 **KASTAŞ** Hydraulic and Pneumatic Sealing Elements



Kastás



ÜRÜN PROGRAMI		SEALS PROGRAMME		BOĞAZ ROD	PİSTON PISTON	SERTLİK HARDNESS Shore A	BASINÇ PRESSURE (max. BAR)	ÇALIŞMA SICAKLIĞI TEMPERATURE (max. °C)	KAYMA HIZI SPEED VELOCITY (max. m/s)	
KASTAŞ NO. KASTAŞ NO.	MALZEME MATERIAL									
K35 BOĞAZ KEÇESİ ROD SEAL	• TEFLON RING/ PTFE RING • NBR O'RING **			●			400	-30°C+105°C	≤5	
K36 PİSTON BOĞAZ KEÇESİ PISTON-ROD SEAL	• BEZLİ NBR/ FABRIC WITH NBR • NBR *			●	●		250	-30°C+105°C	≤0.5	
K37 BOĞAZ KEÇESİ ROD SEAL	• BEZLİ NBR/ FABRIC WITH NBR • NBR • POM BACK UP			●			400	-30°C+105°C	≤0.5	
K38 PU BOĞAZ NUTRING PU ROD NUTRING	• PU			●		92	400	-30°C+100°C	≤0.5	
K40 PU PİSTON NUTRING PU PİSTON NUTRING	• PU • POM BACK UP			●	●	92	400	-30°C+100°C	≤0.5	
K41 PİSTON KEÇESİ PISTON SEAL	• TEFLON RING/ PTFE RING • NBR O'RING **			●			400	-30°C+105°C	≤5	
K50 PnöMATİK PİSTON KEÇESİ PNEUMATIC PISTON SEAL	• PU • NBR *			●	●	80	16 12	-30°C+80°C -30°C+105°C	≤1	
K51 PnöMATİK TOZ BOĞAZ KEÇESİ PNEUMATIC COMBI SEAL	• PU			●			90	16	-30°C+80°C	≤1
K52 PnöMATİK TOZ BOĞAZ KEÇESİ PNEUMATIC COMBI SEAL	• NBR • PU *			●		90	16 16	-30°C+105°C -30°C+80°C	≤1	
K53 PnöMATİK YASTIKLAMA KEÇESİ/PNEUMATIC ROD CUSHIONING SEAL	• NBR • PU *			●		90	16 16	-30°C+105°C -30°C+80°C	≤1	
K54 PnöMATİK PİSTON KEÇESİ PNEUMATIC PISTON SEAL	• NBR *			●	●	70	12	-20°C+100°C	≤1	
K55 PnöMATİK PİSTON KEÇESİ PNEUMATIC PISTON SEAL	• ALUMİNYUM/ ALUMINIUM • NBR *			●	●	70	12	-30°C+105°C	≤1	
K56 PnöMATİK TOZ BOĞAZ KEÇESİ PNEUMATIC COMBI SEAL	• NBR • TPE **			●			80	16	-30°C+80°C	≤1
K57 PnöMATİK PİSTON KEÇESİ PNEUMATIC PISTON SEAL	• SAC / STEEL • NBR *			●	●	70	12	-30°C+105°C	≤1	
K58 PnöMATİK PİSTON KEÇESİ PNEUMATIC PISTON SEAL	• AL • MİKNATIS/MAGNET • PU • POM			●			12	-25°C+80°C	≤1	
K59 PnöMATİK PİSTON KEÇESİ PNEUMATIC PISTON SEAL	• NBR *			●	●	80	12	-30°C+105°C	≤1	

* Özel uygulamalarda FKM (Viton) kullanılmaktadır. / For special applications FKM (Viton) are used.

** Özel uygulamalarda bronzlu teflon ringler ve FKM kullanılmaktadır. / For special applications PTFE with bronze and FKM are used.

*** Sertlik Shore D olarak verilir. / Hardness value is given in Shore D.

ÜRÜN PROGRAMI		SEALS PROGRAMME		BOĞAZ ROD	PİSTON PISTON	SERTLİK HARDNESS Shore A	BASINÇ PRESSURE (max. BAR)	ÇALIŞMA SICAKLIĞI TEMPERATURE (max. °C)	KAYMA HIZI SPEED VELOCITY (max. m/s)	
KASTAŞ NO. KASTAŞ NO.	MALZEME MATERIAL									
K68 BOĞAZ YATAKLAMALI ROD GUIDE RING	• CAM ELYAFI KATKILI POM/ POM FILLED WITH GLASS			●				-30°C+125°C	≤1	
K69 PİSTON YATAKLAMALI PISTON GUIDE RING	• CAM ELYAFI KATKILI POM/ POM FILLED WITH GLASS			●	●			-30°C+125°C	≤1	
K73 YATAKLAMA GUIDE RING	• POLYESTER RESİN/ POLYESTER RESINE			●	●			-40°C+120°C	≤2.5	
K81 DESTEK RİNGİ BACKUP RING	• TPE			●	●	55***		-40°C+120°C	≤1	
K82 FLANŞ KEÇELERİ FLANGE SEAL	• PU						95	600	-30°C+100°C	
K95 NUTRING NUTRING	• NBR *			●	●	90	100	-30°C+105°C	≤1	
K96 BOĞAZ KEÇESİ U-RING	• NBR			●			90	150	-30°C+105°C	≤0.5
K150 V MANŞET CHEVRON RING	• ÖZEL BEZLİ NBR/ SPECIAL FABRIC WITH NBR			●			250	-30°C+80°C	≤1	
K151 YÜKSEK BASINÇ SIZDIRMAZLIK ELEMANI SETİ HIGH PRESSURE SEALS SET	• ÖZEL BEZLİ NBR/ SPECIAL FABRIC WITH NBR • POM RİNG/ PTFE WITH CARBON BACK UP			●			250	-30°C+80°C	≤1	
K152 DÜŞÜK BASINÇ SIZDIRMAZLIK ELEMANI SETİ LOW PRESSURE SEALS SET	• ÖZEL BEZLİ NBR/ SPECIAL FABRIC WITH NBR • POM RİNG			●			80	-30°C+80°C	≤1	
K701 BOĞAZ KEÇESİ U-RING	• TEFLON U RING/ PTFE U RING • YAPRAK YAY/ V SPRING			●			350	-150°C+250°C	≤15	
K702 DÖNME HAREKETİ KEÇELERİ ROD SEAL ROTATING APPLICATION	• TEFLON RING/ PTFE RING • NBR O'RING **			●			300	-30°C+105°C	≤5	
K703 TOZ KEÇESİ DOUBLE WIPER	• TEFLON RING/ PTFE RING • NBR O'RING **			●			300	-30°C+105°C	≤5	
K751 PİSTON KEÇESİ U-RING	• TEFLON U RING/ PTFE U RING • YAPRAK YAY/ V SPRING			●			350	-150°C+250°C	≤15	
K752 DÖNME HAREKETİ KEÇELERİ PISTON SEAL ROTATING APPLICATION	• TEFLON RING/ PTFE RING • NBR O'RING **			●			300	-30°C+105°C	≤5	
K753 PİSTON KEÇESİ PISTON SEAL	• TEFLON RING/ PTFE RING • NBR O'RING, X RING **			●			400	-30°C+105°C	≤2	

* Özel uygulamalarda FKM (Viton) kullanılmaktadır. / For special applications FKM (Viton) are used.

** Özel uygulamalarda bronzlu teflon ringler ve FKM kullanılmaktadır. / For special applications PTFE with bronze and FKM are used.

*** Sertlik Shore D olarak verilir. / Hardness value is given in Shore D.

Kastas

K21 NUTRİNGLER

Hidrolik silindirlere çok yaygın bir kullanıma sahip olan K21 nutringlerimiz, her iki sızdırmazlık dudakının eşit olması nedeniyle ile hem piston, hem de boğaz uygulamalarında kullanılabilir. Standart olarak NBR 90 shore A ve yüksek performanslı 92 shore A Poliüretan malzemeden üretilmektedir. Özel uygulamalar için FKM (Viton) üretimi yapılmakta olup, bu talepleriniz özel üretim kapsamında değerlendirilmektedir.

K21 nutringlerimiz ile ilgili max. 5 (akma boşluğu) değerlerini, NBR nutringlerimiz için sayfa 28'deki Tablo-4'de, PU nutringlerimiz için ise sayfa 27'deki Tablo-3'de bulabilirsiniz.

Standart serimiz haricindeki ihtiyaçlarınızda, lütfen müşteri servisimize başvurunuz.

Çalışma Koşulları	NBR	PU
Ortam	Mineral yağlar (DIN 51524) HFA, HFB, HFC tipi yağlar	Mineral yağlar (DIN 51524) HFA, HFB, HFC tipi yağlar
Sıcaklık	-30°C ile +105°C	-30°C +100°C
Çalışma basıncı	≤150 Bar	≤400 Bar
Doğrusal hız	≤0.5 m/sn	≤0.5 m/sn

Yüzey Pürüzlülüğü	Ra	Rt
Sızdırmazlık yüzeyi	≤0.3 µm	≤3 µm
Kanal çapı	≤1.8 µm	≤10 µm
Yan yüzey	≤3 µm	≤16 µm

Kapalı Tip Keçe Kanalına Montaj İçin Min. Çap Değerleri						
(D-d)/2 (mm)	4	5	6	7.7	10	12.5
min.çap (mm)	25	30	40	50	80	100

Not: Yukarıda verilen değerlerden daha düşük olanlar için parçali pistonbağ veya boğaz kullanılması önerilir.

K21 NUTRINGS

Having been used very widely in hydraulic cylinders, K21 s can be used for piston and rod applications because of having the height of both sealing lips equal. Standardized with the materials of high performance PU 92 Shore A and NBR 90 Shore A, K21 s are also manufactured with Viton material, but considered as special production programme upon receipt of orders.

S, permissible gap values are given in table 4 (page 28) for NBR applications and in table 3 (page 27) for PU applications.

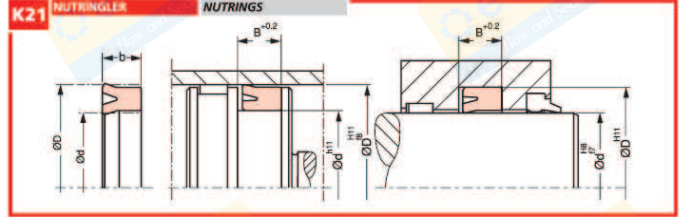
For needs out of standard dimensions, please apply our customer service.

Operating Conditions	NBR	PU
Media	Mineral oils (DIN 51524) Hydraulic fluids HFA, HFB, HFC	Mineral oils (DIN 51524) Hydraulic fluids HFA, HFB, HFC
Temperature	-30°C, +105°C	-30°C, +100°C
Operating pressure	≤150 Bar	≤400 Bar
Linear velocity	≤0.5 m/sn	≤0.5 m/sn

Surface Roughness	Ra	Rt
Sliding surface	≤0.3 µm	≤3 µm
Surface of housing	≤1.8 µm	≤10 µm
Sides of housing	≤3 µm	≤16 µm

Limited Dimensions for Snap in Fitting						
(D-d)/2 (mm)	4	5	6	7.7	10	12.5
min.d (mm)	25	30	40	50	80	100

PS, Open seal housing is suggested for the values lower than given in above table.

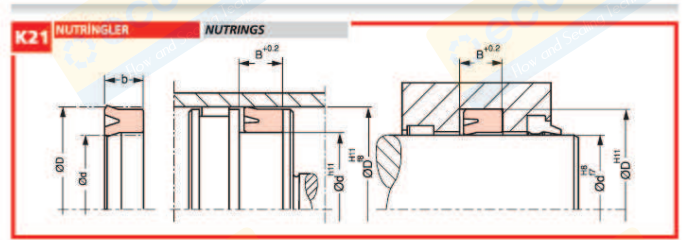


KASTAŞ NO.	NBR	PU	d	D	b	B
K21-003/2	*	*	3	8	3.5	4.0
K21-003/4	*	*	3	10	6.0	7.0
K21-004/4	*	*	4	7.5	3.0	3.5
K21-004/3	*	*	4	10	4.0	4.5
K21-004/5	*	*	4	10	4.5	5.0
K21-004	*	*	4	10	5.0	6.0
K21-004/2	*	*	4	12	4.0	4.5
K21-004/1	*	*	4	12	5.5	6.5
K21-005/5	*	*	5	9	2.4	2.9
K21-005/3	*	*	5	10	4.0	4.5
K21-005/4	*	*	5	10	5.0	6.0
K21-005/2	*	*	5	11	5.0	6.0
K21-005	*	*	5	11	7.0	8.0
K21-005/6	*	*	5	12	5.0	6.0
K21-005/7	*	*	5	14	4.5	5.0
K21-006	*	*	6	9	2.0	2.5
K21-006/3	*	*	6	10	3.0	3.5
K21-006/6	*	*	6	12	4.0	4.5
K21-006/1	*	*	6	12	6.0	7.0
K21-006/2	*	*	6	12	7.0	8.0
K21-006/4	*	*	6	15	5.0	6.0
K21-006/5	*	*	6	16	6.0	7.0
K21-007/2	*	*	7	12.5	3.5	4.0
K21-007/1	*	*	7	14	7.0	8.0
K21-007	*	*	7	15	5.0	6.0
K21-007/3	*	*	7	15	7.0	8.0
K21-008/8	*	*	8	12	5.0	6.0
K21-008/5	*	*	8	14	4.0	4.5
K21-008/1	*	*	8	14	6.0	7.0
K21-008/10	*	*	8	15	6.0	7.0
K21-008/7	*	*	8	15	8.0	9.0
K21-008/2	*	*	8	16	6.0	7.0
K21-008/3	*	*	8	16	8.0	9.0
K21-008	*	*	8	18	8.0	9.0
K21-008/11	*	*	8	20	8.0	9.0
K21-009/2	*	*	9	16	4.0	4.5
K21-009/3	*	*	9	16	7.0	8.0
K21-009	*	*	9	17	6.0	7.0
K21-009/1	*	*	9	19	6.0	7.0
K21-010/16	*	*	10	14	3.5	4.0
K21-010/10	*	*	10	15	4.0	4.5
K21-010/6	*	*	10	16	4.0	4.5
K21-010/12	*	*	10	16	5.0	6.0
K21-010/11	*	*	10	16	6.0	7.0
K21-010/4	*	*	10	18	6.0	7.0
K21-010/2	*	*	10	18	8.0	9.0
K21-010/13	*	*	10	20	7.0	8.0
K21-010	*	*	10	20	8.0	9.0

** İşareti ürünün malzemesini göstermektedir. ** Indicates product material.

KASTAŞ NO.	NBR	PU	d	D	b	B
K21-010/5	*		10	22	8.0	9.0
K21-010/14	*	*	10	22	9.0	10
K21-010/7	*	*	10	25	8.0	9.0
K21-010/8	*	*	10	25	10	11
K21-010/9	*	*	10	26	9.5	10.5
K21-010/3	*	*	10	28	10	11
K21-012/16	*	*	12	16	3.0	3.5
K21-012/10	*	*	12	18	3.0	3.5
K21-012/7	*	*	12	18	4.0	4.5
K21-012/8	*	*	12	18	5.0	6.0
K21-012/5	*	*	12	18	6.0	7.0
K21-012/11	*	*	12	20	5.0	6.0
K21-012/9	*	*	12	20	5.5	6.5
K21-012/1	*	*	12	20	8.0	9.0
K21-012/6	*	*	12	22	5.0	6.0
K21-012/2	*	*	12	22	6.0	7.0
K21-012/17	*	*	12	22	7.0	8.0
K21-012	*	*	12	22	8.0	9.0
K21-012/14	*	*	12	24	6.0	7.0
K21-012/4	*	*	12	24	10	11
K21-012/12	*	*	12	25	8.0	9.0
K21-012/15	*	*	12	28	10	11
K21-014/8	*	*	14	20	4.0	4.5
K21-014/6	*	*	14	20	5.0	6.0
K21-014/7	*	*	14	20	6.0	7.0
K21-014/9	*	*	14	22	4.0	4.5
K21-014/1	*	*	14	22	5.0	6.0
K21-014/5	*	*	14	22	8.0	9.0
K21-014/2	*	*	14	22	12	13
K21-014/3	*	*	14	24	6.0	7.0
K21-014	*	*	14	24	8.0	9.0
K21-014/4	*	*	14	28	10	11
K21-014/10	*	*	14	32	8.0	9.0
K21-015/7	*	*	15	20	3.0	3.5
K21-015/10	*	*	15	21	3.5	4.0
K21-015/5	*	*	15	22	4.0	4.5
K21-015/4	*	*	15	25	5.0	6.0
K21-015/16	*	*	15	25	6.0	7.0
K21-015	*	*	15	25	8.0	9.0
K21-015/8	*	*	15	25	10	11
K21-015/2	*	*	15	28	8.0	9.0
K21-015/12	*	*	15	28	10	11
K21-015/6	*	*	15	30	6.0	7.0
K21-015/15	*	*	15	30	8.0	9.0
K21-015/13	*	*	15	30	10	11
K21-015/14	*	*	15.87	25.4	4.76	5.26
K21-016/6	*	*	16	22	3.0	3.5
K21-016/9	*	*	16	22	4.0	4.5
K21-016/1	*	*	16	22	5.0	6.0
K21-016/14	*	*	16	22	10	11
K21-016/5	*	*	16	24	4.0	4.5
K21-016/13	*	*	16	24	6.0	7.0
K21-016/10	*	*	16	25	5.0	6.0
K21-016/8	*	*	16	26	5.0	6.0
K21-016/2	*	*	16	26	6.0	7.0
K21-016	*	*	16	26	8.0	9.0
K21-016/7	*	*	16	29	6.0	7.0
K21-016/4	*	*	16	32	10	11
K21-017/2	*	*	17	25	4.0	4.5
K21-017/1	*	*	17	32	10	11
K21-018/8	*	*	18	24	4.0	4.5
K21-018/11	*	*	18	24	8.0	9.0
K21-018/7	*	*	18	25	5.0	6.0
K21-018/5	*	*	18	25	5.5	6.5

** İğareti ürünün malzemesini göstermektedir.
** Indicates product material.



KASTAŞ NO.	NBR	PU	d	D	b	B
K21-018/12	*	*	18	26	4.0	4.5
K21-018/9	*	*	18	26	5.0	6.0
K21-018/10	*	*	18	28	6.0	7.0
K21-018	*	*	18	28	8.0	9.0
K21-018/1	*	*	18	30	6.0	7.0
K21-018/2	*	*	18	30	7.5	8.5
K21-018/3	*	*	18	30	8.5	9.5
K21-018/4	*	*	18	30	10	11
K21-018/6	*	*	18	32	7.0	8.0
K21-019/3	*	*	19	25	6.0	7.0
K21-020/9	*	*	20	25	3.0	3.5
K21-020/10	*	*	20	25	3.5	4.0
K21-020/12	*	*	20	26	6.0	7.0
K21-020/14	*	*	20	27	6.0	7.0
K21-020/8	*	*	20	28	4.0	4.5
K21-020/11	*	*	20	28	5.0	6.0
K21-020/11	*	*	20	30	4.0	4.5
K21-020/2	*	*	20	30	6.0	7.0
K21-020	*	*	20	30	8.0	9.0
K21-020/3	*	*	20	30	10	11
K21-020/6	*	*	20	32	5.0	6.0
K21-020/17	*	*	20	32	7.5	8.5
K21-020/4	*	*	20	35	10	11
K21-020/7	*	*	20	36	8.0	9.0
K21-020/15	*	*	20	36	10	11
K21-020/5	*	*	20	40	10	11
K21-020/16	*	*	20	40	12	13
K21-022/11	*	*	22	30	5.0	6.0
K21-022/5	*	*	22	30	6.0	7.0
K21-022/8	*	*	22	32	6.0	7.0
K21-022/1	*	*	22	32	7.0	8.0
K21-022	*	*	22	32	8.0	9.0
K21-022/4	*	*	22	34	6.0	7.0
K21-022/7	*	*	22	34	10	11
K21-022/9	*	*	22	40	10	11
K21-022/6	*	*	22	42	10	11
K21-024/1	*	*	24	32	4.0	4.5
K21-024	*	*	24	34	5.0	6.0
K21-024/2	*	*	24	40	8.0	9.0
K21-025/13	*	*	25.5	31	4.5	5.0
K21-025/16	*	*	25	32	4.0	4.5
K21-025/9	*	*	25	32	7.0	8.0
K21-025/11	*	*	25	33	4.0	4.5
K21-025/2	*	*	25	33	5.0	6.0
K21-025/17	*	*	25	33	7.0	8.0
K21-025/3	*	*	25	35	5.0	6.0
K21-025/19	*	*	25	35	6.0	7.0

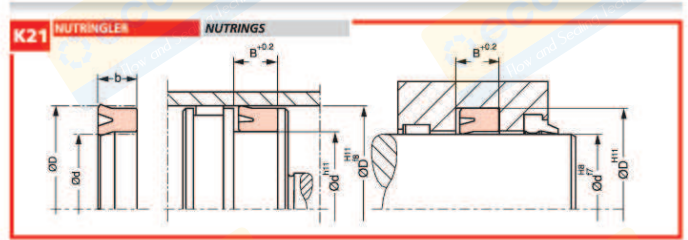
** İğareti ürünün malzemesini göstermektedir.
** Indicates product material.

Kastar

Kastas

KASTAŞ NO.	NBR	PU	d	D	b	B
K21-025/4	•	•	25	35	7.0	8.0
K21-025/5	•	•	25	35	8.0	9.0
K21-025/6	•	•	25	37	7.0	8.0
K21-025/12	•	•	25	38	7.0	8.0
K21-025/7	•	•	25	38	9.0	10
K21-025/14	•	•	25	38	10	11
K21-025	•	•	25	40	10	11
K21-025/18	•	•	25	40	11	12
K21-025/8	•	•	25	45	10	11
K21-025/15	•	•	25	50	12	13
K21-026/1	•	•	26	42	8.0	9.0
K21-027	•	•	27	35	4.0	4.5
K21-027/1	•	•	27	38	6.0	7.0
K21-028/4	•	•	28	35	6.0	7.0
K21-028/7	•	•	28	35.5	5.0	6.0
K21-028/6	•	•	28	36	5.0	6.0
K21-028/5	•	•	28	36	6.0	7.0
K21-028/8	•	•	28	38	10	11
K21-028/1	•	•	28	40	10	11
K21-028	•	•	28	43	10	11
K21-028/9	•	•	28	44	8.0	9.0
K21-028/2	•	•	28	48	10	11
K21-028/3	•	•	28	48	12	13
K21-030/10	•	•	30	37	8.0	9.0
K21-030/7	•	•	30	38	4.0	4.5
K21-030/8	•	•	30	38	5.5	6.5
K21-030/5	•	•	30	40	5.0	6.0
K21-030/9	•	•	30	40	6.0	7.0
K21-030/6	•	•	30	40	7.0	8.0
K21-030/1	•	•	30	40	10	11
K21-030/2	•	•	30	42	10	11
K21-030	•	•	30	45	10	11
K21-030/3	•	•	30	50	10	11
K21-030/4	•	•	30	50	12	13
K21-032/6	•	•	32	40	4.0	4.5
K21-032/7	•	•	32	40	5.0	6.0
K21-032/9	•	•	32	40	5.7	6.7
K21-032/1	•	•	32	40	8.0	9.0
K21-032/3	•	•	32	42	6.0	7.0
K21-032/8	•	•	32	44	6.35	7.35
K21-032/4	•	•	32	45	10	11
K21-032	•	•	32	47	10	11
K21-032/5	•	•	32	50	12	13
K21-032/10	•	•	32	52	10	11
K21-033	•	•	33	43	6.0	7.0
K21-034	•	•	34	44	5.0	6.0
K21-035/5	•	•	35	43	6.0	7.0
K21-035/7	•	•	35	45	6.0	7.0
K21-035/2	•	•	35	45	10	11
K21-035/8	•	•	35	47	6.0	7.0
K21-035/9	•	•	35	50	7.5	8.5
K21-035	•	•	35	50	10	11
K21-035/6	•	•	35	52	12	13
K21-035/3	•	•	35	55	10	11
K21-035/4	•	•	35	55	12	13
K21-036/5	•	•	36	46	6.0	7.0
K21-036/3	•	•	36	46	7.0	8.0
K21-036/4	•	•	36	48	6.0	7.0
K21-036/2	•	•	36	50	8.0	9.0
K21-036/1	•	•	36	51	7.1	8.1
K21-036	•	•	36	51	10	11
K21-038/3	•	•	38	50	6.0	7.0
K21-038/4	•	•	38	50	10	11
K21-038	•	•	38	52.5	9.5	10.5

** İğret ürünün malzemesini göstermektedir.
** Indicates product material.



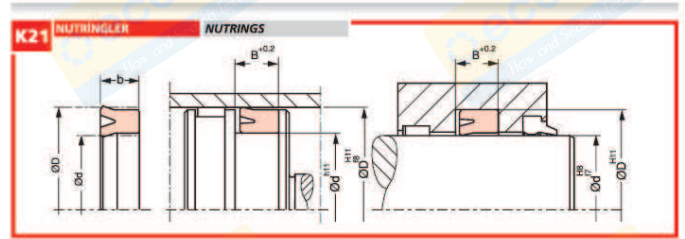
KASTAŞ NO.	NBR	PU	d	D	b	B
K21-038/1	•	•	38	55	10	11
K21-038/2	•	•	38	58	10	11
K21-038/5	•	•	38.1	50.1	6.35	7.35
K21-040/10	•	•	40	50	5.0	6.0
K21-040/1	•	•	40	50	6.0	7.0
K21-040/7	•	•	40	50	7.0	8.0
K21-040/11	•	•	40	50	8.0	9.0
K21-040/6	•	•	40	50	9.0	10
K21-040/2	•	•	40	50	10	11
K21-040/3	•	•	40	52	12	13
K21-040	•	•	40	55	10	11
K21-040/13	•	•	40	56	8.0	9.0
K21-040/8	•	•	40	56	10	11
K21-040/4	•	•	40	60	10	11
K21-040/5	•	•	40	60	12	13
K21-040/12	•	•	40	65	10	11
K21-040/9	•	•	40	65	15	16
K21-042/1	•	•	42	50	5.0	6.0
K21-042/8	•	•	42	50	6.0	7.0
K21-042/5	•	•	42	50	8.0	9.0
K21-042/6	•	•	42	51	11	12
K21-042/7	•	•	42	52	10	11
K21-042/4	•	•	42	55	8.0	9.0
K21-042/3	•	•	42	57	8.0	9.0
K21-042/2	•	•	42	62	12	13
K21-043	•	•	43	63	10	11
K21-044	•	•	44	57	9.0	10
K21-045/8	•	•	45	53	7.0	8.0
K21-045/9	•	•	45	53	8.0	9.0
K21-045/7	•	•	45	55	6.0	7.0
K21-045/1	•	•	45	55	10	11
K21-045/2	•	•	45	57	6.0	7.0
K21-045/11	•	•	45	58	10	11
K21-045	•	•	45	60	10	11
K21-045/10	•	•	45	63	10	11
K21-045/3	•	•	45	63	12	13
K21-045/4	•	•	45	65	10	11
K21-045/5	•	•	45	65	12	13
K21-045/6	•	•	45	70	12	13
K21-047	•	•	47	65	12	13
K21-047/1	•	•	47.62	63.5	11.5	12.5
K21-048/3	•	•	48	58	6.5	7.5
K21-048/1	•	•	48	60	9.0	10
K21-048	•	•	48	63	12	13
K21-048/4	•	•	48	68	10	11
K21-048/2	•	•	48	68	12	13
K21-050/16	•	•	50	57	10	11
K21-050/12	•	•	50	58	8.0	9.0

** İğret ürünün malzemesini göstermektedir.
** Indicates product material.

KASTAŞ NO.	NBR	PU	d	D	b	B
K21-050/13	*	*	50	60	6.0	7.0
K21-050/15	*	*	50	60	7.0	8.0
K21-050/11	*	*	50	60	8.0	9.0
K21-050/1	*	*	50	60	10	11
K21-050/14	*	*	50	60	12	13
K21-050/19	*	*	50	62	6.0	7.0
K21-050/2	*	*	50	62	9.0	10
K21-050/18	*	*	50	63	6.0	7.0
K21-050/3	*	*	50	63	8.0	9.0
K21-050/4	*	*	50	63	9.0	10
K21-050	*	*	50	65	10	11
K21-050/5	*	*	50	65	12	13
K21-050/6	*	*	50	68	12	13
K21-050/7	*	*	50	70	8.0	9.0
K21-050/8	*	*	50	70	10	11
K21-050/9	*	*	50	70	12	13
K21-050/17	*	*	50.8	63.5	9.52	10.52
K21-052/1	*	*	52	62	6.0	7.0
K21-052	*	*	52	62	12	13
K21-053	*	*	53	63	7.5	8.5
K21-053/3	*	*	53	63	12	13
K21-053/2	*	*	53	63	12	13
K21-053/4	*	*	53	64	5.0	6.0
K21-055/7	*	*	55	65	5.0	6.0
K21-055/5	*	*	55	65	12	13
K21-055/1	*	*	55	70	10	11
K21-055/3	*	*	55	70	12	13
K21-055	*	*	55	75	12	13
K21-055/6	*	*	55	80	12	13
K21-055/4	*	*	55	80	15	16
K21-056/4	*	*	56	66	5.0	6.0
K21-056/5	*	*	56	70	12	13
K21-056/3	*	*	56	71	10	11
K21-056	*	*	56	76	12	13
K21-056/2	*	*	56	80	15	16
K21-057	*	*	57.15	69.85	10	11
K21-057/1	*	*	57.15	76.2	10	11
K21-058/1	*	*	58	70	6.0	7.0
K21-058/2	*	*	58	78	12	13
K21-059	*	*	59	80	14	15
K21-060/6	*	*	60	70	6.0	7.0
K21-060/7	*	*	60	70	7.0	8.0
K21-060/2	*	*	60	70	12	13
K21-060/5	*	*	60	70	13	14
K21-060/4	*	*	60	75	12	13
K21-060/1	*	*	60	80	10	11
K21-060	*	*	60	80	12	13
K21-060/3	*	*	60	80	16	17
K21-061	*	*	61	80	12	13
K21-063/2	*	*	63	72	6.0	7.0
K21-063/1	*	*	63.5	82.55	14.28	15.28
K21-063	*	*	63	83	12	13
K21-065/6	*	*	65	75	6.0	7.0
K21-065/5	*	*	65	75	10	11
K21-065/8	*	*	65	75	12	13
K21-065/1	*	*	65	80	12	13
K21-065	*	*	65	85	12	13
K21-065/2	*	*	65	90	8.0	9.0
K21-065/7	*	*	65	90	12	13
K21-065/3	*	*	65	90	13	14
K21-065/4	*	*	65	90	15	16
K21-066	*	*	66	77	6.0	7.0
K21-068	*	*	68	80	12	13
K21-070/9	*	*	70	80	6.0	7.0
K21-070/5	*	*	70	80	5.4	6.4

** (İçeri ürünün malzemesini göstermektedir.)
 ** indicates product material

Kastaş



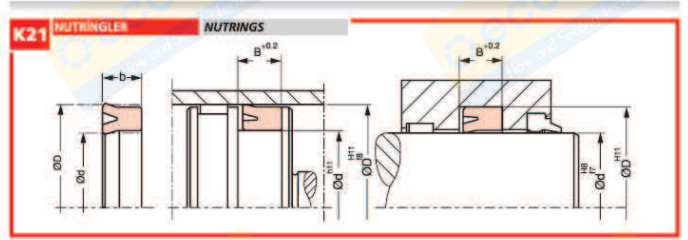
KASTAŞ NO.	NBR	PU	d	D	b	B
K21-070/8	*	*	70	80	7.0	8.0
K21-070/1	*	*	70	80	12	13
K21-070/2	*	*	70	85	8.0	9.0
K21-070/4	*	*	70	85	12	13
K21-070/7	*	*	70	90	10	11
K21-070	*	*	70	90	12	13
K21-070/6	*	*	70	100	15	16
K21-072	*	*	72	80	10	11
K21-072/2	*	*	72	82	5.0	6.0
K21-072/1	*	*	72	90	10	12
K21-075/4	*	*	75	83	12	13
K21-075/1	*	*	75	85	12	13
K21-075/3	*	*	75	90	10	11
K21-075/2	*	*	75	90	12	13
K21-075/5	*	*	75	95	10	11
K21-075	*	*	75	95	12	13
K21-076	*	*	76.2	95.25	10	11
K21-078	*	*	78	88	5.0	6.0
K21-080/11	*	*	80	90	5.0	6.0
K21-080/4	*	*	80	90	5.4	6.4
K21-080/10	*	*	80	90	6.0	7.0
K21-080/7	*	*	80	90	7.0	8.0
K21-080/1	*	*	80	95	8.0	9.0
K21-080/2	*	*	80	95	9.0	10
K21-080/3	*	*	80	95	12	13
K21-080/5	*	*	80	100	10	11
K21-080	*	*	80	100	12	13
K21-080/8	*	*	80	100	15	16
K21-080/6	*	*	80	105	15	16
K21-082/1	*	*	82	92	10	11
K21-082/2	*	*	82	108	12	13
K21-082/3	*	*	82.55	101.6	14.8	15.8
K21-083	*	*	83	103	14	15
K21-084	*	*	84	103	14	15
K21-085/2	*	*	85	95	9.0	10
K21-085/8	*	*	85	100	9.0	10
K21-085/2	*	*	85	100	12	13
K21-085/9	*	*	85	100	25	26
K21-085/5	*	*	85	105	10	11
K21-085	*	*	85	105	12	13
K21-085/4	*	*	85	105	15	16
K21-085/6	*	*	85	110	12	13
K21-085/7	*	*	85	110	15	16
K21-086	*	*	86	105	16	17
K21-088	*	*	88.9	107.95	12.7	13.7
K21-090/10	*	*	90	100	6.8	7.8
K21-090/2	*	*	90	100	8.0	9.0
K21-090/8	*	*	90	105	7.5	8.5

** (İçeri ürünün malzemesini göstermektedir.)
 ** indicates product material

Kastas

KASTAŞ NO.	NBR	PU	d	D	b	B
K21-090/12	*	*	90	105	9.0	10
K21-090/7	*	*	90	105	12	13
K21-090/3	*	*	90	110	10	11
K21-090	*	*	90	110	12	13
K21-090/4	*	*	90	110	15	16
K21-090/5	*	*	90	112	12	13
K21-090/6	*	*	90	115	12	13
K21-090/11	*	*	90	120	15	16
K21-092	*	*	92.1	111.1	15	16
K21-095	*	*	95	103	12	13
K21-095/6	*	*	95	110	9.0	10
K21-095/1	*	*	95	110	10	11
K21-095/2	*	*	95	115	12	13
K21-095/3	*	*	95	115	15	16
K21-095/4	*	*	95	120	12	13
K21-095/5	*	*	95	125	15	16
K21-096	*	*	96	105	11	12
K21-100/5	*	*	100	110	5.0	6.0
K21-100/7	*	*	100	110	8.0	9.0
K21-100/4	*	*	100	120	10	11
K21-100/1	*	*	100	120	12	13
K21-100/2	*	*	100	120	15	16
K21-100	*	*	100	125	15	16
K21-100/6	*	*	100	130	15	16
K21-100/3	*	*	100	130	18	19
K21-101	*	*	101.6	127	19.5	20.5
K21-105/1	*	*	105	120	8.0	9.0
K21-105	*	*	105	130	15	16
K21-105/2	*	*	105	130	18	19
K21-107	*	*	107	127	16	17
K21-107/1	*	*	107.95	120.65	14	15
K21-107/2	*	*	107	130	15	16
K21-110/4	*	*	110	120	8.0	9.0
K21-110/2	*	*	110	125	12	13
K21-110/3	*	*	110	130	10	11
K21-110	*	*	110	135	18	19
K21-110/1	*	*	110	140	18	19
K21-111	*	*	111.1	130.1	15	16
K21-112	*	*	112	125	9.0	10
K21-115/4	*	*	115	123	12	13
K21-115/2	*	*	115	125	8.0	9.0
K21-115/6	*	*	115	125	15	16
K21-115/5	*	*	115	130	10	11
K21-115/3	*	*	115	135	15	16
K21-115	*	*	115	140	18	19
K21-120/2	*	*	120	132	10	11
K21-120/4	*	*	120	140	10	11
K21-120	*	*	120	145	18	19
K21-120/1	*	*	120	150	15	16
K21-120/3	*	*	120	150	18	19
K21-125/7	*	*	125	140	9.0	10
K21-125/3	*	*	125	140	11	12
K21-125/6	*	*	125	145	10	11
K21-125/4	*	*	125	145	15	16
K21-125/1	*	*	125	150	18	19
K21-125/2	*	*	125	154	20	21
K21-125/5	*	*	125	155	15	16
K21-125	*	*	125	155	18	19
K21-127	*	*	127	139.7	10	11
K21-127/1	*	*	127	151	16	17
K21-127/2	*	*	127	152.4	19.5	20.5
K21-130/2	*	*	130	140	8.0	9.0
K21-130	*	*	130	150	15	16
K21-130/3	*	*	130	160	15	16

*: İlgili ürünün malzemesini göstermektedir.
*: indicates product material.



KASTAŞ NO.	NBR	PU	d	D	b	B
K21-130/1	*	*	130	160	18	19
K21-133	*	*	133.3	152.5	15	16
K21-135	*	*	135	143	12	13
K21-135/1	*	*	135	150	15	16
K21-135/2	*	*	135	165	15	16
K21-140/2	*	*	140	160	8.0	9.0
K21-140/3	*	*	140	160	10	11
K21-140/1	*	*	140	160	15	16
K21-140/4	*	*	140	165	18	19
K21-140	*	*	140	170	18	19
K21-145	*	*	145	160	8.0	9.0
K21-145/3	*	*	145	165	15	16
K21-145/1	*	*	145	170	18	19
K21-145/2	*	*	145	175	18	19
K21-150/3	*	*	150	170	15	16
K21-150/4	*	*	150	180	15	16
K21-150	*	*	150	180	18	19
K21-152	*	*	152.4	177.8	19.5	20.5
K21-155	*	*	155	163	12	13
K21-155/1	*	*	155	175	15	16
K21-160/4	*	*	160	168	12	13
K21-160/6	*	*	160	169	13.5	14.5
K21-160/5	*	*	160	170	5.0	6.0
K21-160/1	*	*	160	180	15	16
K21-160	*	*	160	190	22	23
K21-160/3	*	*	160	195	17	18
K21-165	*	*	165	185	15	16
K21-168	*	*	168	180	14	15
K21-170/2	*	*	170	190	15	16
K21-170	*	*	170	200	15	16
K21-170/1	*	*	170	200	22	23
K21-175	*	*	175	215	20	21
K21-177	*	*	177.8	203.2	22.7	23.7
K21-180/1	*	*	180	200	15	16
K21-180/2	*	*	180	205	15	16
K21-180	*	*	180	210	22	23
K21-185	*	*	185	195	12	13
K21-185/1	*	*	185	200	9.0	10
K21-190/1	*	*	190	210	15	16
K21-190/2	*	*	190	215	20	21
K21-190	*	*	190	220	25	26
K21-196	*	*	196.85	228.6	25.8	26.8
K21-200/4	*	*	200	220	15	16
K21-200/6	*	*	200	230	15	16
K21-200/5	*	*	200	230	18	19
K21-200	*	*	200	230	22	23
K21-200/3	*	*	200	235	20	21
K21-200/2	*	*	200	240	20	21

*: İlgili ürünün malzemesini göstermektedir.
*: indicates product material.

KASTAŞ NO.	NBR	PU	d	D	b	B
K21-210	•	•	210	230	15	16
K21-210/1	•	•	210	240	18	19
K21-215	•	•	215	230	7.5	8.5
K21-215/1	•	•	215	245	18	19
K21-220/2	•	•	220	250	15	16
K21-220	•	•	220	250	20	21
K21-225/1	•	•	225	250	15	16
K21-225	•	•	225	250	18	19
K21-230	•	•	230	250	15	16
K21-230/1	•	•	230	260	18	19
K21-235	•	•	235	255	12	13
K21-240	•	•	240	260	16	17
K21-240/1	•	•	240	270	18	19
K21-250	•	•	250	270	15	16
K21-250/1	•	•	250	275	19	20
K21-250/3	•	•	250	280	18	19
K21-250/2	•	•	250	280	22	23
K21-260	•	•	260	290	18	19
K21-270	•	•	270	300	18	19
K21-270/1	•	•	270	300	22	23
K21-280/1	•	•	280	300	15	16
K21-280	•	•	280	310	15	16
K21-290/1	•	•	290	307	14	15
K21-290	•	•	290	310	12	13
K21-300/1	•	•	300	320	15	16
K21-300	•	•	300	330	17	18
K21-320	•	•	320	350	15	16
K21-360	•	•	360	420	30	31
K21-375	•	•	375	395	12	13

•• işaretli ürünün malzemesini göstermektedir.
 •• indicates product material.

Kastaş

K22 BOĞAZ NUTRİNGİ

Hidrolik silindirlerde çok yaygın bir kullanıma sahip olan K22 nutringlerimiz, standart olarak NBR 90 Shore A ve yüksek performanslı 92 Shore A Poliüretan malzemeden üretilmektedir. İç sızdırmazlık dudak yüksekliği daha düşük olan K22 boğaz nutringlerimiz özellikle boğaz uygulamalarında kullanılmak üzere dizayn edilmiştir. Özel uygulamalar için FKM (Viton) olarak özel sipariş kapsamında üretilmektedir.

K22 boğaz nutringlerimiz ile ilgili max. S (akma boşluğu) değerlerini, NBR nutringlerimiz için sayfa 28'deki Tablo-4'de, PU nutringlerimiz için ise sayfa 27'deki Tablo-3'de bulabilirsiniz.

Standart serimiz haricindeki ihtiyaçlarınızda, lütfen müşteri servisimize başvurunuz.

Çalışma Koşulları	NBR	PU
Ortam	Mineral yağlar (DIN 51524) HFA, HFB, HFC tipi yağlar	Mineral yağlar (DIN 51524) HFA, HFB, HFC tipi yağlar
Sıcaklık	-30°C ile +105°C	-30°C ile +100°C
Çalışma basıncı	≤150 Bar	≤400 Bar
Doğrusal hız	≤0.5 m/sn	≤0.5 m/sn

Yüzey Pürüzlülüğü	Ra	Rt
Sızdırmazlık yüzeyi	≤0.3 µm	≤3 µm
Kanal çapı	≤1.8 µm	≤10 µm
Yan yüzey	≤3 µm	≤16 µm

Kapalı Tip Keçe Kanallı Montaj İçin Min. Çap Değerleri

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

Not: Yukarıda verilen değerlerden daha düşük olanlar için parçaları pistonbaşı veya boğaz kullanılması önerilir.

K22 ROD NUTRING

Standardized with the materials of high performance PU 92 Shore A and NBR 90 Shore A, K22 s are used very widely in hydraulic cylinders. Having shorter inner sealing lip K22 nuttings are designed especially for rod applications. For special applications, they can also be manufactured with FKM (Viton) material, but considered as special production programme upon receipt of orders.

S, permissible gap values are given in table 4 (page 28) for NBR applications and in table 3 (page 27) for PU applications.

For needs out of standart dimensions, please apply our customer service.

Operating Conditions	NBR	PU
Media	Mineral oils (DIN 51524) Hydraulic fluids	Mineral oils (DIN 51524) Hydraulic fluids
Temperature	-30°C, +105°C	-30°C, +100°C
Operating pressure	≤150 Bar	≤400 Bar
Linear velocity	≤0.5 m/sn	≤0.5 m/sn

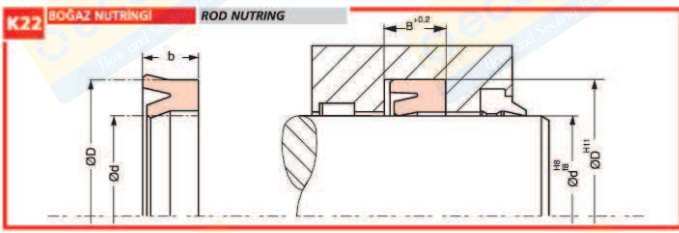
Surface Roughness	Ra	Rt
Sliding surface	≤0.3 µm	≤3 µm
Surface of housing	≤1.8 µm	≤10 µm
Sides of housing	≤3 µm	≤16 µm

Limited Dimensions for Snap in Fitting

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

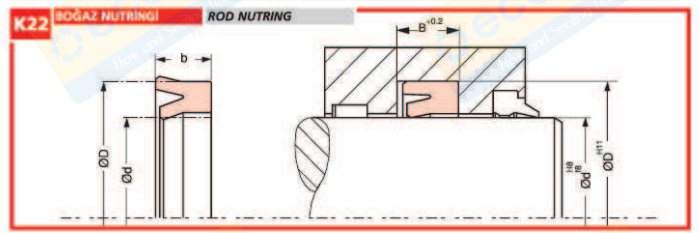
PS: Open seal housing is suggested for the values lower than given in above table.

K22 KASTAS



KASTAŞ NO.	NBR	PU	d	D	b	B
K22-003	•	•	3	7	3.0	3.5
K22-004/1	•	•	4	8	3.0	3.5
K22-004/3	•	•	4	9	3.5	4.0
K22-004/2	•	•	4	12	4.5	5.0
K22-006/1	•	•	6	10	3.0	3.5
K22-006	•	•	6	13	5.5	6.5
K22-008	•	•	8	14	4.0	4.5
K22-008/2	•	•	8	14	4.5	5.0
K22-008/1	•	•	8	16	6.0	7.0
K22-010/4	•	•	10	14	2.0	2.5
K22-010/2	•	•	10	14	4.0	4.5
K22-010/1	•	•	10	16	4.5	5.0
K22-010/3	•	•	10	16	6.0	7.0
K22-010	•	•	10	18	5.5	6.5
K22-012/6	•	•	12	16	3.0	3.5
K22-012/2	•	•	12	17	3.7	4.2
K22-012/4	•	•	12	18	4.5	5.0
K22-012/1	•	•	12	20	5.5	6.5
K22-012/3	•	•	12	22	5.0	6.0
K22-012/5	•	•	12	22	7.5	8.5
K22-012	•	•	12	22	8.0	9.0
K22-013/2	•	•	13	21.43	4.76	5.26
K22-013/1	•	•	13	23	8.0	9.0
K22-014	•	•	14	22	5.5	6.5
K22-015	•	•	15	23	6.0	7.0
K22-016/6	•	•	16	22	4.0	4.5
K22-016/1	•	•	16	22	4.5	5.0
K22-016/9	•	•	16	24	5.0	6.0
K22-016/3	•	•	16	24	5.5	6.5
K22-016/4	•	•	16	24	6.5	7.5
K22-016/8	•	•	16	26	5.0	6.0
K22-016/2	•	•	16	26	7.0	8.0
K22-018	•	•	18	24	5.0	6.0
K22-018/1	•	•	18	25	5.0	6.0
K22-018/3	•	•	18	28	7.0	8.0
K22-020/6	•	•	20	26	3.5	4.0
K22-020/4	•	•	20	28	5.5	6.5
K22-020	•	•	20	30	6.0	7.0
K22-020/8	•	•	20	30	7.0	8.0
K22-020/9	•	•	20	30	7.5	8.5
K22-020/7	•	•	20	30	8.0	9.0
K22-020/2	•	•	20	30	10	11
K22-020/10	•	•	20	32	6.0	7.0
K22-020/11	•	•	20	32	7.0	8.0
K22-020/3	•	•	20	32	7.5	8.5
K22-022/3	•	•	22	30	5.5	6.5
K22-022/2	•	•	22	30	7.0	8.0
K22-022/1	•	•	22	30	8.0	9.0

** İğareti ürünün malzemesini göstermektedir.
** Indicates product material.



KASTAŞ NO.	NBR	PU	d	D	b	B
K22-022	•	•	22	32	6.0	7.0
K22-023	•	•	23	31	5.5	6.5
K22-025/7	•	•	25	32	6.0	7.0
K22-025/10	•	•	25	33	5.5	6.5
K22-025/4	•	•	25	33	10	11
K22-025	•	•	25	35	6.0	7.0
K22-025/3	•	•	25	35	7.0	8.0
K22-025/9	•	•	25	35	7.5	8.5
K22-025/1	•	•	25	35	8.0	9.0
K22-025/8	•	•	25	35	10	11
K22-025/5	•	•	25	37	6.0	7.0
K22-025/6	•	•	25	40	10	11
K22-028/7	•	•	28	36	5.0	6.0
K22-028/4	•	•	28	36	5.5	6.5
K22-028	•	•	28	36	6.0	7.0
K22-028/6	•	•	28	38	7.0	8.0
K22-028/2	•	•	28	38	10	11
K22-030/6	•	•	30	38	5.7	6.7
K22-030/4	•	•	30	38	6.0	7.0
K22-030/3	•	•	30	38	6.3	7.3
K22-030/1	•	•	30	40	6.0	7.0
K22-030/2	•	•	30	40	7.0	8.0
K22-030	•	•	30	40	8.0	9.0
K22-030/7	•	•	30	42	8.5	9.5
K22-032	•	•	32	42	7.0	8.0
K22-034	•	•	34	44	7.0	8.0
K22-035/6	•	•	35	43	6.0	7.0
K22-035/4	•	•	35	45	6.0	7.0
K22-035/1	•	•	35	45	7.0	8.0
K22-035	•	•	35	45	8.0	9.0
K22-035/5	•	•	35	45	10	11
K22-035/3	•	•	35	50	8.0	9.0
K22-036	•	•	36	46	8.0	9.0
K22-036/2	•	•	36	46	10	11
K22-040/7	•	•	40	48	5.4	6.4
K22-040/9	•	•	40	48	5.8	6.8
K22-040/6	•	•	40	48	8.0	9.0
K22-040/2	•	•	40	50	7.0	8.0
K22-040/3	•	•	40	50	8.0	9.0
K22-040	•	•	40	50	10	11
K22-042	•	•	42	52	7.0	8.0
K22-045/3	•	•	45	55	7.0	8.0
K22-045	•	•	45	55	10	11
K22-045/4	•	•	45	60	7.0	8.0
K22-045/2	•	•	45	61	12	13
K22-050/5	•	•	45	65	10	11
K22-050/4	•	•	50	60	6.0	7.0
K22-050/3	•	•	50	60	7.0	8.0

** İğareti ürünün malzemesini göstermektedir.
** Indicates product material.

KASTAŞ NO.	NBR	PU	d	D	b	B
K22-050	•	•	50	60	10	11
K22-050/2	•	•	50.8	60.33	9.52	10.52
K22-050/7	•	•	50	62	8.0	9.0
K22-050/6	•	•	50	62	10	11
K22-050/3	•	•	50	65	10	11
K22-052	•	•	52	62	10	11
K22-055	•	•	55	65	10	11
K22-055/1	•	•	55	70	10	11
K22-056	•	•	56	68	8.5	9.5
K22-060/3	•	•	60	70	8.5	9.5
K22-060	•	•	60	70	10	11
K22-060/5	•	•	60	70	12	13
K22-060/4	•	•	60	72	8.5	9.5
K22-060/1	•	•	60	74	8.0	9.0
K22-060/2	•	•	60	75	12	13
K22-063	•	•	63	73	6.5	7.5
K22-063/2	•	•	63	75	8.5	9.5
K22-063/1	•	•	63.5	76.2	9.52	10.52
K22-065	•	•	65	75	10	11
K22-068	•	•	68	80	8.5	9.5
K22-069	•	•	69.85	82.5	9.52	10.52
K22-069/1	•	•	69.85	85	13	14
K22-070	•	•	70	80	12	13
K22-070/4	•	•	70	82	8.5	9.5
K22-070/1	•	•	70	85	10	11
K22-075	•	•	75	85	12	13
K22-075/1	•	•	75	95	12	13
K22-080	•	•	80	90	12	13
K22-080/1	•	•	80	92	9.5	10.5
K22-082	•	•	82.5	95.25	9.52	10.52
K22-082/1	•	•	82.5	98.5	13	14
K22-085/1	•	•	85	95	7.0	8.0
K22-085	•	•	85	95	12	13
K22-090	•	•	90	100	12	13
K22-095	•	•	95	105	12	13
K22-100	•	•	100	110	14	15
K22-100/1	•	•	100	115	9.0	10
K22-105	•	•	105	120	12	13
K22-115	•	•	115	125	12	13
K22-120	•	•	120	135	9.5	10.5
K22-120/2	•	•	120	140	14.6	15.6
K22-125	•	•	125	135	13.5	14.5
K22-125/1	•	•	125	145	12	13
K22-130	•	•	130	140	13.5	14.5
K22-135	•	•	135	145	12	13
K22-150	•	•	150	160	13.5	14.5
K22-155	•	•	155	165	12	13
K22-160	•	•	160	170	12	13
K22-170	•	•	170	180	14.5	15.5
K22-170/1	•	•	170	190	15	16
K22-180/1	•	•	180	200	12	13
K22-185	•	•	185	195	12	13
K22-200/1	•	•	200	225	15	16
K22-200	•	•	200	235	21	22
K22-210	•	•	210	240	28	29
K22-215	•	•	215	225	12	13
K22-240	•	•	240	250	12	13
K22-240/1	•	•	240	260	15	16
K22-245	•	•	245	290	25	26
K22-280	•	•	280	300	15	16

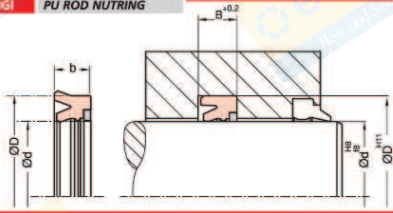
• işaretleri ürünün malzemesini göstermektedir.
• indicates product material.

Kastak

K32 PU BOĞAZ NUTRİNGİ		K32 PU ROD NUTRING	
K32 PU boğaz nutringlerimiz, 92 shore A sertlikte yüksek performanslı Poliüretan nutring ile POM destek ringinden oluşmaktadır.		They are made up of high performance 92 Shore A PU nuttings and POM back up ring.	
Boğaz uygulamaları için özel olarak dizayn edilen K32 boğaz nutringlerimiz, POM destek ringi sayesinde akma boşluğu nedeniyle oluşabilecek problemlerin önlenmesinde oldukça iyi sonuçlar vermektedir.		Designed specially for rod applications, our K32 rod nuttings operate excellent by the help of POM ring in preventing the problems caused by permissible gap.	
Standart serimiz haricindeki ihtiyaçlarınızda lütfen müşteri servisimize başvurunuz.		For needs out of standard dimensions, please apply our customer service.	
Çalışma Koşulları		Operating Conditions	
Ortam	Mineral yağlar (DIN 51524) HFA, HFB, HFC tipi yağlar	Media	Mineral oils (DIN 51524) Hydraulic oils HFA, HFB, HFC
Sıcaklık	-30°C ile +100°C Mineral yağlar ≤+40°C HFA, HFB, HFC	Temperature	-30°C, +100°C Mineral oils ≤+40°C HFA, HFB, HFC
Çalışma basıncı	≤400 Bar	Operating pressure	≤400 Bar
Doğrusal hız	≤0.5 m/sn	Linear velocity	≤0.5 m/sn
Yüzey Pürüzlülüğü		Surface Roughness	
Piston kolu	Ra ≤0.4µm Rt ≤2.0µm	Rod	Ra ≤0.4µm Rt ≤2.0µm
Keçe kanalı	Ra ≤1.6µm Rt ≤6.3µm	Housing surface	Ra ≤1.6µm Rt ≤6.3µm
Akma Boşluğu		Permissible Gap	
	Basınç (Bar)		Pressure (Bar)
	S (mm)		S (mm)
	100		100
	160		160
	250		250
	400		400
	1.0		1.0
	0.85		0.85
	0.75		0.75
	0.6		0.6

Kastaş

K32 PU BOĞAZ NUTRİNGİ PU ROD NUTRING



KASTAŞ NO.	d	D	b	B
K32-022 PU	22	30	6.0	7.0
K32-025 PU	25	35	5.0	6.0
K32-028 PU	28	38	6.0	7.0
K32-028/1 PU	28	35.5	5.0	6.0
K32-030 PU	30	40	8.0	9.0
K32-031 PU	31.75	38.1	6.05	7.1
K32-034 PU	34.92	41.27	6.35	7.35
K32-035 PU	35	45	8.0	9.0
K32-036 PU	36	46	8.0	9.0
K32-038 PU	38.1	44.45	6.35	7.35
K32-040 PU	40	50	10	11
K32-040/1 PU	40	52	12	13
K32-044/1 PU	44.45	50.8	6.35	7.35
K32-044 PU	44.45	53.97	9.52	10.5
K32-045 PU	45	55	10	11
K32-050 PU	50	60	10	11
K32-050/1 PU	50	62	8.0	9.0
K32-050/2 PU	50.8	57.15	6.35	7.35
K32-056 PU	56	71	10	11
K32-060 PU	60	70	10	11
K32-063 PU	63	75	8.0	9.0
K32-070 PU	70	80	10	11
K32-075 PU	75	85	12	13
K32-080 PU	80	90	12	13
K32-090 PU	90	100	12	13
K32-095 PU	95	105	12	13
K32-105 PU	105	115	12	13
K32-115 PU	115	125	12	13
K32-130 PU	130	140	12	13
K32-135 PU	135	145	12	13
K32-160 PU	160	170	12	13
K32-260 PU	260	280	14.6	15.6

K34 BOĞAZ KEÇESİ

K34 tipi boğaz keçelerimiz, hidrolik sistemde yüksek basınç, şoklar ve vibrasyon meydana gelen sistemlerde kullanıma uygundur.

K34 boğaz keçelerimiz, bir POM backup ring, bezli nitril veya termoplastik elastomer ring ve NBR çok dudaklı sızdırmazlık elemanından oluşmaktadır. Başlıca avantajları vibrasyon ve çok basınç olan sistemlerde çok iyi sızdırmazlık görevi üstlenmesi ve yüksek basınçlardaki mükemmel uyumu sayılabilir. Parçalı boğaz uygulamalarında kullanılır.

Standart serimiz haricindeki ihtiyaçlarınızda lütfen müşteri servisimize başvurunuz.

K34 ROD SEAL

They are rod seals and suitable to be used in the systems with high pressure, shocks, and vibration.

They consist of one POM back up ring, nitrile with fabric or thermoplastic elastomer ring and NBR sealing element with multi-lips. Some of the most significant advantages among others are its perfect sealing in the systems with vibration and shock pressure as well as its being perfect adaptation to high pressures. It is used for applications of rod open seal housing.

For needs out of standard dimensions, please apply our customer service.

Çalışma Koşulları

Ortam	Mineral yağlar, su HFA, HFB, HFC tipi yağlar
Sıcaklık	-30°C, +105°C
Çalışma basıncı	≤700 Bar
Kayma hızı	≤0.5 m/sn

Operating Conditions

Media	Mineral oils, water Hydraulic fluids HFA, HFB, HFC
Temperature	-30°C, +105°C
Operating pressure	≤700 Bar
Linear velocity	≤0.5 m/sn

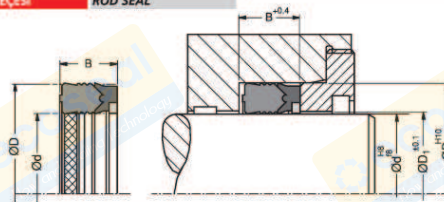
Yüzey Pürüzlülüğü

	Ra	Rt
Kayma yüzeyi	≤0.3 µm	≤4.0 µm
Yuva çapı	≤1.8 µm	≤10 µm
Yuva dişi	≤3.0 µm	≤16 µm

Surface Roughness

	Ra	Rt
Sliding surface	≤ 0.3µm	≤ 4.0µm
Housing surface	≤ 1.8µm	≤ 10µm
Endfaces seal housing	≤ 3.0 µm	≤ 16µm

K34 BOĞAZ KEÇESİ ROD SEAL



KASTAŞ NO.	d	D	B	D1
K34-035	35	47	22.5	35.4
K34-040	40	55	22.5	40.4
K34-045	45	60	22.5	45.4
K34-050	50	65	22.5	50.4
K34-055	55	70	22.5	55.4
K34-060	60	75	22.5	60.4
K34-070	70	85	22.5	70.4
K34-080	80	100	30	80.4
K34-090	90	110	30	90.4
K34-100	100	120	30	100.4
K34-115	115	130	30	115.7
K34-120	120	140	30	120.7

K35 BOĞAZ KEÇESİ

Özel karışımı teflon ring ve 70 shore NBR O'ring kombinasyonundan oluşan K35 dizaynımız, hidrolik silindirlere oldukça geniş bir kullanım alanına sahiptir. Yüksek kayma hızlarında da emniyetle kullanılabilen K35 dizaynı, itici ring olarak kullanılan O'ring malzemesinin değiştirilmesi sureti ile daha yüksek sıcaklık veya değişik akışkanlar içinde de çalışabilmektedir.

K35 boğaz keçelerimiz, profil dizaynı nedeniyle hidrolik sızdırmazlık sistemlerinde, hidrodinamik basınç problemi yaşamadan ön basınç ringi olarak da kullanılabilir.

Özel uygulamalarda özel karışım teflon ring ile FKM (Viton) O'ring kombinasyonu özel sipariş kapsamında değerlendirilmektedir.

Standart serimiz haricindeki ihtiyaçlarınızda lütfen müşteri servisimize başvurunuz.

Çalışma Koşulları

Ortam	Mineral yağlar (DIN 51524) HFA, HFB, HFC tipi yağlar
Sıcaklık	-30°C ile +105°C
Çalışma basıncı	≤400 Bar
Kayma hızı	≤5 m/sn

Yüzey Pürüzlülüğü

	Ra	Rt
Piston kolu	≤0.4 µm	≤2.0 µm
Keçe kanalı	≤1.6 µm	≤6.3 µm

Akma Boşluğu

Basınç (Bar)	S (mm)
100	0.4
200	0.25
300	0.2
400	0.15

K35 ROD SEAL

Produced with a combination of special compound PTFE ring and 70 shore NBR O'ring, our K35 design has a wide application area. Being able to be used safely at high linear velocity, K35 type seals can also work in higher temperatures or different liquids by means of changing O'ring used as pressure ring.

By the help of its profile design they can be used as header pressure ring in hydraulic systems without having the problem of hydro-dynamic pressure.

In special applications, the combination of special compound PTFE ring and FKM (Viton) is considered as special order.

For needs out of standard dimensions, please apply our customer service.

Operating Conditions

Media	Mineral oils (DIN 51524) Hydraulic fluids HFA, HFB, HFC
Temperature	-30°C, +105°C
Operating pressure	≤400 Bar
Linear velocity	≤5 m/sn

Surface Roughness

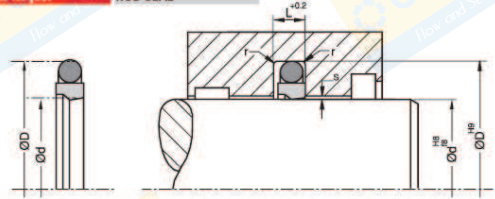
	Ra	Rt
Rod	≤0.4 µm	≤2.0 µm
Housing surface	≤1.6 µm	≤6.3 µm

Permissible Gap

Pressure (Bar)	S (mm)
100	0.4
200	0.25
300	0.2
400	0.15

K35 BOĞAZ KEÇESİ

ROD SEAL



KASTAŞ NO.	d	D	L	r	O'RING
K35-020/1	20	27.3	3.2	0.5	22.22 x 2.62
K35-020	20	30.7	4.2	0.5	24.99 x 3.53
K35-025	25	35.7	4.2	0.5	29.75 x 3.53
K35-030	30	40.7	4.2	0.5	34.52 x 3.53
K35-032	32	42.7	4.2	0.5	36.09 x 3.53
K35-035	35	45.7	4.2	0.5	37.69 x 3.53
K35-040	40	55.1	6.3	0.9	43.82 x 5.33
K35-045	45	60.1	6.3	0.9	50.16 x 5.33
K35-050	50	65.1	6.3	0.9	56.52 x 5.33
K35-055	55	70.1	6.3	0.9	59.69 x 5.33
K35-060	60	75.1	6.3	0.9	66.04 x 5.33
K35-065	65	80.1	6.3	0.9	69.22 x 5.33
K35-070	70	85.1	6.3	0.9	75.57 x 5.33
K35-075	75	90.1	6.3	0.9	81.92 x 5.33
K35-080	80	95.1	6.3	0.9	85.09 x 5.33
K35-085	85	100.1	6.3	0.9	91.44 x 5.33
K35-090	90	105.1	6.3	0.9	94.62 x 5.33
K35-095	95	110.1	6.3	0.9	100.97 x 5.33
K35-100	100	115.1	6.3	0.9	107.32 x 5.33
K35-110	110	125.1	6.3	0.9	116.84 x 5.33
K35-115	115	130.1	6.3	0.9	120.02 x 5.33
K35-120	120	135.1	6.3	0.9	126.57 x 5.33
K35-125	125	140.1	6.3	0.9	130.18 x 5.33
K35-130	130	145.1	6.3	0.9	135.89 x 5.33
K35-135	135	150.1	6.3	0.9	137.70 x 5.33
K35-140	140	155.1	6.3	0.9	145.42 x 5.33
K35-150	150	165.1	6.3	0.9	151.77 x 5.33
K35-160	160	175.1	6.3	0.9	164.47 x 5.33
K35-170	170	185.1	6.3	0.9	177.17 x 5.33
K35-180	180	195.1	6.3	0.9	183.52 x 5.33
K35-190	190	205.1	6.3	0.9	196.22 x 5.33
K35-200	200	220.5	8.1	0.9	208.92 x 6.99
K35-210	210	230.5	8.1	0.9	215.27 x 6.99
K35-240	240	260.5	8.1	0.9	240.67 x 6.99
K35-270	270	294	8.1	0.9	278.77 x 6.99
K35-280	280	304	8.1	0.9	291.47 x 6.99
K35-310	310	334	8.1	0.9	316.87 x 6.99

Kastas

K36 PİSTON BOĞAZ KEÇESİ

K36 piston boğaz keçelerimiz, Bezli NBR ve 80 Shore A NBR'den oluşan kompakt bir yapıya sahiptir. Bezli NBR, sahip olduğu yüksek kopma mukavemeti nedeniyle çalışma anında doğabilecek akma problemini engeller. Hem piston hem de boğaz uygulamalarında tek etkilili olarak kullanılan K36 piston boğaz keçelerimiz, max. 250 Bar basınçta emniyetle kullanılabilir.

Standart serimiz haricindeki ihtiyaçlarınızda lütfen müşteri servisimize başvurunuz.

Çalışma Koşulları

Ortam	Mineral yağlar (DIN 51524) HFA, HFB, HFC tipi yağlar
Sıcaklık	-30°C ile +105°C Mineral yağlar +5°C ile +60°C HFA, HFB -30°C ile +60°C HFC
Çalışma basıncı	≤250 Bar
Kayma hızı	≤0.5 m/sn

Yüzey Pürüzlülüğü	Ra	Rt
Kayma yüzeyi	≤0.3 µm	≤2.5 µm
Keçe kanalı	≤1.6 µm	≤6.3 µm

Max. Akma Boşluğu Basıncı (Bar)	S (mm)
150	0.2
250	0.1

K36 PİSTON ROD SEAL

Our K36 type of seal has a compact structure consisting of NBR impregnated fabric and 80 shore A NBR. Having high tensile strength NBR impregnated fabric prevents the possible permissible gap during operation. Being used as single acting seal in applications both for piston and rod, K36 type of seal can be used safely in a pressure of 250 Bar.

For needs out of standard dimensions, please apply our customer service.

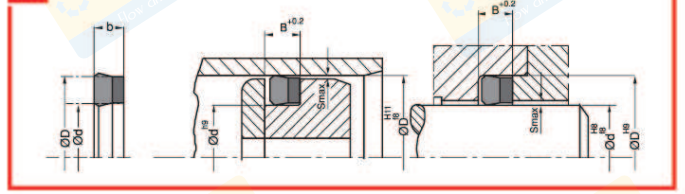
Operating Conditions

Media	Mineral oils (DIN 51524) Hydraulic fluids HFA, HFB, HFC
Temperature	-30°C, +105°C Mineral oils +5°C, +60°C HFA, HFB -30°C, +60°C HFC
Operating pressure	≤250 Bar
Linear velocity	≤0.5 m/sn

Surface Roughness	Ra	Rt
Sliding surface	≤0.3 µm	≤2.5 µm
Housing surface	≤1.6 µm	≤6.3 µm

Max. Permissible Gap	Pressure (Bar)	S (mm)
150	0.2	
250	0.1	

K36 PİSTON BOĞAZ KEÇESİ PİSTON ROD SEAL



KASTAŞ NO.	d	D	B	b
K36-004	4.76	12.7	6.35	6.0
K36-010	10	17	6.3	6.0
K36-010/1	10	19	6.3	6.0
K36-012	12	20	6.3	6.0
K36-014	14	22	6.3	6.0
K36-015	15	23	6.3	6.0
K36-016	16	24	6.3	6.0
K36-016/1	16	24	6.5	6.2
K36-018	18	26	6.3	6.0
K36-020/1	20	26	5.5	5.2
K36-020/2	20	27	6.5	6.2
K36-020	20	28	6.3	6.0
K36-020/3	20	28	7.0	6.7
K36-022	22	30	6.3	6.0
K36-022/1	22	30	6.5	6.2
K36-025	25	32	6.3	6.0
K36-025/2	25	33	6.0	5.7
K36-025/1	25	33	6.3	6.0
K36-025/3	25	35	8.3	8.0
K36-028	28	36	6.3	6.0
K36-028/1	28	43	11	10.7
K36-030/1	30	38	6.0	5.7
K36-030	30	38	6.3	6.0
K36-030/2	30	40	6.3	6.0
K36-030/4	30	40	7.0	6.7
K36-030/3	30	40	7.5	7.2
K36-030/5	30	50	14.5	14.2
K36-032	32	40	6.3	6.0
K36-032/1	32	44	12.5	12.2
K36-035/2	35	43	6.0	5.7
K36-035	35	43	6.3	6.0
K36-035/1	35	45	8.0	7.7
K36-036	36	44	6.3	6.0
K36-036/1	36	51	11	10.7
K36-038	38	50	9.5	9.2
K36-040	40	48	6.3	6.0
K36-040/2	40	48	8.0	7.7
K36-040/1	40	50	8.0	7.7
K36-042	42	50	6.3	6.0
K36-045	45	53	8.5	8.2
K36-045/1	45	55	8.0	7.7
K36-045/2	45	55	10.5	10.2
K36-045/4	45	57	9.5	9.2
K36-045/3	45	60	11	10.7
K36-046	46	56	8.0	7.7
K36-048	48	60	10	9.7
K36-050/1	50	60	7.5	7.2
K36-050	50	62	9.5	9.2

KASTAŞ NO.	d	D	B	b
K36-055	55	65	8.0	7.7
K36-055/1	55	67	10.5	10.2
K36-056	56	66	8.0	7.7
K36-056/1	56	76	14	13.7
K36-060/1	60	70	7.5	7.2
K36-060	60	70	8.0	7.7
K36-060/2	60	72	9.5	9.2
K36-060/3	60	80	12.5	12.2
K36-065	65	73	9.6	9.3
K36-065/1	65	77	9.6	9.3
K36-070	70	80	7.5	7.2
K36-070/2	70	82	9.0	8.7
K36-070/1	70	82	9.6	9.3
K36-070/4	70	85	8.0	7.7
K36-070/3	70	90	14	13.7
K36-075	75	87	9.3	9.0
K36-080	80	92	9.6	9.3
K36-080/1	80	96	10	9.7
K36-085	85	97	9.6	9.3
K36-090	90	102	9.6	9.3
K36-090/1	90	110	12.5	12.2
K36-100	100	115	12	11.7
K36-100/1	100	120	14	13.7
K36-110	110	125	12	11.7
K36-110/1	110	130	12	11.7

Kastax

K37 BOĞAZ KEÇESİ

K37 boğaz keçelerimiz, Bezli NBR, 80 shore A NBR ve POM destek ringinden oluşan kompakt bir yapıya sahiptir.

Boğaz uygulamaları için özel dizayn edilen K37 boğaz keçelerimiz, POM destek ringi sayesinde akma boşluğu nedeni ile oluşabilecek problemleri ortadan kaldıracak bir dizayna sahiptir.

Standart serimiz haricindeki ihtiyaçlarınızda lütfen müşteri servisimize başvurunuz.

Çalışma Koşulları

Ortam	Mineral yağlar (DIN 51524) HFA, HFB, HFC tipi yağlar
Sıcaklık	-30°C ile +105°C Mineral yağlar +5°C ile +60°C HFA, HFB -30°C ile +60°C HFC
Çalışma basıncı	≤400 Bar
Kayma hızı	≤0.5 m/sn

Yüzey Pürüzlülüğü

	Ra	Rt
Kayma yüzeyi	≤0.3µm	≤2.5µm
Keçe kanalı	≤1.6µm	≤6.3µm

Max. Akma Boşluğu Basınç (Bar) S (mm)

Basınç (Bar)	S (mm)
150	0.4
250	0.3
400	0.2

K37 ROD SEAL

Our K37 type of seal has a compact structure consisting of NBR impregnated fabric, 80 shore A NBR and POM support ring.

Being specially designed for rod applications and with its POM support ring, K37 rod seal has the feature of preventing possible problems due to the extrusion (permissible) gaps.

For needs out of standard dimensions, please apply our customer service.

Operating Conditions

Media	Mineral oils (DIN 51524) Hydraulic oils HFA, HFB, HFC
Temperature	-30°C, +105°C Mineral oils +5°C, +60°C HFA, HFB -30°C, +60°C HFC
Operating pressure	≤400 Bar
Linear velocity	≤0.5 m/sn

Surface Roughness

	Ra	Rt
Sliding surface	≤0.3µm	≤2.5µm
Housing surface	≤1.6µm	≤6.3µm

Max. Permissible Gap Pressure (Bar) S (mm)

Pressure (Bar)	S (mm)
150	0.4
250	0.3
400	0.2

Kastas

K37 BOĞAZ KEÇESİ ROD SEAL



KASTAŞ NO.	d	D	B	b
K37-006	6	14	6.5	6.2
K37-018	18	26	6.4	6.0
K37-020	20	30	8.0	7.7
K37-022/1	22	29	5.0	4.7
K37-022	22	32	7.5	7.2
K37-025/1	25	33	6.0	5.7
K37-025/2	25	35	8.0	7.7
K37-025	25	38	9.5	9.2
K37-028	28	38	8.0	7.7
K37-028/1	28	41	9.5	9.2
K37-030/1	30	38	6.5	6.2
K37-030/2	30	40	7.0	6.7
K37-030	30	40	10.5	10.2
K37-035	35	45	10.5	10.2
K37-035/1	35	50	10.5	10.2
K37-038	38	55	10.5	10.2
K37-040	40	50	10.5	10.2
K37-040/2	40	50	11	10.7
K37-040/1	40	55	10.5	10.2
K37-044	44.45	53.97	7.14	6.84
K37-045	45	55	10.5	10.2
K37-045/1	45	60	10.5	10.2
K37-050/3	50	60	10	9.7
K37-050/2	50	60	10.5	10.2
K37-050/1	50	62	10	9.7
K37-050	50	65	10.5	10.2
K37-055	55	65	10.5	10.2
K37-055/1	55	65	12	11.7
K37-056	56	66	10.5	10.2
K37-060	60	70	10.5	10.2
K37-060/1	60	70	12.5	12.2
K37-060/2	60	80	14	13.7
K37-065/1	65	75	12.5	12.2
K37-065	65	80	12.5	12.2
K37-070	70	80	12.5	12.2
K37-075	75	85	12.5	12.2
K37-075/1	75	90	11	10.7
K37-080	80	90	12.5	12.2
K37-080/1	80	100	12.5	12.2
K37-080/2	80	100	14	13.7
K37-085	85	100	12.5	12.2
K37-090	90	105	12.5	12.2
K37-090/1	90	110	12.5	12.2
K37-100	100	115	12.5	12.2
K37-100/1	100	120	14	13.7
K37-125	125	150	14	13.7

K38 PU BOĞAZ NUTRİNGİ

K38 PU boğaz nutringlerimiz, yüksek performanslı PU 92 shore A malzemeden üretilmektedir. Özellikle dar keçe kanalı için dize edilmiş nutringlerimiz, hidrolik silindirlere malzeme tasarrufu sağlamaktadır. Özel sızdırmazlık dudak yapısı ve dinamik yüzeydeki ikinci sızdırmazlık dudak ile düşük basınçlarda bile maksimum sızdırmazlık sağlamaktadır. Ayrıca ikinci sızdırmazlık dudak, toz keçesinin hasar görmesi durumunda atmosferden gelebilecek her türlü olumsuz partikülün sistem içerisine girmesini engeller. K38 PU boğaz nutringlerimiz, nutring dudaklı olmayan toz keçesi ile birlikte boğaz takozu kombinasyonu yapılarak rahatlıkla kullanılabilir.

Standart serimiz haricindeki ihtiyaçlarınızda lütfen müşteri servisimize başvurunuz.

Çalışma Koşulları

Ortam	Mineral yağlar (DIN 51524) HFA, HFB, HFC tipi yağlar
Sıcaklık	-30°C ile +100°C Mineral yağlar +5°C ile +50°C HFA, HFB -30°C ile +40°C HFC
Çalışma basıncı	≤400 Bar
Kayma hızı	≤0.5 m/sn

Yüzey Pürüzlülüğü

	Ra	Rt
Kayma yüzeyi	≤0.3µm	≤2.5µm
Keçe kanalı	≤2µm	≤10.0µm

Max. Akma Boşluğu (S)

(D-d)/2	150 Bar	250 Bar	300 Bar	400 Bar
≤4.0	0.3	0.25	0.2	0.15
>4.0	0.35	0.3	0.25	0.2

Kapalı Tip Keçe Kanalına Montaj İçin Min. Çap Değerleri

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

Not: Yukarıda verilen değerlerden daha düşük olanlar için parçaları pistonbağ veya boğaz kullanılması önerilir.

K38 PU ROD NUTRING

K38 seals are produced with high performance PU 92 Shore A material. Designed especially for narrow seal housing, our nutring provides material saving in hydraulic cylinders. With its special sealing lip and its second sealing lip on dynamic surface, it provides maximum sealing even in low pressure. In addition, this second sealing lip prevents all possible foreign particles from atmosphere to go into the system in case the wiper becomes destroyed. Together with the wipers (not double wipers), our K38 PU rod nutring can be used easily as combination of rod.

Please contact our customer service for your needs out of standard programme.

Operating Conditions

Media	Mineral oils (DIN 51524) Hydraulic oils HFA, HFB, HFC
Temperature	-30°C, +100°C Mineral oils +5°C, +50°C HFA, HFB -30°C, +40°C HFC
Operating pressure	≤400 Bar
Linear velocity	≤0.5 m/sn

Surface Roughness

	Ra	Rt
Sliding surface	≤0.3µm	≤2.5µm
Housing surface	≤2µm	≤10.0µm

Max. Permissible Gap (S)

(D-d)/2	150 Bar	250 Bar	300 Bar	400 Bar
≤4.0	0.3	0.25	0.2	0.15
>4.0	0.35	0.3	0.25	0.2

Limited Dimensions for Snap in Fitting

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

PS: Open seal housing is suggested for the values lower than given in above table.

K15 PİSTON KEÇESİ

K15 piston keçelerimiz, iki parçalı dizayna sahip olup 95 shore A PU sızdırmazlık ringi ile 70 Shore A NBR O'ringten oluşmaktadır. O'ring itici ring olarak görev yapmaktadır.

Hafif hizmet silindirelerinde max. 250 Bar basınçta emniyetle kullanılabilen çift etkili K15 piston keçelerimiz, montaj kolaylığı, az yer kaplama ve ekonomik fiyat avantajlarına sahiptir. Uzun stroklu silindirelerinde iki adet piston yataklama elemanı, kısa stroklu ve düşük radyal yüklü silindirelerinde ise bir adet yataklama elemanı ile birlikte kombinasyon yapılarak kullanılması tavsiye edilir.

Standart serimiz dışındaki ihtiyaçlarınızda lütfen müşteri servisimize başvurunuz.

Çalışma Koşulları

Ortam	Mineral yağlar (DIN 51524) HFA, HFB, HFC tipi yağlar
Sıcaklık	-30°C ile +100°C Mineral yağlar +5°C ile +50°C HFA, HFB -30°C ile +40°C HFC
Çalışma basıncı	≤250 Bar
Kayma hızı	≤0.5 m/sn

Yüzey Pürüzlülüğü

	Ra	Rt
Kayma yüzeyi	≤0.3 µm	≤2.5 µm
Keçe kanalı	≤1.6 µm	≤6.3 µm

K15 PİSTON SEALS

Having 2 parts design, our K15 piston seal consists of a sealing ring with 95 Shore A PU and a 70 Shore A NBR O'ring. The O'ring is used as a pressure ring.

Being used safely in light duty cylinders up to max. 250 Bar, our double acting K15 piston seals have the advantages of being easily assembled, occupying small area and economical prices. It is recommended that K15 type of seal must be used in combination of 2 piston guide rings in long stroke cylinders and of 1 guide ring in short stroke cylinders having lowers radial load.

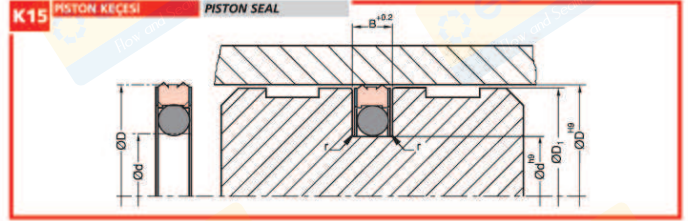
For your needs out of our standard programme please contact our customer service.

Operating Conditions

Media	Mineral oils (DIN 51524) Hydraulic fluids HFA, HFB, HFC
Temperature	-30°C, +100°C Mineral oils +5°C, +50°C HFA, HFB -30°C, +40°C HFC
Operating pressure	≤250 Bar
Linear velocity	≤0.5 m/sn

Surface Roughness

	Ra	Rt
Sliding surface	≤0.3 µm	≤2.5 µm
Housing surface	≤1.6 µm	≤6.3 µm



KASTAŞ NO.	D	d	D ₁	B	r
K15 016-008.5	16	8.5	15.5	3.2	0.6
K15 025-014	25	14	24.5	4.2	1.0
K15 030-022.5	30	22.5	29.5	3.2	0.6
K15 032-021	32	21	31.5	4.2	1.0
K15 040-029	40	29	39.5	4.2	1.0
K15 050-039	50	39	49.5	4.2	1.0
K15 060-049	60	49	59.5	4.2	1.0
K15 063-052	63	52	62.5	4.2	1.0
K15 070-059	70	59	69.5	4.2	1.0
K15 080-064.5	80	64.5	79.4	6.3	1.3
K15 080-069	80	69	79.5	4.2	1.0
K15 090-074.5	90	74.5	89.4	6.3	1.3
K15 100-084.5	100	84.5	99.4	6.3	1.3
K15 110-094.5	110	94.5	109.4	6.3	1.3
K15 120-104.5	120	104.5	119.4	6.3	1.3
K15 125-109.5	125	109.5	124.4	6.3	1.3
K15 130-114.5	130	114.5	129.4	6.3	1.3

Kastaş

K16 KOMPAKT SETLER

İki adet POM ring ve 1 adet dinamik çalışma yüzeyi bez ile güçlendirilmiş NBR ring olmak üzere toplam üç adet parçadan oluşan K16 kompakt setlerimiz, 400 Bar basınca kadar kullanılan çift etkili piston keçesidir. 0,5 m/sn max kayma hızında, -30°C ile 105°C arasında emniyetle kullanıma uygundur.

Standart serimiz haricindeki ihtiyaçlarınızda lütfen müşteri servisimize başvurunuz.

Çalışma Koşulları

Ortam	Mineral yağlar (DIN 51524) HFA, HFB, HFC Hidrolik yağlar
Sıcaklık	-30°C ile +105°C
Çalışma basıncı	≤400 Bar
Kayma hızı	≤0.5 m/sn

Yüzey Pürüzlülüğü	Ra	Rt
Kayma yüzeyi	≤0.4 µm	≤2 µm
Keçe kanalı	≤1.6 µm	≤6.3 µm

K16 COMPACT SEALS

Consisting of 2 POM Rings and 1 NBR Ring whose dynamic operating surface is reinforced by hard fabric, our K16 series compact seals are double acting piston seals enduring against a pressure of 400 bar. They can be used safely at a linear velocity of 0.5m/second and temperature between -30°C and 105°C.

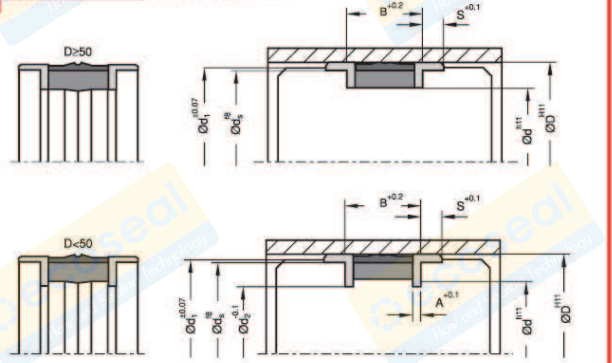
For needs out of standard dimensions, please apply our customer service.

Operating Conditions

Media	Mineral oils (DIN 51524) Hydraulic fluids HFA, HFB, HFC
Temperature	-30°C, +105°C
Operating pressure	≤400 Bar
Linear velocity	≤0.5 m/sn

Surface Roughness	Ra	Rt
Sliding surface	≤0.4 µm	≤2 µm
Housing surface	≤1.6 µm	≤6.3 µm

K16 KOMPAKT SET COMPACT SEALS



KASTAŞ NO.	D	d	B	ds	d ₁	d ₂	A	S	Montaj Tavsiyesi / Fitting Advice
K16 025-017	25	17	13.5	21	24.4	14	2.1	3.20	P.P.
K16 030-022	30	22	13.5	26	29.4	19	2.1	3.20	P.P.
K16 032-024	32	24	15.5	28	31.4	21	3.1	3.20	P.P.
K16 035-027	35	27	15.5	31	34.4	24	3.1	3.20	P.P.
K16 040-032	40	32	15.5	36	39.4	29	3.1	3.20	T.P.
K16 045-037	45	37	15.5	41	44.4	34	3.1	3.20	T.P.
K16 050-038	50	38	20.5	46	49.4	-	-	4.20	P.P.
K16 060-048	60	48	20.5	56	59.4	-	-	4.20	P.P.
K16 063-051	63	51	20.5	59	62.4	-	-	4.20	T.P.
K16 070-058	70	58	20.5	66	69.4	-	-	4.20	T.P.
K16 080-065	80	65	20.0	76	79.4	-	-	4.20	T.P.
K16 080-066	80	66	22.5	76	79.4	-	-	5.20	T.P.
K16 085-071	85	71	22.5	81	84.4	-	-	5.20	T.P.
K16 090-076	90	76	22.5	86	89.4	-	-	5.20	T.P.
K16 100-086	100	86	22.5	96	99.4	-	-	5.20	T.P.
K16 110-096	110	96	22.5	106	109.4	-	-	5.20	T.P.
K16 120-106	120	106	22.5	116	119.4	-	-	5.20	T.P.
K16 125-103	125	103	26.5	121	124.4	-	-	7.20	T.P.
K16 125-108	125	108	26.5	121	124.4	-	-	7.20	T.P.
K16 140-123	140	123	26.5	136	139.4	-	-	7.20	T.P.
K16 150-133	150	133	26.5	146	149.4	-	-	7.20	T.P.
K16 160-140	160	140	25.0	156	159.4	-	-	7.20	T.P.
K16 160-143	160	143	26.5	156	159.4	-	-	7.20	T.P.
K16 180-163	180	163	26.5	176	179.4	-	-	7.20	T.P.
K16 200-180	200	180	31.5	196	199.4	-	-	9.20	T.P.
K16 220-200	220	200	31.5	216	219.4	-	-	9.20	T.P.
K16 250-230	250	230	31.5	246	249.4	-	-	9.20	T.P.

P.P. : Parçalı piston / Open seal housing T.P. : Tek parça / Groove seal housing

K17 PISTON KEÇESİ

K17 piston keçelerimiz, iki parçalı dizayna sahiptir ve özel karışım teflon ring ve itici ring olarak kullanılan O'ringden oluşmaktadır. Bu dizayn, çift tesirli silindirede 400 bar basınca kadar emniyetle kullanıma uygundur. Diğer sızdırmazlık sistemlerine göre önemli sayılabilecek avantajları, kayma hızının 5 m/s'nin gibi çok yüksek bir değere ulaşabilmesi, uzun statik duruşlarda yapışmama özelliğinin bulunması, sürtünme direncinin çok düşük olması, yüksek ısı ve çok geniş kimyasal akışkanlara dayanım özelliğinin bulunması, pistonun tek parça ve küçük olmasını sağlayabilmektedir. İtici ring olarak kullanılan O'ring malzemesini değişik kombinasyonlarda kullanarak (örn. FKM) hemen hemen her türlü probleme çözüm bulmak olasıdır.

Standart serimiz haricindeki ihtiyaçlarınızda lütfen müşteri servisimize başvurunuz.

Çalışma Koşulları

Ortam	Mineral yağlar (DIN 51524)
	HFA, HFB, HFC tipi yağlar
Sıcaklık	-30°C ile +105°C
Çalışma basıncı	≤400 Bar
Kayma hızı	≤5 m/sn

Yüzey Pürüzlülüğü

	Ra	Rt
Kayma yüzeyi	≤0.4 µm	≤2.0 µm
Keçe kanalı	≤1.6 µm	≤6.3 µm

K17 PISTON SEAL

K17 piston seals have designs in 2 parts consisting of special compound PTFE Ring and O'rings used as pressure ring. This design is suitable up to a pressure of 400 bar in double acting cylinders. The advantages compared with other sealing systems are linear velocity reaching at 5 m/s, non-stick slip feature in long static use, low friction endurance, durability against high temperatures and big variety of chemical liquids, providing piston as one part and small. By using O'rings, used as pressure ring, in different combinations it is possible to solve all sorts of problems (e.g. FKM).

For needs out of standard dimensions, please apply our customer service.

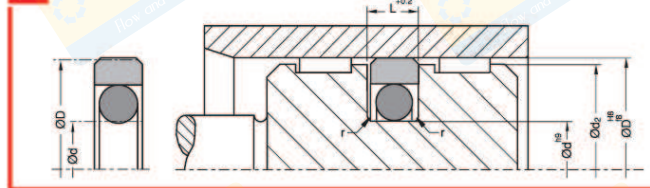
Operating Conditions

Media	Mineral oils (DIN 51524)
	Hydraulic fluids HFA, HFB, HFC
Temperature	-30°C, +105°C
Operating pressure	≤400 Bar
Linear velocity	≤5 m/sn

Surface Roughness

	Ra	Rt
Sliding surface	≤0.4 µm	≤2.0 µm
Housing surface	≤1.6 µm	≤6.3 µm

K17 PISTON KEÇELERİ PISTON SEALS



KASTAŞ NO	D	d	L	d ₂	r	O'RING
K17 032-024.5	32	24.5	3.2	29.6	0.5	23.47 x 2.62
K17 040-029	40	29	4.2	39.6	0.5	28.17 x 3.53
K17 050-039	50	39	4.2	49.6	0.5	37.69 x 3.53
K17 055-044	55	44	4.2	54.6	0.5	44.04 x 3.53
K17 060-049	60	49	4.2	59.6	0.5	47.22 x 3.53
K17 063-052	63	52	4.2	62.6	0.5	50.39 x 3.53
K17 065-054	65	54	4.2	64.6	0.9	53.57 x 3.53
K17 070-059	70	59	4.2	69.6	0.9	56.74 x 3.53
K17 075-064	75	64	4.2	74.6	0.9	63.09 x 3.53
K17 080-064.5	80	64.5	6.3	79.6	0.9	62.87 x 5.33
K17 085-069.5	85	69.5	6.3	84.6	0.9	69.22 x 5.33
K17 090-074.5	90	74.5	6.3	89.6	0.9	72.40 x 5.33
K17 095-079.5	95	79.5	6.3	94.6	0.9	78.74 x 5.33
K17 100-079	100	79	8.1	99.5	0.9	77.7
K17 100-084.5	100	84.5	6.3	99.6	0.9	81.92 x 5.33
K17 115-094	115	94	8.1	114.5	0.9	92.7
K17 120-099	120	99	8.1	119.5	0.9	97.7
K17 125-104	125	104	8.1	124.5	0.9	102.7
K17 125-109.5	125	109.5	6.3	124.6	0.9	107.32 x 5.33
K17 130-109	130	109	8.1	129.5	0.9	107.7
K17 140-119	140	119	8.1	139.5	0.9	116.84 x 6.99
K17 150-129	150	129	8.1	149.5	0.9	126.37 x 6.99
K17 160-139	160	139	8.1	159.5	0.9	135.89 x 6.99
K17 170-149	170	149	8.1	169.5	0.9	148.59 x 6.99
K17 180-159	180	159	8.1	179.5	0.9	158.12 x 6.99
K17 190-169	190	169	8.1	189.5	0.9	164.47 x 6.99
K17 200-179	200	179	8.1	199.5	0.9	177.17 x 6.99
K17 210-189	210	189	8.1	209.5	0.9	183.52 x 6.99
K17 225-204	225	204	8.1	224.5	0.9	202.57 x 6.99
K17 230-209	230	209	8.1	229.5	0.9	202.57 x 6.99
K17 240-219	240	219	8.1	229.5	0.9	215.27 x 6.99
K17 250-229	250	229	8.1	229.5	0.9	227.97 x 6.99
K17 260-239	260	239	8.1	259.5	0.9	234.32 x 6.99
K17 280-259	280	259	8.1	279.5	0.9	253.57 x 6.99
K17 300-279	300	279	8.1	229.5	0.9	278.77 x 6.99
K17 320-299	320	299	8.1	319.5	0.9	291.47 x 6.99

KASTAS

K18 KOMPAKT SETLER

K18 serisinde beş parçalı bir dizayna sahip olan kompakt setlerimiz, max. 400 bar basınçta çift tesirli silindirede piston geçesi olarak kullanılır.

K18 kompakt setlerimiz, ortada üç adet sızdırmazlık dudakına sahip NBR ring, her iki yanında akma boşluğunu azaltmak amacı ile kullanılan iki adet Polyester Elastomer backup ring ve bunların da yanlarında yataklama vazifesi gören iki adet POM ringden oluşmaktadır. Görüleceği üzere bu dizaynda bütün sızdırmazlık görevi NBR ring tarafından yapılmaktadır. Kullanım sırasında hataya düşmemek için piston ölçülerinin katalogumuzdaki ölçü ve toleranslarda olma gerekliliği vardır. Örneğin katalogta belirtilen ölçüsünün yanlış işlenmesi, keçenin çalışmamasına ya da kullanım ömrünün önemli ölçüde azalmasına neden olabilir. NBR ring haricindeki diğer parçaların kesik olması çok büyük bir montaj kolaylığı getirir. Özel uygulamalarda viton ring ve bronzlu teflon ringlerden oluşan bir kombinasyon da yapılabilir.

Standart serimiz haricindeki ihtiyaçlarınızda lütfen müşteri servisimize başvurunuz.

Çalışma Koşulları

Ortam	Mineral yağlar (DIN 51524) HFA, HFB, HFC tipi yağlar
Sıcaklık	-30°C ile +105°C
Çalışma basıncı	≤400 Bar
Kayma hızı	≤0.5 m/sn

Yüzey Pürüzlülüğü	Ra	Rt
Kayma yüzeyi	≤0.4 µm	≤2 µm
Keçe kanalı	≤1.6 µm	≤6.3 µm

K18 COMPACT SEALS

With 5 parts design our K18 compact seals are used as piston seal for double acting cylinders at maximum 400 bar.

K18 has a NBR ring, having 3 sealing lips, in the middle; 2 Polyester Elastomer back up rings used for decreasing permissible gap in both sides; 2 POM rings as guide besides them. As seen in this design, sealing operation is carried out by NBR ring. To avoid of any mistakes while using the seal, the measures for piston should be in the tolerances given in catalogue. For example, misusing of its measure results in failure of the seals or decreasing the working life of it. Having all the parts cutted except NBR ring provides easy assembly of the seal. For special applications, a combination of viton and PTFE rings can be used.

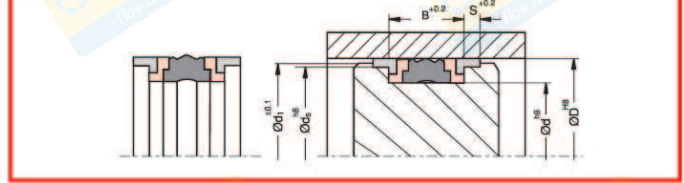
For needs out of standard dimensions, please apply our customer service.

Operating Conditions

Media	Mineral oils (DIN 51524) Hydraulic fluids HFA, HFB, HFC
Temperature	-30°C, +105°C
Operating pressure	≤400 Bar
Linear velocity	≤0.5 m/sn

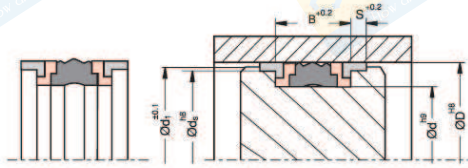
Surface Roughness	Ra	Rt
Sliding surface	≤0.4 µm	≤2 µm
Housing surface	≤1.6 µm	≤6.3 µm

K18 KOMPAKT SET COMPACT SEALS



KASTAS NO.	D	d	B	ds	d1	S
K18 025-015	25	15	16.40	21.45	23.50	6.35
K18 025-016	25	16	13.50	22.00	24.00	2.10
K18 030-017	30	17	15.40	26.50	28.50	6.35
K18 032-022/1	32	22	15.50	28.00	31.00	2.60
K18 032-022	32	22	16.40	28.50	30.50	6.35
K18 032-024/1	32	24	10.00	29.00	31.00	4.00
K18 032-024	32	24	15.50	28.00	31.00	3.10
K18 035-025	35	25	16.40	31.40	33.50	6.35
K18 038-1-025.4	38.1	25.4	15.87	34.54	37.08	6.35
K18 040-024	40	24	18.40	35.40	38.50	6.35
K18 040-026	40	26	15.50	36.00	39.00	2.60
K18 040-030/1	40	30	12.50	37.00	39.00	4.00
K18 040-030	40	30	16.40	35.40	38.50	6.35
K18 040-032	40	32	15.50	36.00	39.40	3.20
K18 044.4-028.57	44.45	28.57	19.05	39.85	43.12	6.35
K18 045-029	45	29	18.40	40.40	43.50	6.35
K18 045-031	45	31	15.50	41.00	44.00	2.60
K18 045-035	45	35	16.40	40.40	43.50	6.35
K18 050.8-034.92	50.8	34.92	19.05	46.23	49.48	6.35
K18 050-034/1	50	34	18.40	45.41	48.66	6.35
K18 050-034	50	34	20.50	46.00	49.00	3.10
K18 050-035	50	35	20.00	46.00	48.50	5.00
K18 050-038	50	38	20.50	46.00	49.40	4.20
K18 050-040	50	40	12.50	47.00	49.00	4.00
K18 055-039/1	55	39	18.40	50.37	53.65	6.35
K18 055-039	55	39	20.50	51.00	54.00	3.10
K18 057.15-041.27	57.15	41.27	19.45	52.55	55.80	6.35
K18 060-044/1	60	44	18.40	55.39	58.65	6.35
K18 060-044	60	44	20.20	56.00	59.00	3.10
K18 060-048	60	48	20.50	56.00	59.40	4.20
K18 063.5-047.62	63.5	47.62	19.05	58.90	62.12	6.35
K18 063-047/1	63	47	18.40	58.39	61.63	6.35
K18 063-047/2	63	47	19.40	58.40	61.50	6.35
K18 063-047	63	47	20.50	59.00	62.00	3.10
K18 063-048	63	48	20.00	59.00	61.50	5.00
K18 063-051	63	51	20.50	59.00	62.40	4.20
K18 065-049	65	49	20.50	61.00	64.00	3.10
K18 065-050	65	50	18.40	60.41	63.64	6.35
K18 067-051	67	51	18.40	62.40	65.60	6.35
K18 066.67-050.8	66.67	50.8	19.05	62.10	65.27	6.35
K18 070-050	70	50	22.40	64.18	68.34	6.35
K18 070-054	70	54	20.50	66.00	69.00	3.10
K18 070-058	70	58	20.50	66.00	69.40	4.20
K18 075-055	75	55	22.40	69.20	73.30	6.35
K18 075-059	75	59	20.50	71.00	74.00	3.10
K18 076.2-057.15	76.2	57.15	23.80	70.38	74.50	6.35
K18 080-060	80	60	22.40	74.15	78.30	6.35
K18 080-062	80	62	22.50	76.00	79.00	3.60

K18 KOMPAKT SET COMPACT SEALS



KASTAŞ NO.	D	d	B	ds	d1	S
K18 080-066	80	66	22.40	76.00	79.40	5.20
K18 082.55-063.5	82.55	63.5	24.21	76.73	80.90	6.35
K18 085-065	85	65	22.40	79.15	83.30	6.35
K18 085-065/1	85	65	21.40	79.15	83.30	6.35
K18 088.9-069.85	88.9	69.85	24.21	83.08	87.22	6.35
K18 090-070	90	70	22.40	84.15	88.30	6.35
K18 090-072	90	72	22.50	86.00	89.00	3.20
K18 090-072/1	90	72	22.50	86.00	89.00	3.60
K18 090-076	90	76	22.40	86.00	89.40	5.20
K18 095-075	95	75	22.40	89.15	93.31	6.35
K18 095-081	95	81	22.40	91.00	94.40	5.20
K18 100-075	100	75	22.40	93.13	98.00	6.35
K18 100-080	100	80	25.40	95.00	98.00	6.35
K18 100-080/1	100	80	35.00	92.61	97.51	9.52
K18 100-082	100	82	22.50	96.00	99.00	3.60
K18 100-085	100	85	20.00	96.00	98.50	5.00
K18 100-086	100	86	22.40	96.00	99.40	5.20
K18 101.6-082.55	101.6	82.55	23.80	95.76	100.07	6.35
K18 105-080	105	80	22.40	98.10	103.00	6.50
K18 105-080/1	105	80	22.40	98.10	103.00	6.35
K18 107.95-088.9	107.95	88.9	23.80	102.08	106.23	6.35
K18 110-085	110	85	22.40	103.10	108.00	6.35
K18 110-090	110	90	35.00	102.60	107.51	9.52
K18 110-092	110	92	22.50	106.00	109.00	3.60
K18 110-096	110	96	22.40	106.00	109.40	5.20
K18 114.3-088.9	114.3	88.9	31.75	107.42	112.33	6.35
K18 115-090	115	90	22.40	108.10	113.02	6.35
K18 115-097	115	97	22.40	111.00	114.00	4.20
K18 115-097/1	115	97	22.50	111.00	114.00	3.60
K18 115-101	115	101	22.40	111.00	114.40	5.20
K18 120-095	120	95	22.40	113.1	118.00	6.35
K18 120-106	120	106	22.40	116.00	119.40	5.20
K18 125-100	125	100	25.40	118.10	123.00	6.35
K18 125-100/1	125	100	45.00	116.82	122.33	12.70
K18 125-103	125	103	26.50	121.00	124.00	5.10
K18 125-105	125	105	25.40	120.00	123.00	6.35
K18 125-108	125	108	26.50	121.00	124.40	7.20
K18 127-101.6	127	101.6	32.15	120.09	124.98	9.52
K18 130-105/1	130	105	25.40	123.10	128.00	9.52
K18 130-105	130	105	25.40	123.10	128.00	6.35
K18 130-105/2	130	105	25.40	122.60	127.50	6.35
K18 133.35-107.95	133.35	107.95	31.75	126.42	131.30	6.35
K18 135-110	135	110	25.40	127.60	132.50	9.52
K18 135-110/1	135	110	25.40	128.10	133.00	6.35
K18 140-115	140	115	25.40	132.60	137.50	6.35
K18 140-115/1	140	115	25.40	132.60	137.50	9.52
K18 140-115/2	140	115	25.40	133.00	138.00	6.35
K18 140-115/4	140	115	45.00	131.70	137.36	12.70

Kastax

KASTAŞ NO.	D	d	B	ds	d1	S
K18 140-118	140	118	26.50	136.00	139.00	5.10
K18 140-123	140	123	26.50	136.00	139.40	7.20
K18 145-120	145	120	25.40	137.60	142.50	9.52
K18 150-125	150	125	25.40	142.60	147.50	9.50
K18 150-125/1	150	125	25.40	143.00	148.00	6.35
K18 150-128	150	128	26.50	146.00	149.00	5.10
K18 152.4-127	152.4	127	31.75	145.00	149.91	9.52
K18 155-130/1	155	130	25.40	147.60	152.50	9.52
K18 155-130	155	130	25.40	148.00	153.00	6.35
K18 160-130/1	160	130	25.40	152.60	157.50	9.52
K18 160-130	160	130	25.40	153.00	157.50	6.35
K18 160-130/2	160	130	25.40	153.00	157.50	9.52
K18 160-135	160	135	25.40	152.60	157.50	9.52
K18 160-135/1	160	135	45.00	151.72	157.10	12.70
K18 160-138	160	138	26.50	156.00	159.00	5.10
K18 160-143	160	143	26.50	156.00	159.40	7.20
K18 165-140	165	140	25.40	157.60	162.50	9.52
K18 170-145	170	145	25.40	161.72	167.10	12.70
K18 177.8-152.4	177.8	152.4	31.75	170.51	175.52	9.52
K18 180-150	180	150	35.40	172.95	177.87	6.35
K18 180-155	180	155	25.40	171.72	177.10	12.70
K18 180-158	180	163	26.50	176.00	179.00	5.10
K18 180-163	180	163	26.50	176.00	179.40	7.20
K18 185-160	185	160	25.40	176.72	182.10	12.70
K18 190-165	190	165	25.40	181.72	187.05	12.70
K18 195-170	195	170	25.40	187.10	192.05	12.70
K18 200-170	200	170	35.40	193.00	198.00	6.35
K18 200-175/1	200	175	25.40	191.62	197.00	12.70
K18 200-175	200	175	31.50	196.00	199.00	6.60
K18 200-180	200	180	31.50	196.00	199.40	9.20
K18 203.2-177.8	203.2	177.8	31.75	196.16	201.18	9.52
K18 203.2-171.45	203.2	171.45	38.10	195.09	201.17	8.00
K18 210-185	210	185	25.40	201.62	207.00	12.70
K18 220-190	220	190	35.40	212.70	217.90	6.35
K18 220-190/1	220	190	35.40	213.50	217.90	6.35
K18 220-200	220	200	31.50	216.00	219.40	9.20
K18 230-205	230	205	25.40	221.62	227.00	12.70
K18 240-215	240	215	25.40	231.62	237.00	12.70
K18 250-220	250	220	35.40	242.90	247.85	6.35
K18 250-225	250	225	25.40	241.62	247.00	12.70
K18 250-230	250	230	31.50	246.00	249.40	9.20
K18 280-250/1	280	250	35.40	272.90	277.85	9.52
K18 280-250	280	250	36.40	273.00	278.00	10.00

KASTAS

K19 AĞIR HİZMET PİSTON KEÇESİ

K19 ağır hizmet piston keçelerimiz, çift etkili, hidrolik silindirlere ağır hizmet koşulları için dizayn edilmiş sızdırmazlık elemanlarıdır. K19 piston keçelerimiz, PTFE ring, iki adet POM destek ringi ve itici ring olarak kullanılan NBR ringin kombinasyonu ile oluşmaktadır. Basit dizaynı, yüksek kayma hızı değerleri, uzun statik duruşlarda yüzeye yapışmama özelliği, sürtünme direncinin düşüklüğü, uzun servis ömrü ve akma boşluğunun geniş aralıklarda olması başlıca avantajlarıdır. Bu nedenlerden dolayı, iş makineleri ve ağır koşullarda iyi sonuçlar alınmaktadır.

Yüksek sıcaklık dayanımı ve çeşitli kimyasallara dayanımı oluşturmak amacıyla özel sipariş kapsamında PTFE destek ringleri ve FKM (Viton) malzemeden yapılacak itici ring ile sağlanmaktadır.

Standart serimiz haricindeki ihtiyaçlarınızda lütfen müşteri servisimize başvurunuz.

K19 HEAVY DUTY PISTON SEAL

K19 heavy duty piston seals are designed for double acting hydraulic cylinders used in heavy duty applications. They consist of PTFE ring, 2 POM support rings and NBR pressure ring. Some advantages are its simple design, high linear velocity values, non-bonding property on the surface in long static cases, low friction, wider permissible gaps and long life service. Therefore, K19's are very suitable for heavy duty applications.

For high temperature and resisting against some chemicals, Viton (FKM) pressure ring in combination with PTFE support rings are used, but produced upon receipt of special orders.

For needs out of standard dimensions, please apply our customer service.

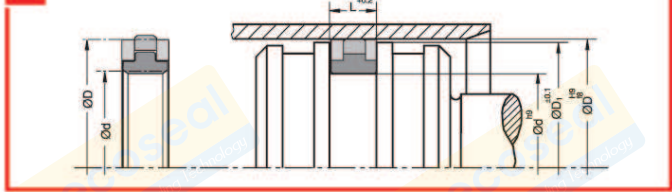
Çalışma Koşulları

Ortam	Mineral yağlar (DIN 51524) HFA, HFB, HFC Hidrolik yağlar
Sıcaklık	-30°C ile +105°C
Çalışma basıncı	≤400 Bar
Kayma hızı	≤1.5 m/sn

Operating Conditions

Media	Mineral oils (DIN 51524) Hydraulic fluids HFA, HFB, HFC
Temperature	-30°C, +105°C
Operating pressure	≤400 Bar
Linear velocity	≤1.5 m/sn

K19 AĞIR HİZMET PİSTON KEÇESİ HEAVY DUTY PISTON SEALS



KASTAŞ NO	D	d	D ₁	L	r
K19 050-036	50	36	49.4	9	0.3
K19 060-046	60	46	59.4	9	0.3
K19 070-055	70	55	69.4	11	0.5
K19 080-065	80	65	79.4	11	0.5
K19 090-075	90	75	89.4	11	0.5
K19 100-085	100	85	99.4	12.5	0.5
K19 110-095	110	95	109.4	12.5	0.5
K19 120-105	120	105	119.4	12.5	0.5
K19 125-102	125	102	124.4	16	0.6
K19 130-107	130	107	129.4	16	0.6
K19 140-117	140	117	139.4	16	0.6
K19 150-127	150	127	149.4	16	0.6
K19 160-137	160	137	159.4	16	0.6
K19 170-147	170	147	169.4	16	0.6
K19 180-157	180	157	179.4	16	0.6

K23 PISTON NUTRİNGLER

Hidrolik silindirlere çok yaygın bir kullanıma sahip olan K23 nutringlerimiz, standart olarak NBR 90 Shore A ve yüksek performanslı 92 Shore A Poliüretan malzemeden üretilmektedir. Dış sızdırmazlık dudak yüksekliği daha düşük olan K23 piston nutringlerimiz, özellikle piston uygulamalarında kullanılmak üzere dizayn edilmiştir. Özel uygulamalar için FKM (Viton) olarak özel sipariş kapsamında üretilmektedir.

K23 piston nutringlerimiz ile ilgili max. S (akma boşluğu) değerlerini, NBR nutringlerimiz için sayfa 28'deki Tablo-4'de, PU nutringlerimiz için ise sayfa 27'deki Tablo-3'de bulabilirsiniz.

Standart serimiz haricindeki ihtiyaçlarınızda, lütfen müşteri servisimize başvurunuz.

K23 PISTON NUTRINGS

Standardized with the materials of high performance PU 92 Shore A and NBR 90 Shore A, K23's are used very widely in hydraulic cylinders. Having shorter outer sealing lip K23 nuttings are designed especially for piston applications. For special applications, they can also be manufactured with FKM (Viton) material, but considered as special production programme upon receipt of orders.

S, permissible gap values are given in table 4 (page 28) for NBR applications and in table 3 (page 27) for PU applications.

For needs out of standard dimensions, please apply our customer service.

Çalışma Koşulları

	NBR	PU
Ortam	Mineral yağlar (DIN 51524) HFA, HFB, HFC tipi yağlar	Mineral yağlar (DIN 51524) HFA, HFB, HFC tipi yağlar
Sıcaklık	-30°C ile +105°C	-30°C ile +100°C
Çalışma basıncı	≤150 Bar	≤400 Bar
Doğrusal hız	≤0.5 m/sn	≤0.5 m/sn

Operating Conditions

	NBR	PU
Media	Mineral oils (DIN 51524) Hydraulic fluids HFA, HFB, HFC	Mineral oils (DIN 51524) Hydraulic fluids HFA, HFB, HFC
Temperature	-30°C +105°C	-30°C, +100°C
Operating pressure	≤150 Bar	≤400 Bar
Linear velocity	≤0.5 m/sn	≤0.5 m/sn

Yüzey Pürüzlülüğü

	Ra	Rt
Sızdırmazlık yüzeyi	≤0.3 µm	≤3 µm
Kanal çapı	≤1.8 µm	≤10 µm
Yan yüzey	≤3 µm	≤16 µm

Surface Roughness

	Ra	Rt
Sliding surface	≤0.3 µm	≤3 µm
Surface of housing	≤1.8 µm	≤10 µm
Sides of housing	≤3 µm	≤16 µm

Kapalı Tip Keçe Kanalına Montaj İçin Min. Çap Değerleri

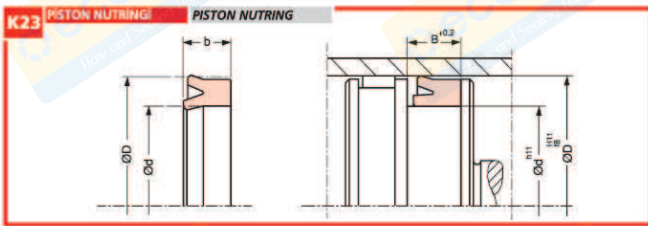
(D-d)/2 (mm)	4	5	6	7.7	10	12.5	15
min.çap (mm)	25	30	40	50	80	100	105

Not: Yukarıda verilen değerlerden daha düşük olanlar için parçaları pistonbağı veya boğaz kullanılması önerilir.

Limited Dimensions for Snap in Fitting

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

PS: Open seal housing is suggested for the values lower than given in above table.



KASTAŞ NO.	NBR	PU	D	d	b	B
K23-014	*	*	14	6	8.0	9.0
K23-014/1	*	*	14	8	4.5	5.0
K23-015	*	*	15	9	8.0	9.0
K23-016	*	*	16	6	10	11
K23-016/5	*	*	16	8	5.5	6.5
K23-016/3	*	*	16	9	5.5	6.5
K23-016/1	*	*	16	10	4.0	4.5
K23-016/2	*	*	16	10	5.5	6.5
K23-016/4	*	*	16	10	8.0	9.0
K23-020/1	*	*	20	14	4.2	4.7
K23-020	*	*	20	14	5.5	6.5
K23-025/5	*	*	25	15	5.0	6.0
K23-025/1	*	*	25	18	5.0	6.0
K23-025/2	*	*	25	19	3.0	3.5
K23-025/3	*	*	25	19	6.0	7.0
K23-026	*	*	26	18	7.0	8.0
K23-028	*	*	28	16	9.0	10
K23-030/2	*	*	30	15	10	11
K23-030/1	*	*	30	20	7.0	8.0
K23-030	*	*	30	22	6.0	7.0
K23-032/2	*	*	32	22	5.0	6.0
K23-032/1	*	*	32	22	7.0	8.0
K23-032	*	*	32	24	5.5	6.5
K23-035	*	*	35	25	6.5	7.5
K23-035/1	*	*	35	25	7.0	8.0
K23-035/3	*	*	35	25	8.0	9.0
K23-036	*	*	36	28	7.0	8.0
K23-039	*	*	39	32	5.0	6.0
K23-040/4	*	*	40	28	10	11
K23-040/6	*	*	40	30	5.0	6.0
K23-040/3	*	*	40	30	6.0	7.0
K23-040/2	*	*	40	30	7.0	8.0
K23-043	*	*	43	35	9.0	10
K23-043/1	*	*	43	38	3.8	4.3
K23-045/2	*	*	45	35	6.0	7.0
K23-045/1	*	*	45	37	7.0	8.0
K23-045	*	*	45	38	6.0	7.0
K23-050/5	*	*	50	38	6.0	7.0
K23-050/4	*	*	50	40	5.0	6.0
K23-050/3	*	*	50	40	7.0	8.0
K23-050/6	*	*	50	42	10	11
K23-052	*	*	52	42	5.0	6.0
K23-055	*	*	55	45	7.0	8.0
K23-055/1	*	*	55	45	10	11
K23-056	*	*	56	46	7.0	8.0
K23-050/1	*	*	60	44	12	13
K23-060/3	*	*	60	50	7.0	8.0
K23-060/2	*	*	60	50	10	11

* * * İlgili grüvün malzemesini göstermektedir.
 * * * indicates product material.

KASTAŞ NO.	NBR	PU	D	d	b	B
K23-063/2	*	*	63	50	10	11
K23-063	*	*	63	53	6.0	7.0
K23-070/1	*	*	70	50	14	15
K23-070/3	*	*	70	58	8.5	9.5
K23-070/2	*	*	70	60	10	11
K23-070/4	*	*	70	62	8.0	9.0
K23-075	*	*	75	65	7.5	8.5
K23-080/7	*	*	80	64	8.0	9.0
K23-080/10	*	*	80	65	10	11
K23-080/3	*	*	80	68	8.5	9.5
K23-080/9	*	*	80	70	12	13
K23-080/6	*	*	80	72	12	13
K23-095	*	*	95.25	76.2	9.52	10.52
K23-100/4	*	*	100	84	8.0	9.0
K23-100	*	*	100	85	9.0	10
K23-100/7	*	*	100	85	12	13
K23-100/3	*	*	100	88	8.5	9.5
K23-100/8	*	*	100	90	6.5	7.5
K23-100/6	*	*	100	90	7.2	8.2
K23-100/1	*	*	100	90	8.5	9.5
K23-100/5	*	*	100	90	10.5	11.5
K23-110/1	*	*	110	90	15	16
K23-110	*	*	110	95	10	11
K23-112	*	*	112	98	9.0	10
K23-114	*	*	114.3	103.98	5.85	6.85
K23-115	*	*	115	100	6.0	7.0
K23-125	*	*	125	105	12	13
K23-125/6	*	*	125	105	15	16
K23-125/3	*	*	125	110	10	11
K23-125/5	*	*	125	115	7.2	8.2
K23-130	*	*	130	110	12	13
K23-140/2	*	*	140	120	15	16
K23-140	*	*	140	120	16	17
K23-140/3	*	*	140	125	9.0	10
K23-140/1	*	*	140	125	15	16
K23-145	*	*	145	130	10	11
K23-150	*	*	150	135	8.0	9.0
K23-160	*	*	160	140	14	15
K23-160/2	*	*	160	145	9.0	10
K23-160/1	*	*	160	145	14	15
K23-170/1	*	*	170	145	19	20
K23-170	*	*	170	148	15	16
K23-175	*	*	175	155	14	15
K23-180	*	*	180	160	9.0	10
K23-180/1	*	*	180	160	14	15
K23-200/3	*	*	200	170	18	19
K23-200	*	*	200	175	16	17
K23-200/1	*	*	200	180	14	15
K23-220	*	*	220	195	16	17
K23-220/1	*	*	220	200	15	16
K23-250	*	*	250	230	14	15
K23-250/2	*	*	250	230	15	16
K23-250/1	*	*	250	238	14	15
K23-300	*	*	300	270	12	13
K23-300/1	*	*	300	288	14	15
K23-330	*	*	330	310	12	13

* * * İlgili grüvün malzemesini göstermektedir.
 * * * indicates product material.

Kastas

K26 HİDROLİK PİSTON KEÇESİ

K26 hidrolik piston keçelerimiz, NBR 90 shore A malzemeden, sızdırmazlık dudak ve metal pulun birlikte vulkanize edilmesi ile üretilmektedir. Sızdırmazlık dudaklarında kullanılan yay sayesinde, düşük basınçlarda maksimum sızdırmazlık sağlar.

Radyal yüklere maruz kalmayan, kısa stroklu ve düşük basınçlı hidrolik silindirlere montaj kolaylığı ve piston başı yapımına gerek duyulmadan kullanımı, K26 hidrolik piston keçelerinin tercih nedeni olmaktadır.

K26 hidrolik piston keçelerimiz, NBR 80 shore A ve FKM 90 shore A malzemeden özel imalat kapsamında üretilmektedir.

Standart servisimiz haricindeki ihtiyaçlarınızda lütfen müşteri servisimize başvurunuz.

Çalışma Koşulları

Ortam	Mineral yağlar (DIN 51524) HFA, HFB, HFC tipi yağlar
Sıcaklık	-30°C ile +105°C Mineral yağlar +5°C ile +60°C HFA, HFB -30°C ile +60°C HFC
Çalışma basıncı	Lütfen diyagram 1'e bakınız.
Kayma hızı	≤0.5 m/sn

Yüzey Pürüzlülüğü

	Ra	Rt
Kayma yüzeyi	≤0.3 µm	≤2.5 µm

K26 HYDRAULIC PISTON SEAL

K26 hydraulic piston seals are produced in such a way that a NBR 90 Shore A sealing lip is vulcanized on a metal body. By the help of spring used in sealing lips, it provides maximum sealing in applications with low pressure.

Its easy assembly in low pressure short stroke cylinders not exposed to radial loads and its use without any need for piston head are the main reasons for K26 seals to be preferred.

Manufacturing with NBR 80 Shore A and FKM 90 Shore A types of materials is considered as special production programme.

Please contact our customer service for your needs out of standard programme.

Operating Conditions

Media	Mineral oils (DIN 51524) Hydraulic fluids HFA, HFB, HFC
Temperature	-30°C, +105°C Mineral oils +5°C, +60°C HFA, HFB -30°C, +60°C HFC
Operating pressure	Please see Diagram 1
Linear velocity	≤0.5 m/sn

Surface Roughness

	Ra	Rt
Sliding surface	≤0.3 µm	≤2.5 µm

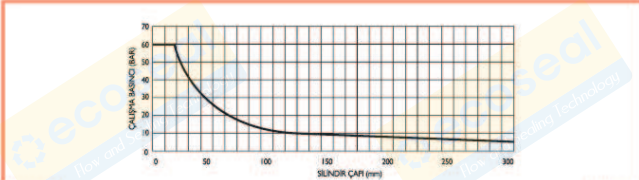
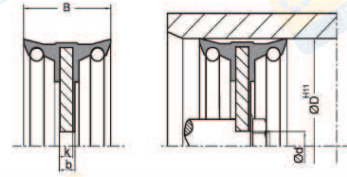


Diagram 1
Maksimum çalışma basıncı

Diagram 1
Maximum working pressure

K26 HİDROLİK PİSTON KEÇESİ HYDRAULIC PISTON SEAL



KASTAŞ NO.	D	d	B	b	k
K26-025	25	8	22	3.5	3
K26-026	26	8	22	3.5	3
K26-030	30	8	22	3.5	3
K26-032	32	8	25	3.5	3
K26-035	35	8	26	3.5	3
K26-038	38	8	25	3.5	3
K26-040	40	10	25	3.5	3
K26-045	45	10	25	4.5	4
K26-050	50	10	25	4.5	4
K26-055	55	10	25	4.5	4
K26-060	60	12	26	4.5	4
K26-063	63	12	25	4.5	4
K26-065	65	12	25	4.5	4
K26-070	70	12	30	5.9	5
K26-075	75	12	30	5.9	5
K26-080	80	12	30	5.9	5
K26-085	85	12	35	7.1	6
K26-090	90	12	35	7.1	6
K26-100	100	12	35	7.1	6
K26-110	110	12	40	7.0	6
K26-120	120	20	40	9.0	8
K26-125	125	20	40	9.0	8
K26-130	130	20	40	9.0	8
K26-140	140	20	40	11.0	10
K26-145	145	20	40	11.0	10
K26-150	150	20	40	11.0	10
K26-160	160	20	40	11.0	10
K26-175	175	20	40	11.0	10
K26-180	180	20	40	11.0	10
K26-200	200	20	40	11.0	10
K26-230	230	30	40	13.0	12
K26-250	250	30	40	13.0	12
K26-300	300	60	40	13.0	12



TOZ KEÇELERİ

Toz keçeleri; hidrolik uygulamalarda, dış ortamdan gelebilecek her türlü olumsuz partiküllerin silindire girme, silindirede kalıcı hasarlara sebep olmaması amacıyla kullanılan sızdırmazlık elemanlarıdır.

Standart olarak NBR 90 Shore A ve PU 92 Shore A malzemeden üretilen toz keçelerimiz, FKM (Viton) olarak özel sipariş kapsamında değerlendirilmektedir.

NBR 90 Shore A malzemeden üretilen toz keçelerinin, hafif ve orta yüklerde kullanımı uygundur. PU 92 Shore A malzemeden enjeksiyon tekniği ile üretilen toz keçelerimiz, malzemenin yüksek yırtılma ve kopma mukavemeti nedeniyle ağır hizmet silindire dahil olmak üzere tüm uygulamalarda güvenli kullanıma uygundur.

Standart olarak K06, K06 PU, K09 ve K09 PU toz keçelerimiz, K10, K27 ve K27 PU nutring dudaklı toz keçelerimiz, K07, K07 PU ve K12 saclı toz keçelerimizin üretimi yapılmaktadır.

Standart serimiz haricindeki ihtiyaçlarınızda, lütfen müşteri servisimize başvurunuz.

WIPERS

Wipers are sealing elements which are used in hydraulic applications to obstruct all kinds of negative foreign particles to go into the cylinders.

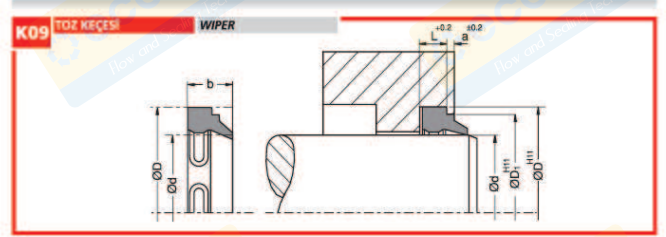
Standardized with the materials of high performance PU 92 Shore A and NBR 90 Shore A, our wipers are also manufactured with viton material, but considered as special production programme upon receipt of orders.

NBR wipers should be used in low or medium applications, but with its high durability against rupture and wearing. PU wipers can be used safely in all applications including heavy duty cylinders.

Our standard wipers are manufactured in series of K06, K06 PU, K09, K09 PU, double wipers (K10, K27, K27 PU) and metal wipers (K07, K07 PU, K12).

For needs out of standard dimensions, please apply our customer service.

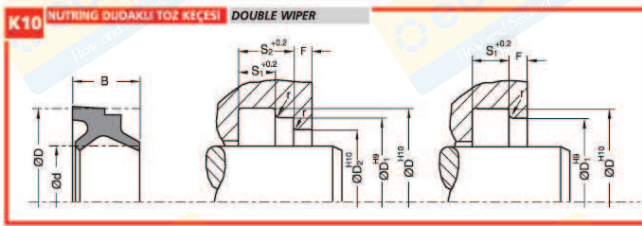
NBR/PU Toz Keçeleri NBR/PU Wipers



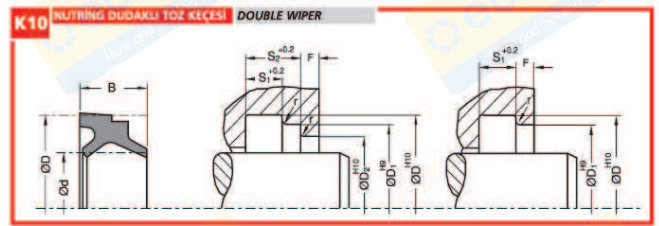
KASTAŞ NO.	NBR	PU	d	D	b	L	a	D ₁
K09-102	*	*	102	114	10	5.5	1.5	111
K09-106	*	*	106	118	10	5.5	1.5	115
K09-110	*	*	110	118	7.0	4	1	116
K09-110/1	*	*	110	122	10	5.5	1.5	119
K09-115	*	*	115	127	10	5.5	1.5	124
K09-117/1	*	*	117	129	10	5.5	1.5	126
K09-120	*	*	120	132	10	5.5	1.5	129
K09-125	*	*	125	137	10	5.5	1.5	134
K09-130	*	*	130	142	10	5.5	1.5	139
K09-135	*	*	135	147	10	5.5	1.5	144
K09-140	*	*	140	152	10	5.5	1.5	149
K09-150	*	*	150	162	10	5.5	1.5	159
K09-160	*	*	160	172	10	5.5	1.5	169
K09-165	*	*	165	177	10	5.5	1.5	174
K09-180	*	*	180	192	10	5.5	1.5	189
K09-190	*	*	190	202	10	5.5	1.5	199
K09-200	*	*	200	212	10	5.5	1.5	209
K09-210	*	*	210	225	13	6.5	1.5	222
K09-220	*	*	220	235	13	6.5	1.5	232
K09-250	*	*	250	265	13	6.5	1.5	262

* * İğareli ürünün malzemesini göstermektedir.
* * İğareli ürünün malzemesini göstermektedir.

Kıtas



KASTAŞ NO.	d	D	B	D ₁	D ₂	S ₁	S ₂	F _≅	r
K10-010	10	18	8.0	16	13.5	4	6	2	0.5
K10-012	12	20	8.0	18	15.5	4	6	2	0.5
K10-014	14	22	8.0	20	17.5	4	6	2	0.5
K10-015	15	23	8.0	21	18.5	4	6	2	0.5
K10-016	16	24	8.0	22	19.5	4	6	2	0.5
K10-018	18	26	8.0	24	21.5	4	6	2	0.5
K10-020	20	28	8.0	26	23.5	4	6	2	0.5
K10-022	22	30	8.0	28	25.5	4	6	2	0.5
K10-024	24	32	8.0	30	27.5	4	6	2	0.5
K10-025	25	33	8.0	31	28.5	4	6	2	0.5
K10-026	26	34	8.0	32	29.5	4	6	2	0.5
K10-028	28	36	8.0	34	31.5	4	6	2	0.5
K10-030	30	38	8.0	36	33.5	4	6	2	0.5
K10-032	32	40	8.0	38	35.5	4	6	2	0.5
K10-035	35	43	8.0	41	38.5	4	6	2	0.5
K10-036	36	44	8.0	42	39.5	4	6	2	0.5
K10-037	37	45	8.0	43	40.5	4	6	2	0.5
K10-038	38	46	8.0	44	41.5	4	6	2	0.5
K10-040	40	48	8.0	46	43.5	4	6	2	0.5
K10-042	42	50	8.0	48	45.5	4	6	2	0.5
K10-045	45	53	8.0	51	48.5	4	6	2	0.5
K10-046	46	54	8.0	52	49.5	4	6	2	0.5
K10-048	48	56	8.0	54	51.5	4	6	2	0.5
K10-050	50	58	8.0	56	53.5	4	6	2	0.5
K10-052	52	60	8.0	58	55.5	4	6	2	0.5
K10-055	55	63	8.0	61	58.5	4	6	2	0.5
K10-056	56	64	8.0	62	59.5	4	6	2	0.5
K10-060	60	68	8.0	66	63.5	4	6	2	0.5
K10-063	63	71	8.0	69	66.5	4	6	2	0.5
K10-065	65	73	8.0	71	68.5	4	6	2	0.5
K10-068	68	76	8.0	74	71.5	4	6	2	0.5
K10-070	70	78	8.0	76	73.5	4	6	2	0.5
K10-075	75	83	8.0	81	78.5	4	6	2	0.5
K10-080	80	88	8.0	86	83.5	4	6	2	0.5
K10-085	85	93	8.0	91	88.5	4	6	2	0.5
K10-090	90	98	8.0	96	93.5	4	6	2	0.5
K10-095	95	103	8.0	101	98.5	4	6	2	0.5
K10-100	100	108	8.0	106	103.5	4	6	2	0.5
K10-105	105	117	11	114	110	5.5	8.2	3	1
K10-110	110	122	11	119	115	5.5	8.2	3	1
K10-115	115	127	11	124	120	5.5	8.2	3	1
K10-120	120	132	11	129	125	5.5	8.2	3	1
K10-125	125	137	11	134	130	5.5	8.2	3	1
K10-130	130	142	11	139	135	5.5	8.2	3	1
K10-135	135	147	11	144	140	5.5	8.2	3	1
K10-140	140	152	11	149	145	5.5	8.2	3	1
K10-145	145	157	11	154	150	5.5	8.2	3	1
K10-150	150	162	11	159	155	5.5	8.2	3	1



KASTAŞ NO.	d	D	B	D ₁	D ₂	S ₁	S ₂	F _≅	r
K10-155	155	167	11	164	160	5.5	8.2	3	1
K10-160	160	172	11	169	165	5.5	8.2	3	1
K10-165	165	177	11	174	170	5.5	8.2	3	1
K10-170	170	182	11	179	175	5.5	8.2	3	1
K10-175	175	187	11	184	180	5.5	8.2	3	1
K10-180	180	192	11	189	185	5.5	8.2	3	1
K10-185	185	197	11	194	190	5.5	8.2	3	1
K10-190	190	202	11	199	195	5.5	8.2	3	1
K10-195	195	207	11	204	200	5.5	8.2	3	1
K10-200	200	212	11	209	205	5.5	8.2	3	1
K10-205	205	220	13	216	212	6.4	9.5	3	1
K10-210	210	225	13	221	217	6.4	9.5	3	1
K10-220	220	235	13	231	227	6.4	9.5	3	1
K10-225	225	240	13	236	232	6.4	9.5	3	1
K10-230	230	245	13	241	237	6.4	9.5	3	1
K10-240	240	255	13	251	247	6.4	9.5	3	1
K10-250	250	265	13	261	257	6.4	9.5	3	1
K10-260	260	275	13	271	267	6.4	9.5	3	1
K10-275	275	290	13	286	282	6.4	9.5	3	1
K10-280	280	295	13	291	287	6.4	9.5	3	1
K10-290	290	305	13	301	297	6.4	9.5	3	1
K10-300	300	315	13	311	307	6.4	9.5	3	1
K10-310	310	325	13	321	317	6.4	9.5	3	1
K10-320	320	335	13	331	327	6.4	9.5	3	1
K10-350	350	365	13	361	357	6.4	9.5	3	1
K10-360	360	375	13	371	367	6.4	9.5	3	1
K10-370	370	385	13	381	377	6.4	9.5	3	1