



KOLBEN

A Leading Sealing Technologies



HYDRAULIC PNEUMATIC SEALS





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Hydraulic Seals

Name	Model	Version	Application	Profile	Material	Max. Pressure Mpa (Kgf/cm ²)	Max Speed (m/s)	Temperature Range (oC)	Page
Rod & Piston Seals									
Rod & Piston Seal	K614	Premium	Rod & Piston		UPA1002®	38 (380)	0.5	- 40 to 120 oC	7-24
Rod & Piston Seal	K616	Premium Pro	Rod & Piston		UPA1003®	40 (400)	0.5	- 50 to 160 oC	25-27
Rod Seal	K619	Premium	Rod		UPA1002®	40 (400)	0.5	- 40 to 120 oC	28-30
Rod Seal	K620	Premium Pro	Rod		UPA1003®	50 (500)	0.5	- 50 to 160 oC	31-33
Dust Wiper Seals									
Dust Seal	K854	Eco	Rod		UPA1001®		0.5	-30 to 100 oC	34-37
Dust Seal	K843	Eco	Rod		UPA1001®		0.5	-30 to 100 oC	38-40
Dust Seal	K845	Eco	Rod		UPA1001®		0.5	-30 to 100 oC	41-43
Dust Seal	K847	Eco	Rod		UPA1001® Metal		0.5	-30 to 100 oC	44-46
Piston Seals									
Piston Seal	K729	Premium Pro	Piston		UPA1003®	35 (350)	0.5	-40 to 120 oC	50-52
Piston Seal	K732	Premium Pro	Piston		UPA1003®				
Piston Seal	K725	Eco	Piston		UPA1001®	30 (300)	0.5	-40 to 120 oC	53-55

Piston Seal	K730	Premium Pro	Piston		UPA1003®	40 (400)	0.5	-50 to 160 oC	56-58
Guiding Rings									
Guide Rings	LFB		Rod		UPA1006®				
Guide Rings	WRW		Rod & Piston		UPA1007®				
Guide Rings	K530		Rod & Piston		UPA1008®				
Guide Rings	K539		Rod & Piston		UPA1005®				
Guide Rings	WRT		Rod & Piston		UPA1005®				
Rotary Seals									
Rotary Seal	K605	Premium	Joint Rotary		UPA1003®	40 (400)	0.5	-50 to 160 oC	59-61

Pneumatic Seals

Name	Model	Version	Application	Profile	Material	Max. Pressure Mpa (Kgf/cm ²)	Max Speed (m/s)	Temperature Range (oC)	Pape
Rod & Dust Seal	K57	Premium	Rod		UPA1004®	4 (40)	0.5	-30 to 120oC	63-64
Rod & Dust Seal	K58	Premium	Rod		UPA1004®	2 (20)	0.5	-30 to 120oC	65-67
Cushioning Seal	K59	Eco	Rod		UPA1001®	2(20)	0.5	-30 to 100oC	68-70
Rod & Piston Seal	K60	Premium	Rod & Piston		UPA1004®	4(40)	0.5	-30 to 120oC	71-73
Piston Seal	K70	Premium	Piston		UPA1004®	4(40)	0.5	-30 to 120oC	74-76



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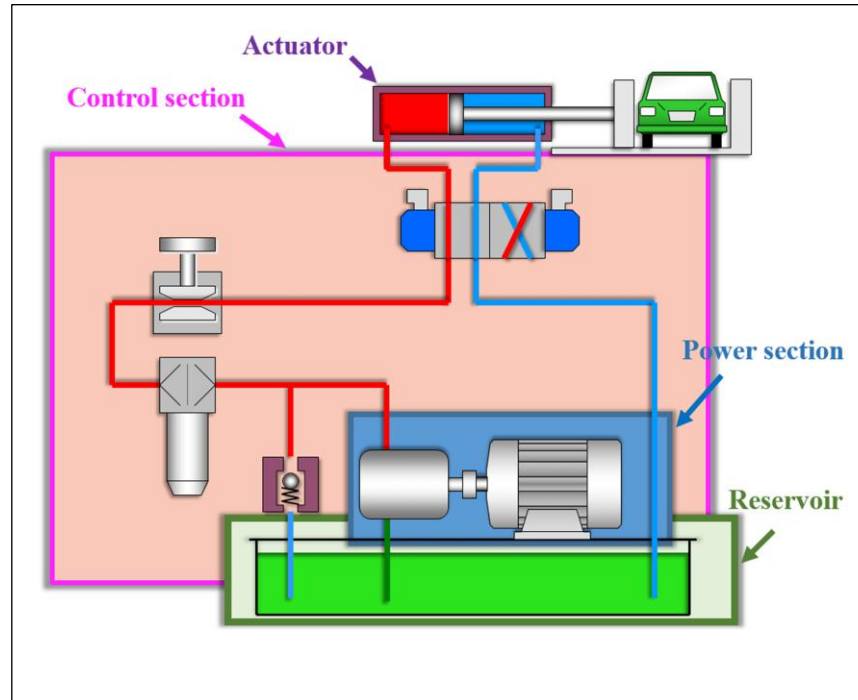
Technical Manual





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Hydraulic System Introduction



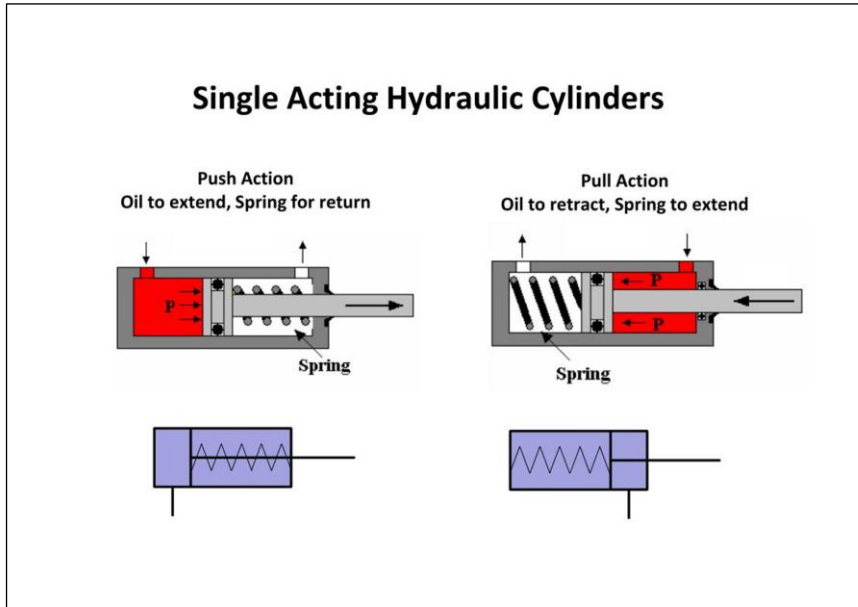
The basic hydraulic systems are including parts :

1. Oil Tank
2. Valves
3. Motor
4. Pumps
5. Coupling
6. Hydraulic Cylinder
7. Hydraulic Hoses
8. Filters

The seals are keep roles to sealing the equipment. The hydraulic seals will be used much more in the hydraulic cylinders part. The cylinder is operating as executive structures for the applications.

Hydraulic Cylinder

1. Single Acting



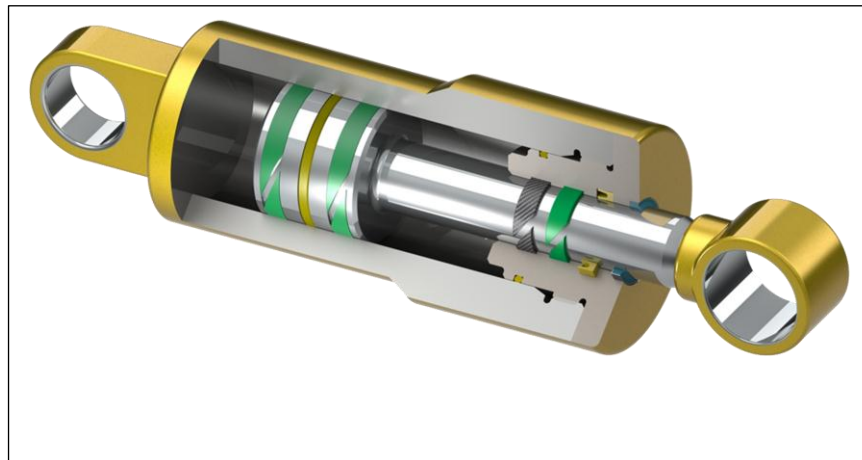
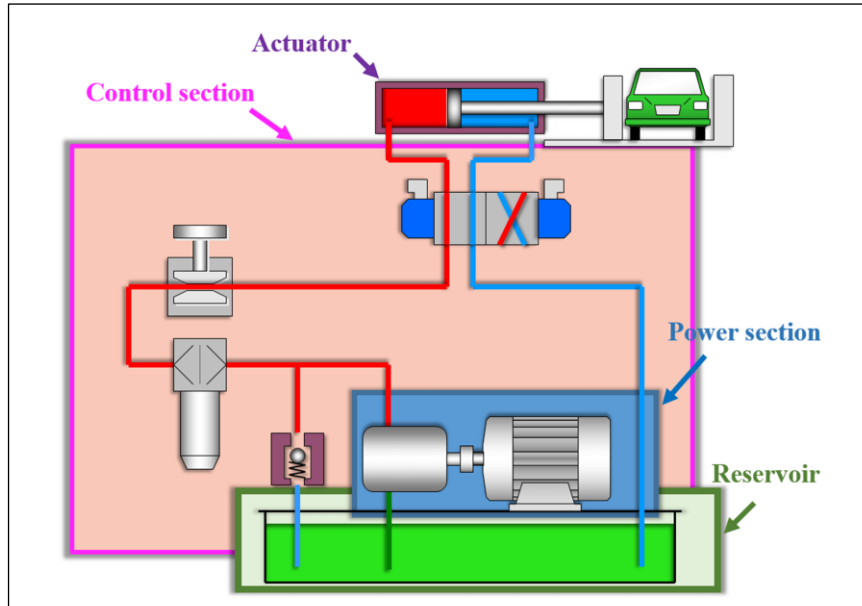
- Single Acting cylinder only extends by pressure from a pump and then retracts by the weight of the load or by an inbuilt spring. A Double Acting cylinder uses hydraulic power to both extend and retract.

- A simple way to tell the cylinders apart is by looking at the number of ports. A Single Acting cylinder will have one port for the connection of a hydraulic cylinders Hydraulic Hose Fittings A Double Acting cylinder will have TWO ports. The first port is where the “advance” (extend) Hydraulic Hose Fittings will attach and the second is where the “retract” Hydraulic Hose Fittings will attach.



Hydraulic Cylinder

2. Double Acting



A double acting cylinder alternates cycles of pressurized fluid to both sides of the piston and creates extend and retract forces to move the piston rod, permitting more control over the movement. Using a control system made up of a 2-, 3-, 4- way position valve would be required to achieve the desired movement for your application.

What it comes down to when selecting which type of cylinder is the amount of control that you need versus what you can afford to have in place. If the heavy lifting, so to speak, is only in one direction, a single acting hydraulic or pneumatic cylinder may be your best bet. If you are moving a part in two directions and need to have full control, it's best to have a double acting hydraulic or pneumatic cylinder.





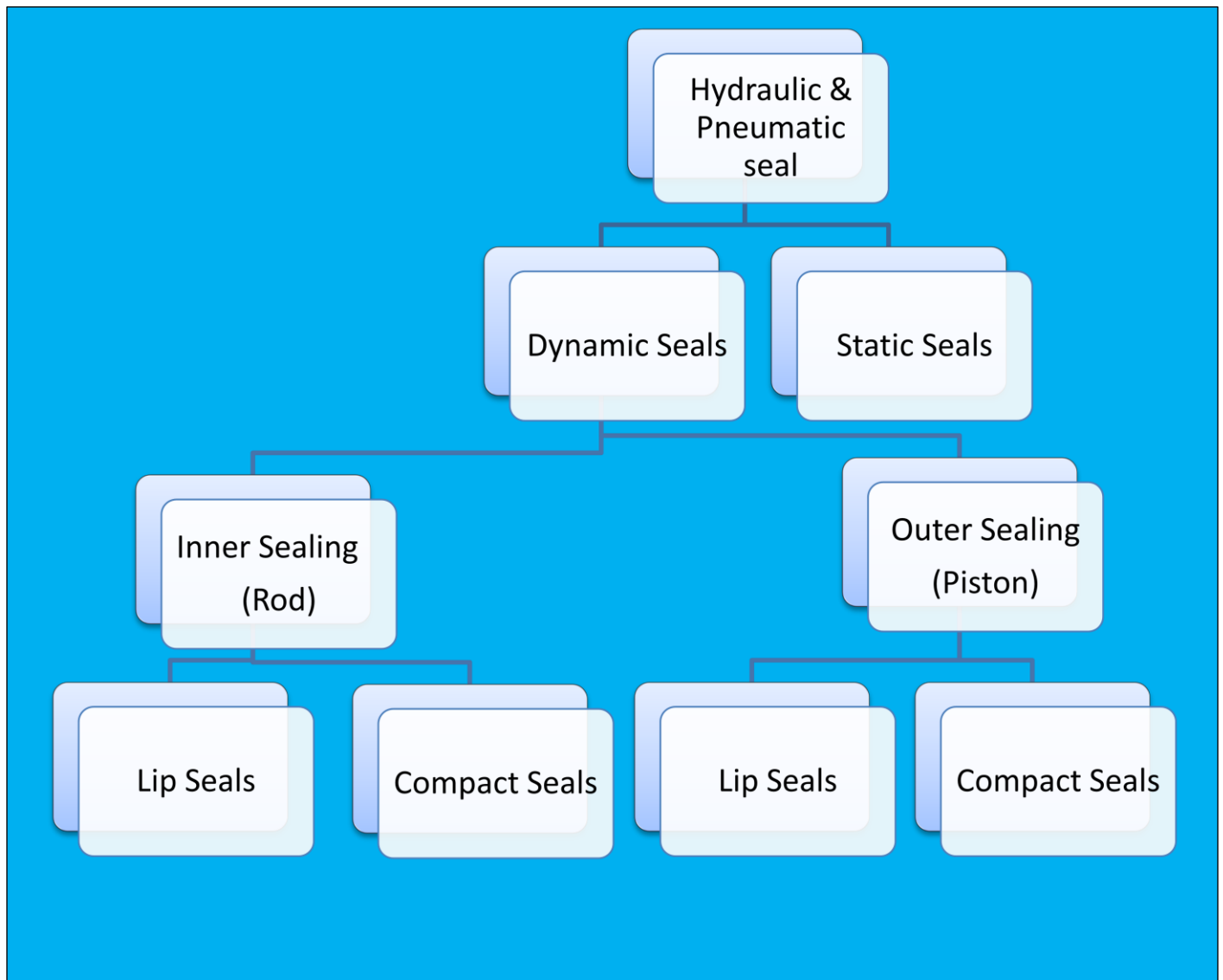
Use Of Hydraulic And Pneumatic Seals

Different requirements and loads in numerous applications have resulted in the development of different seal designs

Hydraulic seals can be categorised by function and design

Hydraulic seals are also classified into seals with a symmetrical cross-section and seals with an asymmetrical cross-section.

Asymmetrical seals are designed so the pre-load is distributed over the entire axial width on the supporting mating area to give them a sufficiently fixed seating in the groove. The correct pre-load on the moving side is not derived until after fitting in the housing.

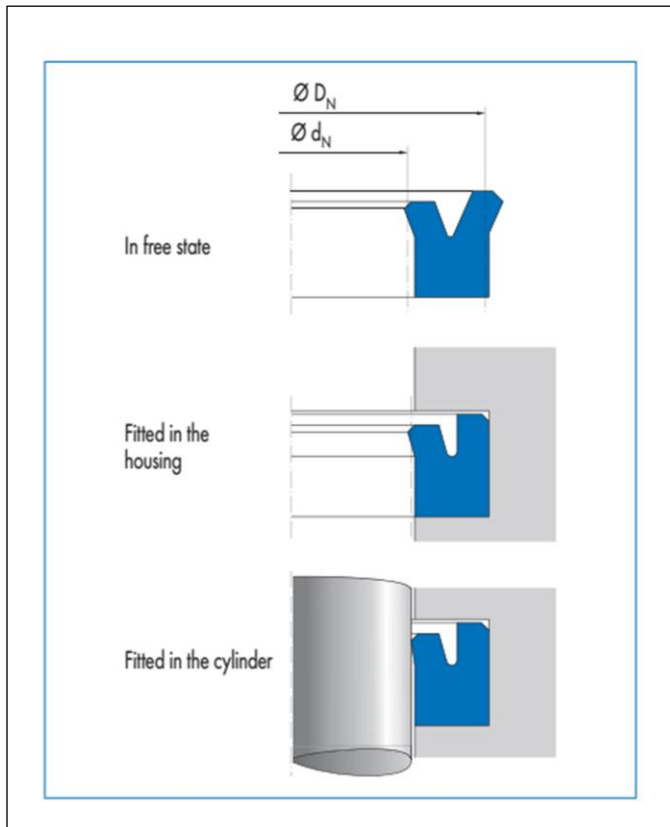




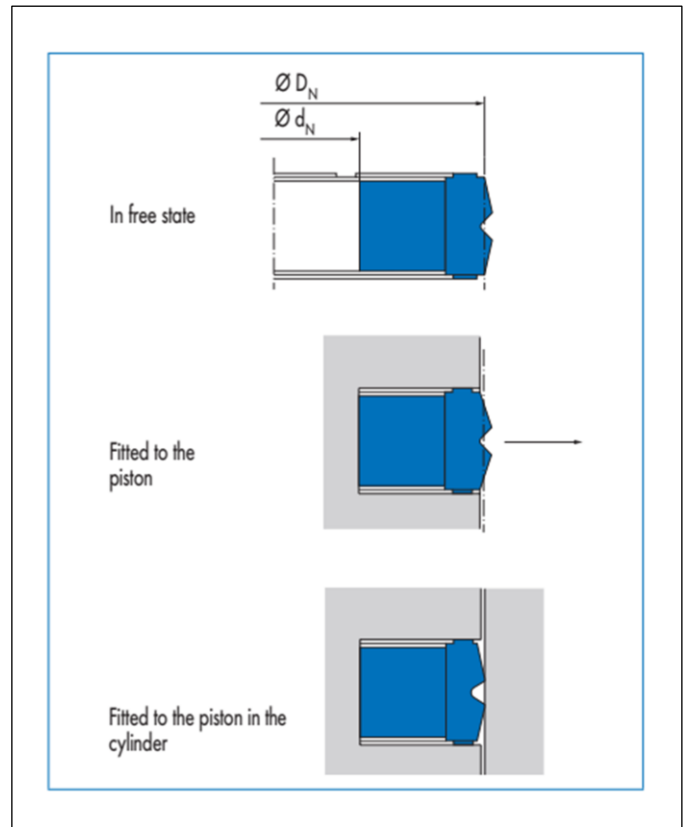
Hydraulic seals/preselecting seals

In addition to the main requirement for a good sealing effect, the user expects the following from hydraulic seals:

- ❖ Functional reliability
- ❖ Long service life
- ❖ Easy fitting
- ❖ Compatible with hydraulic fluid at high and low temperatures
- ❖ High resistance to mechanical damage (e.g. gap extrusion)
- ❖ Low friction
- ❖ Good shape elasticity to ensure correct function, even with eccentricity between rod and housing or piston and cylinder barrel caused by operation as well as the barrel widening as a result of the operating pressure.

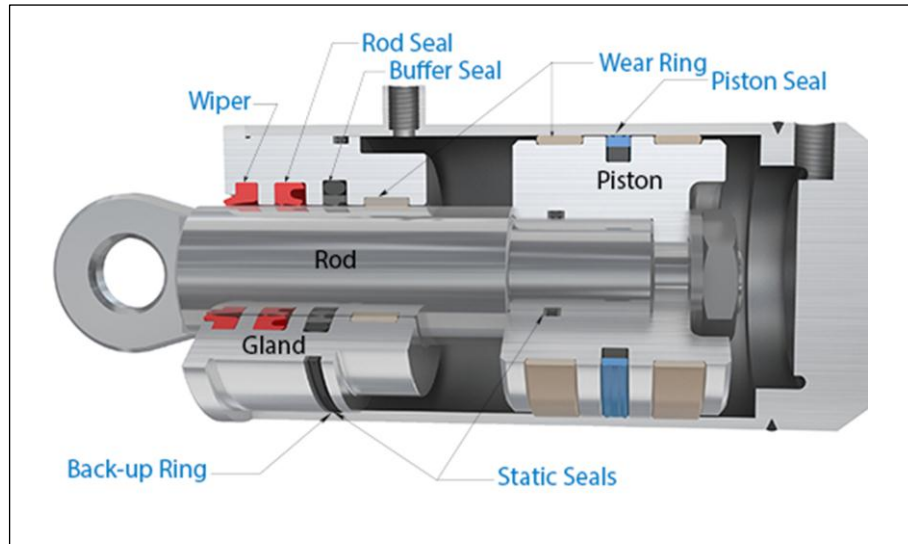


Rod Seal



Piston Seal

Sealing Systems



Definition

Sealing components are used to retain the hydraulic medium securely inside a hydraulic system. A defined moistening of the counter surface with lubricating medium is desirable when the required service life is taken into account. A sealing component is referred to in this regard as leaky if the hydraulic medium is visible from the outside in the form of dripping leakage.

Requirements

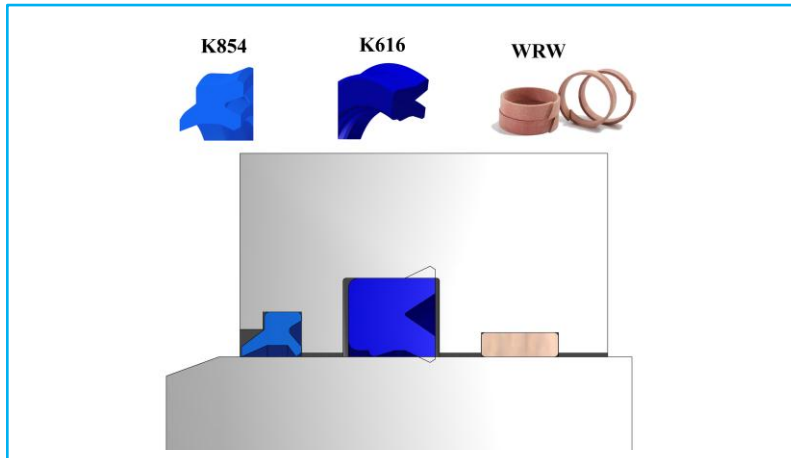
During operation sealing components are subject to a reciprocating or rotary movement when operating pressure is applied. In addition to other influences, the selection of a sealing component is significantly influenced by the material-dependent resistance against extrusion and the equally material-dependent friction and wear characteristics. The values of the main properties of sealing effect, form stability and friction or wear work against one another and in total cannot be optimally represented by one single sealing component. An approximation of the ideal sealing component is reached with a reasonable combination of single components with appropriate properties into one sealing system.

Arrangement

Sealing systems generally consist of an arrangement of sealing components with a primary seal, a secondary seal, a wiper and guide elements. The properties of the individual components are optimized with reference to the main requirement.

The operating pressure is applied to the primary seal. The main requirement is a high resistance against extrusion simultaneously with acceptable friction values under high pressure. Compact sealing components with a slip ring of PTFE compound are primarily used inside sealing systems. The remaining oil film is comparatively thick and without additional reduction by a secondary sealing component (depending on the operating parameters) may be visible as dripping leakage in front of the wiper edge. The lower gap pressure (<5 MPa) is applied to the secondary seal. The main requirement is therefore effective reduction of the residual oil film left by the primary seal simultaneously with acceptable friction values in the lower pressure range. With sufficient media resistance U-rings of polyurethane or compact sealing components with a slip ring of polyurethane are generally used in this case. The sealing effect is better with such sealing components compared to PTFE sealing components.

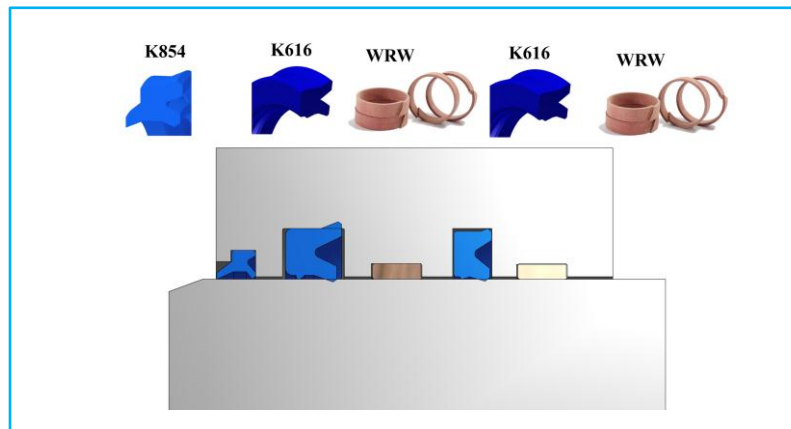
Standard Sealing Systems For Rods 1



Operation Condition:

- Pressure: < 400 Bar
- Running Speed: 0.8 m/s
- Temperature : -40 to 160 oC
- Media : Hydraulic Oil

Standard Sealing Systems For Rods 2

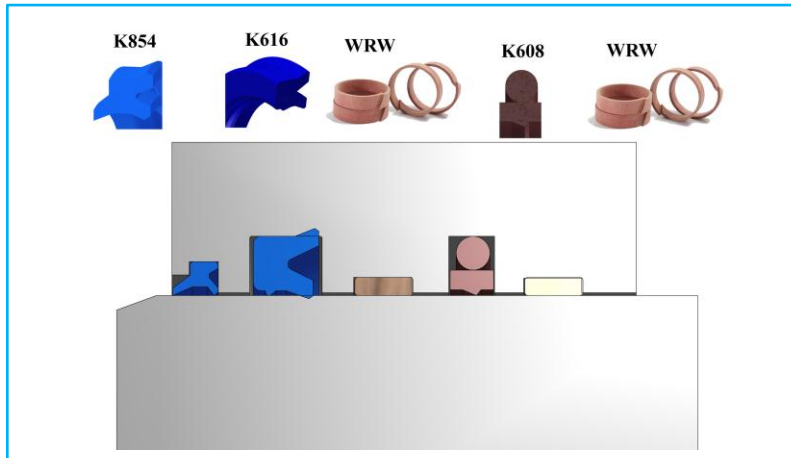


Operation Condition:

- Pressure: < 500 Bar
- Running Speed: 1.4 m/s
- Temperature : -40 to 160 oC
- Media : Hydraulic Oil



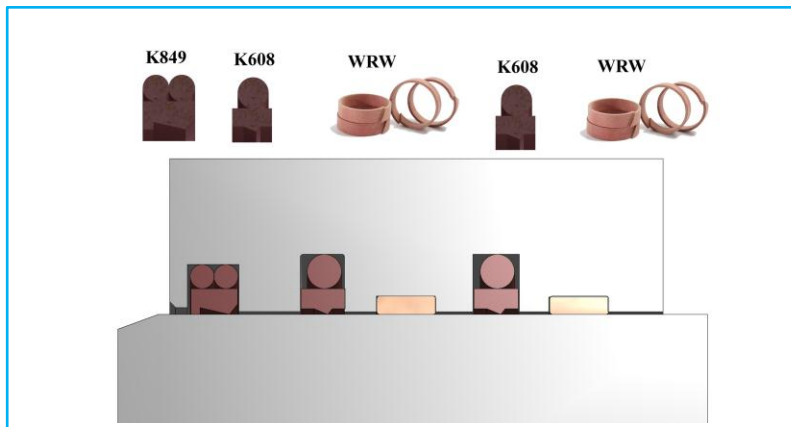
Standard Sealing Systems For Rods 3



Operation Condition:

- Pressure: < 400 Bar
- Running Speed: 1.5 m/s
- Temperature : -40 to 160 oC
- Media : Hydraulic Oil

Standard Sealing Systems For Rods 4



Operation Condition:

- High Chemical resistance is required.
- Pressure: < 500 Bar
- Running Speed: 1.4 m/s
- Temperature : -40 to 160 oC
- Media : Hydraulic Oil



MATERIAL INFORMATION

Material Code	Version	Physical Properties		Temperature	Applications
		Hardness	Tensile Strength Mpa(kgf/cm ²)		
UPA1001®	Eco	92	35 (350)	-30 to 110°C	Hydraulic
UPA1002®	Premium	92	38 (380)	- 40 to 120°C	Hydraulic
UPA1003®	Premium Pro	92	50 (500)	-50 to 160 °C	Hydraulic
UPA1004®	Premium	65	10 (100)	- 40 to 120°C	Pneumatic

KOLBEN Premium Pro

UPA1003® Polyurathane

High Temperature Nanotechnology



The life of seal will be extended with strict heat operation.

KOLBEN UPA1003® Polyurathane is developed by R&D in high performance hydraulic sealing.

The necessity of UPA1003® that can withstand **higher temperatures** is common in aerospace, automotive, composite, modelling, and design industries.

The new UPA1003® increases the high temperature operating window for seals from 100°C to 160°C for continuous use in many applications and can withstand brief excursions up to 180°C without leakage.



KOLBEN UPA1003® are designed and synthesised to provide **superior mechanical performance at elevated temperatures** with the same batch to batch consistency and ease of downstream processing

It keeps the most important roles of hydraulic cylinders. K620 is a best of range **high pressure and temperature performance**. KOLBEN UPA1003® is **superior excellent** material that used to **draconic** application. This is one of **best material** over the world.

Product Features:

- Withstands excursions up to 430 °F / 160 °C
- Super excellent wear & abrasion resistance.



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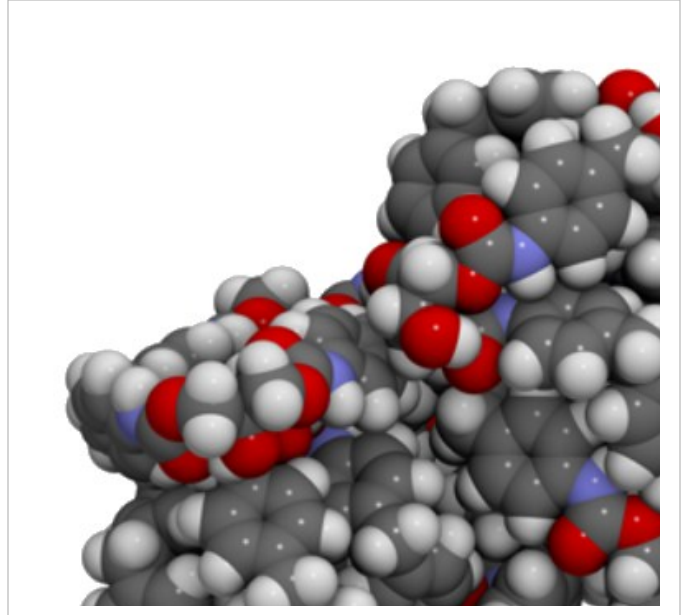
High Performance & Temperature Sealing

Development Trends Of The Times

The life of seal

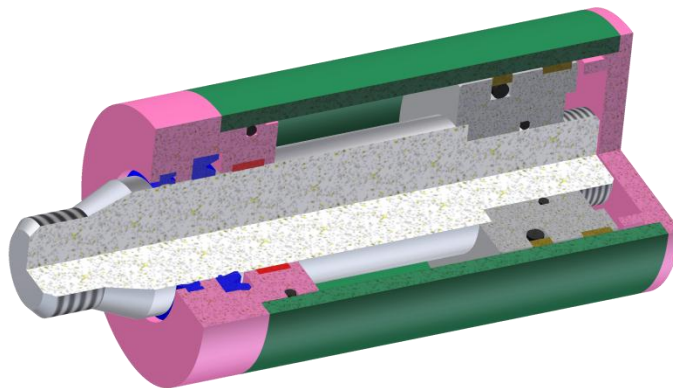
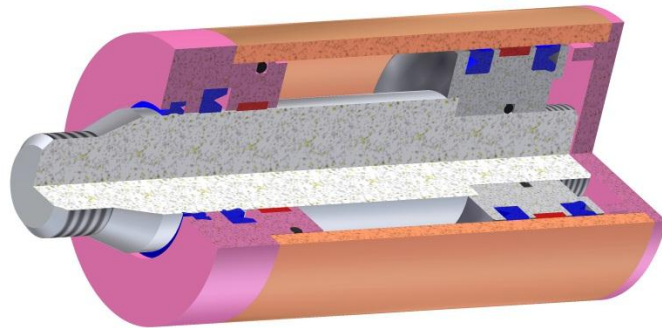
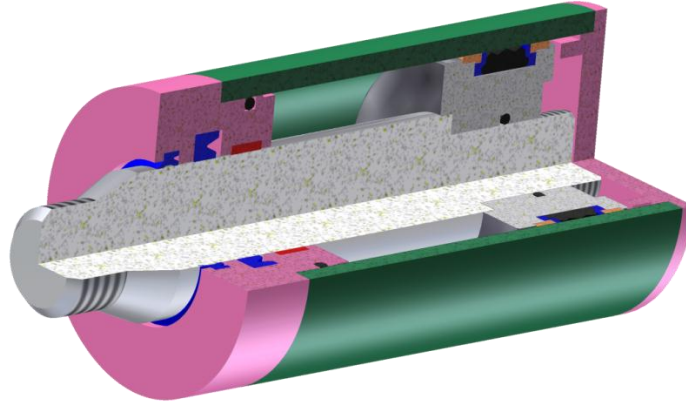
KOLBEN UPA1003® lasted 40% longer than the leading competitor before a leak was detected. More importantly, UPA1003® ability to retain sealing force minimized leaking as the test continued compared to the leading competitor which failed catastrophically.

Whether your challenge is short term, high temperature exposure or longer seal life, KOLBEN UPA1003® can help you achieve your goals.

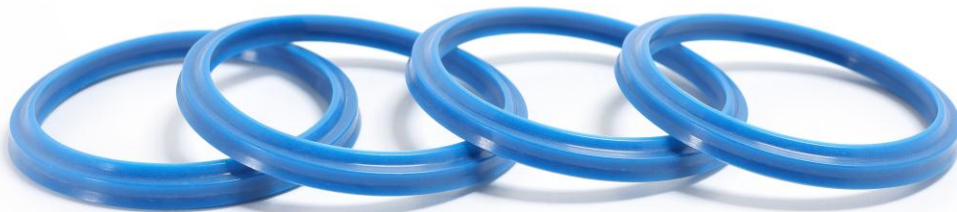
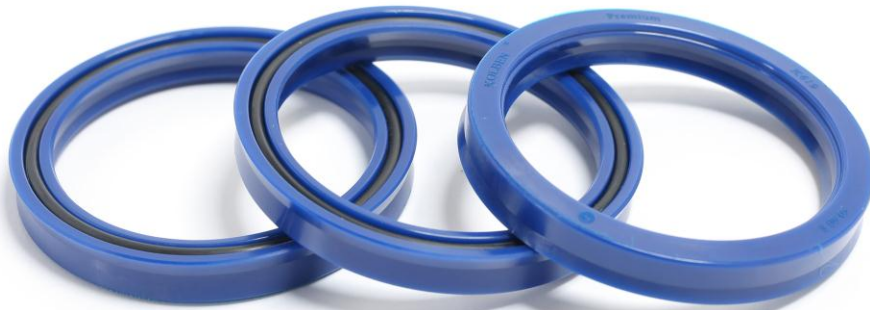


Physical properties		KOLBEN UPA1003®	
Hardness	DIN 53 505	Shore A	93 +/- 2
Density	DIN EN ISO 1183-1	g/cm ³ lb/in ³	1.20 +/- 0.02 0.043 +/- 0.0007
Modulus 100 %	DIN 53 504	N/mm ² psi	14 2,030
Ultimate Tensile Strength [MPa]	BS ISO 37:2011	Mpa	38.2
Ultimate Elongation at Break [%]	BS ISO 37:2011	%	840
Lupke Rebound Resilience	BS ISO 4662: 2009		72
Tear Strength	DIN ISO 34-1	/mm ² psi	90 13,050
C.S. 70h/70°C 70h/158°F	DIN ISO 815 (B)	%	23
C.S. 70h/100°C 70h/212°F	DIN ISO 815 (B)	%	37
Melt Temperature [°C]		°C	210-240
Temperature range	oC -35°C to +160°C		

SAMPLE DESIGN



HYDRAULIC SEALS



K614

Premium
Rod & Piston Seal
Single -Acting



APPLICATION

Steel Mill industry

Power Tool

Light and heavy industry



INTRODUCTION

K614 is a double lip rod and piston seals. It keeps the most important roles of hydraulic cylinders. K614 is a top of range high pressure performance. KOLBEN UPA1002® is *excellent* material that used to *draconic* application.

The additional sealing edge results in a larger lubricant deposit in the sealing gap. K614 is our *Premium Version*.

Hydraulic cylinder rod seals are made to prevent leakage across the moving rod surface. They are an extremely seal making installation very easily. The mainly application is excavator and heavy - duty hydraulic

MATERIAL

KOLBEN UPA1002®

FEATURES

Excellent wear & abrasion resistance.

Easy installation.

Low compression

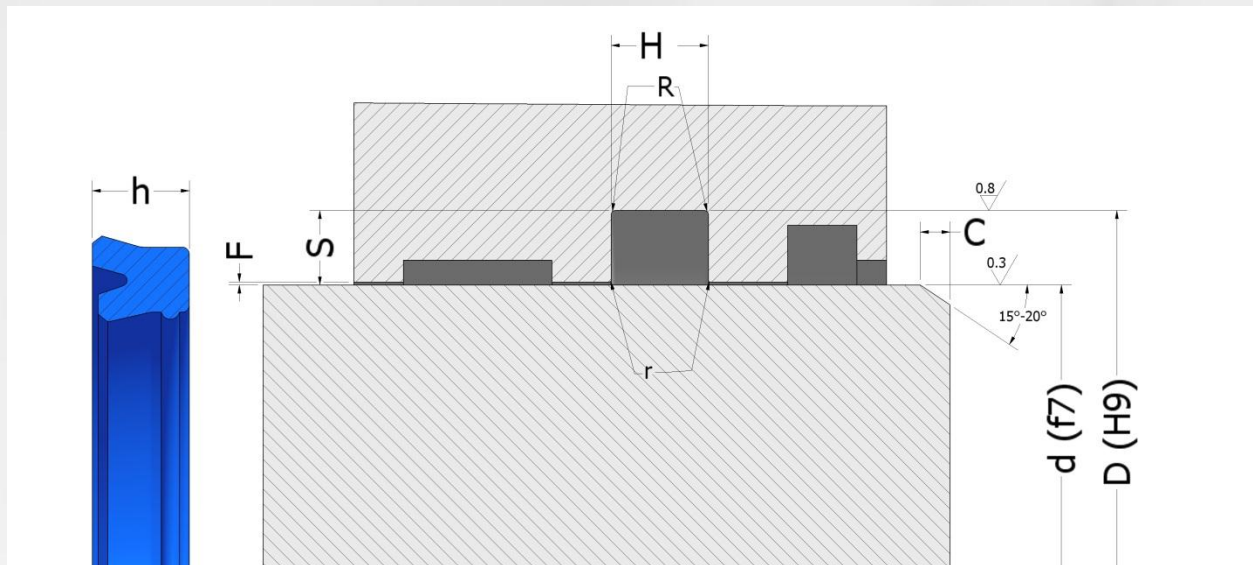
Low load at high speed, low noise

Excellent resistance to extrusion and wear.

Extreme high extrusion resistance

Enhanced sealing performance in non-pressurized condition.





Material	Power-transmission fluid	Temperature °C	Speed	Pressure	Max. Gap F
KOLBEN UPA1002®	Hydraulic oil 68	-40 to +120	≤ 1,0m/s	250 Bar	F ≤ 0,6 mm
				300 Bar	F ≤ 0,5 mm
				380 Bar	F ≤ 0,4 mm

Rod Diameter	Groove Diameter	Seal Width	Groove Width
d (f7)	D (H9)	h	H +0.2
10	16	5	6
16	22	8	9
20	30	10	11
22	30	4.4	5
22	40	10	11
25	31	5	6
25	35	6	7
25	35	6	7
25	35	7	8
25	35	8	9
25	35	10	11
25	36	6	7
25	37	7	8
25	38	8	9

25	38	10	11
25	40	6	7
25	40	8	9
25	40	10	11
25	42	8	9
25	43	8	9
25	45	8	9
25	45	10	11
25	50	10	11
26	32	5	6
26	36	8	9
26	36	10	11
26	38	8	9
26	47	12	13
27	35	5	6
27	36	6	7
27	37	6	7
28	35	5	6
28	35	6	7
28	36	4	5
28	36	5	6
28	36	6	7
28	36	8	9
28	38	6	7
28	38	7	8
28	38	8	9
28	40	8	9
28	40	10	11
28	43	10	11
28	44	8	9
30	36	8	9
30	37	5	6
30	38	5	6
30	38	6	7
30	38	7	8
30	38	8	9
30	40	5	6
30	40	6	7
30	40	7	8
30	40	8	9
30	40	10	11
30	42	6	7
30	42	8	9
30	42	9	10
30	42	10	11

30	42	11	12
30	43	6	7
30	43	10	11
30	44	5	6
30	45	8	9
30	45	10	11
30	47	10	11
30	48	10	11
30	50	9	10
30	50	10	11
30	50	12	13
30	52	10	11
31	47	10	11
31.5	41.5	6	7
31.5	44.3	9.5	10.5
31.5	46.5	10	11
31.8	41.3	6.3	7
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32	40	10	11
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32	44	6	7
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32	45	10	11
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32	47	10	11
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32	48	10	11
32	50	10	11
33	39	8	9
33	40	8	9
33	42	8	9
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35	43	7	8

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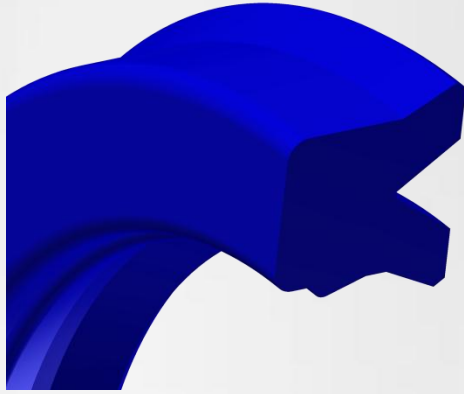
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185	205	15	16
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K616
Premium Pro
Rod & Piston Seal
Single -Acting



APPLICATION

Aerospace
Automotive
Construction and Mining
Logistics
Manufacturing and Machine Tools
Material Handling
Oil and Gas
Printing
Processing Equipment



INTRODUCTION

K616 is a double lip rod seals. We called it version *Premium Pro* because it is the best material over the world.

They can use in *extremely strict application* such as *Aerospace, Oil and Gas, Hammer, Quarry.*

It keeps the most important roles of hydraulic cylinders. K616 is a best of range *high pressure and temperature performance*. KOLBEN UPA1003® is *superior excellent* material that used to *draconic* application. This is one of *best material* over the world.

KOLBEN UPA1003® are designed and synthesised to provide *superior mechanical performance at elevated temperatures* with the same batch to batch consistency and ease of downstream processing

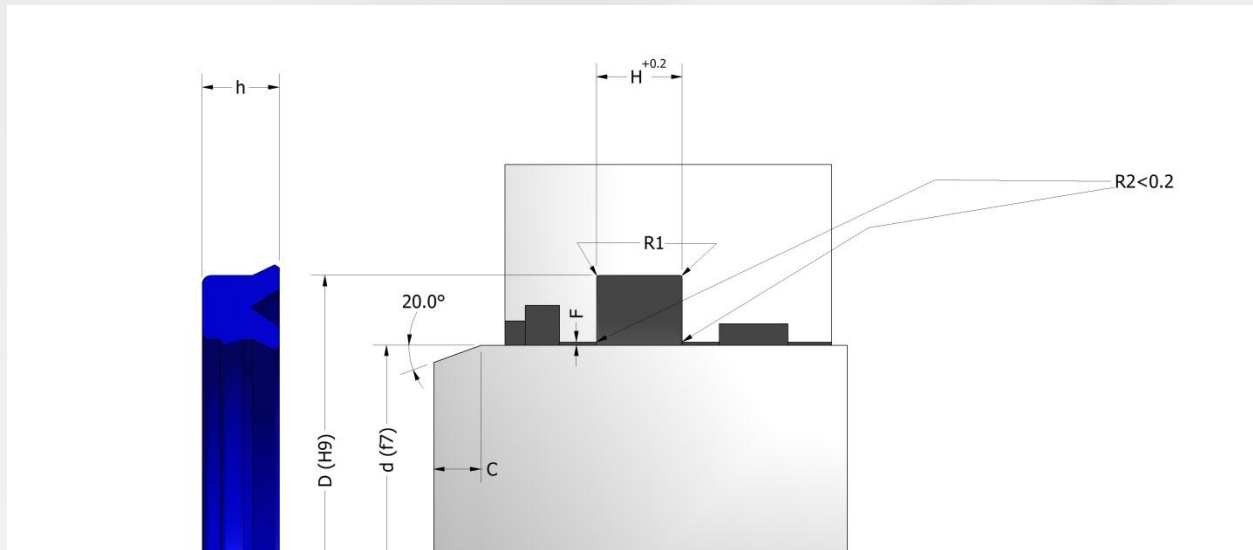
MATERIAL

KOLBEN UPA1003®

FEATURES

Super excellent wear & abrasion resistance.
Easy installation.
Low compression
Low load at high speed, low noise
Super excellent resistance to extrusion and wear.
Extreme high extrusion resistance
Enhanced sealing performance in non- pressurized condition.





Material	Application fluid	Temperature °C	Speed	Pressure	Max. Gap F
KOLBEN UPA1003®	Hydraulic oil 68 Grease Oil Brake Food Perfume Medical	-50 to +160	≤ 1,0m/s	300 Bar	F ≤ 0,6 mm
				350 Bar	F ≤ 0,5 mm
				500 Bar	F ≤ 0,4 mm

Article No.	Rod Diameter	Groove Diameter	Seal Width	Groove Width		
	d (f7)	D (H9)	h	H +0.2	C	R1
16100001	4	10	4	4.5	4	0.4
16100002	4	12	6	7	4	0.4
16100003	8	16	5.7	6.3	4	0.4
16100004	8	16	8	9	4	0.4
16100005	8	22	10	11	4	0.4
16100006	8	24	8	9	4	0.4
16100007	10	14	2.2	3	4	0.4
16100008	10	16	5	6	4	0.4

16100009	10	18	5	6	4	0.4
16100010	10	18	5.7	6.3	4	0.4
16100011	10	20	7.3	8	4	0.4
16100012	10	20	8.2	9	4.5	0.4
16100013	12	17	4	5	4	0.4
16100014	12	18	5	6	4	0.4
16100015	12	19	5	6	4	0.4
16100016	12	20	5	6	4	0.4
16100017	12	20	5.7	6.3	4	0.4
16100018	12	22	7.3	8	4	0.4
16100019	12	22	8	9	4	0.4
16100020	14	22	6	6.3	4.5	0.4
16100021	14	24	7.3	8	4.5	0.4
16100022	14	24	8.2	9	4.5	0.4
16100023	15	22	6	7	4.5	0.4
16100024	15	25	8	9	4.5	0.4
16100025	16	22	5	6	4	0.4
16100026	16	24	5	6	4	0.4
16100027	16	24	5.7	6.3	4.5	0.4
16100028	16	26	7.3	8	4.5	0.4
16100029	16	26	8.2	9	4.5	0.4
16100030	18	25	5	6	4	0.4
16100032	18	26	5	6	4	0.4
16100033	18	26	6	7	4	0.4
16100031	18	26	8	9	4	0.4
16100034	18	28	8	9	4.5	0.4
16100035	20	26	5	6	4	0.4
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16100037	20	28	6	7	4	0.4
16100038	20	30	10	11	4.5	0.4
16100039	20	30	5	6	4	0.4
16100040	20	30	6	7	4	0.4
16100041	22	30	5	6	4	0.4
16100042	22	30	6	7	4	0.4
16100043	22	30	7.3	8	4.5	0.4
16100044	22	32	7.3	8	4.5	0.4
16100045	22	38	6	7	4.5	0.4
16100046	22.4	30	5	6	4	0.4

16100047	25	31	5	6	4	0.4
16100048	25	33	6	7	4	0.4
16100049	25	35	5	6	4	0.4
16100050	25	35	6	7	4	0.4
16100051	25	35	8	9	5	0.4
16100052	25	35	10	11	5	0.4
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16100059	27	33	5	6	4.5	0.4
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16100061	28	36	10	11	5	0.4
16100062	28	38	6	7	4.5	0.4
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16100066	28	43	11.4	12.5	5	0.4
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16100070	30	38	8	9	4.5	0.4
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16100073	30	45	10	11	5	0.4
16100074	31.5	41.5	6	7	5	0.4
16100075	31.75	41.28	7.92	9	5	0.4
16100076	32	40	6	7	4.5	0.4
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16100080	32	45	10	11	5	0.4
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16100084	35	43	6	7	4.5	0.4

16100085	35	43	7	8	4.5	0.4
16100086	35	45	7	8	4.5	0.4
16100087	35	45	10	11	4.5	0.4
16100088	35	50	10	11	4.5	0.4
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16100091	36	46	7.3	8	4.5	0.4
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16100093	38	48	10	11	5	0.4
16100094	38.1	44.45	6.35	7	4.5	0.4
16100095	38.1	50.8	9.53	10	5	0.4
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16100137	63.5	79.38	12.7	13.5	5.5	0.4
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16100160	80	90	10	11	5.5	0.4

16100161	80	95	12	13	5.5	0.4
16100162	80	100	14.6	16	6	0.6
16100163	85	100	6	7	6	0.6
16100164	85	100	12	13	6	0.6
16100165	90	100	6	7	6	0.6
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16100168	90	100	12	13	6	0.6
16100169	90	102	8.7	9.6	6	0.6
16100170	90	105	6	7	6	0.6
16100171	90	115	12	13	6	0.6
16100172	95	110	6	7	6	0.6
16100173	100	110	10	11	6	0.6
16100174	100	110	12	13	6	0.6
16100175	100	115	6	7	6	0.6
16100176	110	120	6	7	6	0.6
16100177	110	120	10	11	6	0.6
16100178	110	125	12	13	6	0.6
16100179	115	125	12	13	6	0.6
16100180	130	150	15	16	6	0.6
16100181	140	155	9	10	6	0.6
16100183	140	155	11.4	12.5	6	0.6
16100182	150	160	10	11	6	0.6
16100184	160	175	14.6	16	5.5	0.4

K619

Premium

Rod Seal

Single -Acting



APPLICATION

Heavy-duty hydraulic application
Mining Machinery



INTRODUCTION

K619 is a double lip rod seals. It keeps the most important roles of hydraulic cylinders. K619 is a top of range high pressure performance.

KOLBEN UPA1002® is *excellent* material that used to *draconic* application.

The additional sealing edge results in a larger lubricant deposit in the sealing gap.

Hydraulic cylinder rod seals are made to prevent leakage across the moving rod surface. They are an extremely seal making installation very easily. The mainly application is excavator and heavy - duty hydraulic

MATERIAL

KOLBEN UPA1002®

NBR 90 Shore A

FEATURES

Excellent wear & abrasion resistance.

Easy installation.

Low compression

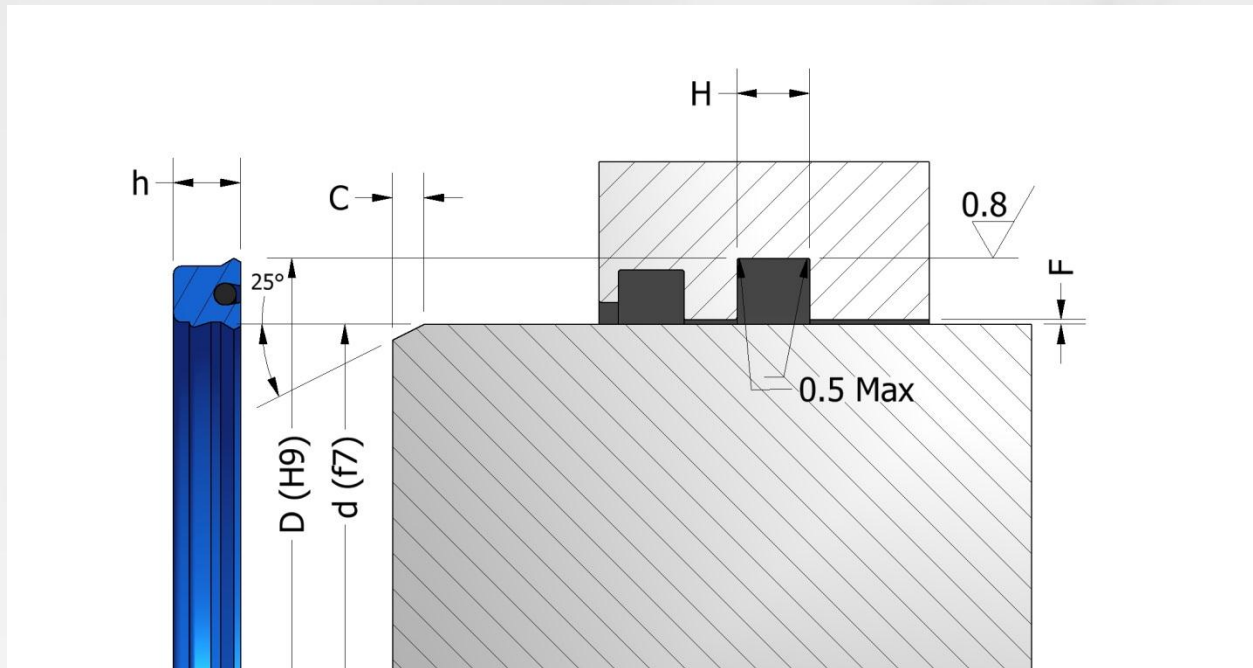
Low load at high speed, low noise

Excellent resistance to extrusion and wear.

Extreme high extrusion resistance

Enhanced sealing performance in non-pressurized condition.





Material	Power-transmission fluid	Temperature °C	Speed	Pressure	Max. Gap F
KOLBEN UPA1002®	Hydraulic oil 68	-40 to +120	≤ 1,0m/s	250 Bar	F ≤ 0,6 mm
				320 Bar	F ≤ 0,5 mm
				380 Bar	F ≤ 0,4 mm

Rod Diameter	Groove Diameter	Seal Width	Groove Width
d (f7)	D (H9)	h	H +0.2
30	40	6	7
30	43	10	11
30	45	9	10
35	50	9	10
35	50	10	11
40	55	9	10
40	55	10	11
45	65	10	11
50	60	6	7
50	60	8	9
50	63	10	11
50	65	9	10

50	65	10	11
55	65	10	11
55	68	10	11
55	70	9	10
55	70	12	13
55	75	12	13
60	73	12	13
60	75	9	10
60	75	10	11
60	75	12	13
65	78	10	11
65	80	9	10
65	80	12	13
70	83	10	11
70	85	9	10
70	85	10	11
70	85	12	13
75	88	10	11
75	90	9	10
75	90	12	13
80	93	10	11
80	95	9	10
80	95	10	11
80	95	12	13
85	100	9	10
85	100	10	11
85	100	12	13
90	105	9	10
90	105	12	13
90	110	12	13
95	110	9	10
95	110	10	11
95	110	12	13
95	115	12	13
100	115	9	10
100	115	10	11
100	115	12	13
105	120	9	10
105	120	10	11
110	125	9	10
110	125	11	12
115	130	9	10
120	135	9	10

K620
Premium Pro
Rod Seal
Single -Acting



APPLICATION

Aerospace
Automotive
Construction and Mining
Logistics
Manufacturing and Machine Tools
Material Handling
Oil and Gas
Printing
Processing Equipment



INTRODUCTION

K620 is a double lip rod seals. We called it version *Premium Pro* because it is the best material over the world.

They can use in *extremely strict application* such as *Aerospace, Oil and Gas, Hammer, Quarry.*

It keeps the most important roles of hydraulic cylinders. K620 is a best of range *high pressure and temperature performance*. KOLBEN UPA1003® is *superior excellent* material that used to *draconic* application. This is one of *best material* over the world.

KOLBEN UPA1003® are designed and synthesised to provide *superior mechanical performance at elevated temperatures* with the same batch to batch consistency and ease of downstream processing

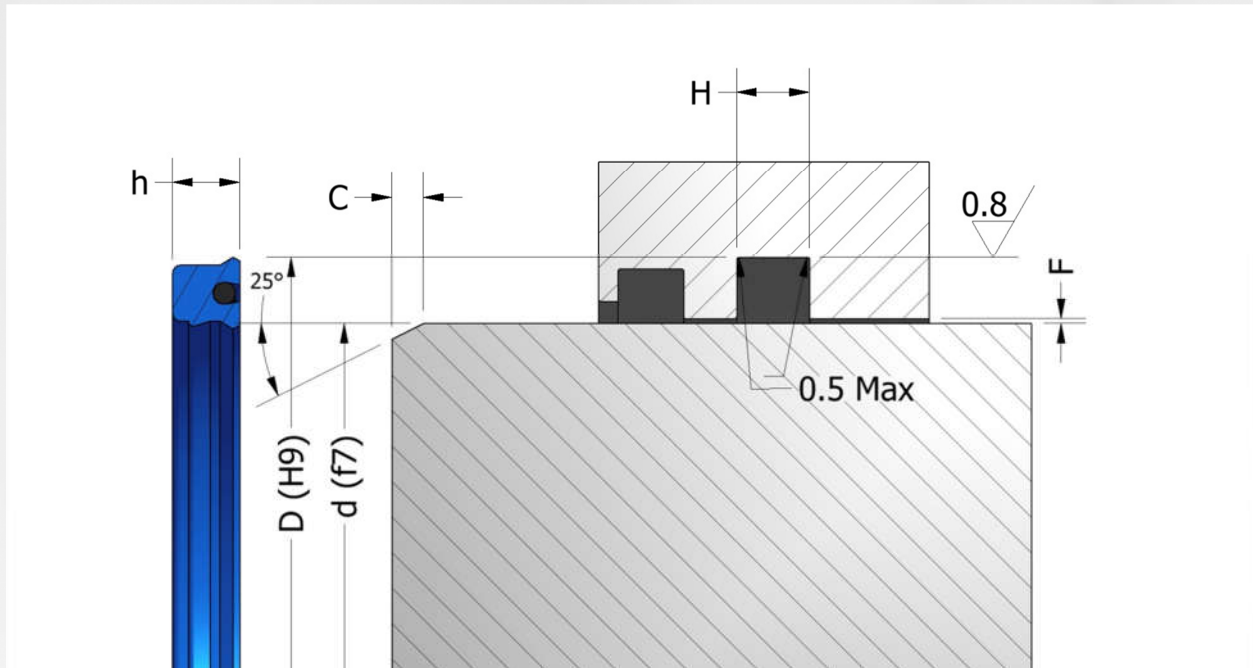
MATERIAL

KOLBEN UPA1003®
NBR 90 Shore A

FEATURES

Super excellent wear & abrasion resistance.
Easy installation.
Low compression
Low load at high speed, low noise
Super excellent resistance to extrusion and wear.
Extreme high extrusion resistance
Enhanced sealing performance in non- pressurized condition.





Material	Application fluid	Temperature °C	Speed	Pressure	Max. Gap F
KOLBEN UPA1003®	Hydraulic oil 68	-50 to +160	≤ 1,0m/s	300 Bar	F ≤ 0,6 mm
	Grease			350 Bar	F ≤ 0,5 mm
	Oil Brake			500 Bar	F ≤ 0,4 mm
	Food Perfume Medical				

Rod Diameter	Groove Diameter	Seal Width	Groove Width
d (f7)	D (H9)	h	H +0.2
25	33	5	6
28	36	5	6
30	40	6	7
30	40	7	8
30	40	8	9
30	40	10	11
32	42	6	7
35	45	6	7
35	45	8	9

40	50	6	7
40	50	8	9
45	55	6	7
45	55	7	8
45	55	8	9
45	60	10	11
50	60	6	7
50	60	8	9
55	65	6	7
55	65	7	8
55	65	8	9
60	70	6	7
60	70	8	9
65	75	8	9
65	78	10	11
70	80	6	7
75	85	10	11
75	88	10	11
75	90	9	10
90	105	10	11

K854

Dust Seal



INTRODUCTION

K854 is a standard dust wiper. It is used for rod seals. K854 is simple dust seal with sealing system. It is including 2 lips in order to exclude dust and moisture from entering into cylinder and collect passing fluid from rod seal.

K854 is a double-acting wiper manufactured from tough, wear resistant polyurethane. Its robust outer wiper lip excludes contaminants from the hydraulic system, and the internal wiper lip collects fluids that bypass the primary rod seal, to give dry rod performance.

MATERIAL

KOLBEN UPA1001®

APPLICATION

Excavator

Heavy-duty hydraulic application

FEATURES

Good wear & abrasion resistance.

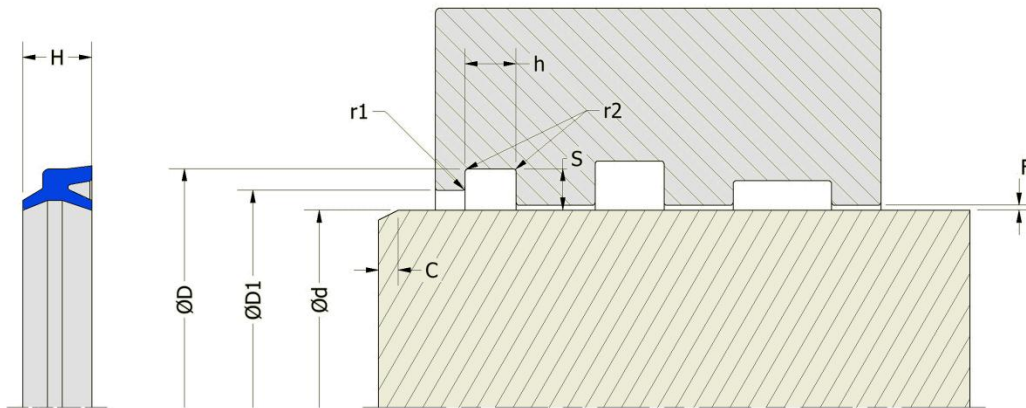
Easy installation.

Low compression

Low load at high speed, Low noise

Good resistance to extrusion and wear.





Material	Power-transmission fluid	Temperature °C	Speed	Pressure	Max. Gap F
KOLBEN UPA1001®	Hydraulic oil 68	-30 to +110	≤ 1,0m/s		

Article No.	Rod Diameter	Groove Diameter	Seal Width	Groove Width		
	d (f7)	D (H9)	h +0.2	H	D1	r1
54100001	12	18	4	7	15	1
54100002	12	20	4.5	6	15	1
54100003	14	20	4	7	17	1
54100004	15	22	3.8	6	18	1
54100005	16	24.6	5.3	7	19	1
54100006	18	24	4	7	21	1
54100007	18	26	4.8	7	21	1
54100008	20	26	4	6	23	1
54100009	20	28	4.5	6	23	1
54100010	20	28.6	5.3	7	23	1

54100011	22	28	4	7	24.5	1
54100012	22	30	4.5	6	25	1
54100013	25	31	7	7	27.5	1
54100014	25	33	4.5	6	28	1
54100015	25	33.6	5.3	7	28	1
54100016	28	36	4.5	6	32	1
54100017	28	36.6	5.3	7	32	1
54100018	30	38	5	7	33	1
54100019	30	38.6	5.3	7	33	1
54100020	30	42	5.8	7.7	33	1
54100021	31.5	39.5	5.8	8	34.5	1
54100022	35	43	5	7	36	1
54100023	35.5	43.5	5.8	8	36	1
54100024	35	43.6	5.3	7	36	1
54100025	35	47	6.8	8.7	38	1
54100026	36	44.6	5.3	7	39	1
54100027	38	46	5.8	8	42	1
54100028	38.5	48.5	6	10	41.5	1
54100029	40	48	5	7	43	1
54100030	40	48.6	5.3	7	43	1
54100031	40	50.6	5.3	7	43	1
54100032	40	52	6.8	8.7	43	1
54100033	41.28	49.28	5	8	46.8	1
54100034	42	50.6	5.3	7	45	1
54100035	42	52	4	7	45	1
54100036	43	51	5.8	8	47	1
54100037	45	53	5	7	48	1
54100038	45	53	4	7	48	1
54100039	45	53.6	5.3	7	48	1
54100040	45	55.6	5.3	7	48	1
54100041	45	57	6.8	8.7	48	1
54100042	48	56	4.8	7	52.3	1
54100043	50	58	4	7	53	1
54100044	50	58.6	5.3	7	53	1
54100045	50	60	4.5	7	53	1
54100046	50	60.6	5.3	7	53	1
54100047	50	62	6.8	8.7	53	1
54100048	53	61	5.8	8	57	1

54100049	55	63	4	7	58	1
54100050	55	63	5	7	58	1
54100051	55	65	6.3	10	62	1
54100052	55	65.6	5.3	7	58	1
54100053	56	64	4	7	59	1
54100054	56	64	5.8	8	60	1
54100055	56	66	6.3	9	59	1
54100056	56	66.6	5.3	7	59	1
54100057	60	68	4	7	63	1
54100058	60	68.6	5.3	7	63	1
54100059	60	70.6	5.3	7	63	1
54100060	60	70	6.3	10	63	1
54100061	60	72	6	9	63	1
54100062	60	75	8.2	13	63	1
54100063	63	71.6	5.3	7	66	1
54100064	63	71	4	7	66	1
54100065	63	73	6.3	10	66	1
54100066	63	73.6	5.3	7	66	1
54100067	65	73	4	7	68	1
54100068	65	73	5	6.5	68	1
54100069	65	75	6	10	68	1
54100070	65	75.6	5.3	7	68	1
54100071	70	78	4	7	73	1
54100072	70	78.6	5.3	7	73	1
54100073	70	78.6	5.7	7	73	1
54100074	70	80	6	8	73	1
54100075	70	80.6	5.3	7	73	1
54100076	70	82.2	7.2	12	76	1
54100077	70	84	7.7	10	73	1
54100078	75	83	4	7	78	1
54100079	75	83.6	5.3	7	78	1
54100080	75	85	5	7	78	1
54100081	75	85	6	9	78	1
54100082	75	87.2	7.2	12	81	1
54100083	80	88	4	7	83	1
54100084	80	90	6	8	83	1
54100085	80	92.2	7.1	12	86	1
54100086	82.6	92.2	5.3	7.1	85.7	1

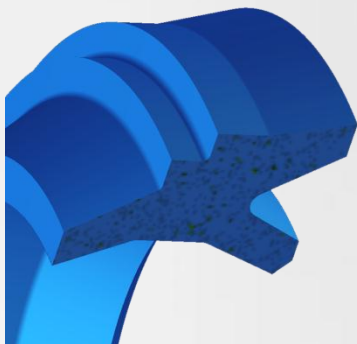
54100087	85	93	4	7	91	1
54100088	85	93.6	5.3	7	88	1
54100089	85	95	6	8	90	1
54100090	85	97.2	7.2	12	91	1
54100091	85	98	7.5	11.5	92	1
54100092	88	100.2	7.2	12	94	1
54100093	90	98	4	7	93	1
54100094	90	100	6	8	93	1
54100095	90	102.2	7.2	12	96	1
54100096	95	103	4	7	98	1
54100097	95	105	6	8	98	1
54100098	95	107.2	7.2	12	101	1
54100099	100	108	4	7	106	1
54100100	100	108.6	5.3	7	106	1
54100101	100	110	6	8	106	1
54100102	100	112	6	9	106	1
54100103	100	115	9.5	14	110	1
54100104	105	115	6	8	112	1
54100105	105	117.2	7.2	12	114	1
54100106	105	118	5.5	10	115	1
54100107	105	120	7.2	12	112	1
54100108	110	120	6	8	115	1
54100109	110	122	5.5	10	116	1
54100110	110	122.2	7.2	12	116	1
54100111	112	122	6.8	10	117	1
54100112	110	125	8.5	13	116	1
54100113	115	125	6	8	121	1
54100114	115	127	5.5	10	123	1
54100115	115	127.2	7.2	12	121	1
54100116	117	129	5.5	10	125	1
54100117	120	130	6	8	126	1
54100118	120	132	5.5	10	129	1
54100119	120	132.2	7.2	12	126	1
54100120	120	135	9.5	14	131	1
54100121	125	133	5.3	7	131	1
54100122	125	137	5.5	10	134	1
54100123	125	137.2	7.7	12	134	1
54100124	125	138	7	9	134	1

54100125	125	140	9.5	14	135	1
54100126	128	143	9.5	14	138	1
54100127	130	142	5.5	10	136	1
54100128	130	142.2	7.2	10	136	1
54100129	130	143	7	9.5	138	1
54100130	130	145	10.2	16	138	1
54100131	130	146	8.7	12	139	1
54100132	132	144.2	7.2	12	136	
54100133	135	147	5.5	10	143	1
54100134	135	147.2	7.2	12	143	1
54100135	135	148	7	9.5	143	1
54100136	135	150	9.5	14	143	1
54100137	136	149	7.8	11	143	1
54100138	140	148.6	5.3	7	143	1
54100139	140	152	5.5	10	149	1
54100140	140	153	7	9.5	149	1
54100141	140	155	7	9.5	152	1
54100142	140	155	9.5	14	149	1
54100143	145	153.6	5.3	7	148	1
54100144	145	157	5.5	10	150	1
54100145	145	158	7.8	11	150	1
54100146	145	160	9.5	14	153	1
54100147	150	162	5.5	10	156	1
54100148	150	162.2	7.7	12	156	1
54100149	150	163	7	9.5	156	1
54100150	150	165	7.2	12	158	1
54100151	150	166	8	12	161	1
54100152	155	163	5	8	161	1
54100153	155	167.2	7.7	12	162	1
54100154	155	175	10.2	18	165	1
54100155	160	172.2	166	7.7	12	1
54100156	160	174	7.8	11	167	1
54100157	160	175	9.5	14	170	1
54100158	165	180	9.5	14	175	1
54100159	170	180.6	5.3	7	174	1
54100160	170	182.2	7.7	12	176	1
54100161	170	185	9.5	14	180	1
54100162	175	187	5.5	10	183	1

54100163	177	192	9.5	14	187	1
54100164	180	192	5.5	10	189	1
54100165	180	193	7	9.5	189	1
54100166	180	195	9.5	14	190	1
54100167	180	200	10.2	18	190	1
54100168	185	200	10.2	16	193	1
54100169	185	205	10.2	18	195	1
54100170	190	198.6	5.3	7	193	1
54100171	190	205	9.5	14	200	1
54100172	190	210	10.2	18	200	1
54100173	195	210	10.2	16	203	1
54100174	200	208.6	5.3	7	203	1
54100175	200	215	9.5	14	210	1
54100176	200	220	10.2	18	210	1
54100177	205	213.6	5.3	7	208	1
54100178	205	220	9.5	14	215	1
54100179	210	222	5.5	10	218	1
54100180	210	225	9.5	14	220	1
54100181	210	226	8	12	221	1
54100182	210	230	10.2	18	220	1
54100183	220	235	10.2	16	228	1
54100184	220	240	10.2	18	230	1
54100185	220	240	12.5	18	233	1

K843

Dust Seal



APPLICATION

Hydraulic application
Common hydraulic Cylinders



INTRODUCTION

K843 is an insertable dust wiper seals with a large profile for both outdoor and indoor application. It is used for rod seals.

K843 is used for hydraulic cylinders.

K843 is a double-acting wiper manufactured from tough, wear resistant polyurethane. Its robust outer wiper lip excludes contaminants from the hydraulic system, and the internal wiper lip collects fluids that bypass the primary rod seal, to give dry rod performance.

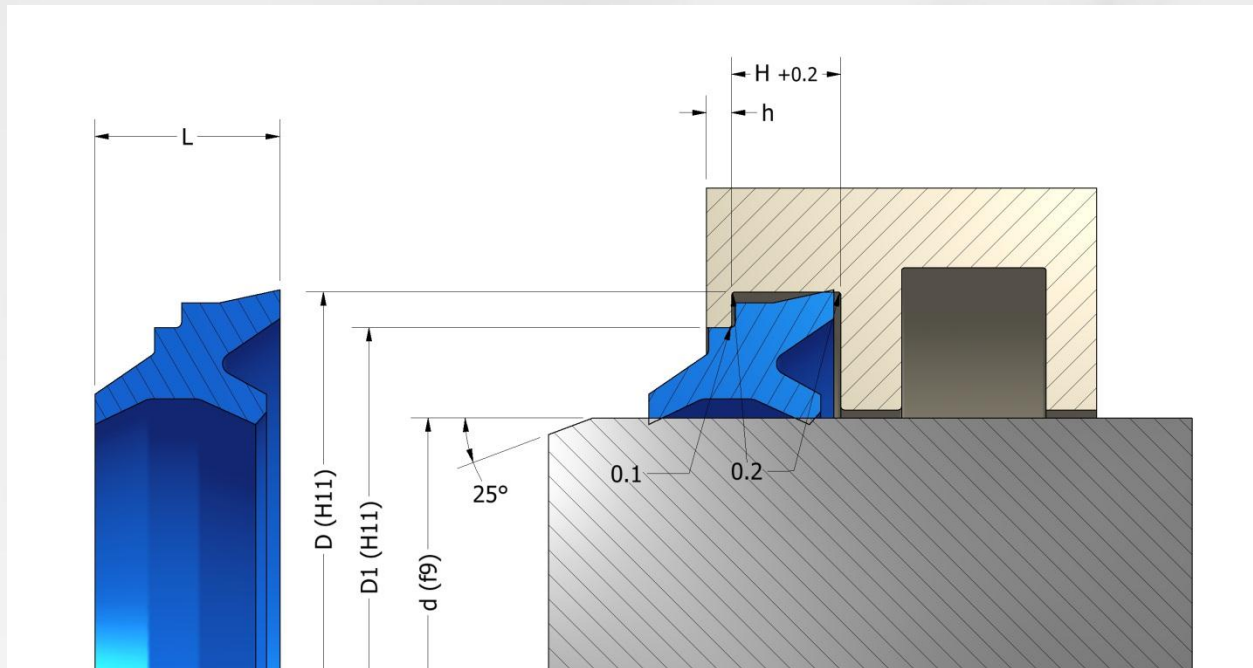
MATERIAL

KOLBEN UPA1001®

FEATURES

Good wear & abrasion resistance.
Easy installation.
Low compression
Low load at high speed, Low noise
Good resistance to extrusion and wear.





Material	Power-transmission fluid	Temperature °C	Speed	Pressure	Max. Gap F
KOLBEN UPA1001®	Hydraulic oil 68	-30 to +110	≤ 1,0m/s		

d(f8)	D(H11)	D1(H11)	H(-0/+0.2)	h	L
18	26	24	4	1	7
20	28	26	4	1	7
22	30	28	4	1	7
24	32	30	4	1	7
25	33	31	4	1	7
26	34	32	4	1	7
28	36	34	4	1	7
30	38	36	4	1	7
32	40	38	4	1	7
35	43	41	4	1	7
36	44	42	4	1	7
37	45	43	4	1	7

38	46	44	4	1	7
40	48	46	4	1	7
45	53	51	4	1	7
46	54	52	4	1	7
48	56	54	4	1	7
50	58	56	4	1	7
55	63	61	4	1	7
56	64	62	4	1	7
60	68	66	4	1	7
63	71	69	4	1	7
65	73	71	4	1	7
70	78	76	4	1	7
75	83	81	4	1	7
80	88	86	4	1	7
85	93	91	4	1	7
90	98	96	4	1	7
100	108	106	4	1	7
105	117	115	4	1	7
110	118	116	4	1	7
140	152	149	5.2	1.5	10

❖ Inquiries are not including this table that are accepted.

K845

Dust Seal



APPLICATION

Hydraulic application
Common air-hydraulic Cylinders



INTRODUCTION

K845 is an insertable dust wiper seals with a large profile for both outdoor and indoor application. It is used for rod seals.

K845 can use for low pressure air-hydraulic cylinders.

K845 is a double-acting wiper manufactured from tough, wear resistant polyurethane. Its robust outer wiper lip excludes contaminants from the hydraulic system, and the internal wiper lip collects fluids that bypass the primary rod seal, to give dry rod performance.

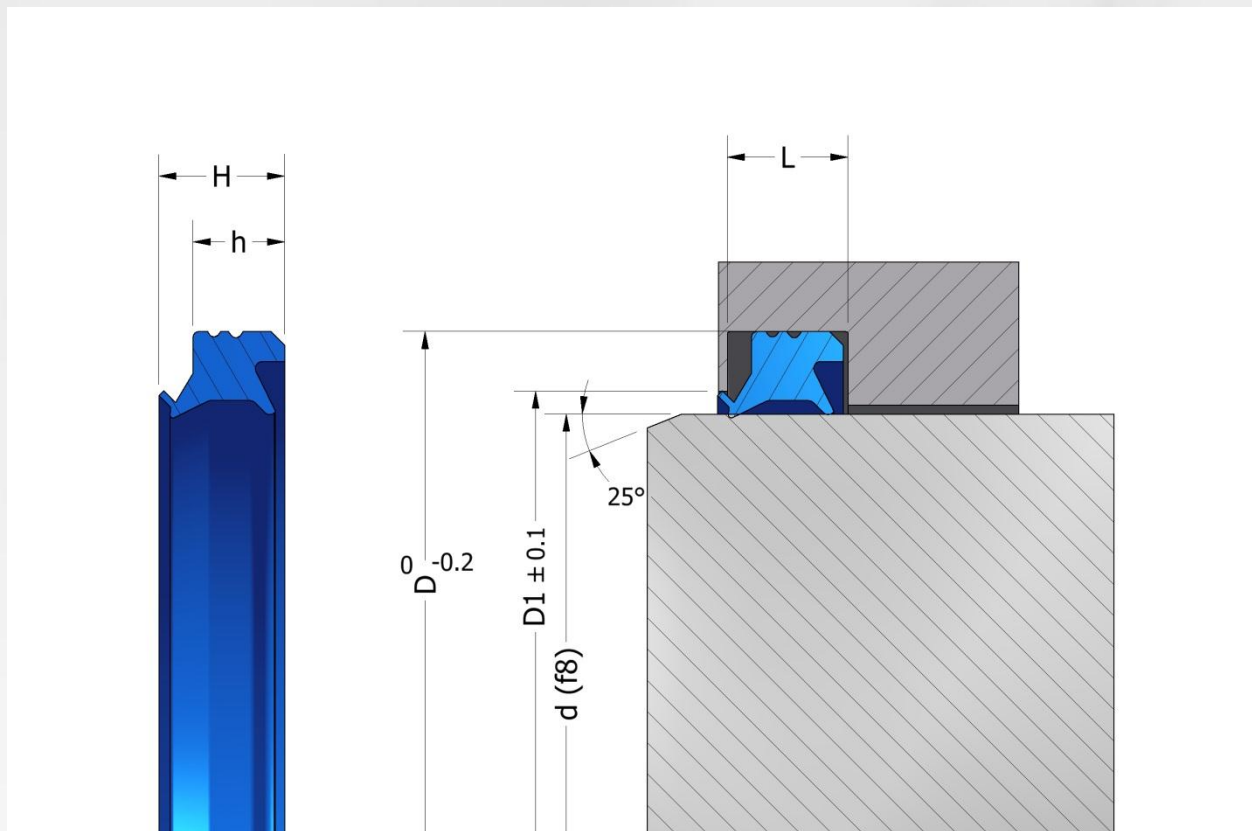
MATERIAL

KOLBEN UPA1001®

FEATURES

Good wear & abrasion resistance.
Easy installation.
Low compression
Low load at high speed, Low noise
Good resistance to extrusion and wear.





Material	Power-transmission fluid	Temperature °C	Speed	Pressure	Max. Gap F
KOLBEN UPA1001®	Hydraulic oil 68 Air	-30 to +110	≤ 1,0m/s		

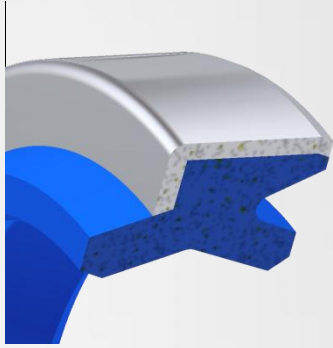
d(f8)	D(H10)	D1(H11)	h(-0/+0.2)	H	L
18	30	24	5.8	7.7	6
20	32	26	5.8	7.7	6
25	37	31	5.8	7.7	6
28	40	34	5.8	7.7	6
30	42	36	5.8	7.7	6
32	44	38	6.8	8.7	7
35	47	41	6.8	8.7	7
40	52	46	6.8	8.7	7

45	57	51	6.8	8.7	7
50	62	56	6.8	8.7	7
55	69	62	7.7	10	8
60	74	67	7.7	10	8
65	79	72	7.7	10	8
70	84	77	7.7	10	8
75	89	82	7.7	10	8
80	94	87	7.7	10	8
85	99	92	7.7	10	8
90	104	97	7.7	10	8
95	109	102	7.7	10	8
100	114	107	7.7	10	8
105	121	113	8.7	12	9
110	126	118	8.7	12	9
115	131	123	8.7	12	9
120	136	128	8.7	12	9
125	141	133	8.7	12	9
130	146	138	8.7	12	9
132	148	140	8.7	12	9
140	160	150	9.7	14	10
160	180	170	9.7	14	10

❖ Inquiries are not including this table that are accepted.

K847

Dust Metal Seal



APPLICATION

Hydraulic application
Mining Machinery



INTRODUCTION

K847 is a standard metal dust wiper. It is used for rod seals. K847 is simple dust seal with sealing system. It is including 1 lip in order to exclude dust and moisture from entering into cylinder and collect passing fluid from rod seal.

Wiper seals maintain sealing contact to the piston rod when the equipment is stationary (static, no reciprocating motion of rod) and in use (dynamic, reciprocating rod), whereas the tolerance for the rod diameter d is determined by the rod seal. Without a wiper seal, the retracting piston rod could transport contaminants into the cylinder fluids that bypass the primary rod seal, to give dry rod performance.

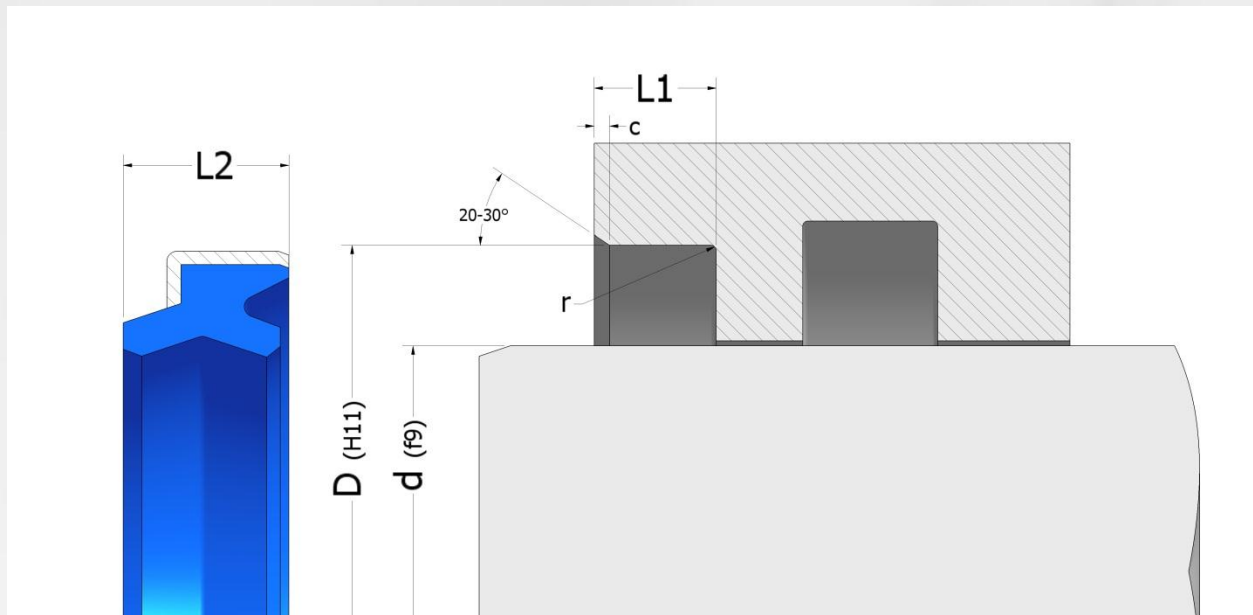
MATERIAL

KOLBEN UPA1001®

FEATURES

- Good wear & abrasion resistance.
- Easy installation.
- Low compression
- Low load at high speed, Low noise
- Good resistance to extrusion and wear.





Material	Power-transmission fluid	Temperature °C	Speed	Pressure	Max. Gap F
KOLBEN UPA1001®	Hydraulic oil 68	-30 to +110	≤ 1,0m/s		

HOUSING DIMENSIONS			
ø d	ø D	L1(0 +0.5)	L2
20	32	6	9
25	37	6	9
30	42	6	9
32	44	7	10
35	47	7	10
40	52	7	10
45	57	7	10
50	62	7	10
55	69	8	11
60	74	8	11
65	79	8	11
70	84	8	11
75	89	8	11
80	94	8	12

85	99	8	12
90	104	8	12
95	109	8	12
100	114	8	12
105	121	9	12
110	126	9	12
115	131	9	12
120	136	9	12
130	146	9	12
140	160	10	14
150	170	10	14
160	180	10	14
170	190	10	14
180	205	12	17
200	225	12	17
225	250	12	17
250	275	12	17

❖ Inquiries are not including this table that are accepted.

K630
Premium
Rod Buffer Seal
Single -Acting



APPLICATION

Heavy-duty hydraulic application
Mining Machinery



INTRODUCTION

K630 is a rod buffer seal. It provides the designer with a compact low friction seal for light to medium duty hydraulic cylinders.

KOLBEN UPA1002® is *excellent* material that used to *draconic* application.

The additional sealing edge results in a larger lubricant deposit in the sealing gap.

Hydraulic cylinder rod seals are made to prevent leakage across the moving rod surface. They are an extremely seal making installation very easily. The mainly application is excavator and heavy - duty hydraulic

MATERIAL

KOLBEN UPA1002®

FEATURES

Excellent wear & abrasion resistance.

Easy installation.

Low compression

Low load at high speed, low noise

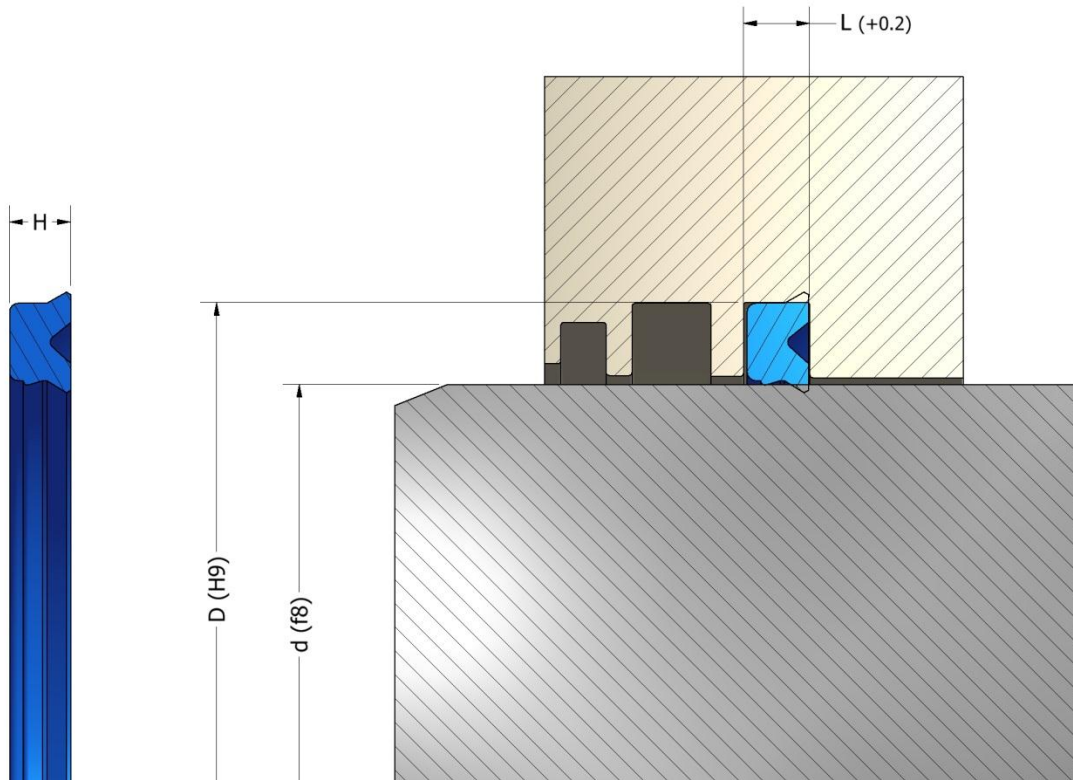
Excellent resistance to extrusion and wear.

Extreme high extrusion resistance

Enhanced sealing performance in non-

pressurized condition.





Material	Power-transmission fluid	Temperature °C	Speed	Pressure	Max. Gap F
KOLBEN UPA1002®	Hydraulic oil 68	-40 to +120	≤ 1,0m/s	250 Bar	F ≤ 0,6 mm
				320 Bar	F ≤ 0,5 mm
				380 Bar	F ≤ 0,4 mm

Rod Diameter	Groove Diameter	Seal Width	Groove Width
d (f7)	D (H9)	H	L +0.2
30	40	3	3.2
35	45	3	3.2
40	50	3	3.2
35	42	3	3.2
35	45	4	4.2
40	55.5	5.9	6.3
45	60.5	5.9	6.3
50	65.5	5.9	6.3

55	70.5	5.9	6.3
56	71.5	5.9	6.3
60	75.5	5.9	6.3
63	78.5	5.9	6.3
65	80.5	5.9	6.3
70	85.5	5.9	6.3
75	90.5	5.9	6.3
80	85.5	5.9	6.3
85	100.5	5.9	6.3
90	105.5	5.9	6.3
95	110.5	5.9	6.3
100	115.5	5.9	6.3
105	120.5	5.9	6.3
110	125.5	5.9	6.3
115	130.5	5.9	6.3
125	140.5	5.9	6.3
130	145.5	5.9	6.3
135	150.5	5.9	6.3
140	155.5	5.9	6.3

K729

Premium

Piston Seals

Double -Acting



APPLICATION

Lifting Machine
Lifting Equipment
Mining Machinery
Light And Medium Hydraulic Cylinder.



INTRODUCTION

K729 is a low friction piston seal. K729 is an excellent mechanical properties.

- * Wear resistance
- * High pressure

K729 is a double acting seal. K729 able to work in good wear resistance, dusty condition and low friction. The best sealing capacity of a double acting cylinder.

KOLBEN UPA1002® is *excellent* material that used to *draconic* application.

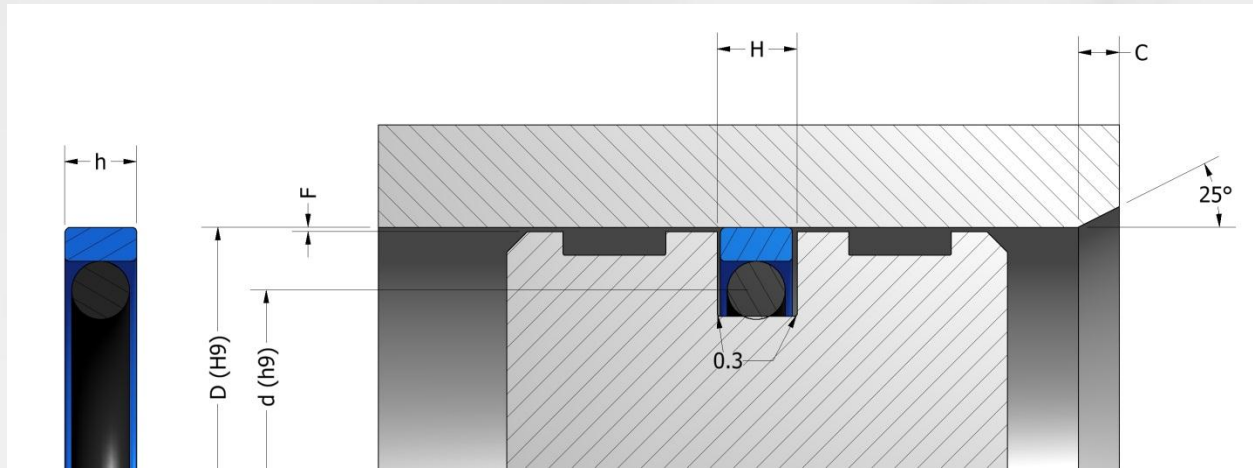
MATERIAL

KOLBEN UPA1002®
NBR 90 Shore A

FEATURES

- High wear resistance ensures long service life
- Suitable for most hydraulic fluids. The lifting machine, lifting equipment.
- Suitable for non-lubricating fluids depending on seal material for optimum design flexibility





Material	Power-transmission fluid	Temperature °C	Speed	Pressure	Max. Gap F
KOLBEN UPA1002®	Hydraulic oil 68	-40 to +120	≤ 1,0m/s	250 Bar	F ≤ 0,6 mm
				320 Bar	F ≤ 0,5 mm
				380 Bar	F ≤ 0,4 mm

HOUSING DIMENSIONS		
D(H9)	d(h9)	H
40	30	4.3
50	40	4.3
55	45	4.3
60	50	4.3
50	40	4.9
60	50	4.9
70	60	4.9
80	70	4.9
80	65	5.9
90	79	5.9
110	94	5.9
50	34.5	6.3
55	39.5	6.3
60	44.5	6.3
65	49.5	6.3
70	54.5	6.3

75	59.5	6.3
80	64.5	6.3
85	69.5	6.3
90	74.5	6.3
95	79.5	6.3
100	84.5	6.3
105	89.5	6.3
110	94.5	6.3
120	104.5	6.3
125	109.5	6.3
130	114.5	6.3
60	45	7.3
63	48	7.3
65	50	7.3
70	55	7.3
75	60	7.3
80	65	7.3
85	70	7.3
90	75	7.3
95	80	7.3
100	85	7.3
110	94	7.3
115	99	7.3
120	104	7.3
125	109	7.3
130	114	7.3
140	124	7.3
150	134	7.3
160	144	7.3
130	109	8.1
140	119	8.1
150	129	8.1
160	139	8.1

K725

Eco

Piston Seal

Single-Acting

Adjust Seals



INTRODUCTION

K725 is a double lip piston seals. Material is economic that used to simple application.

They can use in *adjust seal for excavator and mining machine*

KOLBEN UPA1001® are designed and synthesised to provide *economic* with the same batch to batch consistency and ease of downstream processing

FEATURES

Good wear & abrasion resistance.

Easy installation.

Low compression

Low load at high speed, low noise

Extreme high extrusion resistance

Enhanced sealing performance in non- pressurized condition.

APPLICATION

Adjust seal in excavator
Construction and Mining

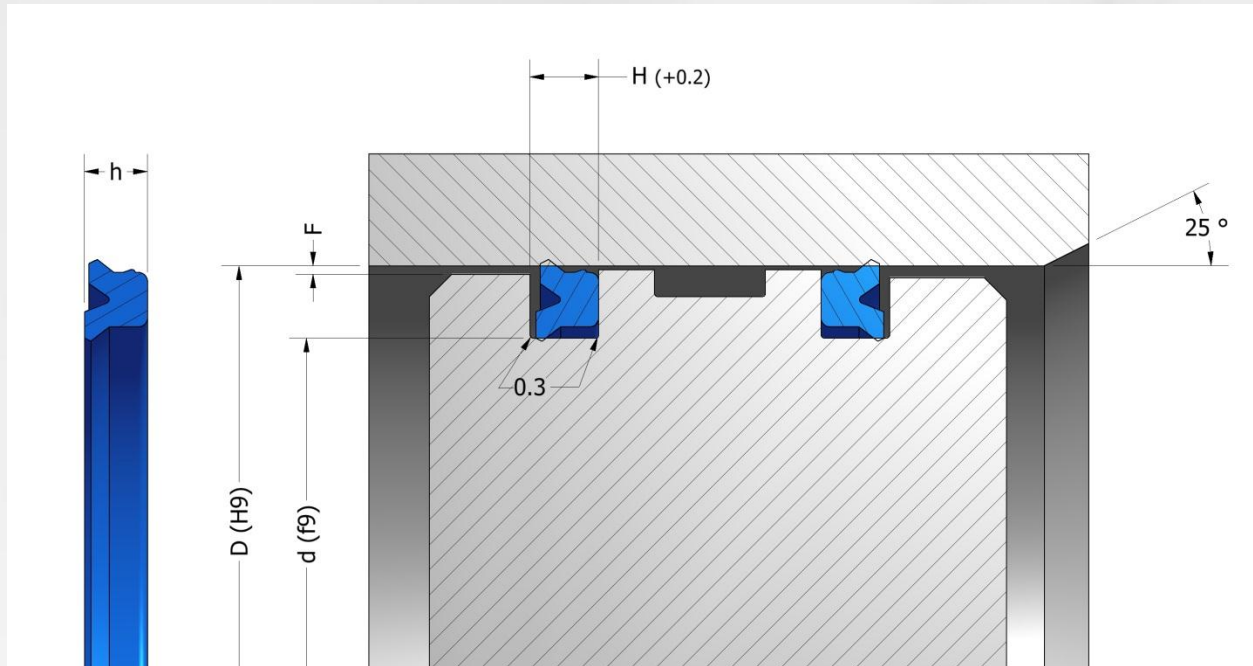


MATERIAL

KOLBEN UPA1001®

NBR 90 Shore A





Material	Application fluid	Temperature °C	Speed	Pressure	Max. Gap F
KOLBEN UPA1001®	Hydraulic oil 68	-50 to +100	≤ 1,0m/s	200 Bar	F ≤ 0,6 mm
	Grease			250 Bar	F ≤ 0,5 mm
	Oil Brake			350 Bar	F ≤ 0,4 mm
	Food Perfume Medical				

Rod Diameter	Groove Diameter	Seal Width	Groove Width
D (H9)	d (f7)	h	H +0.2
35	20	12	13
40	25	12	13
45	30	12	13
50	35	12	13
60	35	15	16
60	45	12	13
70	40	12	13
70	55	12	13
70	45	15	16

75	60	12	13
80	64	12	13
85	70	12	13
90	65	18	19
100	75	18	19
120	98	14.5	16

K730
Premium Pro
Piston Seal
Single -Acting



INTRODUCTION

K730 is a double lip piston seals. We called it version **Premium Pro** because it is the best material over the world.

They can use in **extremely strict application** such as **Aerospace, Oil and Gas, Hammer, Quarry, Crane Mining.**

It keeps the most important roles of hydraulic cylinders. K730 is a best of range **high pressure and temperature performance**. KOLBEN UPA1003® is **superior excellent** material that used to **draconic** application. This is one of **best material** over the world.

KOLBEN UPA1003® are designed and synthesised to provide **superior mechanical performance at elevated temperatures** with the same batch to batch consistency and ease of downstream processing

APPLICATION

Aerospace
Automotive
Construction and Mining
Logistics
Manufacturing and Machine Tools
Material Handling
Oil and Gas
Printing
Processing Equipment

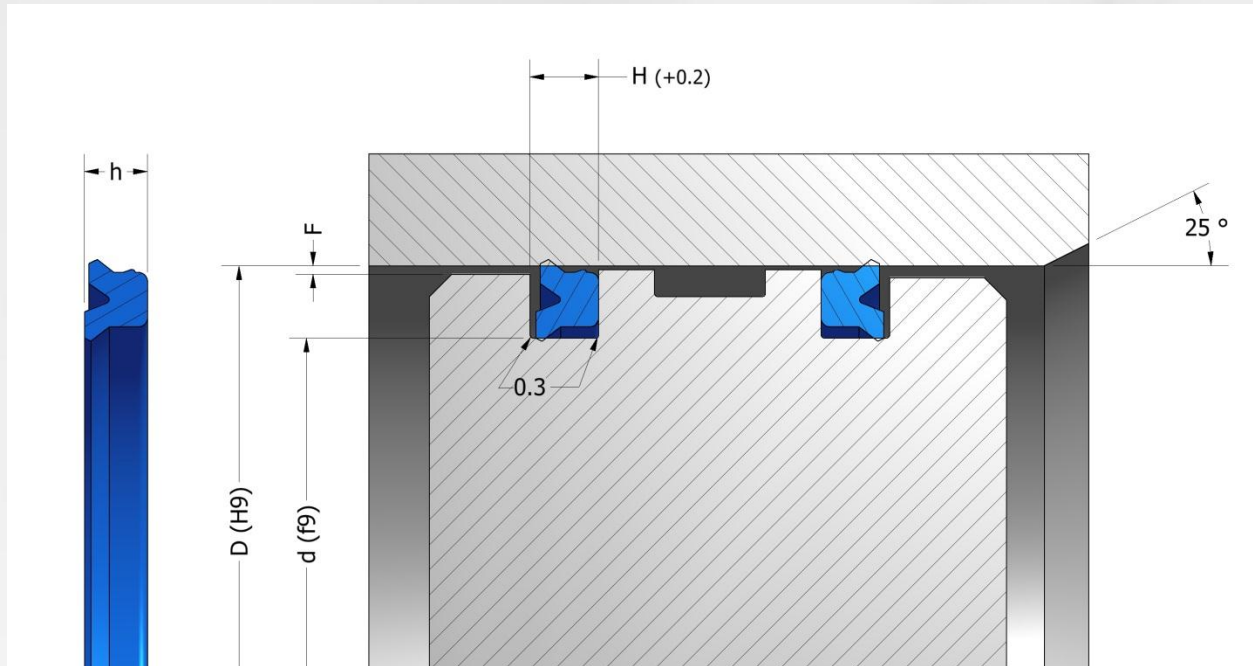
MATERIAL

KOLBEN UPA1003®
NBR 90 Shore A

FEATURES

Super excellent wear & abrasion resistance.
Easy installation.
Low compression
Low load at high speed, low noise
Super excellent resistance to extrusion and wear.
Extreme high extrusion resistance
Enhanced sealing performance in non- pressurized condition.





Material	Application fluid	Temperature °C	Speed	Pressure	Max. Gap F
KOLBEN UPA1003®	Hydraulic oil 68	-50 to +160	≤ 1,0m/s	300 Bar	F ≤ 0,6 mm
	Grease			350 Bar	F ≤ 0,5 mm
	Oil Brake			500 Bar	F ≤ 0,4 mm
	Food Perfume Medical				

Rod Diameter	Groove Diameter	Seal Width	Groove Width
D (H9)	d (f7)	h	H +0.2
40	30	6	7
45	35	6	7
50	40	6	7
50	40	8	9
55	45	6	7
60	50	6	7
60	50	8	9
63	53	6	7
65	55	6	7

65	55	8	9
65	50	9	10
70	55	9	10
70	60	6	7
70	60	8	9
80	65	9	10
80	70	6	7
80	70	8	9
90	80	6	7

K605

Premium Pro
Rotary Seal



APPLICATION

Automotive
Construction and Mining
Swivel Joints Rotary



INTRODUCTION

K605 is a rotary pressure seals. We called it version **Premium Pro** because it is the best material over the world.

They can use in **extremely strict application** such as **Aerospace, Oil and Gas, Hammer, Quarry.**

It is designed specifically for use in hydraulic swivel joints with an internal rotary rod.

K605 is a best of range **high pressure and temperature performance**. KOLBEN UPA1003® is **superior excellent** material that used to **draconic** application. This is one of **best material** over the world.

MATERIAL

KOLBEN UPA1003®

FEATURES

Super excellent wear & abrasion resistance.

Easy installation.

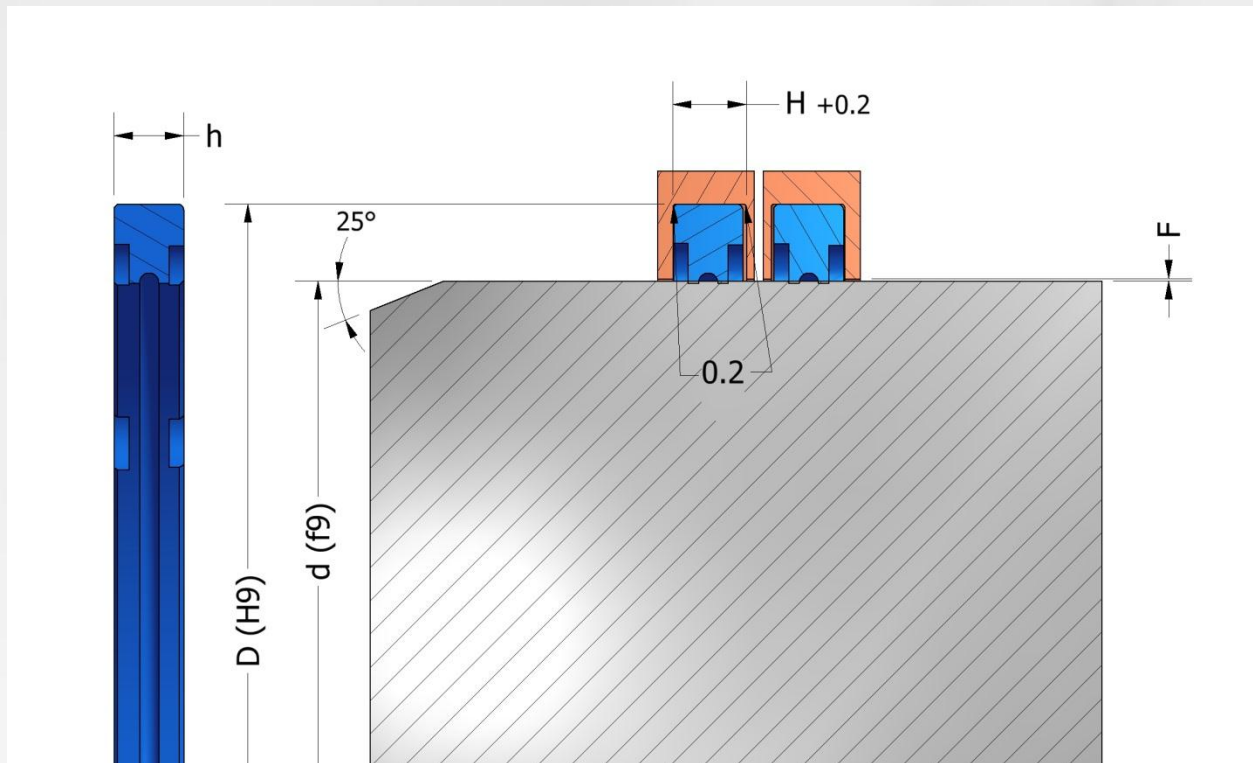
Low compression

Low load at high speed, low noise

Super excellent resistance to extrusion and wear.

Extreme high extrusion resistance



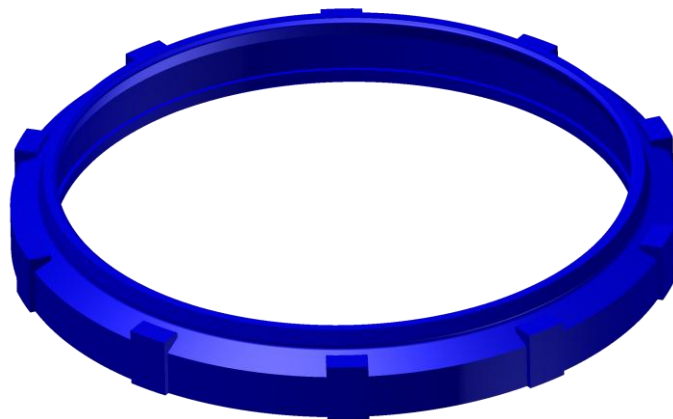


Material	Application fluid	Temperature °C	Speed	Pressure	Max. Gap F
KOLBEN UPA1003®	Hydraulic oil 68	-50 to +160	≤ 1,0m/s	300 Bar	F ≤ 0,6 mm
	Grease			350 Bar	F ≤ 0,5 mm
	Oil Brake			500 Bar	F ≤ 0,4 mm
	Food Perfume Medical				

Rod Diameter	Groove Diameter	Seal Width	Groove Width
d (f7)	D (H9)	h	H +0.2
50	60	4.8	5
55	65	4.8	5
60	70	4.8	5
65	75	4.8	5
70	80	4.8	5
75	85	4.8	5
80	90	4.8	5

85	95	4.8	5
90	100	4.8	5
95	105	4.8	5
100	110	4.8	5
105	115	4.8	5
110	120	4.8	5
115	125	4.8	5
120	130	4.8	5
125	135	4.8	5
130	140	4.8	5
140	150	4.8	5
150	160	4.8	5

PNEUMATIC SEALS



K57

Premium
Rod & Dust Seal
Single -Acting



APPLICATION

Pneumatic Cylinders



INTRODUCTION

K57 is a main and dust rod pneumatic seals. It keeps the most important roles of pneumatic cylinders. KOLBEN UPA1004® is *excellent* material that used to *draconic* application.

Pneumatic cylinder rod seals are made to prevent air leakage across the moving rod surface. They are an extremely seal making installation very easily. The mainly application is pneumatic cylinders in industries.

MATERIAL

KOLBEN UPA1004®

FEATURES

Excellent wear & abrasion resistance.

Easy installation.

Low compression

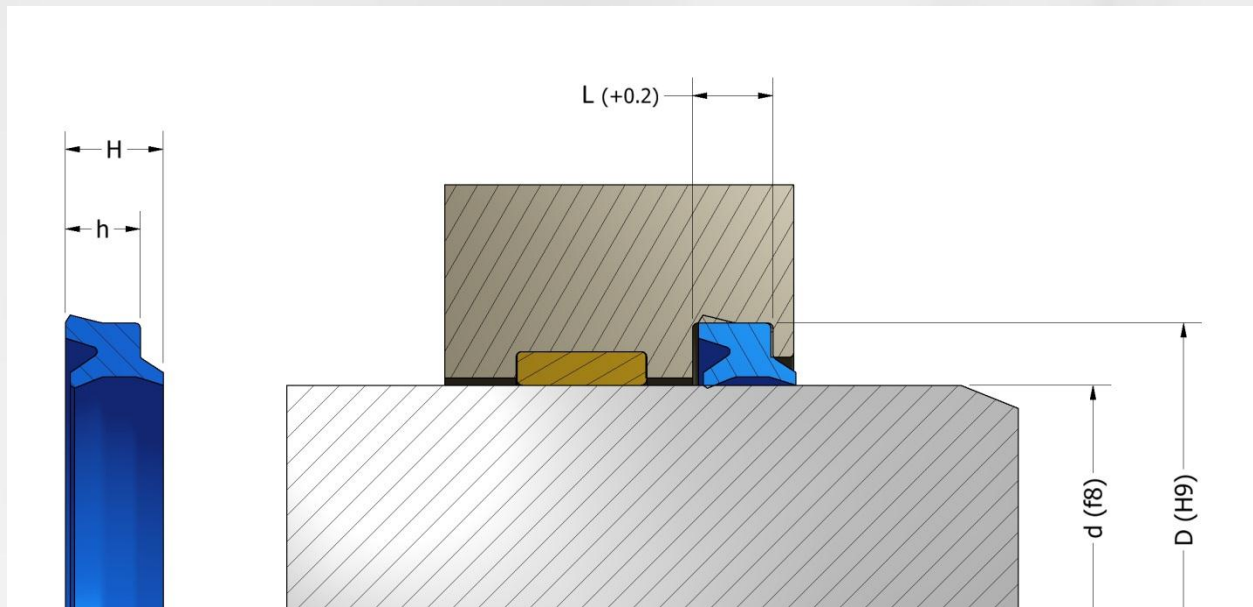
Low load at high speed, low noise

Excellent resistance to extrusion and wear.

Extreme high extrusion resistance

Enhanced sealing performance in non-pressurized condition.



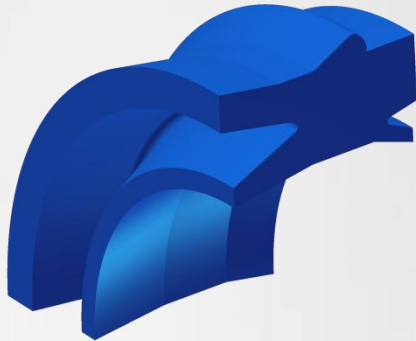


Material	Power-transmission fluid	Temperature °C	Speed	Pressure	Max. Gap F
KOLBEN UPA1004®	Air	-40 to +120	≤ 1,0m/s	40 Bar	F ≤ 0,6 mm
				60 Bar	F ≤ 0,5 mm
				100 Bar	F ≤ 0,4 mm

Rod Diameter	Groove Diameter	Seal Width	Groove Width	
d (f7)	D (H9)	H	L +0.2	H
6	10	3	3.5	4.4
8	12	3.5	4	4.9
10	14	3.5	4	4.9
12	16	3.5	4	4.9
14	18	3.5	4	4.9
16	24	5.5	6	7.5
20	28	5.5	6	7.5
25	33	5.5	6	7.5
30	40	6.5	7	8.5
32	42	6.5	7	8.5
35	45	6.5	7	8.5
36	46	6.5	7	8.5
40	50	6.5	7	8.5
45	55	6.5	7	8.5

K58

Premium
Rod & Dust Seal
Single -Acting



APPLICATION

Pneumatic Cylinders



INTRODUCTION

K58 is a main and dust rod pneumatic seals. It keeps the most important roles of pneumatic cylinders. KOLBEN UPA1004® is *excellent* material that used to *draconic* application.

It is application for harshest operating condition

Pneumatic cylinder rod seals are made to prevent air leakage across the moving rod surface. They are an extremely seal making installation very easily. The mainly application is pneumatic cylinders in industries.

It performs three fuctions simulanenously :
Sealing, Wiping, fixing.

MATERIAL

KOLBEN UPA1004®

FEATURES

Excellent wear & abrasion resistance.

Easy installation.

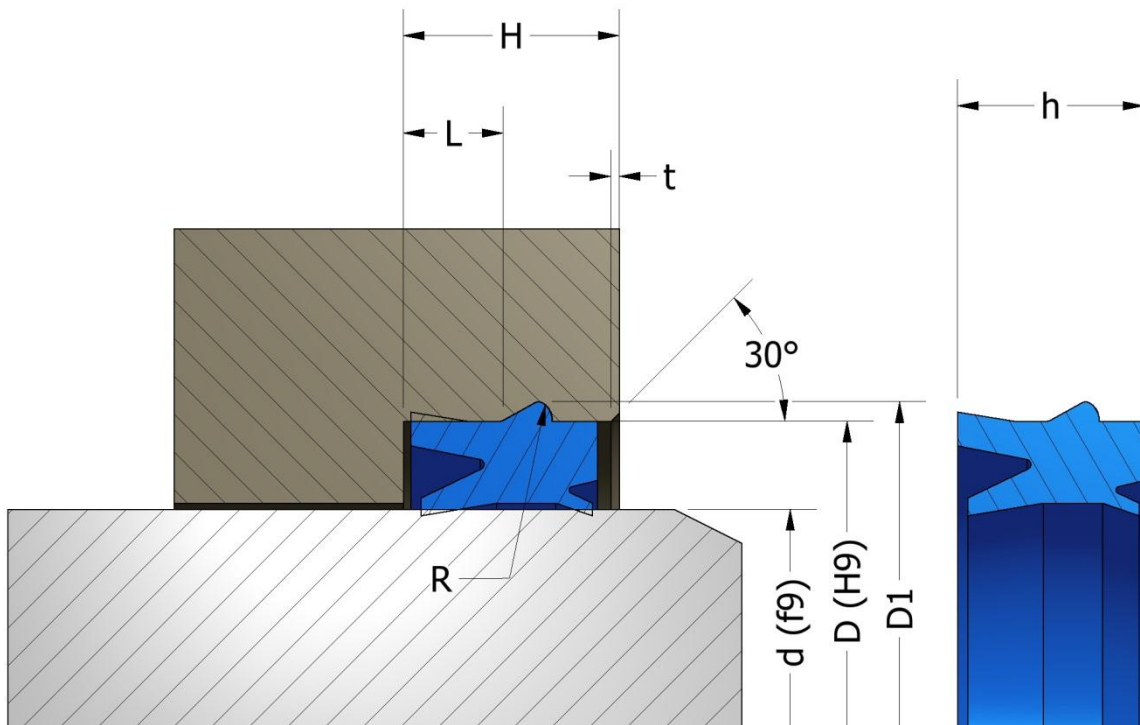
Low compression

Low load at high speed, low noise

Excellent resistance to extrusion and wear.

Extreme high extrusion resistance





Material	Power-transmission fluid	Temperature °C	Speed	Pressure	Max. Gap F
KOLBEN UPA1004®	Air	-40 to +120	≤ 1,0m/s	20 Bar	F ≤ 0,6 mm
				30 Bar	F ≤ 0,5 mm
				40 Bar	F ≤ 0,4 mm

Rod Diameter	Groove Diameter	Seal Width	Groove Width				
d (f7)	D (H9)	h	H+0.2	D1	L	t	R
10	18	10.7	13	20	8.8	1.5	1.1
12	19	10	12	21	7.7	1.1	1
12	20	10.7	13	22	8.8	1.5	1.1
12	12	10.7	13	24	8.8	1.5	1.1
14	24	10.7	13	26	8.8	1.5	1.1
16	26	10.7	13	28	8.8	1.5	1.1
18	26	10.7	13	28	8.8	1.5	1.1
18	28	10.7	13	30	8.8	1.5	1.1
20	30	10.7	13	32	8.8	1.5	1.1
22	32	11.2	14	34.5	9.4	2	1.4
25	35	11.2	14	37.5	9.4	2	1.4

30	40	11.2	14	42.5	9.4	2	1.4
32	42	11.2	14	44.5	9.4	2	1.4
40	50	11.2	14	52.5	9.4	2	1.4
45	55	12.2	15	58.2	10.4	2	1.8
50	60	12.2	15	63.2	10.4	2	1.8
63	75	13	16	78.2	11.4	2	1.8

K59

ECO
Cushioning Seal
Single -Acting

INTRODUCTION

K59 is a cushioning seals. It keeps the most important roles of pneumatic cylinders. KOLBEN UPA1001® is good material that used to pneumatic application.



The profile of K59 is specially designed for cushioning in piston in air cylinder for industrial application

MATERIAL

KOLBEN UPA1001®

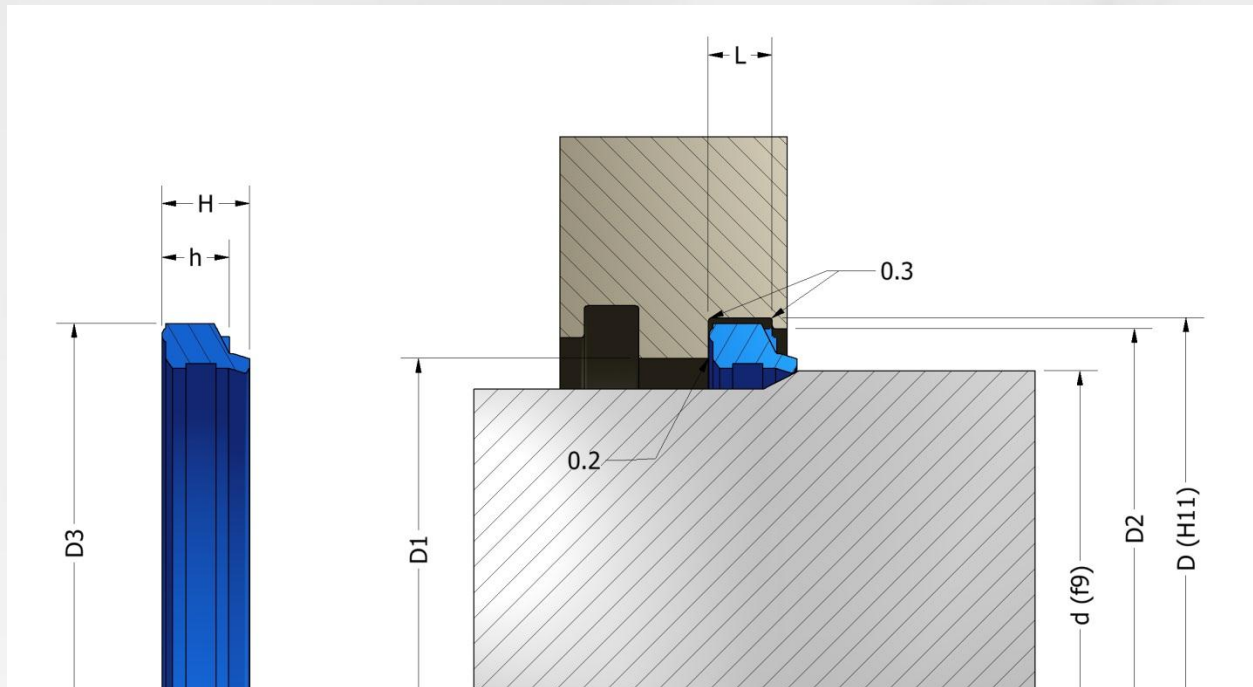
APPLICATION

Pneumatic Cylinders

FEATURES

- Excellent wear & abrasion resistance.
- Easy installation.
- Low compression





Material	Power-transmission fluid	Temperature °C	Speed	Pressure	Max. Gap F
KOLBEN UPA1001®	Air	-40 to +100	≤ 1,0m/s	10 Bar	F ≤ 0,6 mm
				20 Bar	F ≤ 0,5 mm

Rod Diameter	Groove Diameter	Seal Width		Groove Width			
d (f7)	D (H9)	h	H	L +0.1	D1	D2	D3
5	9	3.2	4.1	3.7	5.5	7	8.7
6	10	3.2	4.1	3.7	6.5	8	9.7
8	11.6	2.8	3.5	3.3	8.5	10	11.3
9.5	15	3.7	4.6	4.5	10	12	14.7
10	18	6.3	7.8	7	10.5	15	17
12	18	4.1	5	4.8	13	15.5	17.8
12	20	6.3	7.8	7	13	17	19.1
14	22	6.3	7.8	7	15	19	21.1
16	22	4.5	5.5	5.2	17	19.5	21.5
16	24	6.3	7.8	7	17	21	23.1
18	26	6.3	7.8	7	19	23	25.1
20	28	6.3	7.8	7	21	24	27.1
22	30	6.3	7.8	7	23	26	29.1

25	33	6.3	7.8	7	26	29	32.1
28	36	6.3	7.8	7	29	32	35.1
30	40	6.2	7.8	7	31.5	35	39.1
32	42	6.2	7.8	7	33.5	37	41.1
36	46	6.2	7.8	7	37.5	41.1	45.1
40	50	6.2	7.8	7	41.5	45	49.1
50	60	6.2	7.8	7	51.5	55	59.1
50	67	11	11	12.5	53	58	66.2
57	74	11	11	12.5	60	65	73.2
70	87	11	11	12.5	73	78	86.7
78	95	11	11	12.5	81	86	94.3

K60

Premium
Rod & Piston Seal
Single -Acting

INTRODUCTION

K60 is a main rod and piston pneumatic seals. It keeps the most important roles of pneumatic cylinders. KOLBEN UPA1004® is *excellent* material that used to *draconic* application.

Pneumatic cylinder rod seals are made to prevent air leakage across the moving rod surface. They are an extremely seal making installation very easily. The mainly application is pneumatic cylinders in industries.

MATERIAL

KOLBEN UPA1004®

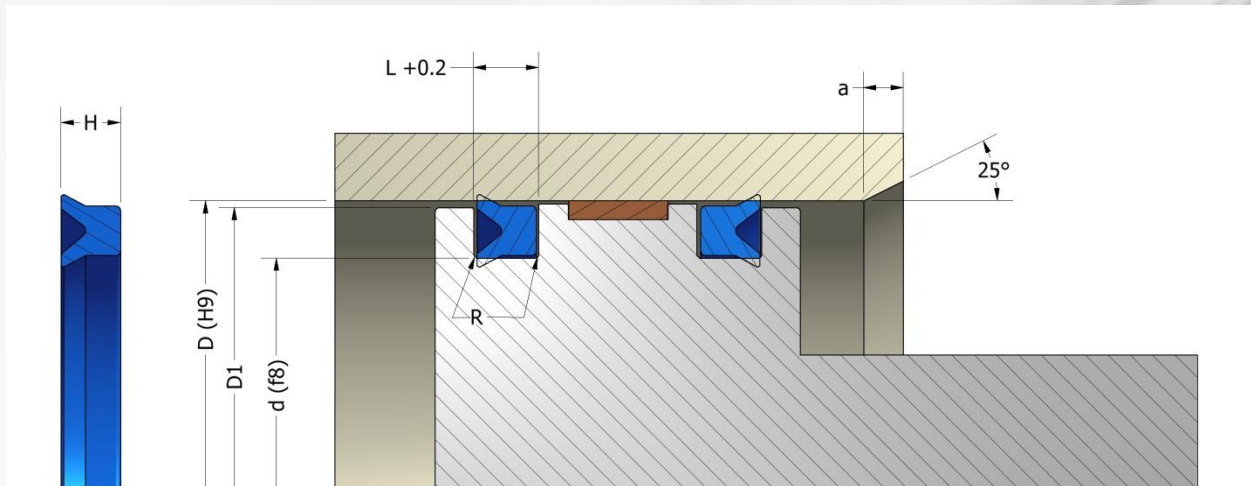
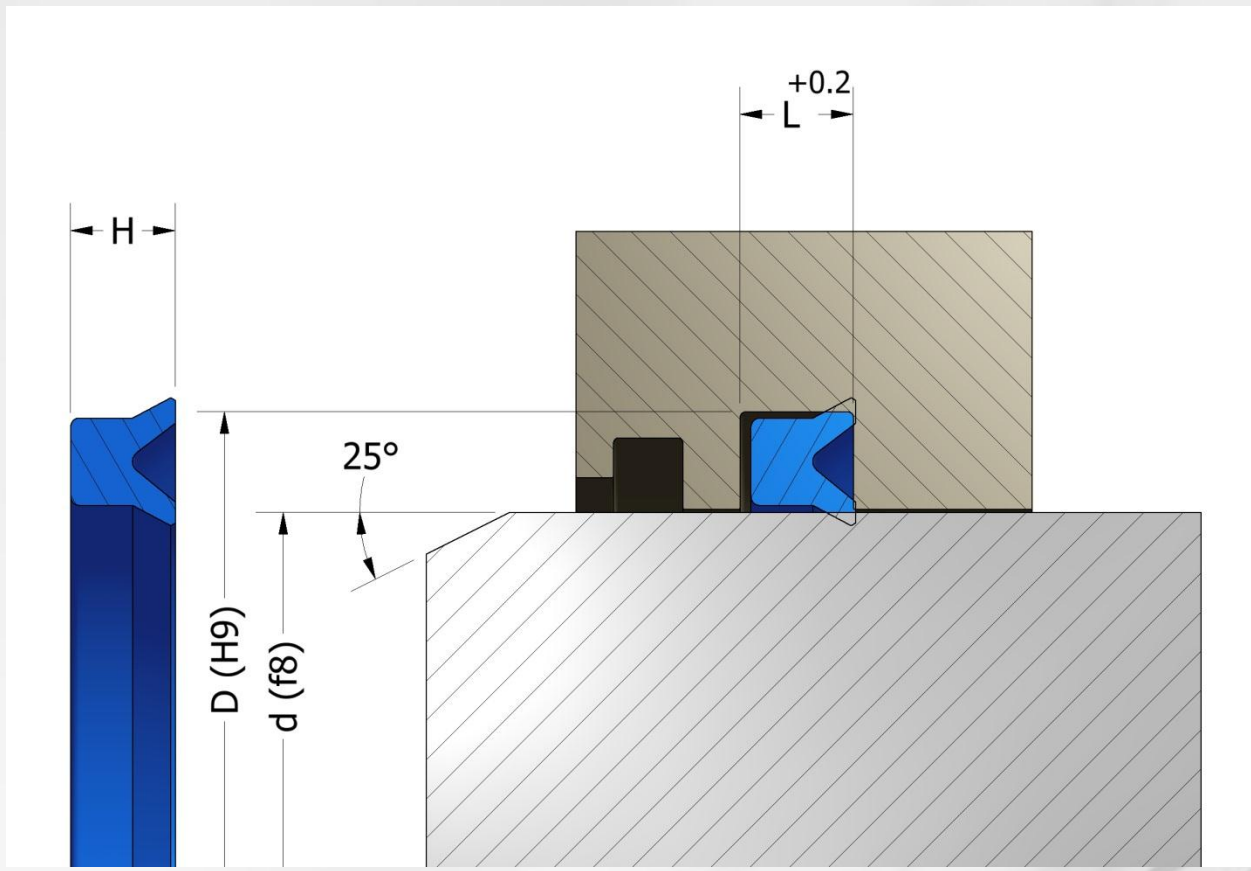
FEATURES

- Excellent wear & abrasion resistance.
- Easy installation.
- Low compression
- Low load at high speed, low noise
- Excellent resistance to extrusion and wear.
- Extreme high extrusion resistance
- Enhanced sealing performance in non-pressurized condition.

APPLICATION

Pneumatic Cylinders





Material	Power-transmission fluid	Temperature °C	Speed	Pressure	Max. Gap F
KOLBEN UPA1004®	Air	-40 to +120	≤ 1,0m/s	20 Bar	F ≤ 0,6 mm
				40 Bar	F ≤ 0,5 mm
				60 Bar	F ≤ 0,4 mm

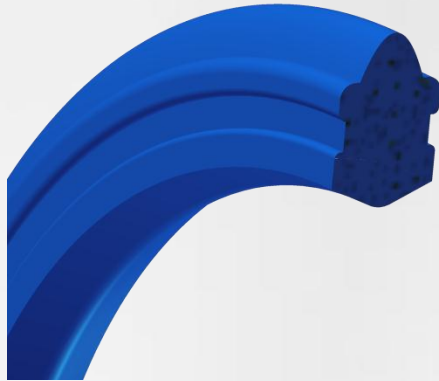
Rod Diameter	Groove Diameter	Seal Width	Groove Width	
d (f7)	D (H9)	H	L +0.2	D1
10	18	5	5.7	17
12	20	5	5.7	19
14	22	5	5.7	21
16	24	5	5.7	23
17	25	5	5.7	24
18	26	5	5.7	25
20	28	5	5.7	27
22.4	30	5	5.7	29
25	33	5	5.7	32
27	35	5	5.7	34
28	36	5	5.7	35
30	40	6	7	39
31.5	41.5	6	7	40.5
32	42	6	7	41
35	45	6	7	44
35.5	45.5	6	7	44.5
36	46	6	7	45
40	50	6	7	49
45	55	6	7	54
50	60	6	7	59
53	63	6	7	62
55	65	6	7	64
60	70	6	7	69
63	73	6	7	72
65	75	6	7	74
70	80	6	7	79
75	85	6	7	84
80	90	6	7	89
85	100	9	10	98
95	110	9	10	108
100	115	9	10	113
105	120	9	10	118
110	125	9	10	123
115	130	9	10	128.5
125	140	9	10	138.5
135	150	9	10	148.5
145	160	9	10	158.5
160	175	9	10	174

K70

Premium

Piston Seal

Double -Acting



APPLICATION

Pneumatic Cylinders
Thin cylinders
Valves Control Valves Gas



INTRODUCTION

K70 is a double acting pneumatic seals. It keeps the most important roles of pneumatic cylinders. KOLBEN UPA1004® is *excellent* material that used to *draconic* application.

It is designed to provide outstanding friction properties. It is good for *twisting and rolling*.

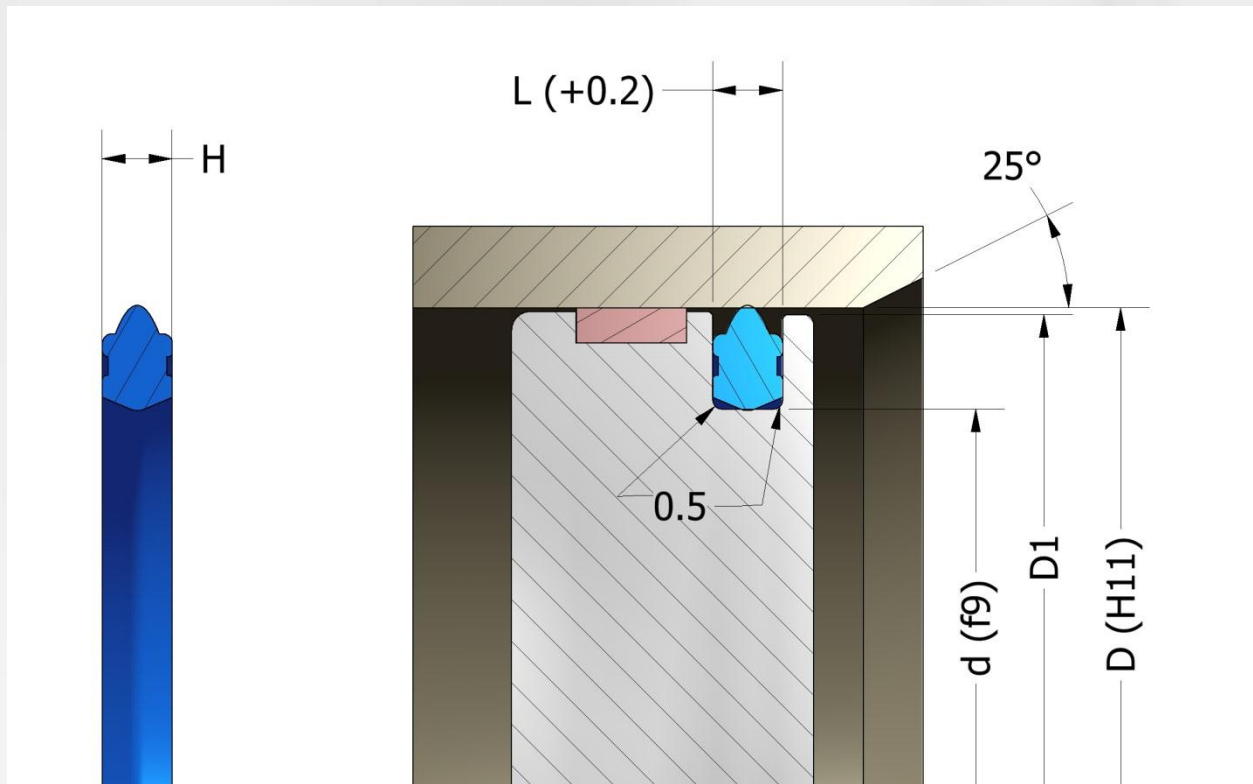
MATERIAL

KOLBEN UPA1004®

FEATURES

- Excellent wear & abrasion resistance.
- Easy installation.
- Low compression
- Low load at high speed, low noise
- Excellent resistance to extrusion and wear.
- Extreme high extrusion resistance
- Enhanced sealing performance in non-pressurized condition.





Material	Power-transmission fluid	Temperature °C	Speed	Pressure	Max. Gap F
KOLBEN UPA1004®	Air	-40 to +120	≤ 1,0m/s	20 Bar	F ≤ 0,5 mm
				40 Bar	F ≤ 0,4 mm
				60 Bar	F ≤ 0,3 mm

Rod Diameter	Groove Diameter	Seal Width	Groove Width	
d (f7)	D (H9)	H	L +0.2	D1
10	5.4	1.6	1.8	9.7
12	7.4	1.6	1.8	11.7
15	10.4	1.6	1.8	14.7
16	11.4	1.6	1.8	15.7
25	17	3	3.2	24.5
30	22	3	3.2	29.5
32	24	3	3.2	31.5
38	30	3	3.2	37.5

40	32	3	3.2	39.5
44	36	3.8	4	43.5
50	40	3.8	4	49.5
56	46	3.8	4	55.5
60	50	3.8	4	59.5
63	53	3.8	4	62.4
70	55	5.6	6	69.4
75	60	5.6	6	74.4
80	65	5.6	6	79.4
85	70	5.6	6	84.4
90	75	5.6	6	89.4
95	80	5.6	6	94.4
100	85	5.6	6	99.4
110	95	5.6	6	109.3
120	105	5.6	6	119.3
125	110	5.6	6	124.3
140	125	5.6	6	139.3
150	135	5.6	6	149.3
160	140	7.6	8	159.3
180	160	7.6	8	179.3
200	180	7.6	8	199.3