

- Good wiping
- Superior sealing
- Low dynamic friction
- Small sealing element groove dimensions
- Smooth movement and good sealing at low pressures

APPLICATION

Compact and special small cylinders.

MATERIAL		CODE
NBR	80 SHORE A	NB8001

OPERATING CONDITIONS	
MEDIA	Prepared, dried and de-oiled compressed air
TEMPERATURE	-30°C +105°C
PRESSURE	≤12 Bar
SPEED	≤1.0 m/sn

Note: The above data are maximum values and cannot be used at the same time.

SURFACE ROUGHNESS

SURFACE ROUGHNESS		Rmax
Sliding Surface	Ød	≤4 µm
Groove Base	ØD	≤10 µm
Groove Flanks	B	≤15 µm

INSTALLATION

It can be assembled into closed groove by hand. It is very important that the assembly tools must be of soft material and have no sharp edges. Before installation the sealing element must be oiled with system oil.

NOTES

For special applications that require high temperatures, K106 can be produced in FKM.

K130**PNEUMATIC ROD SEAL**

K130 is a single acting pneumatic rod seal made of NBR.

PRODUCT ADVANTAGES

- Superior sealing performance
- Easy installation, simple groove design
- Smooth movement and good sealing at low pressures
- Low friction

APPLICATION

Short stroke and special small cylinders.

MATERIAL		CODE
NBR	80 SHORE A	NB8001

OPERATING CONDITIONS	
MEDIA	Prepared, dried and de-oiled compressed air
TEMPERATURE	-30°C +105°C
PRESSURE	≤12 Bar
SPEED	≤1.0 m/sn

Note: The above data are maximum values and cannot be used at the same time.

SURFACE ROUGHNESS		Rmax
Sliding Surface	Ød	≤4 µm
Groove Base	ØD	≤10 µm
Groove Flanks	B	≤14 µm

INSTALLATION

It is very important that the assembly tools must be of soft material and have no sharp edges. Before installation the sealing element must be oiled with system oil.

NOTES

For special applications that require high temperatures, K130 can be produced in FKM material.



K501 is a two piece double acting piston seal consisting of a thermoplastic sealing element and one energizer elastomer ring.

ADVANTAGES

- Excellent sealing performance under static and dynamic applications
- Simple groove design
- Easy fit without installation tool
- Superior sealing performance at high and variable pressure levels
- Longer service life due to high abrasion resistance
- Excellent sealing at high surface roughness
- Outstanding resistance to pressure shocks

APPLICATION

Heavy duty cylinders and construction machinery.

MATERIAL		CODE
NBR	70 SHORE A	NB7001
PA		PA9904

OPERATING CONDITIONS

MEDIA	Mineral oils (DIN 51524)	HFA and HFB	HFC
TEMPERATURE	-30°C +105°C	+5°C +60°C	-20°C +50°C
PRESSURE	≤500 Bar	≤500 Bar	≤500 Bar
SPEED	≤1 m/sn	≤1 m/sn	≤1 m/sn

Note: The above data are maximum values and cannot be used at the same time.

SURFACE ROUGHNESS		Ra	Rmax
Sliding Surface	Ød	≤0.4 µm	≤4 µm
Groove Base	ØD	≤1.6 µm	≤6.3 µm
Groove Flanks	B	≤3.2 µm	≤16 µm

Note: It is recommended to have 50% to 90% of the working surface material contact area value.

INSTALLATION

Easy installation into one-piece piston head.
Sealing elements must be pre-lubed with system oil before installation.

NOTES

It is recommended to use with minimum two piston guide rings in long-stroke cylinders, minimum one guide ring in short stroke and under low radial loads.

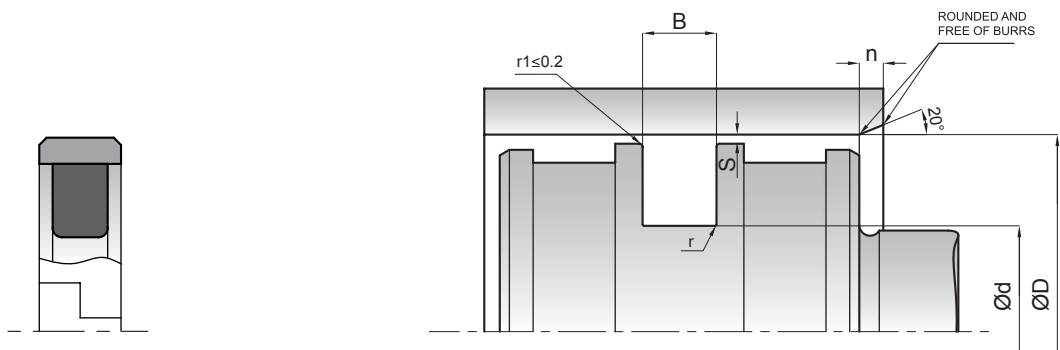
PERMISSIBLE SEALING GAP

B (mm)	Smax (mm)
4.2	0.35
6.3	0.50
8.1	0.60

Note: All the above mentioned "S" values are maximum and it's vital to use lower values for system security.

K501

PISTON SEAL



NO	D	d	B	r	n
K501-050	50	39	4.2	1	6
K501-060	60	44.5	6.3	1.3	8
K501-063/1	63	42	8.1	1.8	10.5
K501-063	63	47.5	6.3	1.3	8
K501-070	70	51.7	7	1.3	8
K501-075	75	54	8.1	1.8	10.5
K501-080/1	80	59	8.1	1.8	10.5
K501-080	80	64.5	6.3	1.3	6
K501-085	85	69.5	6.3	1.3	6
K501-090/1	90	69	8.1	1.8	10.5
K501-090	90	74.5	6.3	1.3	6
K501-095	95	74	8.1	1.8	10.5
K501-100/1	100	79	8.1	1.8	10.5
K501-100	100	84.5	6.3	1.3	6
K501-105	105	84	8.1	1.8	10.5
K501-105/1	105	89.5	6.3	1.3	6
K501-110	110	94.5	6.3	1.3	6
K501-115	115	94	8.1	1.8	10.5
K501-120	120	99	8.1	1.8	10.5
K501-125	125	104	8.1	1.8	10.5
K501-125/1	125	110	6.3	1.3	10.5
K501-126	126	105	8.1	1.8	10.5
K501-130	130	109	8.1	1.8	10.5
K501-135	135	114	8.1	1.8	10.5
K501-140	140	119	8.1	1.8	10.5
K501-145	145	124	8.1	1.8	10.5
K501-147	147	126	8.1	1.8	10.5
K501-150	150	129	8.1	1.8	10.5
K501-160	160	139	8.1	1.8	10.5
K501-165	165	144	8.1	1.8	10.5
K501-170	170	149	8.1	1.8	10.5
K501-175	175	154	8.1	1.8	10.5
K501-180	180	159	8.1	1.8	10.5
K501-185	185	164	8.1	1.8	10.5
K501-190	190	169	8.1	1.8	10.5

Please contact our customer service for the dimensions out of our stock list.



K504 is a three piece double acting compact seal which consists of one fabric reinforced elastomeric sealing element and two thermoplastic guide back-up rings.

PRODUCT ADVANTAGES

- Low friction, free of stick-slip
- Improved abrasion resistance
- Good dynamic and static sealing
- Long service life
- Reliable solution in water and water based media

APPLICATION

Mining equipment, iron and steel industry, marine hydraulics and earth moving equipment.

MATERIAL	CODE	
NBR	80 SHORE A	NB8001
COTTON FABRIC NBR		FB8001
POM		PM9901

OPERATING CONDITIONS			
MEDIA	Mineral oils (DIN 51524)	HFA and HFB	HFC
TEMPERATURE	-30°C +105°C	+5°C +60°C	-20°C +50°C
PRESSURE	≤500 Bar	≤500 Bar	≤500 Bar
SPEED	≤0.5 m/sn	≤0.5 m/sn	≤0.5 m/sn

Note: The above data are maximum values and cannot be used at the same time.

SURFACE ROUGHNESS		Ra	Rmax
Sliding Surface	Ød	≤0.4 µm	≤3.2 µm
Groove Base	ØD	≤1.6 µm	≤6.3 µm
Groove Flanks	B	≤3.2 µm	≤16 µm

Note: It is recommended to have 50% to 90% of the working surface material contact area value

INSTALLATION

K504 profile has been designed to be installed in a closed or open grooves taking the indicated catalogue information into consideration. We recommend having open groove design for dimensions that are smaller than Ø 50 mm. It is very important that the assembly tools must be of soft material and have no sharp edges. Before installation the sealing element must be oiled with system oil.

ØD	PERMISSIBLE SEALING			
	Smax (mm)			
	250 Bar	350 Bar	400 Bar	500 Bar
≤80 mm	0.60	0.55	0.45	0.35
≤80 mm	0.65	0.60	0.50	0.40



K505 is a three piece double acting compact seal which consists of one fabric reinforced elastomeric sealing element and two thermoplastic guide back-up rings.

PRODUCT ADVANTAGES

- Low friction, free of stick-slip
- Improved abrasion resistance
- Good dynamic and static sealing
- Long service life
- Reliable solution in water and water based media
- Designed to withstand up to 1500 bar static pressure

APPLICATION

Mining equipment, iron and steel industry, marine hydraulics and earth moving equipment.

MATERIAL		CODE
NBR	80 SHORE A	NB8001
COTTON FABRIC NBR		FB8001
POM		PM9901

OPERATING CONDITIONS			
MEDIA	Mineral oils (DIN 51524)	HFA and HFB	HFC
TEMPERATURE	-30°C +105°C	+5°C +60°C	-20°C +50°C
PRESSURE	≤500 Bar	≤500 Bar	≤500 Bar
SPEED	≤0.5 m/sn	≤0.5 m/sn	≤0.5 m/sn

Note: The above data are maximum values and cannot be used at the same time.

SURFACE ROUGHNESS		Ra	Rmax
Sliding Surface	Ød	≤0.4 µm	≤3.2 µm
Groove Base	ØD	≤1.6 µm	≤6.3 µm
Groove Flanks	B	≤3.2 µm	≤16 µm

Note: It is recommended to have 50% to 90% of the working surface material contact area value

INSTALLATION

K505 profile has been designed to be installed in a closed or open grooves taking the indicated catalogue information into consideration. Open groove piston design should be used with K505 design. It is very important that the assembly tools must be of soft material and have no sharp edges. Before installation the sealing element must be oiled with system oil.

PERMISSIBLE SEALING				
ØD	Smax (mm)			
	250 Bar	350 Bar	400 Bar	500 Bar
≤80 mm	0.60	0.55	0.45	0.35
≤80 mm	0.65	0.60	0.50	0.40



K518 is a five piece double acting compact seal which consists of one elastomeric nitrile rubber sealing element, two polyester elastomer back-up rings on both sides to prevent extrusion into the sealing gap and two special profiled guide rings produced from thermoplastic to absorb transverse forces.

PRODUCT ADVANTAGES

- Superior radial load bearing capacity
- Economic sealing and guiding solution
- Simple groove design, one-piece piston possible
- Long service life
- Simple snap installation

APPLICATION

Mobile hydraulics, back-hoe loaders, fork-lift trucks, agricultural machinery, standard cylinders.

MATERIAL		CODE
NBR	80 SHORE A	NB8001
POM		PM9905
TPE		TP7301

OPERATING CONDITIONS			
MEDIA	Mineral oils (DIN 51524)	HFA and HFB	HFC
TEMPERATURE	-30°C +105°C	+5°C +60°C	-20°C +50°C
PRESSURE	≤400 Bar	≤400 Bar	≤400 Bar
SPEED	≤0.5 m/sn	≤0.5 m/sn	≤0.5 m/sn

Note: The above data are maximum values and cannot be used at the same time.

SURFACE ROUGHNESS		Ra	Rmax
Sliding Surface	Ød	≤0.4 µm	≤4.0 µm
Groove Base	ØD	≤1.6 µm	≤6.3 µm
Groove Flanks	B	≤3.2 µm	≤16 µm

Note: It is recommended to have 50% to 90% of the working surface material contact area value.

INSTALLATION

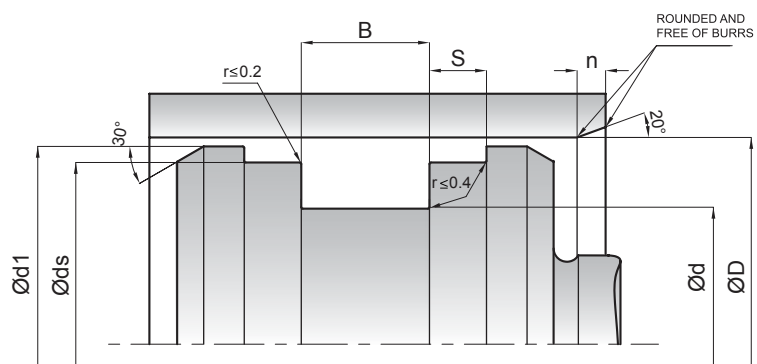
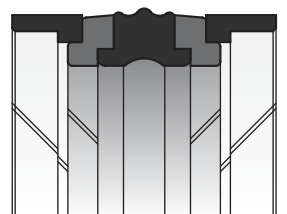
Easily assembled into one-piece piston because the back-up rings and guide rings are produced in split forms. It is very important that the assembly tools must be of soft material and have no sharp edges. Before installation the sealing element must be oiled with system oil.

NOTES

For special applications that require high temperatures, piston seal is manufactured in FKM and PTFE material.

K518

COMPACT PISTON SEAL

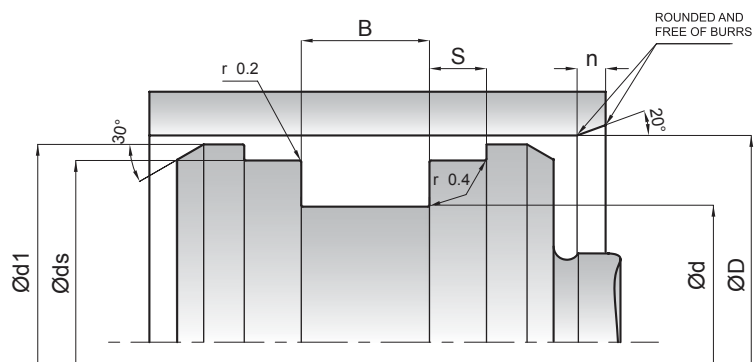
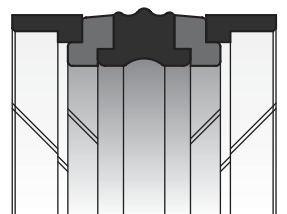


NO	D(H8)	d(h9)	B(+0.2)	ds(h8)	d1(±0.1)	s(+0.2)	n
K518 025-016	25	16	13.5	22	24	2.1	4
K518 032-022	32	22	16.4	28.5	30.5	6.35	4
K518 035-025	35	25	16.4	31.4	33.5	6.35	4
K518 040-030	40	30	16.4	35.4	38.5	6.35	4
K518 040-030/1	40	30	12.5	37	39	4	4
K518 040-032/1	40	32	10	37	39	4	4
K518 040-032	40	32	15.5	36	39.4	3.2	4
K518 045-029	45	29	18.4	40.4	43.5	6.35	5
K518 045-035	45	35	16.4	40.4	43.5	6.35	4
K518 050-034/1	50	34	18.4	45.41	48.66	6.35	5
K518 050-034	50	34	20.5	46	49	3.1	5
K518 050-038	50	38	20.5	46	49.4	4.2	4
K518 055-039/1	55	39	18.4	50.37	53.65	6.35	5
K518 055-039	55	39	20.5	51	54	3.1	5
K518 055-045	55	45	12.5	52	54	4	4
K518 060-044/1	60	44	18.4	55.39	58.65	6.35	5
K518 060-044	60	44	20.2	56	59	3.1	5
K518 060-048	60	48	20.5	56	59.4	4.2	4
K518 063-047	63	47	20.5	59	62	3.1	5
K518 063-047/1	63	47	18.4	58.39	61.63	6.35	5
K518 063-051	63	51	20.5	59	62.4	4.2	4
K518 063-053	63	53	12.5	60	62	4	4
K518 065-049	65	49	20.5	61	64	3.1	5
K518 065-050	65	50	18.4	60.41	63.64	6.35	5
K518 070-050	70	50	22.4	64.18	68.34	6.35	6
K518 070-054	70	54	20.5	66	69	3.1	5
K518 070-058	70	58	20.5	66	69.4	4.2	5
K518 075-055	75	55	22.4	69.2	73.3	6.35	6
K518 075-059	75	59	20.5	71	74	3.1	5
K518 080-060	80	60	22.4	74.15	78.3	6.35	6
K518 080-062	80	62	22.5	76	79	3.6	5
K518 080-066	80	66	22.4	76	79.4	5.2	5
K518 085-065	85	65	22.4	79.15	83.3	6.35	6
K518 090-070	90	70	22.4	84.15	88.3	6.35	6
K518 090-072/1	90	72	22.5	86	89	3.6	6

Please contact our customer service for the dimensions out of our stock list.

K518

COMPACT PISTON SEAL



NO	D(H8)	d(h9)	B(+0.2)	ds(h8)	d1(±0.1)	s(+0.2)	n
K518 090-076	90	76	22.4	86	89.4	5.2	
K518 095-075	95	75	22.4	89.15	93.31	6.35	
K518 105-080/1	105	80	22.4	98.1	103	6.35	
K518 100-075	100	75	22.4	93.13	98	6.35	
K518 100-086	100	86	22.4	96	99.4	5.2	
K518 110-085	110	85	22.4	103.1	108	6.35	
K518 110-096	110	96	22.4	106	109.4	5.2	
K518 115-090	115	90	22.4	108.1	113.02	6.35	
K518 115-101	115	101	22.4	111	114.4	5.2	
K518 120-095	120	95	22.4	113.1	118	6.35	
K518 120-106	120	106	22.4	116	119.4	5.2	
K518 125-100	125	100	25.4	118.1	123	6.35	
K518 125-108	125	108	26.5	121	124.4	7.2	
K518 130-105	130	105	25.4	123.1	128	6.35	
K518 130-105/1	130	105	25.4	123.1	128	9.52	
K518 130-105/2	130	105	25.4	122.6	127.5	9.52	
K518 135-110	135	110	25.4	127.6	132.5	9.52	
K518 140-115	140	115	25.4	132.6	137.5	6.35	
K518 140-115/2	140	115	25.4	133	138	6.35	
K518 140-115/1	140	115	25.4	132.6	137.5	9.52	
K518 140-118	140	118	26.5	136	139	5.1	
K518 140-123	140	123	26.5	136	139.4	7.2	
K518 150-125	150	125	25.4	142.6	147.5	9.5	
K518 150-128	150	128	26.5	146	149	5.1	
K518 160-130	160	130	25.4	153	157.5	6.35	
K518 160-135	160	135	25.4	152.6	157.5	9.52	
K518 160-143	160	143	26.5	156	159.4	7.2	
K518 165-140	165	140	25.4	157.6	162.5	9.52	
K518 165-143	165	143	26.5	161	163.5	5.25	
K518 170-145	170	145	25.4	161.72	167.1	12.7	
K518 170-148	170	148	26.5	166	169	5.1	
K518 180-150	180	150	35.4	172.94	177.87	6.35	
K518 180-155	180	155	25.4	171.72	177.1	12.7	
K518 180-158	180	158	26.5	176	179	5.1	
K518 180-163	180	163	26.5	176	179.4	7.2	

K704 ROD SEAL



K704 is two piece single acting rod seal which consists of one special mixture PTFE profile ring and a NBR elastomer ring as energizing element.

PRODUCT ADVANTAGES

- Low friction, free of stick-slip
- Long service life
- High sliding speed
- Wide range of temperature and chemicals depending on the energizing material
- Minimum static and dynamic friction coefficient for minimum energy loss
- Simple groove design and low axial housing heights

APPLICATION

Steel industry, injection moulding machines, presses, large diameter cylinders

MATERIAL	CODE	
PTFE	PT6003	
NBR	80 SHORE A	NB8001

OPERATION CONDITIONS

MEDIA	Mineral oils (DIN 51524)
TEMPERATURE	-30°C +105°C
PRESSURE	≤400 Bar
SPEED	≤5 m/sn

Note: The above data are maximum values and cannot be used at the same time.

SURFACE ROUGHNESS		Ra	Rmax
Sliding Surface	Ød	≤0.2 µm	≤2.0 µm
Groove Base	ØD	≤1.6 µm	≤6.3 µm
Groove Flanks	B	≤3.2 µm	≤16 µm

Note: It is recommended to have 50% to 90% of the working surface material contact area value.

INSTALLATION

We recommend using assembly tool (See section; Hydraulic Sealing Elements General Installation Information). It is very important that the assembly tools must be of soft material and have no sharp edges. Before installation the sealing element must be oiled with system oil.

NOTES

For HFA HFB HFC used applications, special filled PTFE materials are recommended. Resistance in low temperature and high temperature applications can be improved by alternate elastomer compounds.

PERMISSIBLE SEALING GAP

B (mm)	Smax (mm)		
	150 Bar	250 Bar	400 Bar
10	0.60	0.50	0.40
12,5	0.65	0.55	0.45
15	0.70	0.60	0.50
17,5	0.75	0.65	0.55
20	0.80	0.70	0.55



K705 is a three piece single acting wiper which consists of one special mixture PTFE profile ring and two o-rings as energizers. K705 ensures that foreign particles are not introduced into the hydraulic systems, avoiding wear and damage to all the internal components including seals.

PRODUCT ADVANTAGES

- Low friction
- Free of stick-slip
- High sliding speed
- Wide range of temperature and chemicals depending on the elastomer material

APPLICATION

Mobile hydraulics, aluminium injection machines and industrial machinery, control and regulation equipment

MATERIAL		CODE
PTFE		PT6003
NBR	70 SHORE A	NB7001

OPERATING CONDITIONS	
MEDIA	Mineral oils (DIN 51524)
TEMPERATURE	-30°C +105°C
SPEED	≤5.0 m/sn

Note: The above data are maximum values and cannot be used at the same time. For HFA HFB HFC used applications, special filled PTFE materials are recommended. Resistance in low temperature and high temperature applications can be improved by alternate elastomer compounds.

SURFACE ROUGHNESS		Ra	Rmax
Sliding Surface	Ød	≤0.2 µm	≤2.0 µm
Groove Base	ØD	≤1.6 µm	≤6.3 µm
Groove Flanks	B	≤3.2 µm	≤16 µm

Note: It is recommended to have 50% to 90% of the working surface material contact area value.

INSTALLATION

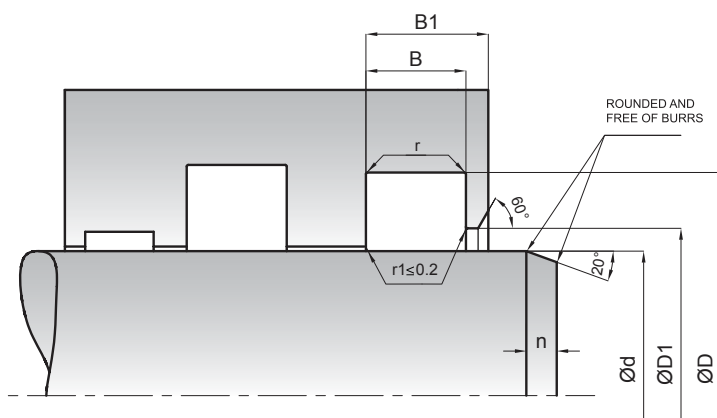
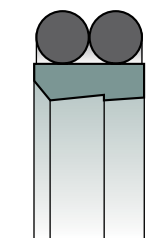
We recommend using special assembly tool (See section; Hydraulic Sealing Elements General Installation Information). It is very important that the assembly tools must be of soft material and have no sharp edges. Before installation the sealing element must be oiled with system oil.

NOTES

K705 wipers have to be used with K35 or K704 rod seals to prevent hydrodynamic pressure build up. If that is not possible some precautions have to be taken to prevent hydrodynamic pressure between wiper and seal (see section: Hydraulic Sealing Elements- Sample Designs). At high temperature working conditions FKM energizing O-ring and special mixture PTFE ring are able to be manufactured according to customer's request.

K705

WIPER



NO	d(f8)	D(H9)	D1(-0/+0.2)	B(-0/+0.2)	B1	r	n
K705-028	28	35.6	29	4.2	8.2	0.4	3
K705-035	35	42.6	36	4.2	8.2	0.4	3
K705-036	36	43.6	37	4.2	8.2	0.4	3
K705-040	40	48.8	41.5	6.3	10.3	1.2	3
K705-045	45	53.8	46.5	6.3	10.3	1.2	3
K705-050	50	58.8	51.5	6.3	10.3	1.2	3
K705-055	55	63.8	56.5	6.3	10.3	1.2	4
K705-056	56	64.8	57.5	6.3	10.3	1.2	4
K705-060	60	68.8	61.5	6.3	10.3	1.2	4
K705-063	63	71.8	64.5	6.3	10.3	1.2	4
K705-065	65	73.8	66.5	6.3	10.3	1.2	4
K705-070	70	82.2	72	8.1	12.1	2	4
K705-075	75	87.2	77	8.1	12.1	2	4
K705-080	80	92.2	82	8.1	12.1	2	4
K705-085	85	97.2	87	8.1	12.1	2	4
K705-090	90	102.2	92	8.1	12.1	2	4
K705-100	100	112.2	102	8.1	12.1	2	4
K705-105	105	117.2	107	8.1	12.1	2	4
K705-110	110	122.2	112	8.1	12.1	2	4
K705-115	115	127.2	117	8.1	12.1	2	4
K705-120	120	132.1	122	8.1	12.1	2	4
K705-125	125	137.2	127	8.1	12.1	2	6
K705-130	130	142.2	132	8.1	12.1	2	6
K705-135	135	147.2	137	8.1	12.1	2	6
K705-140	140	156	142	11.5	15.5	2	6
K705-150	150	166	152	11.5	15.5	2	6
K705-155	155	171	157	11.5	15.5	2	6
K705-160	160	176	162	11.5	15.5	2	6
K705-170	170	186	172	11.5	15.5	2	6
K705-180	180	196	182	11.5	15.5	2	6
K705-190	190	206	192	11.5	15.5	2	6
K705-200	200	216	202	11.5	15.5	2	6
K705-210	210	226	212	11.5	15.5	2	6
K705-220	220	236	222	11.5	15.5	2	6
K705-230	230	246	232	11.5	15.5	2	8

Please contact our customer service for the dimensions out of our stock list.



K706 is a two piece acting wiper which consists of one special designed thermoplastic ring and an o-ring as energizing element. K706 ensures that foreign particles do not penetrate into the hydraulic systems, avoiding wear and damage to all internal components including seals.

PRODUCT ADVANTAGES

- Long service life
- High sliding speed
- Resistance to chemicals and temperature changes depending on chosen o-ring material
- Low friction coefficients
- Free of stick-slip

APPLICATION

Industrial equipment, mobile hydraulics.

MATERIAL		CODE
NBR	70 SHORE A	NB7001
PTFE		PT6003

OPERATING CONDITIONS			
MEDIA	Mineral oils (DIN 51524)	HFA and HFB	HFC
TEMPERATURE	-30°C +105°C	+5°C +60°C	-20°C +50°C
SPEED	≤5.0 m/sn	≤5.0 m/sn	≤5.0 m/sn

Note: The above data are maximum values and cannot be used at the same time.

SURFACE ROUGHNESS		Ra	Rmax
Sliding Surface	Ød	≤0.4 µm	≤3.2 µm
Groove Base	ØD	≤1.6 µm	≤6.3 µm
Groove Flanks	B	≤3.2 µm	≤16 µm

Note: It is recommended to have 50% to 90% of the working surface material contact area value.

INSTALLATION

Easy installation into closed grooves, we recommend using special assembly tool (see section; Hydraulic Sealing Elements General Installation Information). It is very important that the assembly tools must be of soft material and have no sharp edges.

NOTES

K706 wiper should be used in combination of suitable rod seals (able to evacuate back pressure, ex. K35) to avoid hydrodynamic pressure or pressure relieving bore between seal and wiper should be constructed to prevent build up pressures. (See section; Hydraulic Sealing Elements - Sample Designs) Energizer ring of K706 wiper can be produced on request in FKM for special applications that require high temperatures.



K709 is a two piece double acting rod seal which consists of one special mixture PTFE profile ring and an o-ring as an energizing element.

PRODUCT ADVANTAGES

- Free of stick-slip
- Long service life
- High sliding speed
- Able to operate with wide range of chemicals and wide range of temperature depending on the o-ring material
- Low friction coefficient
- Superior static and dynamic sealing

APPLICATION

Industrial machines, injection moulding machines, mobile hydraulics, automotive industry, hydraulic breakers and servo cylinders.

MATERIAL		CODE
NBR	70 SHORE A	NB7001
PTFE		PT6003

OPERATING CONDITIONS

MEDIA	Mineral oils (DIN 51524)	HFA and HFB	HFC
TEMPERATURE	-30°C +105°C	+5°C +60°C	-20°C +50°C
PRESSURE	≤400 Bar	≤400 Bar	≤400 Bar
SPEED	≤5.0 m/sn	≤5.0 m/sn	≤5.0 m/sn

Note: The above data are maximum values and cannot be used at the same time.

SURFACE ROUGHNESS		Ra	Rmax
Sliding Surface	Ød	≤0.2 µm	≤2.0 µm
Groove Base	ØD	≤1.6 µm	≤6.3 µm
Groove Flanks	B	≤3.2 µm	≤15 µm

Note: It is recommended to have 50% to 90% of the working surface material contact area value.

INSTALLATION

We recommend using special assembly tool (see section; Hydraulic Sealing Element General Installation Information). It is very important that the assembly tools must be of soft material and have no sharp edges. Before the installation the sealing element must be oiled with system oil.

NOTES

K709 type of rod seal can also be used with double wiper lips. For special applications that require high temperatures or resistance to chemicals, rod seal is being manufactured with special mixture of PTFE and FKM material. For heavy duty applications and high pressures the tolerances should change to H8/f8 and please contact our customer service to choose the suitable sealing element. The permissible sealing gap values of K709 rod seal is given in the table below.

PERMISSIBLE SEALING GAP

B (mm)	Smax (mm)		
	150 Bar	250 Bar	400 Bar
2.2	0.25	0.15	0.10
3.2	0.35	0.20	0.10
4.2	0.35	0.20	0.15
6.3	0.45	0.25	0.15
8.1	0.55	0.30	0.20

Note: The largest sealing gap value occurring on the non-pressurized side of the seal does have a vital importance for the function of the seal and in this respect it is quite important to use the S value lower than the above indicated numbers.



K715 is a double acting pneumatic rod seal which consists of one special mixture PTFE profile and an o-ring as an energizing element.

PRODUCT ADVANTAGES

- Low friction
- High sliding speed and oilless usability
- Long service life
- Simple groove design

APPLICATION

Pneumatic cylinders.

MATERIAL		CODE
PTFE		PT6005
NBR	70 SHORE A	NB7001

OPERATING CONDITIONS

MEDIA	Prepared, dried and de-oiled or oilless air
TEMPERATURE	-30°C +80°C
PRESSURE	≤40 Bar
SPEED	≤5.0 m/sn

Note: The above data are maximum values and cannot be used at the same time.

SURFACE ROUGHNESS

		R _{max}
Sliding Surface	∅d	≤2 μm
Groove Base	∅D	≤6,3 μm
Groove Flanks	B	≤15 μm

INSTALLATION

It is very important that the assembly tools must be of soft material and have no sharp edges. K715 can be installed without using assembly tools due to elasticity of slim PTFE ring.

NOTES

S_{max} = ≤ 0,2.

K716 WIPER



K716 is three piece single acting wiper which consists of one special designed PTFE profile ring and two o-ring as energizing element. K716 ensures that foreign particles do not penetrate into the hydraulic systems, avoiding wear and damage to all the internal components including seals.

PRODUCT ADVANTAGES

- Long service life
- High sliding speed
- Low friction
- Free of stick-slip
- Wide range of dimensions

APPLICATION

Metallurgical industry, heavy industry.

MATERIAL		CODE
NBR	70 SHORE A	NB7001
PTFE		PT6003

OPERATING CONDITIONS			
MEDIA	Mineral oils (DIN 51524)	HFA and HFB	HFC
TEMPERATURE	-30°C +105°C	+5°C +60°C	-20°C +50°C
SPEED	≤5.0 m/sn	≤5.0 m/sn	≤5.0 m/sn

Note: The above data are maximum values and cannot be used at the same time.

SURFACE ROUGHNESS		Ra	Rmax
Sliding Surface	Ød	≤0.4 µm	≤3.2 µm
Groove Base	ØD	≤1.6 µm	≤6.3 µm
Groove Flanks	B	≤3.2 µm	≤16 µm

Note: It is recommended to have 50% to 90% of the working surface material contact area value.

INSTALLATION

We recommend using special assembly tool (See section; Hydraulic Sealing Elements General Installation Information). It is very important that the assembly tools must be of soft material and have no sharp edges. Before installation the sealing element must be oiled with system oil.

NOTES

When K716 wiper is being used with double lip sealing element, we recommend a pressure relieving bore between the seal and wiper. For special applications that require high temperatures or resistance to chemicals, piston seal can be manufactured with special mixture PTFE and FKM.



K755 is a two piece double acting piston seal which consists of one energizing elastomer ring and special mixture thermoplastic ring.

PRODUCT ADVANTAGES

- Low friction, free stick-slip
- Excellent performance in large diameter cylinders and heavy duty applications
- Long service life
- High sliding speed
- Wide range of temperature and chemicals depending on the o-ring material
- Minimum static and dynamic friction coefficient for a minimum energy loss
- Simple groove design and low axial housing heights
- No twisting in the housing

APPLICATION

Steel industry, injection moulding machines, presses, large diameter cylinders, steel industry

MATERIAL	CODE	
PTFE	PT6003	
NBR	80 SHORE A	NB8001

OPERATING CONDITIONS

MEDIA	Mineral oils (DIN 51524)
TEMPERATURE	-30°C +105°C
PRESSURE	≤400 Bar
SPEED	≤5.0 m/sn

Note: The above data are maximum values and cannot be used at the same time. For HFA HFB HFC used applications, special filled PTFE materials are recommended. Resistance in low temperature and high temperature applications can be improved by alternate elastomer compounds.

SURFACE ROUGHNESS		Ra	Rmax
Sliding Surface	Ød	≤0.2 µm	≤2.0 µm
Groove Base	ØD	≤1.6 µm	≤6.3 µm
Groove Flanks	B	≤3.2 µm	≤16 µm

Note: It is recommended to have 50% to 90% of the working surface material contact area value.

INSTALLATION

We recommend using special assembly tool (See section; Hydraulic Sealing Elements General Installation Information). It is very important that the assembly tools must be of soft material and have no sharp edges. Before installation the sealing element must be oiled with system oil.

NOTES

For special applications that require high temperatures, rod seal is manufactured in FKM and PTFE material.

PERMISSIBLE SEALING GAP

B (mm)	Smax (mm)		
	150 Bar	250 Bar	400 Bar
10	0.60	0.50	0.40
12.5	0.65	0.55	0.45
15	0.70	0.60	0.50
17.5	0.75	0.65	0.55
20	0.80	0.70	0.60

Note: All the above mentioned "S" values are maximum and it's vital to use lower values for system security.



K761 is two piece double acting pneumatic piston seal which consists of Carbon PTFE and NBR O-Ring.

PRODUCT ADVANTAGES

- Low friction
- High sliding speed and oilless working ability
- Long service life
- Simple groove design

APPLICATION

Pneumatic cylinders.

MATERIAL		CODE
PTFE		PT6005
NBR	70 SHORE A	NB7001

OPERATING CONDITIONS

MEDIA	Prepared, dried and de-oiled or oilless air
TEMPERATURE	-30°C +80°C
PRESSURE	≤40 Bar
SPEED	≤5.0 m/sn

Note: The above data are maximum values and cannot be used at the same time.

SURFACE ROUGHNESS

		Rmax
Sliding Surface	Ød	≤2 µm
Groove Base	ØD	≤6.3 µm
Groove Flanks	B	≤15 µm

INSTALLATION

It is very important that the assembly tools must be of soft material and have no sharp edges. Using assembly tools for installation is suggested.

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Smax = ≤ 0,2.



K762 is a two piece double acting piston seal which consists of one special mixture PTFE profile ring and a square ring as energizing element.

PRODUCT ADVANTAGES

- Free of stick-slip
- Small one piece piston
- Long service life
- High sliding speed
- Able to operate with wide range of temperature and chemicals depending on the square ring material
- Low friction coefficient
- Superior static and dynamic sealing
- Square ring prevents twisting in the housing

APPLICATION

Injection, moulding machines, excavators, forklifts, agricultural machinery, loading platforms, presses, hydraulic and pneumatic valve systems.

MATERIAL		CODE
NBR	70 SHORE A	NB7001
PTFE		PT6003

OPERATING CONDITIONS			
MEDIA	Mineral oils (DIN 51524)	HFA and HFB	HFC
TEMPERATURE	-30°C +105°C	+5°C +60°C	-20°C +50°C
PRESSURE	≤400 Bar	≤400 Bar	≤400 Bar
SPEED	≤5.0 m/sn	≤5.0 m/sn	≤5.0 m/sn

Note: The above data are maximum values and cannot be used at the same time.

SURFACE ROUGHNESS		Ra	Rmax
Sliding Surface	Ød	≤0.2 µm	≤2.0 µm
Groove Base	ØD	≤1.6 µm	≤6.3 µm
Groove Flanks	B	≤3.2 µm	≤15 µm

Note: It is recommended to have 50% to 90% of the working surface material contact area value.

INSTALLATION

It is very important that the assembly tools must be of soft material and have no sharp edges. We recommend using special assembly tool (see section; Hydraulic Sealing Elements General Installation) and to have open groove design for dimensions that are smaller than Ø 40 mm. Before installation the sealing elements must be oiled with system oil.

NOTES

It is recommended to use with minimum two piston guide rings in long stroke cylinders, minimum one ring in short stroke and under low radial loads. For special applications that require high temperatures or resistance to chemicals, piston seal can be manufactured with special mixture PTFE and FKM material. The permissible gap values of K762 piston seal is given in the table below.

PERMISSIBLE SEALING			
Pressure (Bar)	Smax (mm)		
	150 Bar	250 Bar	400 Bar
2.2	0.3	0.20	0.15
3.2	0.4	0.25	0.15
4.2	0.4	0.25	0.20
6.3	0.5	0.30	0.20
8.1	0.6	0.35	0.25
9.5	0.7	0.50	0.30

Note: The largest sealing gap value occurring on the non-pressurized side of the seal does have a vital importance for the function of the seal and in this respect it is quite important to use the S value lower than the above indicated numbers.

