



Profile	Reference	Press. ≤ (MPa) *	Temp. (°C) *	Speed (m/s) *	Material	Dimensions (mm)	mm	inch	Page
8a Oil seals									
	13A	0,05	-30 +100	10	NBR/ST/ST	4 ... 440	●	●	880 - 889
	13A...FPM	0,05	-20 +200	10	FPM/ST/ST	4 ... 440	●	●	880 - 889
	13AS	0,05	-30 +100	10	NBR/ST/ST	6 ... 440	●	●	890 - 897
	13AS...FPM	0,05	-20 +200	10	FPM/ST/ST	6 ... 440	●	●	890 - 897
	13ASP	1	-30 +100	10	NBR/ST/ST	8 ... 300	●	●	898 - 901
	13ASP...FPM	1	-20 +200	10	FPM/ST/ST	8 ... 300	●	●	898 - 901
	13G5	0,05	-30 +100	10	NBR/NBR-C/ST	8 ... 1110	●	●	902 - 909
	13LM	0,05	-30 +100	10	NBR/ST/SS	9"1/4 ... 45"	●		910 - 911
	13APT	0,05	-60 +200	30	PTFE/MVQ/SS	20 ... 150	●		912 - 913
	13L1	0,5	-30 +100	25	PTFE/NBR	20 ... 120	●		914 - 915

8b V-rings									
	13GR	-	-30 +100	20	NBR/ST	10 ... 225	●		916 - 917
	13GRB	-	-30 +100	20	NBR/ST	15 ... 100	●		918 - 919
	13TFR	-	-40 +100	10	PU	27,5 ... 186	●		920 - 921
	13VA	-	-30 +100	10	NBR	2,7 ... 2020	●	●	922 - 925
	13VL	-	-30 +100	10	NBR	105 ... 2025	●	●	926 - 929
	13VS	-	-30 +100	10	NBR	4,5 ... 210	●	●	930 - 931

* The pressure, temperature and speed of moving values in this catalogue are maximum values which can never be used simultaneously.



Profile	Reference	Press. ≤ (MPa) *	Temp. (°C) *	Speed (m/s) *	Material	Dimensions (mm)	mm	inch	Page
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8c Face seals

	14MF0	0,3 0,15	-30 +100	10 2	CI/NBR HS/NBR	38 ... 667	●	●	932 - 937
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8d Rotary seals

	13DB/R	20	-30 +100	0,1	NBR/NBR-C	6 ... 250	●		938 - 939
	13DB/R.../NEI	40	-30 +100	0,2	NBR-C/NBR/POM	65 ... 140	●		940 - 941
	13ROI	35	-30 +90	0,1	PU	60 ... 150	●		942 - 943
	13R9	30	-30 +100	2	PTFE/NBR	20 ... 300	●	●	944 - 945
	13R9K	30	-30 +100	2	PU/NBR	20 ... 300	●	●	944 - 945

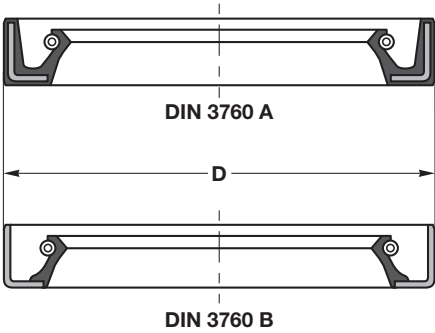
8e TSS rotary seals

	17TWVA	-	-30 +100	10	NBR	5,5 ... 430	●	●	946 - 947
	17TG3	30	-30 +100	2	T10/NBR	8 ... 300	●	●	948 - 949
	17TG4	30	-30 +100	2	T10/NBR	20 ... 300	●	●	950 - 951
	17TVM	15	-100 +260	2	T40/SS	30 ... 120	●	●	952 - 953

* The pressure, temperature and speed of moving values in this catalogue are maximum values which can never be used simultaneously.

1 OIL SEALS OUTER DIAMETER

Table 874A			
Outer diameter D (mm)	Outer diameter tolerances		Eccentricity (mm)
	DIN3760A DIN3761A (mm)	DIN3760B DIN3761B (mm)	
< 50	+ 0,3 + 0,15	+ 0,2 + 0,1	0,125
50 → 80	+ 0,35 + 0,2	+ 0,23 + 0,13	0,175
80 → 120	+ 0,35 + 0,2	+ 0,25 + 0,15	0,25
120 → 180	+ 0,45 + 0,25	+ 0,28 + 0,18	0,325
180 → 300	+ 0,45 + 0,25	+ 0,3 + 0,2	0,4
300 → 500	+ 0,55 + 0,3	+ 0,35 + 0,23	0,5
> 500	+ 0,65 + 0,4	+ 0,4 + 0,28	0,25% x D



The press fit allowance and the eccentricity of oil seals are given in **Table 874A**.

2 THE SHAFT FOR OIL SEALS

The shaft surface should have a hardness of minimum 55HRc on a depth of 0,3 mm. In case of heavy polluted environments and high speed (more than 4 m/s), a hardness of 55-60 HRc must be respected.

3 OIL SEALS INTERCHANGE TABLE

Table 874B							
ALL-TEC	13A	13AS	13ASP	13AOF	13B	13C	13CS
DIN	3760A 3761A	3760AS 3761AS			3760B 3761B	3760C 3761C	3760CS 3761CS
TSS	TRA	TRE	TRP TRQ.D	TRK	TRC	TRB	TRF
CHICAGO RAWHIDE					CRW1	CRWH1	CRWHA1
DICHTA	A	AS	AS-P	A-O	B	C	CS
GACO	A	FA		SA	ABI		
GOETZE	827N	827S	827SK	827NO	822N	824N	824S
KACO	DG	DGS	DGSP	SDE	DF	DFK	DFSK
NATIONAL	35	32			48	45	41
PAULSTRA	IE	IEL		IO	EE	EEP	
PIONEER WESTON	R21 WRM	R23 WRT		R26	R4 WR	R1 WRL	
SIMMERWERKE	A	ASL		AOF	B	C	CSL
SIMRIT-FREUDENBERG	BA	BASL	BABSL	BAOF	B1	B2	B2SL
STEFA	CB	CC	6CC-2CC	CD	BB	DB	DC

4 OIL SEALS AUTHORISED SPEED

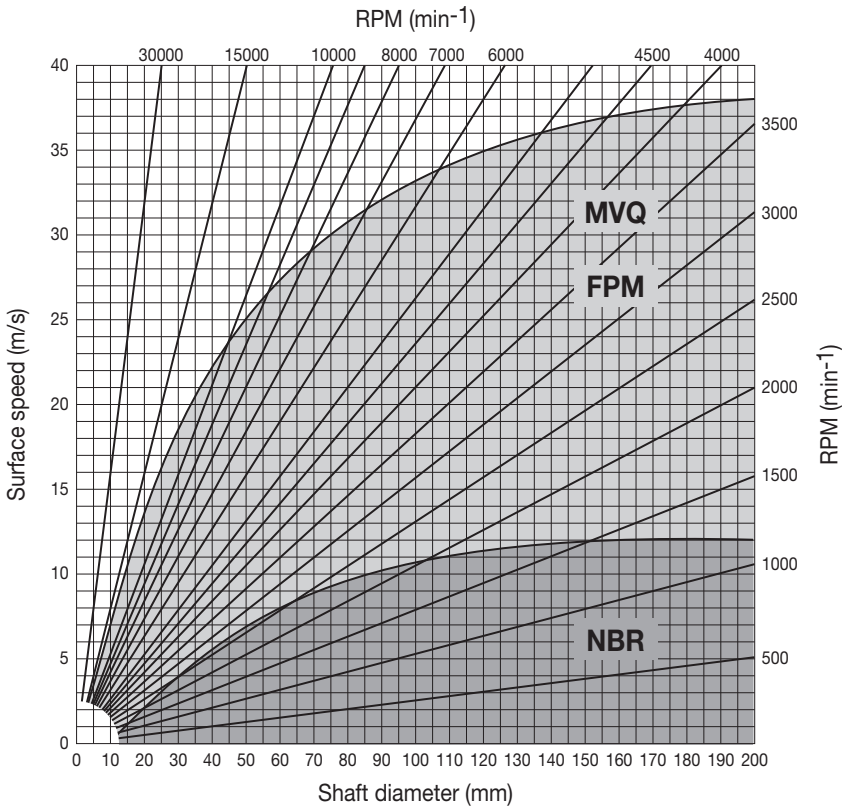
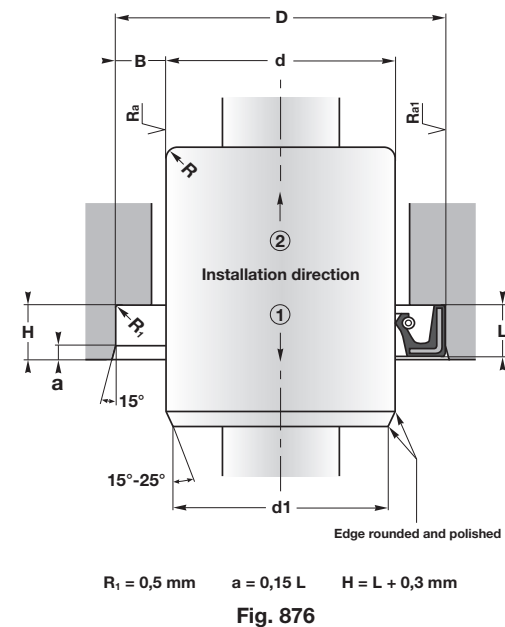


Fig. 875

The **Fig. 875** shows the permissible peripheral speed for seals made with NBR, FPM and MVQ. The values are only concerning the seals without dust lip.

5 OIL SEALS DESIGN INSTRUCTIONS



- **Surface roughness**
The values of the surface roughness are specified in table here below.
- **Chamfers and radii**
Avoid machining of sharp corners.
With the table here below, you can find the right dimension for lead-in chamfers and radius.

Surface roughness (µm)			
Parameter	Ra	Rz	R max
Shaft	0,2 - 0,8	1 - 4	< 6
Housing Metal cased	0,8 - 3,2	6,3 - 16	< 16
Housing Rubber covered	1,6 - 6,3	10 - 25	< 25

Chamfers and radii (mm)		
d	d1	R
< 10	d - 1,5	2
10 - 20	d - 2	2
20 - 30	d - 2,5	3
30 - 40	d - 3	3
40 - 50	d - 3,5	4
50 - 70	d - 4	4
70 - 95	d - 4,5	5
95 - 130	d - 5,5	6
130 - 240	d - 7	8
240 - 500	d - 11	12

6 ROTARY SEALS DESIGN INSTRUCTIONS

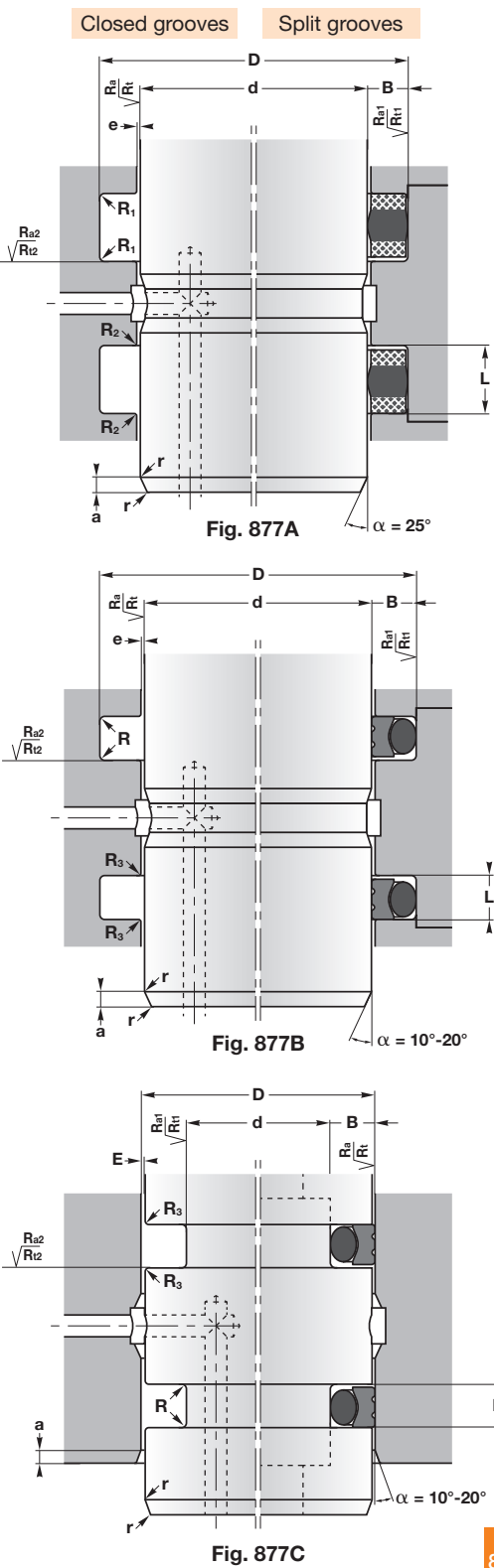
- **Assembly in open or closed housings**
According to profile and cross section, the split grooves are required if the nominal diameter of the seal is less than **d min** (See table “Assembly in open or closed housings”).
- **Surface roughness**
The values of **Ra** and **Rt** are specified in table here below.
- **Chamfers**
You can find the right dimension for lead-in chamfers **a** and angle **α**.
- **Radii**
The values of the radii are specified in the table.

Assembly in open or closed housings					
Profile	d min.	L	Profile	d min.	L
13DB/R	40	-	13DB/R.../NEI	60	-
13ROI	30	-	13ROI.../A	40	-
17TG30	12	2,2	17TG40	25	2,2
17TG31	18	3,2	17TG41	38	3,2
17TG32	33	4,2	17TG42	50	4,2
17TG33	60	6,3	17TG43	75	6,3

Surface roughness (µm)					
Ra	Rt	Ra1	Rt1	Ra2	Rt2
0,05 - 0,2	0,63 - 2,5	< 1,6	< 10	< 3	< 16

Chamfers				
Profile		a (mm)	α	
13DB/R - 13DB/R.../NEI		a = 0,6 B	25°	
13ROI - 13ROI.../A				
17TG30	17TG40	2	10-20°	
17TG31	17TG41	2,5		
17TG32	17TG42	3,5		
17TG33	17TG43	5		
17TG34	17TG44	6,5		
17TG35	17TG45	7,5		

Radii (mm)				
B	R1	R2	R3	R
≤ 7,5	≤ 0,3	0,2	0,2	See pages 945, 949 and 951
> 7,5	≤ 0,6	0,4		



7 OIL SEALS INSTALLATION

• Assembly on the shaft

Direction ① (see Fig. 878A)

For oil seals, if the chamfer of the shaft is not sufficient, it is necessary to use a tool to avoid damaging the lips.

Assembly with a tool			
d (mm)	6 → 60	65 → 135	140 → 200
d1 (mm)	d - 3	d - 4	d - 5,5

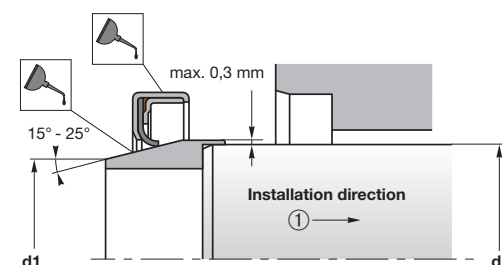


Fig. 878A

Direction ② (see Fig. 878B)

A radius is sufficient to mount the seal.

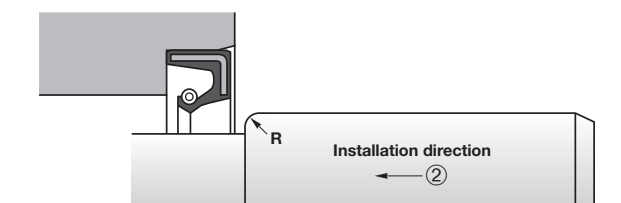


Fig. 878B

• Installation in the gland:

We advise to respect the five principles of assembly as shown (Fig. 879A to Fig. 879E).

Lubricate the oil seal (with grease or oil) to reduce the frictions during the assembly. It is essential to use a tool for the correct installation of the seal.

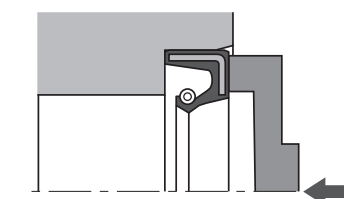


Fig. 879A

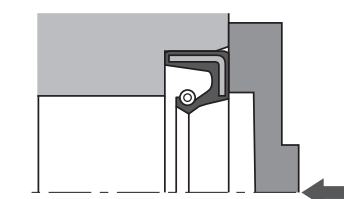


Fig. 879B

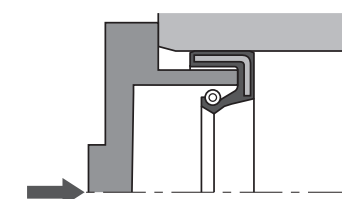


Fig. 879C

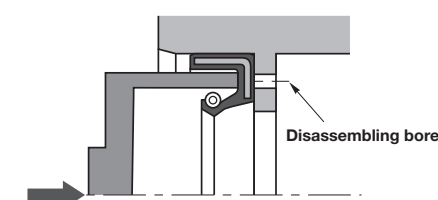


Fig. 879D

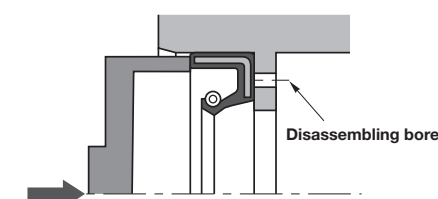
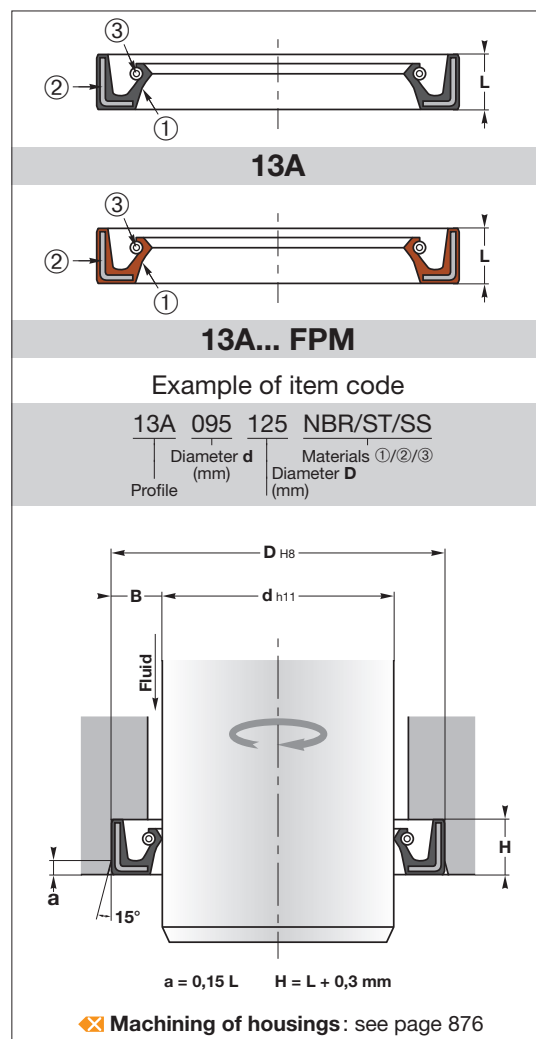


Fig. 879E



13A is a radial oil seal with completely rubber covered outer diameter and a spring-loaded sealing lip. This type is not recommended for use in heavily polluted applications.

Operating conditions

Pressure	≤ 0,05 MPa
Temperature	
13A	-30°C to 100°C
13A... FPM	-20°C to 200°C
Speed	3 to 10 m/s
Fluids	Mineral oils, water emulsions
Shaft surface hardness	≥ 55 HRC
Shaft hardness depth	≥ 0,3 mm

Materials

Seal ①	NBR or FPM
Metal cage ②	ST
Spring ③	Standard: ST On demand: SS

Assembly

In open groove

Advantages

- Good static sealing
- Reduced risk of corrosion
- Higher bore roughness

Please contact us for applications approaching maximum values.

More information

On www.all-tec-business.net, click first on the reference and then on the material code to obtain the data sheet of the different materials.

On request:



d	D	L	Reference
4	16	4	13A 004016
5	19	6,35	13A 005019
6	13	4,5	13A 006013
	14	6	13A 006014
	16	7	13A 006016/1
	19	6,35	13A 006019
	22	7	13A 006022
7	16	7	13A 007016
	22	7	13A 007022/1
8	16	7	13A 008016
	17	7	13A 008017
	18	5	13A 008018
	22	7	13A 008022
	26	6	13A 008026
	30	7	13A 008030
9	22	7	13A 009022
	26	7	13A 009026
10	18	5	13A 010018/1
	19	7	13A 010019
	22	7	13A 010022
	26	7	13A 010026
	30	8	13A 010030
11	17	4	13A 011017
	22	7	13A 011022
	30	7	13A 011030
12	19	5	13A 012019
	22	5	13A 012022
	22	7	13A 012022/1
12	22	4	13A 012022/2
	24	4,5	13A 012024
	24	7	13A 012024/1
	25	6	13A 012025
	26	6	13A 012026
	26	8	13A 012026/1
	28	7	13A 012028
	30	7	13A 012030
	32	7	13A 012032
	32	5	13A 012032/1

d	D	L	Reference
12,7	25,4	6,35	13A 012025/1
13	25	7	13A 013025
	26	5	13A 013026
	26	7	13A 013026/1
	28	7	13A 013028
14	22	4	13A 014022
	24	7	13A 014024
	26	7	13A 014026
	28	7	13A 014028
	30	7	13A 014030
15	24	5	13A 015024
	24	7	13A 015024/1
	26	7	13A 015026/1
	27	7	13A 015027
	28	7	13A 015028
	30	4,5	13A 015030
	30	10	13A 015030/2
	30	7	13A 015030/3
	32	7	13A 015032
15	32	9	13A 015032/1
	35	7	13A 015035
	35	10	13A 015035/1
	37	7	13A 015037
	40	10	13A 015040
	42	7	13A 015042
	42	10	13A 015042/1
	50	7	13A 015050
16	24	4	13A 016024
	24	7	13A 016024/1
	24	5	13A 016024/2
	26	7	13A 016026
	28	7	13A 016028
	30	5	13A 016030
	30	7	13A 016030/1
	32	9	13A 016032
	32	10	13A 016032/1
	35	7	13A 016035
	40	10	13A 016040

**13A****13A... FPM****Radial oil seal type A****ALL-TEC**
SEALING SYSTEMS

d	D	L	Reference
17	24	7	13A 017024
	25	4	13A 017025
	28	7	13A 017028
	30	7	13A 017030
	32	5	13A 017032
	32	7	13A 017032/1
17	35	8	13A 017035
	35	7	13A 017035/1
	35	10	13A 017035/2
	40	7	13A 017040
	40	10	13A 017040/1
	47	7	13A 017047
17,46	28,57	6,35	13A 017028/1
17,5	31	6	13A 017031
18	28	4	13A 018028
	28	6	13A 018028/1
	28	7	13A 018028/2
	30	7	13A 018030
	30	6	13A 018030/1
	32	7	13A 018032
18	32	8	13A 018032/1
	35	8	13A 018035
	40	7	13A 018040
19	27	6	13A 019027
	32	7	13A 019032
	35	6	13A 019035
	35	10	13A 019035/1
	47	10	13A 019047
20	28	6	13A 020028
	28	7	13A 020028/1
	28	4	13A 020028/2
	30	5	13A 020030
	30	7	13A 020030/1
	30	6	13A 020030/2
	32	7	13A 020032
	35	5	13A 020035
	35	10	13A 020035/1
	35	7	13A 020035/2
	37	8	13A 020037
	38	7	13A 020038

d	D	L	Reference
20	40	6	13A 020040
	40	8	13A 020040/1
	40	10	13A 020040/2
	40	7	13A 020040/3
	42	7	13A 020042
	42	10	13A 020042/1
	47	7	13A 020047
	47	10	13A 020047/2
	52	7	13A 020052
	52	10	13A 020052/1
22	32	7	13A 022032
	35	7	13A 022035
	35	10	13A 022035/1
	37	7	13A 022037/1
	38	6	13A 022038
	40	8	13A 022040
	40	10	13A 022040/1
	45	7	13A 022045
	47	10	13A 022047
22,7	47	7	13A 022047/1
23	38	7	13A 023038
	47	10	13A 023047
24	40	7	13A 024040
	40	10	13A 024040/1
	42	8	13A 024042
	47	7	13A 024047
	50	10	13A 024050
	52	10	13A 024052
24,9	45	6,5	13A 024045
	32	6	13A 025032
25	35	7	13A 025035/1
	35	6	13A 025035/3
	37	5	13A 025037
	37	7	13A 025037/1
	38	7	13A 025038
	40	5	13A 025040
	40	7	13A 025040/1
	40	8	13A 025040/2

d	D	L	Reference
25	40	10	13A 025040/3
	42	6	13A 025042
	42	7	13A 025042/1
	42	8,5	13A 025042/2
	42	10	13A 025042/3
	45	7	13A 025045
	45	10	13A 025045/2
	46	7	13A 025046
	47	7	13A 025047
	47	10	13A 025047/1
	50	10	13A 025050
	52	7	13A 025052
	52	10	13A 025052/1
	52	8	13A 025052/2
26	35	7	13A 026035
	37	6	13A 026037
	47	7	13A 026047
27	37	7	13A 027037
	41	10	13A 027041
	42	10	13A 027042
	47	7	13A 027047
	50	10	13A 027050
28	38	6	13A 028038
	38	7	13A 028038/1
	40	7	13A 028040
	42	7	13A 028042
	42	10	13A 028042/1
	43	10	13A 028043
	47	7	13A 028047
	47	10	13A 028047/1
	50	7	13A 028050
28	52	6	13A 028052
	52	7	13A 028052/1
	52	10	13A 028052/2
29	45	9,52	13A 029045
30	40	7	13A 030040
	42	7	13A 030042
	42	8	13A 030042/1

d	D	L	Reference
30	43	8	13A 030043
	44	10	13A 030044
	45	5	13A 030045
	45	8	13A 030045/1
	45	10	13A 030045/2
	47	6	13A 030047
	47	10	13A 030047/1
	47	7	13A 030047/2
	48	8	13A 030048
	50	5	13A 030050
	50	7	13A 030050/1
	50	8	13A 030050/2
	50	10	13A 030050/3
	50	8,5	13A 030050/5
	52	7	13A 030052
	52	10	13A 030052/1
	55	7	13A 030055
	55	10	13A 030055/1
	56	10	13A 030056
	56	12	13A 030056/1
	62	7	13A 030062
	62	10	13A 030062/1
	72	10	13A 030072
31	47	7	13A 031047
	52	7	13A 031052
32	40	7	13A 032040
	42	7	13A 032042
	44	7	13A 032044
	45	7	13A 032045
	47	7	13A 032047
	47	10	13A 032047/1
	50	8	13A 032050
	50	10	13A 032050/1
	52	5	13A 032052
	52	7	13A 032052/1
	52	10	13A 032052/2
	52	10	13A 032052/2 FPM *
	55	10	13A 032055
	56	10	13A 032056
	62	6	13A 032062



13A



13A... FPM

Radial oil seal type A

ALL-TEC®
SEALING SYSTEMS

d	D	L	Reference
32	62	10	13A 032062/1
	62	10	13A 032062/1 FPM *
	62	10	13A 035062/1 FPM *
33	50	8	13A 033050/1
34	46	10	13A 034046
	46	8	13A 034046/1
	47	7	13A 034047
	50	10	13A 034050
	52	8	13A 034052
	52	10	13A 034052/1
	62	10	13A 034062
34,9	52,4	12,7	13A 034052/2
35	45	6	13A 035045/1
	45	7	13A 035045/2
	47	7	13A 035047
	47	10	13A 035047/1
	48	8	13A 035048
	50	7	13A 035050
	50	10	13A 035050/1
	50	8	13A 035050/2
	52	7	13A 035052
35	52	10	13A 035052/1
	52	8	13A 035052/2
	55	7	13A 035055
	55	10	13A 035055/1
	56	10	13A 035056
	58	10	13A 035058
	60	10	13A 035060
	60	12	13A 035060/1
	62	7	13A 035062
	62	10	13A 035062/1
	65	10	13A 035065
	68	10	13A 035068
	72	10	13A 035072
	72	7	13A 035072/1
	80	10	13A 035080/1
	80	12	13A 035080/2
	80	13	13A 035080/3

d	D	L	Reference
35,8	68	10	13A 035068/1
36	47	7	13A 036047
	50	7	13A 036050
	50	10	13A 036050/1
	52	7	13A 036052
	52	12	13A 036052/1
	54	7,5	13A 036054
	56	10	13A 036056
	58	10	13A 036058
	62	7	13A 036062
	62	10	13A 036062/1
	68	10	13A 036068
37	62	8	13A 037062
38	50	7	13A 038050/1
	50	8	13A 038050/2
	51,8	8	13A 038051
	52	7	13A 038052
	52	10	13A 038052/1
	52	8	13A 038052/2
	54	10	13A 038054
	55	7	13A 038055
	55	10	13A 038055/1
38	56	7	13A 038056
	56	10	13A 038056/1
	56	12	13A 038056/2
	60	10	13A 038060
	62	10	13A 038062
	64	8	13A 038064
	70	12	13A 038070/1
	72	10	13A 038072
40	50	8	13A 040050
	52	7	13A 040052
	55	7	13A 040055
	55	10	13A 040055/1
	55	8	13A 040055/2
	56	8	13A 040056
	56	10	13A 040056/1
	57,1	10	13A 040057
	58	10	13A 040058

d	D	L	Reference
40	60	7	13A 040060
	60	10	13A 040060/1
	60	12	13A 040060/2
	62	10	13A 040062/1
	62	7	13A 040062/2
	62	5	13A 040062/3
	65	10	13A 040065
	68	10	13A 040068
	70	10	13A 040070
	72	10	13A 040072
	72	12	13A 040072/1
	72	7	13A 040072/2
	80	10	13A 040080
	80	13	13A 040080/1
	90	12	13A 040090
	90	10	13A 040090/1 *
41,28	53,37	6,35	13A 041054
	60,33	6,35	13A 041060/1
42	55	7	13A 042055
	56	7	13A 042056
	57	7	13A 042057
42	58	10	13A 042058
	60	10	13A 042060
	62	8	13A 042062
	62	10	13A 042062/1
	65	10	13A 042065
	70	10	13A 042070
	72	10	13A 042072
	80	10	13A 042080
43	60	10	13A 043060
	80	10	13A 043080
44	60	10	13A 044060
	65	10	13A 044065
	72	10	13A 044072
45	55	7	13A 045055
	60	5	13A 045060
	60	7	13A 045060/1
	60	10	13A 045060/2
	60	8	13A 045060/3
	62	7	13A 045062

d	D	L	Reference
45	62	8	13A 045062/1
	62	10	13A 045062/2
	65	8	13A 045065
	65	10	13A 045065/1
	65	12	13A 045065/2
	66	10	13A 045066
	68	10	13A 045068
	70	10	13A 045070
	72	8	13A 045072
	72	10	13A 045072/1
	72	12	13A 045072/2
	75	10	13A 045075
	80	10	13A 045080
	80	13	13A 045080/1
	85	12	13A 045085
	85	10	13A 045085/1
	100	10	13A 045100
46	65	10	13A 046065
47,62	73,03	6,35	13A 047073
48	62	8	13A 048062
	62	10	13A 048062/1
	62	7	13A 048062/2
	65	10	13A 048065
	66	10	13A 048066
	68	10	13A 048068
48	68	12	13A 048068/1
	70	10	13A 048070
	72	8	13A 048072
	72	10	13A 048072/1
	80	10	13A 048080
	85	10	13A 048085
	90	10	13A 048090
49	65	10	13A 049065
50	62	10	13A 050062
	62	7	13A 050062/1
	65	8	13A 050065
	65	10	13A 050065/1
	68	8	13A 050068
	68	10	13A 050068/1



13A



13A... FPM

Radial oil seal type A

ALL-TEC®
SEALING SYSTEMS

d	D	L	Reference
50	70	10	13A 050070
	72	7	13A 050072
	72	10	13A 050072/1
	72	12	13A 050072/2
	72	8	13A 050072/3
	75	12	13A 050075
	78	10	13A 050078
	80	8	13A 050080
	80	10	13A 050080/1
	80	13	13A 050080/2
50,8	85	10	13A 050085
	90	10	13A 050090
	90	12	13A 050090/1
	76,2	12,7	13A 050076
	68	8	13A 052068
	69	10	13A 052069
	72	10	13A 052072
	75	10	13A 052075
	75	12	13A 052075/1
	80	10	13A 052080
52	85	10	13A 052085
	85	8	13A 052085/1
	68	10	13A 053068
	73,02	9,52	13A 054073
	72	10	13A 054072
	76,2	12,7	13A 054076
	68	8	13A 055068
	70	8	13A 055070
	70	10	13A 055070/1
	72	8	13A 055072
53,97	72	10	13A 055072/1
	73,1	10	13A 055073
	75	10	13A 055075
	75	12	13A 055075/1
	76	10	13A 055076
	78	8	13A 055078
	78	10	13A 055078/1
	80	8	13A 055080
	80	10	13A 055080/1
	80	12	13A 055080/2

d	D	L	Reference
55	80	10	13A 055080/1
	80	10	13A 055080/1 FPM *
	80	12	13A 055080/2
	85	10	13A 055085
	85	8	13A 055085/1 *
	90	10	13A 055090
	90	8	13A 055090/1 *
	100	10	13A 055100
	72	10	13A 056072
	79,5	9,5	13A 057079
56	85	13	13A 057085
	76,2	9,52	13A 057076
	72	8	13A 058072
	75	10	13A 058075
	80	8	13A 058080
	80	10	13A 058080/1
	85	10	13A 058085
	90	10	13A 058090
	90	13	13A 058090/2 *
	72	8	13A 060072
57,15	75	8	13A 060075
	80	8	13A 060080
	80	10	13A 060080/1
	80	12	13A 060080/2
	80	7	13A 060080/3
	82	12	13A 060082
	85	8	13A 060085
	85	10	13A 060085/1
	85	12	13A 060085/2
	90	10	13A 060090
60	90	13	13A 060090/1
	95	10	13A 060095
	100	10	13A 060100
	100	13	13A 060100/1
	110	10	13A 060110
	110	13	13A 060110/1
	72	8	13A 060072
	75	8	13A 060075
	80	8	13A 060080
	80	10	13A 060080/1

d	D	L	Reference
62	76	10	13A 062076
	80	10	13A 062080
	85	10	13A 062085/1
	85	13	13A 062085/2
	88	8	13A 062088
	90	10	13A 062090
	90	13	13A 062090/1
	100	10	13A 062100
	100	12	13A 062100/1
	88	10	13A 063088
63	80	8	13A 064080
	80	8	13A 065080
	80	10	13A 065080/1
	85	10	13A 065085
	90	10	13A 065090
	90	12	13A 065090/1
	95	10	13A 065095
	100	10	13A 065100
	100	13	13A 065100/1
	110	10	13A 065110
65	80	8	13A 068080
	85	10	13A 068085
	90	10	13A 068090
	95	10	13A 068095
	95	13	13A 068095/1
	100	10	13A 068100
	100	13	13A 068100/1
	85	7	13A 070085
	85	10	13A 070085/1
	85	8	13A 070085/2
68	90	10	13A 070090
	90	10	13A 070090 FPM
	90	12	13A 070090/1
	92	13	13A 070092
	95	10	13A 070095
	95	13	13A 070095/1
	100	10	13A 070100
	100	12	13A 070100/1
	110	12	13A 070110
	110	12	13A 070110

d	D	L	Reference
70	110	13	13A 070110/1
	110	10	13A 070110/2
	120	13	13A 070120
	90	10	13A 072090
	100	10	13A 072100
	110	12	13A 072110
	130	12	13A 072130
	90	10	13A 073090
	90	8	13A 075090
	90	10	13A 075090/1
73	95	10	13A 075095
	95	10	13A 075095 FPM *
	95	12	13A 075095/1
	100	10	13A 075100
	105	12	13A 075105
	110	12	13A 075110
	120	12	13A 075120/1
	95,25	12,7	13A 076095/1
	95,5	12,7	13A 078095
	100	10	13A 078100
75	115	10	13A 078115
	95	8	13A 080095
	100	10	13A 080100
	100	13	13A 080100/1
	105	12	13A 080105/1
	110	10	13A 080110
	110	12	13A 080110/1
	115	12	13A 080115
	120	13	13A 080120
	125	12	13A 080125
80	130	13	13A 080130
	140	12	13A 080140
	150,5	13	13A 080150
	105	12	13A 082105
	105	12	13A 082105
	105	12	13A 082105
	105	12	13A 082105
	105	12	13A 082105
	105	12	13A 082105
	105	12	13A 082105



13A



13A... FPM

Radial oil seal type A

ALL-TEC®
SEALING SYSTEMS

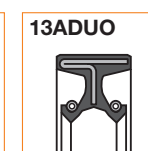
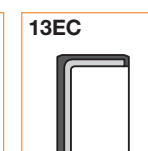
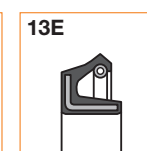
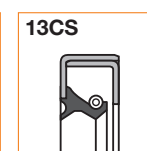
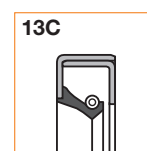
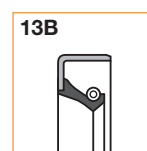
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85	100	9	13A 085100/1
	105	10	13A 085105
	105	13	13A 085105/1
	110	12	13A 085110
	110	13	13A 085110/1
	115	13	13A 085115
	120	13	13A 085120
88	110	12	13A 088110
	120	12	13A 088120
	126	12	13A 088126
	140	13	13A 088140
90	110	10	13A 090110
	110	12	13A 090110/1
	110	12	13A 090110/1 FPM *
	110	13	13A 090110/2
	115	12	13A 090115
	120	12	13A 090120
	125	14	13A 090125
	130	12	13A 090130
	140	13	13A 090140
92	120	13	13A 092120
95	115	12	13A 095115
	120	12	13A 095120
	120	12	13A 095120 MVQ *
95	125	12	13A 095125
	125	12	13A 095125 FPM *
	125	12	13A 095125 NBR/ST/SS
	130	12	13A 095130
98	125	13	13A 098125
100	120	12	13A 100120/1
	120	13	13A 100120/2
	125	12	13A 100125/1
	130	12	13A 100130
	140	13	13A 100140
	150	13	13A 100150
104	125	10	13A 104125

d	D	L	Reference
105	130	12	13A 105130/1
	135	14	13A 105135
	140	13	13A 105140
107,95	127	12,7	13A 107127
110	130	12	13A 110130
	135	12	13A 110135
	140	12	13A 110140
	150	13	13A 110150
112	140	13	13A 112140
114	140	13	13A 114140
115	135	10	13A 115135
	140	12	13A 115140
	140	13	13A 115140/1 FPM
	160	15	13A 115160
	180,5	13	13A 115180
120	140	13	13A 120140
	140	10	13A 120140/2
	150	12	13A 120150
	150	15	13A 120150/1
	160	13	13A 120160
125	150	12	13A 125150
	150	12	13A 125150 FPM *
	150	15	13A 125150/1
	160	12	13A 125160
130	160	12	13A 130160
	160	15	13A 130160/1
	170	12	13A 130170
132	160	12	13A 132160
135	160	12	13A 135160
	160	15	13A 135160/1
	160	13	13A 135160/2 *
	165	12	13A 135165
	170	12	13A 135170
	170	12	13A 135170 MVQ *
	170	15	13A 135170/1

d	D	L	Reference
138	160	13	13A 138160
140	160	13	13A 140160
	160	13	13A 140160/1 *
	165	15	13A 140165/1
	170	12	13A 140170
	170	15	13A 140170/1
	170	15	13A 140170/1 FPM *
140	180	12	13A 140180
144	160	12	13A 144160
145	170	15	13A 145170
	180	14	13A 145180
150	168	12	13A 150168
	170	12	13A 150170
	180	12	13A 150180
	180	15	13A 150180/1
160	185	10	13A 160185
	190	15	13A 160190
	190	13	13A 160190/1 *
165	200	15	13A 165200
170	200	12	13A 170200
	200	15	13A 170200/1
	200	15	13A 170200/1 FPM
175	200	15	13A 175200
	210	16	13A 175210 *
180	200	15	13A 180200
	210	15	13A 180210
	210	15	13A 180210 FPM *
	220	15	13A 180220

d	D	L	Reference
185	210	13	13A 185210
	215	15	13A 185215
190	220	16	13A 190220
	220	15	13A 190220/1
195	230	17	13A 195230 *
200	225	15	13A 200225
	230	15	13A 200230
	240	15	13A 200240
210	240	15	13A 210240
	240	15	13A 210240
220	250	15	13A 220250
	250	15	13A 220250 MVQ *
	260	15	13A 220260
230	260	15	13A 230260
	270	15	13A 230270
240	270	15	13A 240270
250	280	15	13A 250280
260	290	15	13A 260290
	300	20	13A 260300
275	320	15	13A 275320
280	310	15	13A 280310
	320	20	13A 280320/1
300	340	18	13A 300340
340	372	(13C) 18	13A 340372
	380	18	13A 340380
360	400	20	13A 360400
440	480	20	13A 440480

On request:



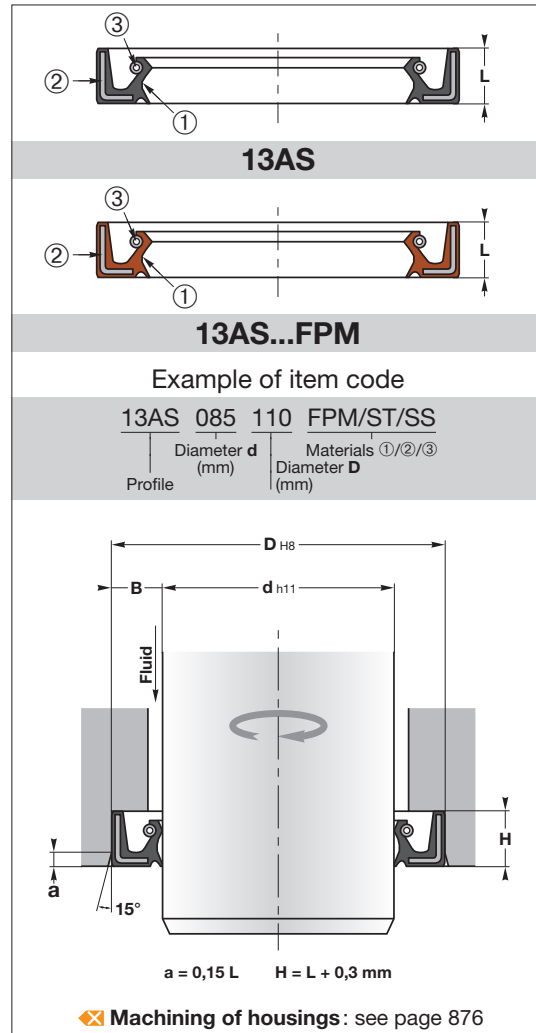


13AS



13AS...FPM

Radial oil seal type AS

ALL-TEC®
SEALING SYSTEMS

13AS is a radial oil seal with completely rubber covered outer diameter, spring-loaded sealing lip and an additional dust lip which prevent the introduction of dust and dirt from the outside.

Operating conditions ✂ see page 8

Pressure	≤ 0,05 MPa
Temperature	
13AS	-30°C to 100°C
13AS... FPM	-20°C to 200°C
Speed	3 to 10 m/s
Fluids	Mineral oils, water emulsions
Shaft surface hardness	≥ 55 HRC
Shaft hardness depth	≥ 0,3 mm

Materials ✂ see pages 10-19

Seal ①	NBR or FPM
Metal cage ②	ST
Spring ③	Standard: ST On demand: SS

Assembly ✂ see pages 878-879

In open groove

Advantages

- Good static sealing
- Reduced risk of corrosion
- Higher bore roughness
- Additional dust lip

Please contact us for applications approaching maximum values.

More information

On www.all-tec-business.net, click first on the reference and then on the material code to obtain the data sheet of the different materials.

On request:



d	D	L	Reference
6	22	7	13AS 006022
8	16	7	13AS 008016
10	20	7	13AS 010020
	22	7	13AS 010022
12	23	7	13AS 012023
	24	7	13AS 012024
12,7	25,4	5,2	13AS 012025
	22,22	6,35	13AS 013022/1
	25,4	6,35	13AS 013025
	28,57	6,35	13AS 013029
	34,92	6,35	13AS 013035
13	22	7	13AS 013022
14	28	7	13AS 014028
15,87	28,57	6,35	13AS 016029
	31,75	6,35	13AS 016032
	34,92	6,35	13AS 016035
17	28	7	13AS 017028
	30	7	13AS 017030
	30	7	13AS 017030 FPM
	35	8	13AS 017035
18	28	7	13AS 018028
	30	7	13AS 018030/2
19,05	25,4	6,35	13AS 019025
	28,57	6,35	13AS 019029
	31,75	6,35	13AS 019032
	33,34	6,35	13AS 019033
	34,92	6,35	13AS 019035
	38,1	4,76	13AS 019038
	41,27	9,52	13AS 019041
20	30	7	13AS 020030
	32	7	13AS 020032
	34	10	13AS 020034
	35	7	13AS 020035
	38	15	13AS 020038
	40	6	13AS 020040

d	D	L	Reference
20	40	7	13AS 020040/1
	42	7	13AS 020042
	45	7	13AS 020045
	47	7	13AS 020047
	52	10	13AS 020052
21	40	7	13AS 021040
22	32	7	13AS 022032
	35	7	13AS 022035/1
	40	8	13AS 022040
	40	11	13AS 022040/1
22,22	34,92	6,35	13AS 022035/2
	38,1	6,35	13AS 022038
	41,27	9,52	13AS 022041
	42,86	9,52	13AS 022043
	47,62	9,52	13AS 022048
24	35	7	13AS 024035
25	32	6	13AS 025032
	35	7	13AS 025035
	35	7	13AS 025035 FPM
	35	8,5	13AS 025035/1
	37	7	13AS 025037
	38	7	13AS 025038
25	40	7	13AS 025040
	42	7	13AS 025042/1
	42	10	13AS 025042/2
	45	10	13AS 025045
	47	7	13AS 025047
	50	10	13AS 025050
	52	8	13AS 025052
	52	10	13AS 025052/1
	62	10	13AS 025062
25,4	31,75	6,35	13AS 025032/1
	34,92	6,35	13AS 025035/2
	36,51	6,35	13AS 025037/1
	38,1	6,35	13AS 025038/1
	41,27	6,35	13AS 025041
	44,45	9,52	13AS 025044

**13AS****13AS...FPM****Radial oil seal type AS****ALL-TEC**
SEALING SYSTEMS

d	D	L	Reference
25,4	44,45	6,35	13AS 025044/1
	44,45	7,94	13AS 025044/2
	47,62	6,35	13AS 025048
	50,8	6,35	13AS 025051
	50,8	9,52	13AS 025051/1
26	35	7	13AS 026035
	52	10	13AS 026052
27	37	7	13AS 027037
	40	7	13AS 027040
28	38	7	13AS 028038/2
	47	7	13AS 028047
28,5	50,65	6,35	13AS 028050
28,57	34,92	4,76	13AS 029035
	38,1	6,35	13AS 029038
	41,27	6,35	13AS 029041
	42,86	6,35	13AS 029043
	44,45	6,35	13AS 029044
	47,62	9,52	13AS 029048
	50,8	6,35	13AS 029051
	53,97	7,94	13AS 029054
	57,15	9,52	13AS 029057
	61,91	7,94	13AS 029062
29	40	8	13AS 029040
30	40	7	13AS 030040
	42	8	13AS 030042
	47	7	13AS 030047
	47	10	13AS 030047/1
	50	7	13AS 030050
	52	7	13AS 030052
30	52	10	13AS 030052/1
	53,5	10	13AS 030053
	55	7	13AS 030055
	55	10	13AS 030055/1
	62	7	13AS 030062
	62	10	13AS 030062/1
	72	10	13AS 030072

d	D	L	Reference
31,75	44,45	6,35	13AS 031044/1
	41,27	6,35	13AS 032041
	42,86	6,35	13AS 032043
	46,43	9,52	13AS 032046/1
	47,62	11,11	13AS 032048
	50,8	6,35	13AS 032051
	53,97	7,94	13AS 032054
	55,56	9,52	13AS 032056
	57,15	9,52	13AS 032057
	63,5	9,52	13AS 032063
	72,23	9,52	13AS 032072
32	42	7	13AS 032042
	44	8	13AS 032044
	46	7	13AS 032046
	52	10	13AS 032052
33	50	10	13AS 033050
	50	6	13AS 033050/1
	52	6	13AS 033052
34	52	10	13AS 034052
	54	12,5	13AS 034054
	72	10	13AS 034072
34,92	47,62	7,94	13AS 035048
	49,21	9,53	13AS 035049
	50,8	7,94	13AS 035051
	52,39	7,94	13AS 035052/4
	53,97	6,35	13AS 035054
	57,15	7,94	13AS 035057
34,92	60,32	7,94	13AS 035060/1
	63,5	9,52	13AS 035063
	72,23	9,52	13AS 035072/2
35	45	7	13AS 035045
	47	7	13AS 035047/1
	50	7	13AS 035050
	50	10	13AS 035050/1
	52	8	13AS 035052/1
	52	10	13AS 035052/2
35	52	7	13AS 035052/3
	55	9	13AS 035055
	56	10	13AS 035056

d	D	L	Reference
35	60	10	13AS 035060
	62	8	13AS 035062
	62	10	13AS 035062/1
	62	12	13AS 035062/2
	72	10	13AS 035072
	72	12	13AS 035072/1
	80	10	13AS 035080
36,51	50,8	7,94	13AS 037051
	52,39	7,94	13AS 037052
	57,15	9,52	13AS 037057
	63,5	12,7	13AS 037064
	69,85	7,94	13AS 037070
38	50	10	13AS 038050
	54	10	13AS 038054
	62	10	13AS 038062
38,1	50,8	6,35	13AS 038051
	52,39	7,94	13AS 038052
	57,15	7,94	13AS 038057
	57,15	7,94	13AS 038057 FPM
	60,32	9,52	13AS 038060
38,1	63,5	9,52	13AS 038063
	66,67	9,52	13AS 038067
	69,85	9,52	13AS 038070
40	52	7	13AS 040052
	55	7	13AS 040055
	55	10	13AS 040055/1
40	55	8	13AS 040055/2
	60	10	13AS 040060
	60	7	13AS 040060/1
	62	7	13AS 040062
	62	10	13AS 040062/1
	65	10	13AS 040065
	67	7	13AS 040067 FPM
	68	10	13AS 040068
	72	7	13AS 040072
	72	10	13AS 040072/1
	80	10	13AS 040080
	80	12	13AS 040080/1
	90	10	13AS 040090

d	D	L	Reference
41,27	53,97	9,53	13AS 041054
	57,15	6,35	13AS 041057
	60,32	9,52	13AS 041060
	61,91	12,7	13AS 041062
	63,5	6,35	13AS 041063
	65,09	9,52	13AS 041065
	66,67	9,52	13AS 041067
	76,2	6,35	13AS 041076
42	62	7	13AS 042062
	62	10	13AS 042062/1
44	62	10	13AS 044062
	72	10	13AS 044072
44,45	57,15	6,35	13AS 044057
	58,74	6,35	13AS 044059
	60,32	9,52	13AS 044060
	61,91	7,94	13AS 044062/1
	63,5	6,35	13AS 044063/1
	66,67	9,52	13AS 044067
44,45	69,85	9,52	13AS 044070
	73,02	9,52	13AS 044073
	76,2	9,52	13AS 044076
45	55	8	13AS 045055
	58	7	13AS 045058
	60	7	13AS 045060
	62	7	13AS 045062
	62	7	13AS 045062 FPM
	62	10	13AS 045062/1
45	65	10	13AS 045065
	68	10	13AS 045068
	72	10	13AS 045072/1
	72	8	13AS 045072/2
	75	10	13AS 045075
	80	10	13AS 045080
	85	10	13AS 045085
	90	10	13AS 045090
46	60	7	13AS 046060

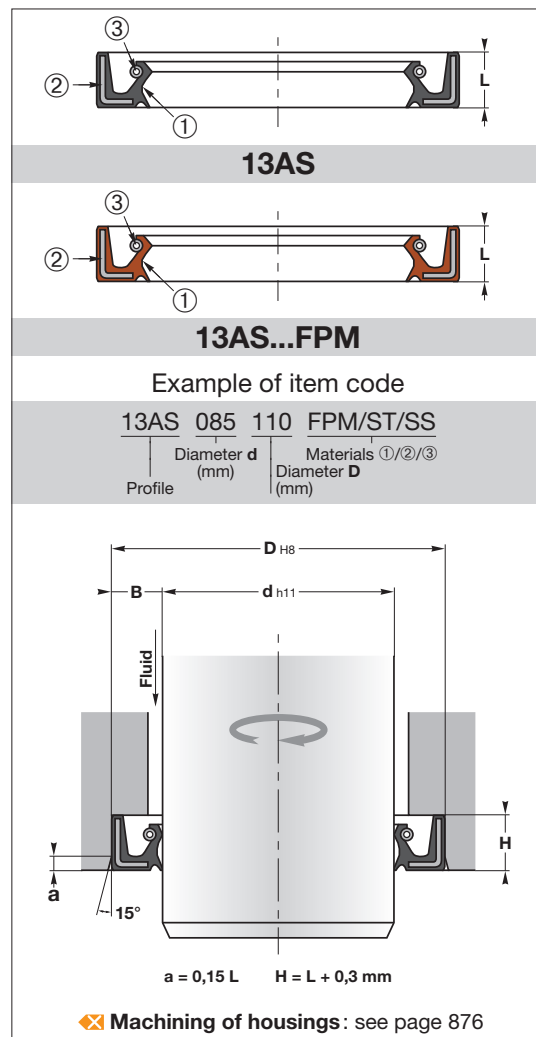
**13AS****13AS...FPM****Radial oil seal type AS****ALL-TEC®**
SEALING SYSTEMS

d	D	L	Reference
47,62	63,5	9,52	13AS 048063
	66,67	9,52	13AS 048067
	69,85	7,93	13AS 048070
	69,85	9,52	13AS 048070/1
	73,02	9,52	13AS 048073
	76,2	9,52	13AS 048076
	82,55	12,7	13AS 048083
48	62	8	13AS 048062
	62	10	13AS 048062/1
	68	12	13AS 048068
	72	12	13AS 048072
50	65	8	13AS 050065
	68	10	13AS 050068
	70	10	13AS 050070
	70	12	13AS 050070/1
	72	7	13AS 050072 FPM
	72	7	13AS 050072 NBR/ST/SS
	72	10	13AS 050072/2
	72	12	13AS 050072/1
	75	8	13AS 050075 *
	80	8	13AS 050080
	80	10	13AS 050080/1
	80	13	13AS 050080/2
50	80	13	13AS 050080/2 FPM *
	90	10	13AS 050090
50,8	76,2	9,52	13AS 050076
	63,5	6,35	13AS 051063
	66,67	9,52	13AS 051067
50,8	69,85	9,52	13AS 051070
	73,02	9,52	13AS 051073
	73,02	12,7	13AS 051073/1
52	68	7	13AS 052068
	72	8	13AS 052072
	85	12	13AS 052085
	85	10	13AS 052085/1
53,97	73,02	9,52	13AS 054073
	76,2	9,52	13AS 054076
	79,37	9,52	13AS 054079

d	D	L	Reference
53,97	80,96	9,52	13AS 054081
	82,55	9,52	13AS 054083
	85,72	9,52	13AS 054086
55	70	10	13AS 055070/1
	72	8	13AS 055072
	72	10	13AS 055072/1
	75	10	13AS 055075
	80	10	13AS 055080
	85	10	13AS 055085
	90	10	13AS 055090
	100	10	13AS 055100
57,15	69,85	9,52	13AS 057070
	76,2	12,7	13AS 057076
	82,55	6,35	13AS 057083
	85,72	12,7	13AS 057086
	88,9	12,7	13AS 057089
58	80	10	13AS 058080
	92	10	13AS 058092
60	75	8	13AS 060075 NBR/ST/SS
	80	8	13AS 060080
	80	10	13AS 060080/1
	80	13	13AS 060080/2
	82	12	13AS 060082/1
	85	10	13AS 060085
	90	8	13AS 060090
	90	10	13AS 060090/1
	95	10	13AS 060095
60	100	10	13AS 060100
	110	7	13AS 060110
	110	13	13AS 060110/1
60,3	79,5	9,52	13AS 060079
60,32	73,02	7,94	13AS 060073
	76,2	9,52	13AS 060076
	82,55	9,52	13AS 060082/2
	85,72	9,52	13AS 060086
	88,9	12,7	13AS 060089
62	90	13	13AS 062090

d	D	L	Reference
63,5	76,2	7,92	13AS 063076
	82,55	9,52	13AS 063082
	88,9	9,52	13AS 063089
	90,09	12,7	13AS 063090
	95,27	12,7	13AS 063095
65	85	10	13AS 065085
	90	10	13AS 065090
	95	10	13AS 065095
	100	12	13AS 065100
	110	10	13AS 065110
	120	10	13AS 065120
66,67	88,9	12,7	13AS 067089
	92,07	9,52	13AS 067092
	93,66	12,7	13AS 067094
	95,25	12,7	13AS 067095
	101,6	12,7	13AS 067102
68	90	10	13AS 068090
69,85	88,9	9,52	13AS 070089
	95,25	9,52	13AS 070095
	98,42	12,7	13AS 070098
70	85	8	13AS 070085
	90	10	13AS 070090/1
	100	10	13AS 070100
	110	10	13AS 070110
	110	12	13AS 070110/1
72	95	12	13AS 072095
73,02	88,9	7,94	13AS 073089
	92,07	9,52	13AS 073092
	95,25	9,52	13AS 073095
	98,42	12,7	13AS 073098
	101,6	12,7	13AS 073102
75	95	10	13AS 075095
	100	10	13AS 075100
	100	13	13AS 075100/1
	110	13	13AS 075110
	120	10	13AS 075120
76,2	101,6	9,52	13AS 076102
	107,95	12,7	13AS 076108
	114,3	12,7	13AS 076114

d	D	L	Reference
80	100	10	13AS 080100
	110	12	13AS 080110
	120	13	13AS 080120
82,55	101,6	12,7	13AS 083102
	107,95	12,7	13AS 083108
	114,3	12,7	13AS 083114
	117,47	12,7	13AS 083117
	120,65	9,53	13AS 083121
85	110	12	13AS 085110
	110	13	13AS 085110/1 *
	130	12	13AS 085130
85,72	107,95	12,7	13AS 086108
	111,12	12,7	13AS 086111
	117,47	12,7	13AS 086117
88,9	101,6	7,94	13AS 089102
	104,77	12,7	13AS 089105
	114,3	9,52	13AS 089114
	120,65	12,7	13AS 089121
90	110	12	13AS 090110
	120	12	13AS 090120
92,07	111,12	11,11	13AS 092111
	117,47	12,7	13AS 092117
	127	12,7	13AS 092127
	120	12	13AS 095120
	110	12	13AS 095110
95,25	114,3	12,7	13AS 095114
	120,65	12,7	13AS 095121
	127	12,7	13AS 095127
98	125	13	13AS 098125
100	120	10	13AS 100120
	120	12	13AS 100120/1
	125	13	13AS 100125
101,6	127	12,7	13AS 101127
	130,17	12,7	13AS 101130
	127	11,11	13AS 102127
	133,35	12,7	13AS 102133
	139,7	12,7	13AS 102140
105	130	13	13AS 105130

**13AS****13AS...FPM****Radial oil seal type AS****ALL-TEC®**
SEALING SYSTEMS

The **13AS** is a radial oil seal with completely rubber covered outer diameter, spring-loaded sealing lip and an additional dust lip which prevent the introduction of dust and dirt from the outside.

Operating conditions ✂ see page 8

Pressure	≤ 0,05 MPa
Temperature	
13AS	-30°C to 100°C
13AS... FPM	-20°C to 200°C
Speed	3 to 10 m/s
Fluids	Mineral oils, water emulsions
Shaft surface hardness	≥ 55 HRC
Shaft hardness depth	≥ 0,3 mm

Materials ✂ see pages 10-19

Seal ①	NBR or FPM
Metal cage ②	ST
Spring ③	Standard: ST On demand: SS

Assembly ✂ see pages 878-879

In open groove

Advantages

- Good static sealing
- Reduced risk of corrosion
- Higher bore roughness
- Additional dust lip

Please contact us for applications approaching maximum values.

More information

On www.all-tec-business.net, click first on the reference and then on the material code to obtain the data sheet of the different materials.

On request:



d	D	L	Reference
107,95	133,35	12,7	13AS 108133
	139,7	12,7	13AS 108140
	152,4	14,28	13AS 108152
110	130	13	13AS 110130
	140	12	13AS 110140
114,3	139,7	12,7	13AS 114140
	152,4	12,7	13AS 114152
	155,57	14,29	13AS 114156
115	140	12	13AS 115140
	150	12	13AS 115150
120	140	13	13AS 120140
	150	12	13AS 120150
	150	15	13AS 120150/1
120,65	146,05	12,7	13AS 121146
	152,4	14,28	13AS 121152
	158,67	12,7	13AS 121159
125	150	12	13AS 125150
	160	15	13AS 125160
127	146,05	12,7	13AS 127146
	152,4	12,7	13AS 127152
	165,1	12,7	13AS 127165
130	160	12	13AS 130160
	170	12	13AS 130170
130,17	155,57	12,7	13AS 130156
	158,75	12,7	13AS 130159
133,35	158,75	12,7	13AS 133159
	165,1	12,7	13AS 133165
139,7	165,1	12,7	13AS 140165
140	160	13	13AS 140160
	170	14	13AS 140170
	170	12	13AS 140170/1
	180	15	13AS 140180
150	180	15	13AS 150180
152,4	177,8	12,7	13AS 152178
	190,5	12,7	13AS 152191
160	190	15	13AS 160190

d	D	L	Reference
170	200	15	13AS 170200
190	215	15	13AS 190215
	220	15	13AS 190220
200	230	15	13AS 200230 FPM
220	250	15	13AS 220250
265	290	16	13AS 265290
440	480	20	13AS 440480 *
133,35	158,75	12,7	13AS 133159
	165,1	12,7	13AS 133165
140	160	13	13AS 140160
139,7	165,1	12,7	13AS 140165
140	170	14	13AS 140170
	170	12	13AS 140170/1
	180	15	13AS 140180
150	180	15	13AS 150180
152,4	177,8	12,7	13AS 152178
	190,5	12,7	13AS 152191
160	190	15	13AS 160190
170	200	15	13AS 170200
190	215	15	13AS 190215
	220	15	13AS 190220
200	230	15	13AS 200230 FPM
220	250	15	13AS 220250
265	290	16	13AS 265290
440	480	20	13AS 440480 *

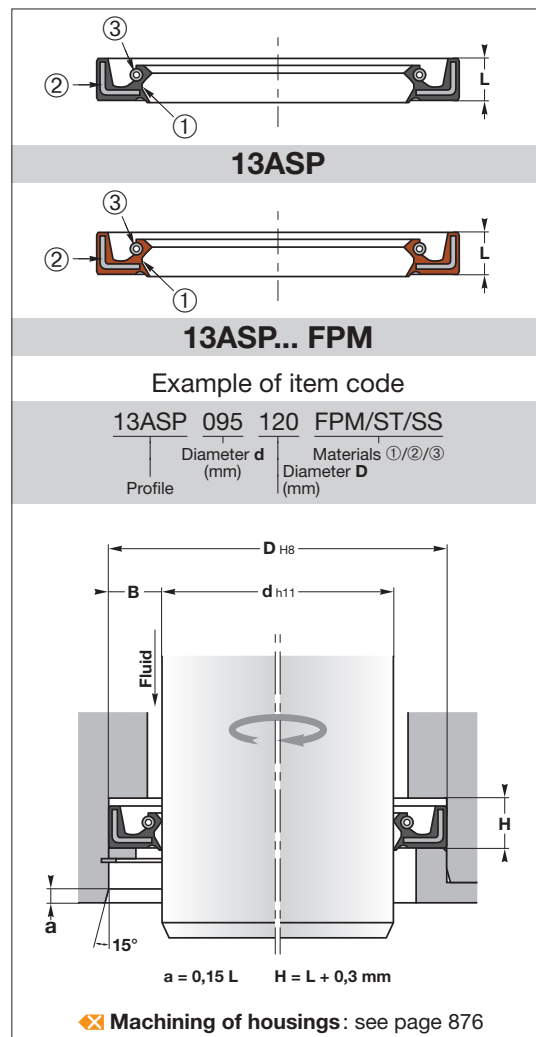


13ASP



13ASP...FPM

Pressure oil seal

ALL-TEC®
SEALING SYSTEMS

13ASP is a radial oil seal with completely rubber covered outer diameter and a short flexible spring-loaded sealing lip. This type of seal is designed for pressures up to 1 MPa. The additional dust lip protects the system against moderate to medium dust and dirt ingress from the outside.

It is preferably used in conjunction with a retainer (e.g. circlip, shoulder, etc) to avoid a "pop-out" of the seal.

Operating conditions see page 8

Pressure	≤ 1 MPa
Temperature	
13ASP	-30°C to 100°C
13ASP... FPM	-20°C to 200°C
Speed	3 to 10 m/s
Fluids	Mineral oils, water emulsions
Shaft surface hardness	≥ 55 HRC
Shaft hardness depth	≥ 0,3 mm

Materials see pages 10-19

Seal ①	NBR or FPM
Metal cage ②	ST
Spring ③	Standard: ST
	On demand: SS

Assembly see pages 878-879

In open groove

Advantages

- Good static sealing
- Reduced risk of corrosion
- Higher bore roughness
- Additional dust lip
- Up to 1 MPa at low peripheral speed

Please contact us for applications approaching maximum values.

More information

On www.all-tec-business.net, click first on the reference and then on the material code to obtain the data sheet of the different materials.

On request:



d	D	L	H	Reference	d	D	L	H	Reference
8	22	6	6,5	13ASP 008022	24	40	7	7,5	13ASP 024040/1
	22	6	6,5	13ASP 008022 FPM	25	35	6	6,5	13ASP 025035
10	22	6	6,5	13ASP 010022		35	6	6,5	13ASP 025035 FPM
	22	6	6,5	13ASP 010022 FPM		36	6	6,5	13ASP 025036/1
11	22	7	7,5	13ASP 011022		37	6	6,5	13ASP 025037
12	22	6	6,5	13ASP 012022		40	7	7,5	13ASP 025040
	22	6	6,5	13ASP 012022 FPM		40	7	7,5	13ASP 025040 FPM
	22	7	7,5	13ASP 012022/1		42	6	6,5	13ASP 025042
	24	6	6,5	13ASP 012024		42	6	6,5	13ASP 025042 FPM
	24	6	6,5	13ASP 012024 FPM		47	6	6,5	13ASP 025047
	32	7	7,5	13ASP 012032		47	6	6,5	13ASP 025047 FPM
14	24	7	7,5	13ASP 014024	26	40	6	6,5	13ASP 026040 FPM
15	25	6	6,5	13ASP 015025	28	40	8	8,5	13ASP 028040
	25	6	6,5	13ASP 015025 FPM		40	6	6,5	13ASP 028040/1
	30	7	7,5	13ASP 015030		40	6	6,5	13ASP 028040/1 FPM
	32	7	7,5	13ASP 015032		40	7	7,5	13ASP 028040/2
	35	6	6,5	13ASP 015035		40	9	9,5	13ASP 028040/3
	35	6	6,5	13ASP 015035 FPM		42	6	6,5	13ASP 028042
16	26	7	7,5	13ASP 016026	30	42	6	6,5	13ASP 030042
17	30	6	6,5	13ASP 017030		42	6	6,5	13ASP 030042 FPM
	30	6	6,5	13ASP 017030 FPM		42	7	7,5	13ASP 030042/1
	35	7	7,5	13ASP 017035		52	7	7,5	13ASP 030052
	40	7	7,5	13ASP 017040		55	7	7,5	13ASP 030055
17,46	28,57	6,35	7	13ASP 017028	31,75	44,45	6,35	6,8	13ASP 031044
	28,57	6,35	7	13ASP 017028 FPM	32	44	8	9,5	13ASP 032044/1
18	30	6	6,5	13ASP 018030		47	6	6,5	13ASP 032047
	30	6	6,5	13ASP 018030 FPM		47	6	6,5	13ASP 032047 FPM
	30	7	7,5	13ASP 018030/1		52	6	6,5	13ASP 032052
	32	6	6,5	13ASP 018032		58	10	10,5	13ASP 032058
	35	6	6,5	13ASP 018035/1	35	47	7	7,5	13ASP 035047
	35	6	6,5	13ASP 018035/1 FPM		47	6	6,5	13ASP 035047/1
	35	6	6,5	13ASP 018035/1 FPM		47	6	6,5	13ASP 035047/1 FPM
19,05	31,75	6,35	6,8	13ASP 019032		50	7	7,5	13ASP 035050
20	30	7	7,5	13ASP 020030/1		52	6	6,5	13ASP 035052
	32	7	7,5	13ASP 020032/1		52	6	6,5	13ASP 035052 FPM
	35	7	7,5	13ASP 020035	38	50	6	6,5	13ASP 038050
	35	6	6,5	13ASP 020035/1	38,1	57,15	7,93	9,12	13ASP 038057
	35	6	6,5	13ASP 020035/1 FPM	40	52	7	7,5	13ASP 040052
	40	7	7,5	13ASP 020040 FPM		55	6	6,5	13ASP 040055
20	32	6	6,5	13ASP 022032 FPM		55	6	6,5	13ASP 040055 FPM
	35	6	6,5	13ASP 022035					
	35	6	6,5	13ASP 022035 FPM					

**13ASP****13ASP...FPM****Pressure oil seal****ALL-TEC®**
SEALING SYSTEMS

d	D	L	H	Reference
40	58	8	8,5	13ASP 040058
	62	7	7,5	13ASP 040062
	62	6	6,5	13ASP 040062/1
	62	6	6,5	13ASP 040062/1 FPM
42	62	7	7,5	13ASP 042062
	62	7	7,5	13ASP 042062 FPM
45	58	7	7,5	13ASP 045058/1
	62	7	7,5	13ASP 045062
	62	7	7,5	13ASP 045062 FPM
	65	7	7,5	13ASP 045065 FPM
	65	8	8,5	13ASP 045065/1
47	62	7	7,5	13ASP 047062
50	65	7	7,5	13ASP 050065
	65	7	7,5	13ASP 050065 FPM
	65	8	8,5	13ASP 050065/1
	68	8	8,5	13ASP 050068
	68	7	7,5	13ASP 050068/1
	68	7	7,5	13ASP 050068/1 FPM
	70	10	11	13ASP 050070
	72	7	7,5	13ASP 050072
	72	7	7,5	13ASP 050072 FPM
	72	7	7,5	13ASP 050072 FPM
55	70	8	8,5	13ASP 055070
	70	7	7,5	13ASP 055070/1
	72	8	8,5	13ASP 055072
	72	7	7,5	13ASP 055072/1
	72	7	7,5	13ASP 055072/1 FPM
	75	7	7,5	13ASP 055075
	75	7	7,5	13ASP 055075 FPM
	75	7	7,5	13ASP 055075 FPM
60	72	7	7,5	13ASP 060072
	75	7	7,5	13ASP 060075
	75	8	9	13ASP 060075/1
	75	10	10,5	13ASP 060075/2 FPM
	80	7	7,5	13ASP 060080
	80	7	7,5	13ASP 060080 FPM
	85	8	8,5	13ASP 060085
62	85	7	7,5	13ASP 062085
	85	7	7,5	13ASP 062085 FPM
65	78	8	8,5	13ASP 065078
	85	7	7,5	13ASP 065085
	90	7	7,5	13ASP 065090
	90	7	7,5	13ASP 065090 FPM

d	D	L	H	Reference	d	D	L	H	Reference	
70	82	7	7,5	13ASP 070082	110	130	11	12,5	13ASP 110130	
	90	10	10,5	13ASP 070090		130	12	13	13ASP 110130/1 FPM	
	90	7	7,5	13ASP 070090/1		150	8	8,5	13ASP 110150	
75	95	10	10,5	13ASP 075095	120	140	7,5	8,5	13ASP 120140	
	95	7	7,5	13ASP 075095/1		140	7,5	8,5	13ASP 120140 FPM	
	95	7	7,5	13ASP 075095/1 FPM		150	12	12,5	13ASP 120150	
80	100	7	7,5	13ASP 080100		150	10	10,5	13ASP 120150/1	
	100	7	7,5	13ASP 080100 FPM		150	10	10,5	13ASP 120150/1 FPM	
	100	7	7,5	13ASP 080100 FPM	130	150	7	7,5	13ASP 130150	
85	105	7	7,5	13ASP 085105		140	160	10	11	13ASP 140160
	110	8	9	13ASP 085110			170	15	16	13ASP 140170
	110	8	9	13ASP 085110 FPM	170		15	16	13ASP 140170 FPM	
	120	8	8,5	13ASP 085120	150	180	8	8,5	13ASP 150180	
120	8	8,5	13ASP 085120 FPM	160		185	8,5	9,5	13ASP 160185	
90	110	12	12,5		13ASP 090110	200	10	10,5	13ASP 160200	
	110	7	8		13ASP 090110/1	200	10	10,5	13ASP 160200 FPM	
	110	7	8		13ASP 090110/1 FPM	180	210	8,5	9,5	13ASP 180210
	115	10	11	13ASP 090115 FPM	210		8,5	9,5	13ASP 180210 FPM	
95	120	12	12,5	13ASP 095120	200		230	13	14,5	13ASP 200230
	120	12	12,5	13ASP 095120 FPM		240	270	8	8,5	13ASP 240270
100	120	7,5	8,5	13ASP 100120			270	8	8,5	13ASP 240270/1 FPM
	120	7,5	8,5	13ASP 100120 FPM	260	280	10	10,5	13ASP 260280	
105	130	11,5	12	13ASP 105130		280	10	10,5	13ASP 260280 FPM	
	130	7,5	8	13ASP 105130/1		300	340	19	20	13ASP 300340
	130	7,5	8	13ASP 105130/1 FPM						

On request:

13AOF



13B



13C



13CS



13E



13EC



13ADUO



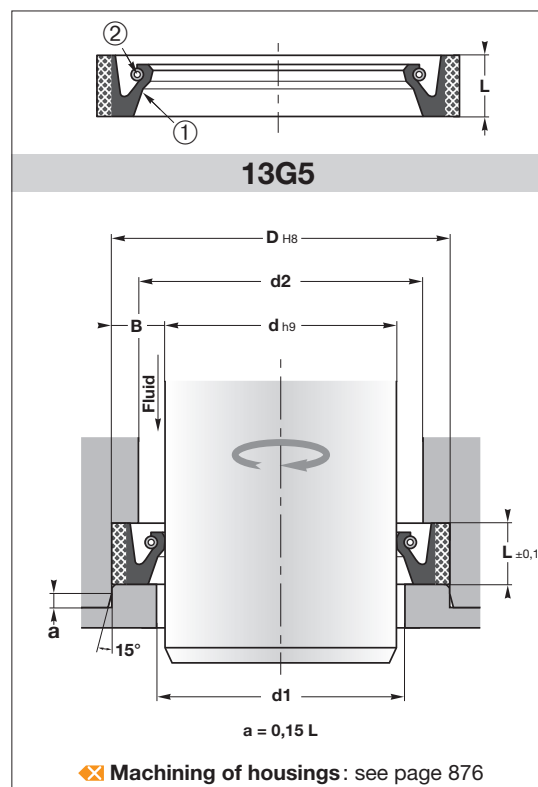


13G5

Fabric reinforced oil seal



ALL-TEC®
SEALING SYSTEMS



d	d1	d2
< 100	d + 4	d + B
100 - 250	d + 8	
250 - 400	d + 12	
400 - 600	d + 14	
> 600	d + 16	

13G5 contains no metal parts excepted the spring. Instead of the metal insert, a fabric reinforced elastomer is molded into the body of the seal.

The standard sealing lip is in NBR.

Operating conditions see page 8

Pressure	≤ 0,05 MPa
Temperature	-30°C to 100°C
Speed	3 to 10 m/s
Fluids	Mineral oils, water emulsions
Shaft surface hardness	≥ 55 HRC
Shaft hardness depth	≥ 0,3 mm

Materials see pages 10-19

Seal	NBR / NBR-C
Spring ②	ST

Assembly see pages 878-879

In open groove

Advantages

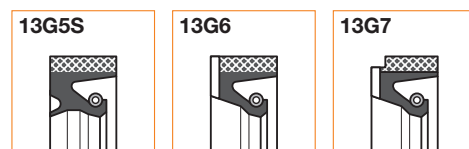
- Easy assembly
- Reduced risk of corrosion
- Higher bore roughness

Please contact us for applications approaching maximum values.

More information

On www.all-tec-business.net, click first on the reference and then on the material code to obtain the data sheet of the different materials.

On request:



d	D	L	Reference
8	22	7	13G5 008022
10	25	7	13G5 010025
25	40	8	13G5 025040
30	55	12	13G5 030055
35	52	8	13G5 035052
45	60	10	13G5 045060
	62	8	13G5 045062
	70	11	13G5 045070
50	65	8	13G5 050065
	70	10	13G5 050070
	75	11	13G5 050075
55,6	76,2	12,7	13G5 055076
60	80	10	13G5 060080
65	90	11	13G5 065090
	90	12,5	13G5 065090/1
	95	16	13G5 065095
	100	12	13G5 065100
70	102	12,5	13G5 070102
73	88,9	7,9	13G5 073088
74	90	10	13G5 074090
75	95	12,5	13G5 075095
	97	12,5	13G5 075097
76,2	95,2	9,5	13G5 076095
80	100	10	13G5 080100
	100	12	13G5 080100/1
	105	12,2	13G5 080105
	115	12	13G5 080115
82,5	114,3	12,7	13G5 082114
85	110	12	13G5 085110
	117	12,5	13G5 085117
88,9	114,3	12,7	13G5 088114

d	D	L	Reference
90	110	12	13G5 090110
	110	13	13G5 090110/1
	115	12,2	13G5 090115
	115,4	9,5	13G5 090115/1
	122	12,5	13G5 090122
92,1	117,5	12,7	13G5 092117
93	127	13	13G5 093127
95	127	12,5	13G5 095127
98,4	123,8	12,7	13G5 098123
98,5	123,9	10	13G5 098123/1
100	120	8	13G5 100120
	120	13	13G5 100120/1
	125	12,5	13G5 100125
	127	11	13G5 100127
	130	15	13G5 100130
	132	12,5	13G5 100132
	135	16	13G5 100135
	140	16	13G5 100140
101,6	127	10	13G5 101127
	127	12,7	13G5 101127/1
	130,2	12,7	13G5 101130
105	130	15,3	13G5 105130
	145	16	13G5 105145
107,9	133,3	12,7	13G5 107133
110	130	9	13G5 110130
	130	12	13G5 110130/1
	140	13	13G5 110140
114	140	13	13G5 114140
114,3	139,7	12,7	13G5 114139
115	140	12	13G5 115140
	140	15	13G5 115140/1
	160	16	13G5 115160
120	140	12	13G5 120140
	147	12	13G5 120147
	150	13	13G5 120150
	150	14	13G5 120150/1



13G5

Fabric reinforced oil seal

ALL-TEC®
SEALING SYSTEMS

d	D	L	Reference	
125	155 160	12,2 12	13G5	125155 125160
125,4	157,2	12,7	13G5	125157
127	146 158,8 165,1	9,5 15,9 15,9	13G5	127146 127158 127165
130	160 160 165 170	15 16 18 16	13G5	130160 130160/1 130165 130170
130,1	161,9	12,7	13G5	130161
131,8	163,5	15,9	13G5	131163
133,3	171,4	15,9	13G5	133171
135	160	15	13G5	135160
140	155 170 170 180	10 14 16 16	13G5	140155 140170 140170/1 140180
145	165 167 175	10 12 15	13G5	145165 145167 145175
146	171,4 177,8	12,7 15,9	13G5	146171 146177
150	180 180 190	13 15 16	13G5	150180 150180/1 150190
150,8	182,6	12,7	13G5	150182
152,4	190,5	15,9	13G5	152190
155	195	16	13G5	155195
160	185 190 198,1 200	10 15 12,7 16	13G5	160185 160190 160198 160200
165	190 190 195	13 15 15	13G5	165190 165190/1 165195

d	D	L	Reference	
165,1	190,5	14,3	13G5	165190
168,3	206,4	17,5	13G5	168206
170	200 205 210	15 16 16	13G5	170200 170205 170210
171,4	209,5	15,9	13G5	171209
175	205	15	13G5	175205
177,8	222,2	19	13G5	177222
180	205,4 205,4 210 218,1 220	10,2 12,7 12 15,9 16	13G5	180205 180205/1 180210 180218 180220
184	224	15,5	13G5	184224
184,2	212,7	19	13G5	184212
185	216,8 225	15,9 12	13G5	185216 185225
189	251	13	13G5	189251
190	210 220 220	14 13 16	13G5	190210 190220 190220/1
190	230 245	16 24,5	13G5	190230 190245
190,5	215,9	15,9	13G5	190215
195	235	16	13G5	195235
196	235	16	13G5	196235
196,7	222,3	16,4	13G5	196222
197,1	230,1	16	13G5	197230
200	235 238,1 240	18 19 16	13G5	200235 200238 200240
203,2	241,3	19	13G5	203241

d	D	L	Reference	
209,5	241,3 247,6 260,3	12,7 15,9 19	13G5	209241 209247 209260
	260,3	25,4	13G5	209260
210	240 245 249	12 18,2 22	13G5	210240 210245 210249
	250	16	13G5	210250
215,9	241,3 254	12,7 15,9	13G5	215241 215254
218	250	16	13G5	218250
220	250 256 260	15 22 16	13G5	220250 220256 220260
	260 260 270	20 22 16	13G5	220260/1 220260/2 220270
226	276	22	13G5	226276
230	260 270 270	15,7 16 22	13G5	230260 230270 230270/1
	280	15	13G5	230280
235	266,7	15,9	13G5	235266
236	261	12,5	13G5	236261
240	270 275 275	15 16 18	13G5	240270 240275 240275/1
	280 280	16 18	13G5	240280 240280/1
241,3	266,7 279,4	12,7 17,4	13G5	241266 241279
244,5	269,9	12,7	13G5	244269
247,6	292,1	19	13G5	247292
247,7	285,8	19	13G5	247285
249	292,1	16	13G5	249292

d	D	L	Reference	
250	280 285 290 300	16 18 16 20	13G5	250280 250285 250290 250300
254	271,5 294	9,5 20	13G5	254271 254294
260	290 298,1 300 304	16 19 20 20	13G5	260290 260298 260300 260304
260,4	298,5	19	13G5	260298
265	290 315	16 18	13G5	265290 265315
266,7	317,5	25,4	13G5	266317
270	295 300 310 314	10,5 15 20 20	13G5	270295 270300 270310 270314
272	304	16,5	13G5	272304
273	323,8	14,3	13G5	273323
275	315 320	18 15	13G5	275315 275320
280	320 320 324	16 20 20	13G5	280320 280320/1 280324
282,1	336,5	19	13G5	282336
286,4	330,2	19	13G5	286330
290	330 334 340,8	20 20 20,6	13G5	290330 290334 290340
292,1	342,9	23	13G5	292342
298,5	349,3	22,2	13G5	298349
300	335 340 340 344	18 16 20 20	13G5	300335 300340 300340/1 300344



13G5

Fabric reinforced oil seal



ALL-TEC®
SEALING SYSTEMS



d	D	L	Reference
304,8	355,6	19	13G5 304355
310	350	18	13G5 310350
	350	20	13G5 310350/1
311	345	18	13G5 311345
311,2	349,3	19	13G5 311349
315	355	16	13G5 315355
	360	16	13G5 315360
317	350	19	13G5 317350
317,5	339,7	14,3	13G5 317339
	361,9	19	13G5 317361
	368,3	25,4	13G5 317368
320	358	19	13G5 320358
	360	18	13G5 320360
	364	20	13G5 320364
323,9	368,3	19	13G5 323368
330	370	20	13G5 330370
	374	19	13G5 330374
340	372	18	13G5 340372
	380	20	13G5 340380
	384	20	13G5 340384
342,9	387,3	19	13G5 342387
343	394	19	13G5 343394
350	390	20	13G5 350390
	394	20	13G5 350394
	400	25	13G5 350400
360	390	18	13G5 360390
	404	20	13G5 360404
361,9	400	19	13G5 361400
362	406	19,5	13G5 362406
370	410	20	13G5 370410
	414	20	13G5 370414
	414	25	13G5 370414/1
375	415	20	13G5 375415

d	D	L	Reference
380	410	14	13G5 380410
	420	20	13G5 380420
	424	20	13G5 380424
390	434	20	13G5 390434
	450	25	13G5 390450
393,7	438,1	19	13G5 393438
	444,5	23,6	13G5 393444
395	430	18	13G5 395430
	432	20	13G5 395432
400	440	18	13G5 400440
	440	20	13G5 400440/1
	444	20	13G5 400444
	460	30	13G5 400460
405	445	20	13G5 405445
406,4	450,8	19	13G5 406450
	457,2	20,6	13G5 406457
	457,2	22,2	13G5 406457
410	460	22	13G5 410460
	460	25	13G5 410460/1
415	453,1	19	13G5 415453
420	460	20	13G5 420460
	470	25	13G5 420470
430	480	22	13G5 430480
431,8	457,2	12,7	13G5 431457
	482,6	20,6	13G5 431482
435	485	22	13G5 435485
440	490	22	13G5 440490
445	485	20	13G5 445485
	495	22	13G5 445495
448	480	15	13G5 448480
450	500	22	13G5 450500
	500	25	13G5 450500/1
456	500	20	13G5 456500
460	500	20	13G5 460500
	510	22	13G5 460510
	510	25	13G5 460510/1

d	D	L	Reference
470	510	18	13G5 470510
	520	22	13G5 470520
	520	25	13G5 470520/1
480	520	18	13G5 480520
	530	22	13G5 480530
485	535	22	13G5 485535
493	543	26	13G5 493543
495	540	25	13G5 495540
500	540	20	13G5 500540
	544	20	13G5 500544
	550	22	13G5 500550
508	558,8	22,2	13G5 508558
520	570	22	13G5 520570
	570,8	20,6	13G5 520570
520,7	571,5	22,2	13G5 520571
530	555	12,5	13G5 530555
	580	22	13G5 530580
	580	25	13G5 530580/1
533,4	588,8	19	13G5 533588
540	580	18	13G5 540580
	590	22	13G5 540590
550	600	22	13G5 550600
	600	25	13G5 550600/1
560	600	17,2	13G5 560600
	604	20	13G5 560604
	610	22	13G5 560610
570	620	22	13G5 570620
	620	25	13G5 570620/1
585	625	20	13G5 585625
587,4	638,2	20,6	13G5 587638
590	640	22	13G5 590640
600	640	20	13G5 600640
	650	22	13G5 600650
	650	25	13G5 600650/1

d	D	L	Reference
609,6	660,4	22,2	13G5 609660
620	670	22	13G5 620670
625	670	20	13G5 625670
630	680,8	19	13G5 630680
635	695	25	13G5 635695
640	690	22	13G5 640690
650	690	18	13G5 650690
	700	22	13G5 650700
	714	25	13G5 650714
657	711	20	13G5 657711
660	700	18	13G5 660700
	704	20	13G5 660704
670	734	25	13G5 670734
680	730	20	13G5 680730
	744	25	13G5 680744
685	725	20	13G5 685725
700	760	30	13G5 700760
	764	25	13G5 700764
710	760	25	13G5 710760
	760	25,5	13G5 710760/1
730	794	25	13G5 730794
735	799	25	13G5 735799
740	780	20	13G5 740780
750	810	30	13G5 750810
760	800	20	13G5 760800
	820	25	13G5 760820
776	820	20	13G5 776820
780	820	18	13G5 780820
	830	25	13G5 780830
	844	25	13G5 780844
790	845	25	13G5 790845
800	864	25	13G5 800864

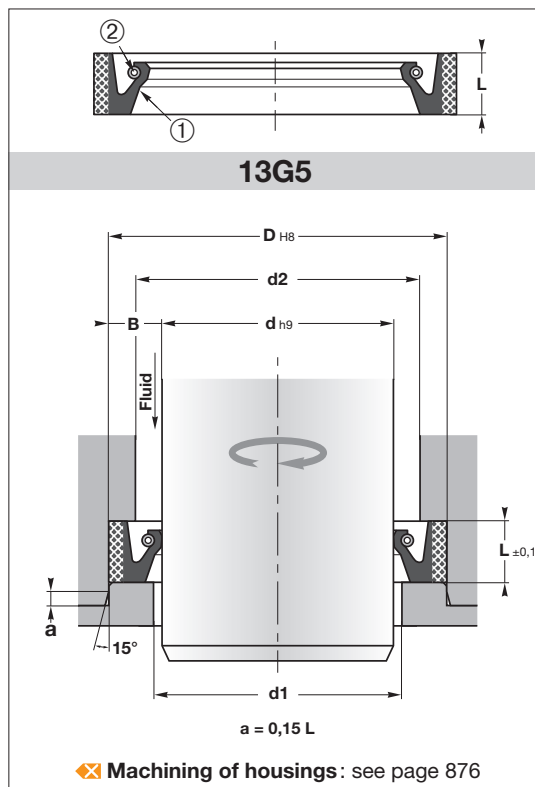


13G5

Fabric reinforced oil seal



ALL-TEC®
SEALING SYSTEMS



13G5 contains no metal parts excepted the spring. Instead of the metal insert, a fabric reinforced elastomer is molded into the body of the seal.

The standard sealing lip is in NBR.

Operating conditions see page 8

Pressure	≤ 0,05 MPa
Temperature	-30°C to 100°C
Speed	3 to 10 m/s
Fluids	Mineral oils, water emulsions
Shaft surface hardness	≥ 55 HRC
Shaft hardness depth	≥ 0,3 mm

Materials see pages 10-19

Seal	NBR / NBR-C
Spring ②	ST

Assembly see pages 878-879

In open groove

Advantages

Easy assembly
Reduced risk of corrosion
Higher bore roughness

Please contact us for applications approaching maximum values.

More information

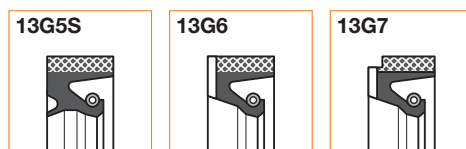
On www.all-tec-business.net, click first on the reference and then on the material code to obtain the data sheet of the different materials.

d	D	L	Reference
820	870 884	22 25	13G5 820870 13G5 820884
838,2	901,7	22,2	13G5 838901
840	880	20	13G5 840880
850	910	30	13G5 850910
854	918	25	13G5 854918
860	900	18	13G5 860900
870	920,8	20	13G5 870920
875	939	25	13G5 875939
876,3	927,1	22,2	13G5 876927

d	D	L	Reference
889	952,5	22,2	13G5 889952
890	940	25	13G5 890940
900	960 964	30 25	13G5 900960 13G5 900964
920	984	25	13G5 920984
950	1000 1000	22 30	13G5 9501000 13G5 9501000/1
971,6	1016	20,6	13G5 9711016
1000	1050	25	13G5 10001050
1090	1140	25	13G5 10901140
1110	1150 1174	20 25	13G5 11101150 13G5 11101174

d	d1	d2
< 100	d + 4	d + B
100 - 250	d + 8	
250 - 400	d + 12	
400 - 600	d + 14	
> 600	d + 16	

On request:



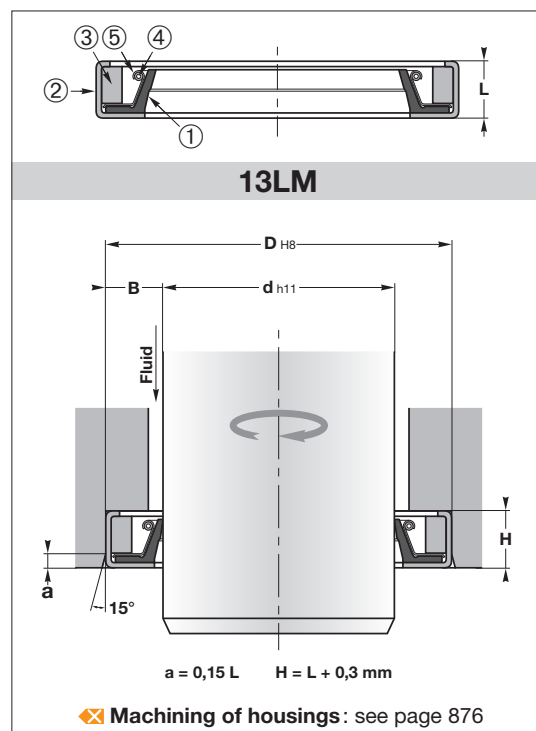


13LM

NBR radial oil seal type LM



ALL-TEC®
SEALING SYSTEMS



13LM has been specially developed for severe operating conditions with large misalignments and high speeds where rigidity and strength are necessary. The oil seal can absorb misalignment up to 5 mm (radial up to 2,5 mm). The sealing lip is in NBR and vulcanised onto the metal casing. A groove on the external diameter allows the operator to center the oil seal in the housing bore, easing the assembly.

This profile is only available for large diameters, from 180 mm I.D. up to 2000 mm O.D.

Operating conditions see page 8

Pressure	≤ 0,05 MPa
Temperature	-30°C to 100°C
Speed	3 to 10 m/s
Fluids	Mineral oils, water emulsions
Shaft surface hardness	≥ 55 HRC
Shaft hardness depth	≥ 0,3 mm

Materials see pages 10-19

Seal ①	NBR
Metal cage ②	ST
Ring ③	SS
Spring ④	ST
Spring retainer ⑤	SS

Assembly see pages 878-879

In open groove

Advantages

Good radial stiffness and stability
For large diameters up to 2000 mm O.D.

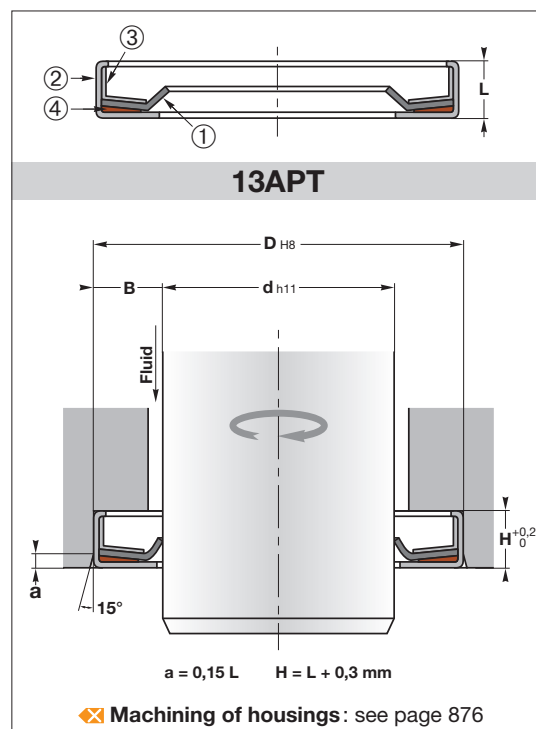
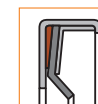
Please contact us for applications approaching maximum values.

More information

On www.all-tec-business.net, click first on the reference and then on the material code to obtain the data sheet of the different materials.

d	D	L	Reference
234,95	273,05	17,45	13LM 09251075
254	292,1	17,45	13LM 10001150
257,17	295,27	17,45	13LM 10121162
266,7	304,8	17,45	13LM 10501200
288,92	339,72	20,62	13LM 11371337
292,1	330,2	17,45	13LM 11501300
	342,9	20,62	13LM 11501350
304,8	342,9	17,45	13LM 12001350
311,15	349,25	17,45	13LM 12251375
317,5	355,6	17,45	13LM 12501400
330,2	368,3	17,45	13LM 13001450
374,65	419,1	17,45	13LM 14751650
381	419,1	17,45	13LM 15001650
387,35	425,45	17,45	13LM 15251675
457,2	508	22,22	13LM 18002000
466,72	504,82	17,45	13LM 18371987
482,6	520,7	19,05	13LM 19002050
488,95	527,05	19,05	13LM 19252075
508	552,45	19,05	13LM 20002175
520,7	558,8	19,05	13LM 20502200
	571,5	22,22	13LM 20502250

d	D	L	Reference
527,05	577,85	22,22	13LM 20752275
533,4	584,2	22,22	13LM 21002300
558,8	609,6	22,22	13LM 22002400
577,85	628,65	22,22	13LM 22752475
622,3	673,1	22,22	13LM 24502650
635	673,1	19,05	13LM 25002650
663,57	714,37	22,22	13LM 26122812
692,15	742,95	22,22	13LM 27252925
698,5	749,3	22,22	13LM 27502950
723,9	774,7	22,22	13LM 28503050
730,25	781,05	22,22	13LM 28753075
736,6	787,4	22,22	13LM 29003100
749,3	800,1	22,22	13LM 29503150
762	812,8	22,22	13LM 30003200
	825,5	22,22	13LM 30003250
787,4	838,2	22,22	13LM 31003300
793,75	844,55	19,05	13LM 31253325
837	889	22,22	13LM 32953500
838,2	876,3	19,05	13LM 33003450
	889	22,22	13LM 33003500
876,3	927,1	22,22	13LM 34503650
898,52	949,32	22,22	13LM 35373737
927,1	977,9	22,22	13LM 36503850
965,2	1016	22,22	13LM 38004000
1117,6	1181,1	22,22	13LM 44004650
1143	1184,27	25,4	13LM 45004662



13APT is used in special range of applications generally in mechanical engineering and in the chemical industry. The sealing lip is made of carbon-filled PTFE which has good resistance to high temperatures and chemicals, but also outstanding friction behaviour and stick-slip free running. The silicone part assures the static sealing.

Operating conditions **see page 8**

Pressure	≤ 0,05 MPa
Temperature	-60°C to 200°C
Speed	≤ 30 m/s
Fluids	Mineral oils, HFA, HFB, HFC, HFD
Shaft surface hardness	≥ 55 HRC
Shaft hardness depth	≥ 0,3 mm

Materials **see pages 10-19**

Seal ①	Carbon filled PTFE
Casing ②	SS
Inner casing ③	SS
Static seal ④	MVQ

Assembly **see pages 878-879**

In open groove

Advantages

- Good resistance to chemicals
- Stick-slip free
- For high temperatures
- For dry running and insufficient lubrication

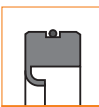
Please contact us for applications approaching maximum values.

More information

On www.all-tec-business.net, click first on the reference and then on the material code to obtain the data sheet of the different materials.

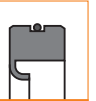
d	D	L	Reference
20	35	7	13APT 020035
22	35	7	13APT 022035
28	40	7	13APT 028040
30	47	7	13APT 030047
32	55	8	13APT 032055
35	55	8	13APT 035055
40	55	8	13APT 040055
	62	8	13APT 040062
42	55	8	13APT 042055
45	65	10	13APT 045065
48	65	8	13APT 048065
50	65	10	13APT 050065
	68	8	13APT 050068
	70	10	13APT 050070

d	D	L	Reference
55	72	8	13APT 055072
	80	8	13APT 055080
60	75	8	13APT 060075
	80	10	13APT 060080
65	85	10	13APT 065085
70	90	10	13APT 070090
75	95	10	13APT 075095
80	100	10	13APT 080100
90	110	10	13APT 090110
100	130	12	13APT 100130
110	140	12	13APT 110140
120	150	12	13APT 120150
150	180	15	13APT 150180



13L1

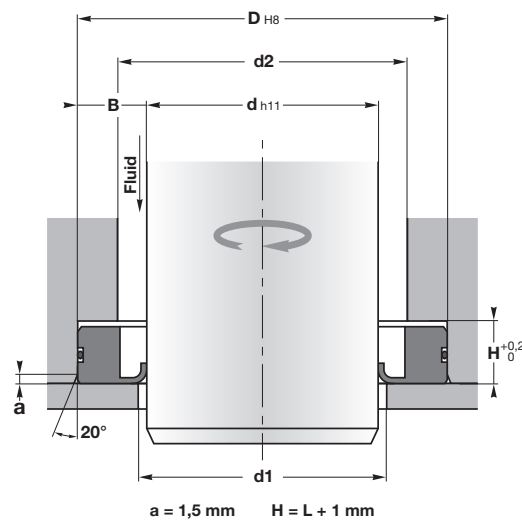
Carbon-graphite filled PTFE radial oil seal


ALL-TEC®
SEALING SYSTEMS


13L1

Example of item code

13L1 030 047 - PT30/4470
 Profile d (mm) D (mm) Materials ①/②



✂ Machining of housings: see page 876

13L1 profile is used in special range of applications generally in mechanical engineering and in the chemical industry. The sealing lip is made of carbon-filled PTFE which has good resistance to high temperatures and chemicals, but also outstanding friction behaviour and stick-slip free running. The NBR part assures the static sealing.

Operating conditions ✂ see page 8

Pressure	≤ 0,5 MPa
Temperature	-30°C to 100°C
Speed for lubricated conditions	≤ 25 m/s
Fluids	Mineral oils, HFA, HFB, HFC, HFD
Shaft surface hardness	≥ 55 HRC
Shaft hardness depth	≥ 0,3 mm

Materials ✂ see pages 10-19

Seal ①	Carbon-graphite filled PTFE
Static seal ②	NBR

Assembly ✂ see pages 878-879

In open groove for diameters < 300 mm

Advantages

- Good resistance to chemicals
- Stick-slip free
- For high temperatures and larger diameters up to 2000 mm, we recommend profile **13L2** with a steel insert
- By changing directions of rotation and for shaft eccentricity, we recommend profile **13L6** with a steel insert and a spring
- For dry running and insufficient lubrication

Please contact us for applications approaching maximum values.

More information

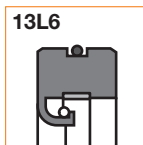
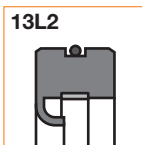
On www.all-tec-business.net, click first on the reference and then on the material code to obtain the data sheet of the different materials.

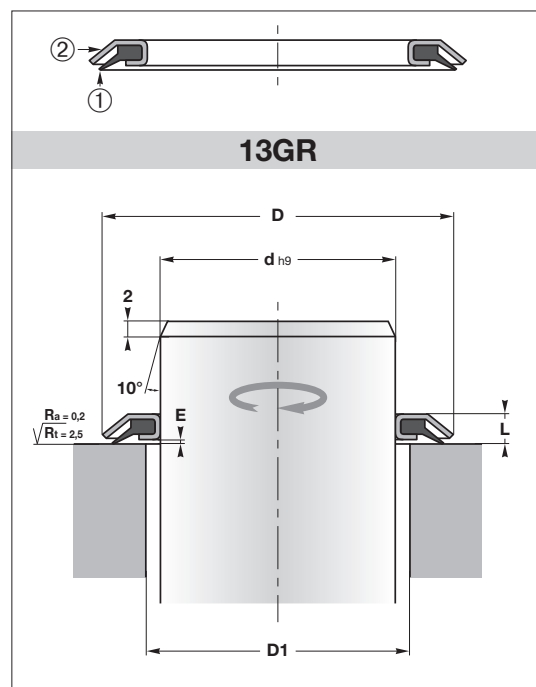
d	D	L	Reference
20	35	7	13L1 020035-PT30/4470
22	35	7	13L1 022035-PT30/4470
28	40	7	13L1 028040-PT30/4470
30	47	7	13L1 030047-PT30/4470
32	55	8	13L1 032055-PT30/4470
35	55	8	13L1 035055-PT30/4470
40	55	8	13L1 040055-PT30/4470
42	55	8	13L1 042055-PT30/4470
45	65	10	13L1 045065-PT30/4470
48	65	8	13L1 048065-PT30/4470
50	65	10	13L1 050065-PT30/4470

d	D	L	Reference
55	72	8	13L1 055072-PT30/4470
60	75	8	13L1 060075-PT30/4470
65	85	10	13L1 065085-PT30/4470
70	90	10	13L1 070090-PT30/4470
75	95	10	13L1 075095-PT30/4470
80	100	10	13L1 080100-PT30/4470
90	110	10	13L1 090110-PT30/4470
100	130	12	13L1 100130-PT30/4470
110	140	12	13L1 110140-PT30/4470
120	150	12	13L1 120150-PT30/4470

d	d1	d2
≤ 90	d + 2	d + 4
> 90	d + 3	d + 6

On request:





13GR is made of two parts, an elastomeric sealing element and a metal case. It has to be fixed to the shaft at a predetermined distance (E) from the sealing surface. This type of seals is primarily used as a seal against foreign matter, liquid splatter and grease. The metal case is protecting the seal from solids and excludes other contaminants by centrifusion.

Operating conditions see page 8

Pressure	none
Temperature	-30°C to 100°C
Speed	≤ 20 m/s
Fluids	none

Materials see pages 10-19

Seal ①	NBR
Casing ②	ST

Assembly

Profile 13GR must be pressed on the shaft

Advantages

- Good protection against moderate to medium dust and dirt ingress
- Low axial forces, low power loss
- Compact seal
- Absorption of certain shaft misalignment
- Easy assembly

Please contact us for applications approaching maximum values.

More information

On www.all-tec-business.net, click first on the reference and then on the material code to obtain the data sheet of the different materials.

d	D	L	E	D1	Reference
10	24	3,5	1	15	13GR 10
11	26	3,5	1	16	13GR 11
12	26	3,5	1	17	13GR 12
14	30	4	1	20	13GR 14
15	30	3	1	21	13GR 15
	30	4	1	21	13GR 15/1
16	32	4	1	23	13GR 16
17	32	4	1	23	13GR 17
18	33	4	1	24	13GR 18
20	35	4	1	26	13GR 20
22	40	4	1	28	13GR 22
24	40	4	1	30	13GR 24
25	40	3	1	31	13GR 25
	40	4	1	31	13GR 25/1
	42	7	1	31	13GR 25/2
26	40	4	1	32	13GR 26
28	43	4	1	34	13GR 28
30	47	4,5	1	37	13GR 30
32	49	4,5	1	39	13GR 32
35	52	4,5	1	42	13GR 35
38	55	4,5	1	45	13GR 38
40	57	4,5	1	47	13GR 40
41	57	4,5	1	48	13GR 41
42	59	4,5	1	49	13GR 42

d	D	L	E	D1	Reference
45	62	4,5	1	52	13GR 45
48	64	4	1	55	13GR 48
	65	4,5	1	55	13GR 48/1
50	70	5,5	1	58	13GR 50
52	72	5,5	1	60	13GR 52
55	75	5,5	1	63	13GR 55
58	78	5,5	1	66	13GR 58
60	80	5,5	1	68	13GR 60
62	82	5,5	1	70	13GR 62
65	85	5,5	1	73	13GR 65
68	88	5,5	1	76	13GR 68
70	90	5,5	1	78	13GR 70
72	92	5,5	1	80	13GR 72
75	95	5,5	1	83	13GR 75
78	98	5,5	1	86	13GR 78
80	100	5,5	1	88	13GR 80
85	105	5,5	1	93	13GR 85
90	110	5,5	1	98	13GR 90
95	115	5,5	1	103	13GR 95
100	120	5,5	1	108	13GR 100
105	125	5,5	1	113	13GR 105
135	159	5,5	1	145	13GR 135
225	250	5,5	1	235	13GR 225

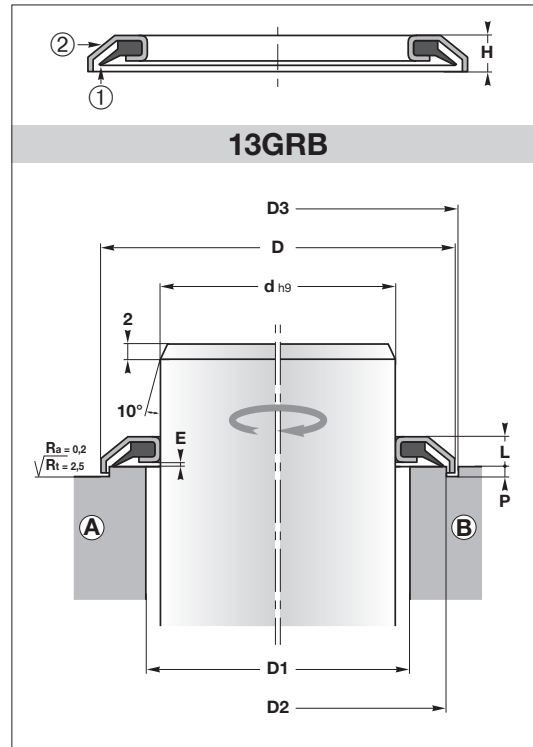


13GRB

Gamma seal



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13GRB is made of two parts, an elastomeric sealing element and a metal case. It has to be fixed to the shaft at a predetermined distance (E) from the sealing surface. This type of seals is primarily used as a seal against foreign matter, liquid splatter and grease.

An additional feature is the shape of the metal shell which allows a very effective protection of the seal from solids even by heavy duty applications.

Operating conditions see page 8

Pressure	none
Temperature	-30°C to 100°C
Speed	≤ 20 m/s
Fluids	none

Materials see pages 10-19

Seal ①	NBR
Casing ②	ST

Assembly

Profile 13GRB must be pressed on the shaft

Advantages

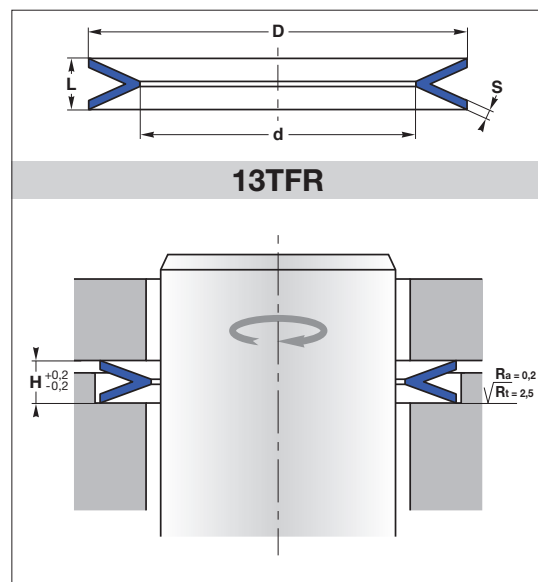
Very good protection against moderate to medium dust and dirt ingress
Low axial forces, low power loss
Compact seal
Absorption of certain shaft misalignment
Easy assembly

Please contact us for applications approaching maximum values.

More information

On www.all-tec-business.net, click first on the reference and then on the material code to obtain the data sheet of the different materials.

d	D	L	E	H	P	D1	D2	D3	Reference
15	32	4	1	6	3	21	29	34	13GRB 15
17	34	4	1	6	3	23	31	36	13GRB 17
20	37	4	1	6	3	26	34	39	13GRB 20
25	42	4	1	6	3	31	39	44	13GRB 25
30	48	4,5	1	6,5	3	37	45	50	13GRB 30
35	51,5	4,5	1	6,5	3	42	50	55	13GRB 35
35	53	4,5	1	6,5	3	42	50	55	13GRB 35/1
40	58	4,5	1	6,5	3	47	55	60	13GRB 40
45	63	4,5	1	6,5	3	52	60	65	13GRB 45
50	72	5,5	1	7,5	3	58	68,5	74	13GRB 50
55	77	5,5	1	7,5	3	63	73,5	79	13GRB 55
60	82	5,5	1	7,5	3	68	78,5	84	13GRB 60
65	87	5,5	1	7,5	3	73	83,5	89	13GRB 65
70	92	5,5	1	7,5	3	78	88,5	94	13GRB 70
75	97	5,5	1	7,5	3	83	93,5	99	13GRB 75
80	102	5,5	1	7,5	3	88	98,5	104	13GRB 80
85	107	5,5	1	7,5	3	93	103,5	109	13GRB 85
90	112	5,5	1	7,5	3	98	108,5	114	13GRB 90
95	117	5,5	1	7,5	3	103	113,5	119	13GRB 95
100	122	5,5	1	7,5	3	108	118,5	124	13GRB 100



The function of the **13TFR** is to prevent the introduction of dust, dirt, mud and foreign matter into the system to protect the internal components. The sealing lips are axial compressed which produce a very effective protection and extend the service life of the components.

This rotary seal is made of polyurethane, which increases the wear resistance and extends the service life. This material also ensures excellent dry running properties.

Operating conditions

✗ see page 8

Pressure	none
Temperature	-40°C to 100°C
Speed	3 to 10 m/s
Fluids	Mineral oils, water emulsions

Materials

✗ see pages 10-19

Seal	PU10
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Assembly

Profile 13TFR must be compressed in its groove respecting the dimension H

Advantages

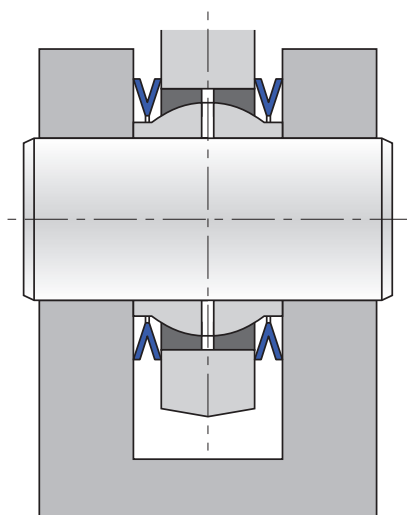
- Easy assembly
- Extended service life
- Excellent abrasion resistance
- Compensation of angular swing movements (up to 2°)

Please contact us for applications approaching maximum values.

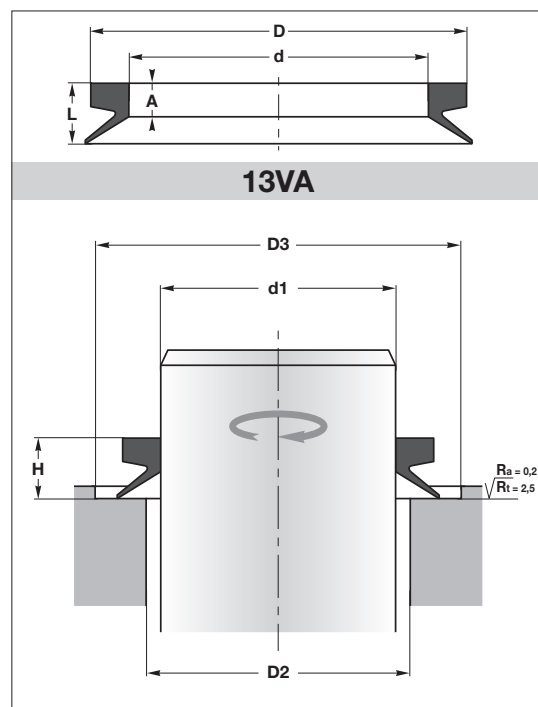
More information

On www.all-tec-business.net, click first on the reference and then on the material code to obtain the data sheet of the material.

Example of application



D	d	L	H	S	Reference
27,5	22,5	4	2	0,75	13TFR 27.5
32	26	4	2	0,75	13TFR 32
38,5	31	4,5	2	0,75	13TFR 38.5
43	36	5	2	0,75	13TFR 43
51	42	6	2,5	0,8	13TFR 51
57,5	47,5	7	3,5	1	13TFR 57.5
59	50,5	5	2	1	13TFR 59
64	54	7	3,5	1	13TFR 64
71	59	7	3,5	1	13TFR 71
74	61,5	8	3,5	1	13TFR 74
80	65	7	3,5	1	13TFR 80
86	71	9	4	1	13TFR 86
86	70	9	4	1	13TFR 86/1
88,8	70	8	3,5	1,2	13TFR 88.8
95	85	6	2,5	1	13TFR 95
100	82	9	4,5	1,25	13TFR 100
105	90	9	4,5	1,25	13TFR 105
112	96	10	5	1,5	13TFR 112
121	103	12	5	1,5	13TFR 121
142	116	16,5	7,5	1,5	13TFR 142
152	127	16,5	7,5	1,5	13TFR 152
162	137	16,5	7,5	1,5	13TFR 162
186	160	16	7,5	2	13TFR 186



13VA is an all-rubber face seal. The profile A is the most common. It works as a front seal and is the perfect solution to prevent the introduction of dust, dirt or water into the system. It can also be used as a secondary seal to protect the primary seal.

The V-ring is **self-retaining** on the shaft. The sealing lip is flexible and applies a low contact pressure against the counter face, sufficient to maintain the sealing function.

Operating conditions see page 8

Pressure	none
Temperature	-30°C to 100°C
Speed	≤ 10 m/s
Media	watersplash, sand, dust, abrasive particles...

Materials see pages 10-19

Seal	NBR
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Assembly

V-ring has to be stretched regularly around the shaft

Advantages

- Easy assembly
- Low axial forces, low power loss
- Compact seal

Please contact us for applications approaching maximum values.

More information

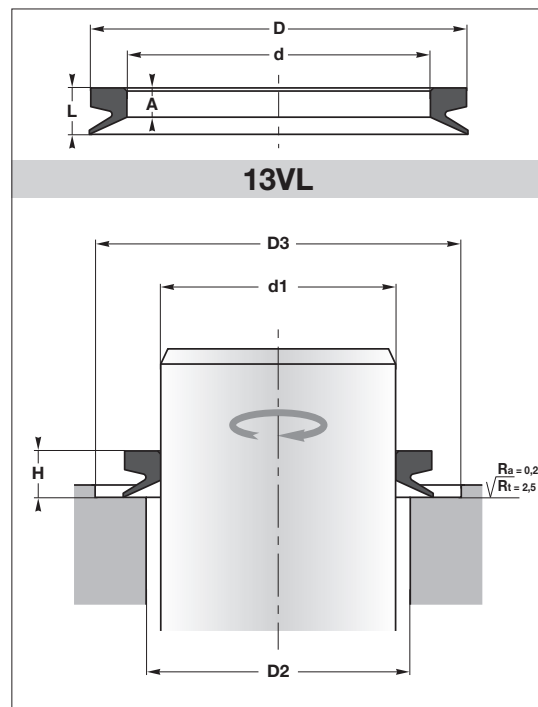
On www.all-tec-business.net, click first on the reference and then on the material code to obtain the data sheet of the material.

d1	d	D	A	L	D2 max	D3 min	H	Reference
2,7-3,5	2,5	5,5	2,1	3	d1 + 1	d1 + 4	2,5 +/-0,3	13VA 003
4,5-5,5	4	8	2,4	3,7	d1 + 1	d1 + 6	3,0 +/-0,4	13VA 005
8,0-9,5	7	11	2,4	3,7	d1 + 1	d1 + 6	3,0 +/-0,4	13VA 008
9,5-11,5	9	15	3,4	5,5	d1 + 1	d1 + 9	4,5 +/-0,6	13VA 010
11,5-12,5	10,5	16,5	3,4	5,5	d1 + 1	d1 + 9	4,5 +/-0,6	13VA 012
12,5-13,5	11,7	17,7	3,4	5,5	d1 + 1	d1 + 9	4,5 +/-0,6	13VA 013
13,5-15,5	12,5	18,5	3,4	5,5	d1 + 1	d1 + 9	4,5 +/-0,6	13VA 014
15,5-17,0	14	20	3,4	5,5	d1 + 1	d1 + 9	4,5 +/-0,6	13VA 016
17,5-19	16	22	3,4	5,5	d1 + 1	d1 + 9	4,5 +/-0,6	13VA 018
19-21	18	26	4,7	7,5	d1 + 2	d1 + 12	6,0 +/-0,8	13VA 020
21-24	20	28	4,7	7,5	d1 + 2	d1 + 12	6,0 +/-0,8	13VA 022
24-27	22	30	4,7	7,5	d1 + 2	d1 + 12	6,0 +/-0,8	13VA 025
27-29	25	33	4,7	7,5	d1 + 2	d1 + 12	6,0 +/-0,8	13VA 028
29-31	27	35	4,7	7,5	d1 + 2	d1 + 12	6,0 +/-0,8	13VA 030
31-33	29	37	4,7	7,5	d1 + 2	d1 + 12	6,0 +/-0,8	13VA 032
33-36	31	39	4,7	7,5	d1 + 2	d1 + 12	6,0 +/-0,8	13VA 035
36-38	34	42	4,7	7,5	d1 + 2	d1 + 12	6,0 +/-0,8	13VA 038
38-43	36	46	5,5	9	d1 + 2	d1 + 15	7,0 +/-1,0	13VA 040
43-48	40	50	5,5	9	d1 + 2	d1 + 15	7,0 +/-1,0	13VA 045
48-53	45	55	5,5	9	d1 + 2	d1 + 15	7,0 +/-1,0	13VA 050
53-58	49	59	5,5	9	d1 + 2	d1 + 15	7,0 +/-1,0	13VA 055
58-63	54	64	5,5	9	d1 + 2	d1 + 15	7,0 +/-1,0	13VA 060
63-68	58	68	5,5	9	d1 + 2	d1 + 15	7,0 +/-1,0	13VA 065
68-73	63	75	6,8	11	d1 + 3	d1 + 18	9,0 +/-1,2	13VA 070
73-78	67	79	6,8	11	d1 + 3	d1 + 18	9,0 +/-1,2	13VA 075
78-83	72	84	6,8	11	d1 + 3	d1 + 18	9,0 +/-1,2	13VA 080
83-88	76	88	6,8	11	d1 + 3	d1 + 18	9,0 +/-1,2	13VA 085
88-93	81	93	6,8	11	d1 + 3	d1 + 18	9,0 +/-1,2	13VA 090
93-98	85	97	6,8	11	d1 + 3	d1 + 18	9,0 +/-1,2	13VA 095
98-105	90	102	6,8	11	d1 + 3	d1 + 18	9,0 +/-1,2	13VA 100
105-115	99	113	7,9	12,8	d1 + 4	d1 + 21	10,5 +/-1,5	13VA 110
115-125	108	122	7,9	12,8	d1 + 4	d1 + 21	10,5 +/-1,5	13VA 120
125-135	117	131	7,9	12,8	d1 + 4	d1 + 21	10,5 +/-1,5	13VA 130
135-145	126	140	7,9	12,8	d1 + 4	d1 + 21	10,5 +/-1,5	13VA 140
145-155	135	149	7,9	12,8	d1 + 4	d1 + 21	10,5 +/-1,5	13VA 150
155-165	144	160	9	14,5	d1 + 4	d1 + 24	12,0 +/-1,8	13VA 160
165-175	153	169	9	14,5	d1 + 4	d1 + 24	12,0 +/-1,8	13VA 170
175-185	162	178	9	14,5	d1 + 4	d1 + 24	12,0 +/-1,8	13VA 180
185-195	171	187	9	14,5	d1 + 4	d1 + 24	12,0 +/-1,8	13VA 190



d1	d	D	A	L	D2 max	D3 min	H	Reference
195-210	180	196	9	14,5	d1 + 4	d1 + 24	12,0 +/-1,8	13VA 199
190-210	180	210	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 200
210-235	198	228	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 220
235-265	225	255	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 250
265-290	247	277	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 275
290-310	270	300	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 300
310-335	292	322	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 325
335-365	315	345	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 350
365-390	337	367	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 375
390-430	360	390	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 400
430-480	405	435	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 450
480-530	450	480	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 500
530-580	495	525	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 550
580-630	540	570	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 600
630-665	600	630	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 650
665-705	630	660	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 700
705-745	670	700	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 725
745-785	705	735	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 750
785-830	745	775	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 800
830-875	785	815	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 850
875-920	825	855	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 900
920-965	865	895	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 950
965-1015	910	940	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 1000
1015-1065	955	985	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 1050
1065-1115	1000	1030	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 1100
1115-1165	1045	1075	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 1150
1165-1215	1090	1120	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 1200
1215-1270	1135	1165	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 1250
1270-1320	1180	1210	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 1300
1320-1370	1225	1255	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 1350
1370-1420	1270	1300	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 1400
1420-1470	1315	1345	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 1450
1470-1520	1360	1390	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 1500
1520-1570	1405	1435	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 1550
1570-1620	1450	1480	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 1600
1620-1670	1495	1525	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 1650
1670-1720	1540	1570	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 1700
1720-1770	1585	1615	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 1750
1770-1820	1630	1660	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 1800

d1	d	D	A	L	D2 max	D3 min	H	Reference
1820-1870	1675	1705	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 1850
1870-1920	1720	1750	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 1900
1920-1970	1765	1795	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 1950
1970-2020	1810	1840	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	13VA 2000



13VL is an all-rubber face seal. It works as a front seal and is the perfect solution to prevent the introduction of dust, dirt or water into the system. It can also be used as a secondary seal to protect the primary seal.

The V-ring is **self-retaining** on the shaft. The sealing lip is flexible and applies a low contact pressure against the counter face, sufficient to maintain the sealing function. The profile L has a narrow axial cross section suitable for compact arrangements.

Operating conditions see page 8

Pressure	none
Temperature	-30°C to 100°C
Speed	≤ 10 m/s
Media	watersplash, sand, dust, abrasive particles...

Materials see pages 10-19

Seal	NBR
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Assembly

V-ring has to be stretched regularly around the shaft

Advantages

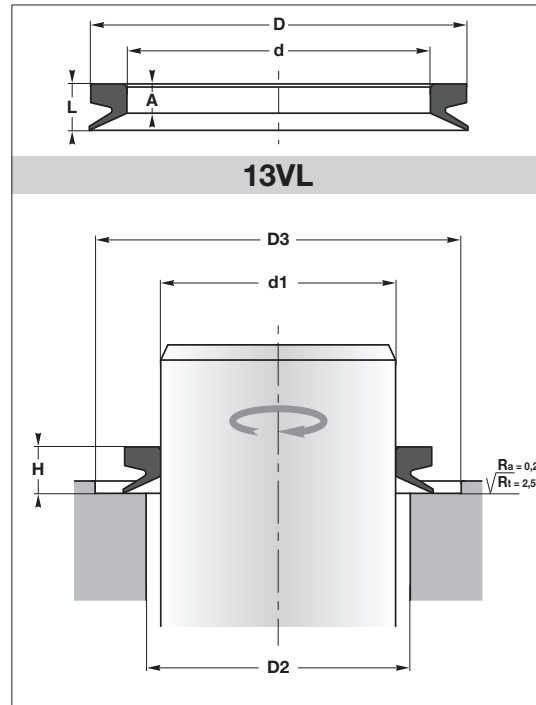
- Easy assembly
- Low axial forces, low power loss
- Compact seal

Please contact us for applications approaching maximum values.

More information

On www.all-tec-business.net, click first on the reference and then on the material code to obtain the data sheet of the material.

d1	d	D	A	L	D2 max	D3 min	H	Reference
105-115	99	112	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 110
115-125	108	121	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 120
125-135	117	130	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 130
135-145	126	139	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 140
145-155	135	148	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 150
155-165	144	157	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 160
165-175	153	166	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 170
175-185	162	175	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 180
185-195	171	184	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 190
195-210	182	195	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 200
210-233	198	211	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 220
233-260	225	238	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 250
260-285	247	260	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 275
285-310	270	283	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 300
310-335	292	305	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 325
335-365	315	328	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 350
365-385	337	350	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 375
385-410	360	373	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 400
410-440	382	395	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 425
440-475	405	418	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 450
475-510	450	463	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 500
510-540	472	485	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 525
540-575	495	508	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 550
575-625	540	553	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 600
625-675	600	613	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 650
675-710	630	643	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 700
710-740	670	683	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 725
740-775	705	718	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 750
775-825	745	758	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 800
825-875	785	798	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 850
875-925	825	838	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 900
925-975	865	878	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 950
975-1025	910	923	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 1000
1035-1075	955	968	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 1050
1075-1125	1000	1013	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 1100
1125-1175	1045	1058	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 1150
1175-1225	1090	1103	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 1200
1225-1275	1135	1148	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 1250
1275-1325	1180	1193	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 1300



13VL is an all-rubber face seal. It works as a front seal and is the perfect solution to prevent the introduction of dust, dirt or water into the system. It can also be used as a secondary seal to protect the primary seal.

The V-ring is **self-retaining** on the shaft. The sealing lip is flexible and applies a low contact pressure against the counter face, sufficient to maintain the sealing function. The profile L has a narrow axial cross section suitable for compact arrangements.

Operating conditions see page 8

Pressure	none
Temperature	-30°C to 100°C
Speed	≤ 10 m/s
Media	watersplash, sand, dust, abrasive particles...

Materials see pages 10-19

Seal	NBR
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Assembly

V-ring has to be stretched regularly around the shaft

Advantages

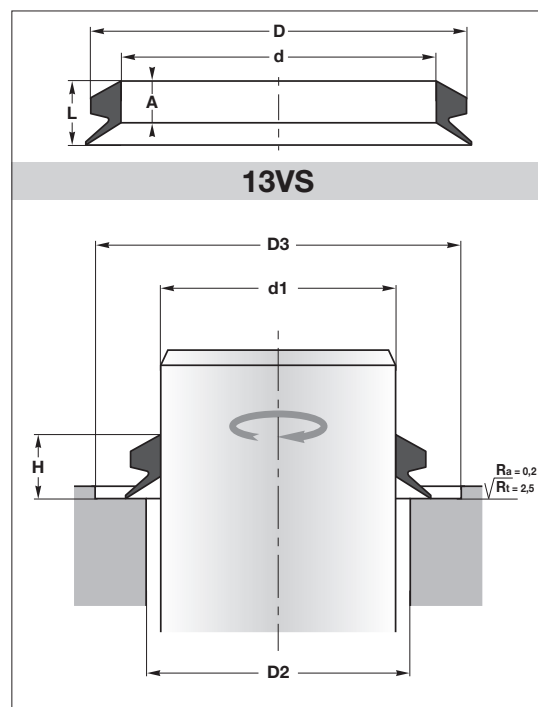
- Easy assembly
- Low axial forces, low power loss
- Compact seal

Please contact us for applications approaching maximum values.

More information

On www.all-tec-business.net, click first on the reference and then on the material code to obtain the data sheet of the material.

d1	d	D	A	L	D2 max	D3 min	H	Reference
1325-1375	1225	1238	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 1350
1375-1425	1270	1283	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 1400
1425-1475	1315	1328	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 1450
1475-1525	1360	1373	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 1500
1525-1575	1405	1418	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 1550
1575-1625	1450	1463	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 1600
1625-1675	1495	1508	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 1650
1675-1725	1540	1553	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 1700
1725-1775	1585	1598	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 1750
1775-1825	1630	1643	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 1800
1825-1875	1675	1688	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 1850
1875-1925	1720	1733	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 1900
1925-1975	1765	1778	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 1950
1975-2025	1810	1823	6	10,5	d1 + 5	d1 + 20	8+/-1,5	13VL 2000



13VS is an all-rubber face seal. It works as a front seal and is the perfect solution to prevent the introduction of dust, dirt or water into the system. It can also be used as a secondary seal to protect the primary seal.

The V-ring is **self-retaining** on the shaft. The sealing lip is flexible and applies a low contact pressure against the counter face, sufficient to maintain the sealing function. The profile S has a wider cross section for a better hold.

Operating conditions see page 8

Pressure	none
Temperature	-30°C to 100°C
Speed	≤ 10 m/s
Media	watersplash, sand, dust, abrasive particles...

Materials see pages 10-19

Seal	NBR
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Assembly

V-ring has to be stretched regularly around the shaft

Advantages

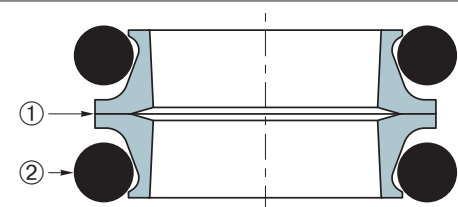
- Easy assembly
- Low axial forces
- Larger cross section for a better hold

Please contact us for applications approaching maximum values.

More information

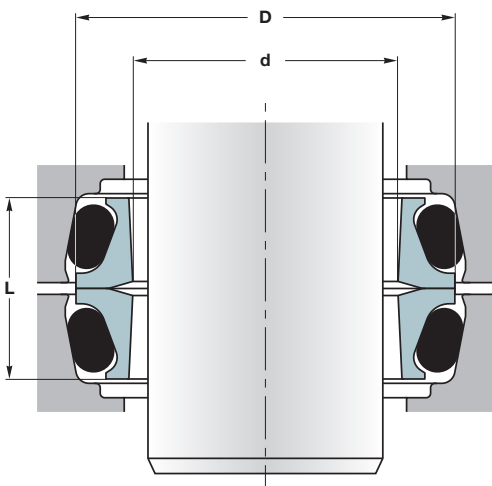
On www.all-tec-business.net, click first on the reference and then on the material code to obtain the data sheet of the material.

d1	d	D	A	L	D2 max	D3 min	H	Reference
4,5-5,5	4	8	3,9	5,2	6	1	4,5+/-0,4	13VS 005
5,5-6,5	5	9	3,9	5,2	6	1	4,5+/-0,4	13VS 006
6,5-8,0	6	10	3,9	5,2	6	1	4,5+/-0,4	13VS 007
8,0-9,5	7	11	3,9	3,7	6	1	4,5+/-0,4	13VS 008
9,5-11,5	9	15	5,6	7,7	9	1	6,7+/-0,6	13VS 010
11,5-13,5	10,5	16,5	5,6	7,7	9	1	6,7+/-0,6	13VS 012
13,5-15,5	12,5	18,5	5,6	7,7	9	1	6,7+/-0,6	13VS 014
15,5-17,5	14	20	5,6	7,7	9	1	6,7+/-0,6	13VS 016
17,5-19	16	22	5,6	7,7	9	1	6,7+/-0,6	13VS 018
19-21	18	26	7,9	10,5	12	2	9,0+/-0,8	13VS 020
21-24	20	28	7,9	10,5	12	2	9,0+/-0,8	13VS 022
24-27	22	30	7,9	10,5	12	2	9,0+/-0,8	13VS 025
27-29	25	33	7,9	10,5	12	2	9,0+/-0,8	13VS 028
29-31	27	35	7,9	10,5	12	2	9,0+/-0,8	13VS 030
31-33	29	37	7,9	10,5	12	2	9,0+/-0,8	13VS 032
33-36	31	39	7,9	10,5	12	2	9,0+/-0,8	13VS 035
36-38	34	42	7,9	10,5	12	2	9,0+/-0,8	13VS 038
38-43	36	46	9,5	13	15	2	11,0+/-1,0	13VS 040
43-48	40	50	9,5	13	15	2	11,0+/-1,0	13VS 045
48-53	45	55	9,5	13	15	2	11,0+/-1,0	13VS 050
53-58	49	59	9,5	13	15	2	11,0+/-1,0	13VS 055
58-63	54	64	9,5	13	15	2	11,0+/-1,0	13VS 060
63-68	58	68	9,5	13	15	2	11,0+/-1,0	13VS 065
68-73	63	75	11,3	15,5	18	3	13,5+/-1,2	13VS 070
73-78	67	79	11,3	15,5	18	3	13,5+/-1,2	13VS 075
78-83	72	84	11,3	15,5	18	3	13,5+/-1,2	13VS 080
83-88	76	88	11,3	15,5	18	3	13,5+/-1,2	13VS 085
88-93	81	93	11,3	15,5	18	3	13,5+/-1,2	13VS 090
93-98	85	97	11,3	15,5	18	3	13,5+/-1,2	13VS 095
98-105	90	102	11,3	15,5	18	3	13,5+/-1,2	13VS 100
105-115	99	113	13,1	18	21	4	15,5+/-1,5	13VS 110
115-125	108	122	13,1	18	21	4	15,5+/-1,5	13VS 120
125-135	117	131	13,1	18	21	4	15,5+/-1,5	13VS 130
135-145	126	140	13,1	18	21	4	15,5+/-1,5	13VS 140
145-155	135	149	13,1	18	21	4	15,5+/-1,5	13VS 150
155-165	144	160	15	20,5	24	4	18,0+/-1,8	13VS 160
165-175	153	169	15	20,5	24	4	18,0+/-1,8	13VS 170
175-185	162	178	15	20,5	24	4	18,0+/-1,8	13VS 180
185-195	171	187	15	20,5	24	4	18,0+/-1,8	13VS 190
195-210	180	196	15	20,5	24	4	18,0+/-1,8	13VS 199

**14MFO**

Example of item code

14MFO	195	CI/MVQ	60
Profile	D (mm)		Hardness Sh A ②
Materials ①/②			



Machining of housings: on request

14MFO are predominantly used for sealing the bearings in construction machinery or production plants operating under extreme arduous conditions and subject to severe wear.

Mechanical face seals are proven in general machine engineering for gearboxes, mixers, stirrers, wind-driven power stations and other applications with similar conditions or where maintenance-free lifetime time sealing is expected.

Operating conditions

✕ see page 8

Pressure	
cast iron (CI)	≤ 0,3 MPa
hardened steel (HS)	≤ 0,15 MPa
Temperature	
NBR	-30°C to 100°C
HNBR	-30°C to 150°C
MVQ	-50°C to 200°C
FPM	-20°C to 200°C
Speed	
cast iron with oil lubrication	≤ 10 m/s
hardened steel with oil lubrication	≤ 2 m/s

Materials

✕ see pages 10-19

Seal ①	Cast iron (CI), hardened steel (HS)
Energising element ②	NBR, HNBR, MVQ, FPM from different hardnesses

Assembly

Install in the grooves

Advantages

Simple, reliable design
High sealing effect against dirt, dust, water and abrasive media from the outside and against oil and grease from the inside
Self-centering to compensate for shaft eccentricity or misalignment
Maintenance-free
Easy to assemble
Cost-effective
Long service life

Please contact us for applications approaching maximum values.

More information

On www.all-tec-business.net, click first on the reference and then on the material code to obtain the data sheet of the different materials.

d	D	L	O-ring	Goetze® reference	Reference (without materials code)
38	51	20	41 x 6	H-50	14MFO 51
	51	20	40 x 6,7	H-50A1	14MFO 51/6,7
45	58	21	48 x 6,1	H-021	14MFO 58
46	59	20	47,5 x 6,5	H-01	14MFO 59
48	62,15	25	50 x 7,5	H-019	14MFO 62
55,5	70	22	58 x 7,5	H-32	14MFO 70
	70	22	58 x 8	H-32A1	14MFO 70/8
60,2	73	20	60 x 6,5	H-57	14MFO 73
63	80,5	26	66 x 8	H-53	14MFO 80/5
63,5	82,4	32	66 x 9,5	H-02	14MFO 82
64	78	25	66 x 8,2	H-020	14MFO 78
67	80	20	68,5 x 6,5	H-01A1	14MFO 80
67,5	86,5	31,8	71 x 9,5	H-03	14MFO 85/5
68	89	24	75 x 8	H-05	14MFO 89
71	84	20	72,5 x 6,5	H-02A1	14MFO 84
71,5	91	29	75 x 9	H-04A1	14MFO 91
73	92	32	75,7 x 9,5	H-04	14MFO 92
77,5	88,5	15	78 x 4,3	H-113	14MFO
79	100	30	85 x 9,5	H-003	14MFO 100
79,5	92,5	20	81 x 6,5	H-45	14MFO 92,5
80	100	29	83 x 9	H-016	14MFO 100/80
81	98	28	82 x 8	H-039	14MFO 98
83	102	28	87 x 8,5	H-07	14MFO 102
88	108	24	93 x 8	H-05A2	14MFO 108
90,5	104,5	26	93 x 6,3	H-05A3	14MFO 104,5
	109,5	32	93,2 x 9,5	H-06	14MFO 109,5
95	111	24	99 x 7,7	H-08A5	14MFO 111
99	120	28	105 x 8,5	H-08A3	14MFO 120
100	119	32	102,8 x 9,5	H-08	14MFO 119



14MFO

Mechanical face seals



ALL-TEC
SEALING SYSTEMS



d	D	L	O-ring	Goetze® reference	Reference (without materials code)
103	117	20	105 x 6,5	H-45A1	14MFO 117
104	125	28	110 x 8,5	H-08A2	14MFO 125
107	125	24	110 x 8,5	H-08A4	14MFO 125/24
	125	24	110 x 7,7	H-08A9	14MFO 125/7,7
110	128	32	113 x 9,2	H-017	14MFO 128
114,5	129	21	117 x 7	H-16A8	14MFO 129
117	140	29	124 x 8,7	H-09A2	14MFO 140
118,5	139,5	28	124 x 8,5	H-52	14MFO 139,5
120	138	32	122,5 x 8,4	H-09	14MFO 138
	138	32	124,3 x 9	H-09A3	14MFO 138/9
	139	31,8	123,5 x 9,5	H-09A1	14MFO 139
	142	38	122 x 11,3	H-022	14MFO 142
125	144	31,8	128,5 x 9,5	H-11	14MFO 144
127	140,7	25	130 x 6	H-12A6	14MFO 140,7
	141	29	130 x 6	H-12	14MFO 141
	141	29	130 x 8,3	H-12A3	14MFO 141/8,3
	141	29	124,3 x 9	H-12A5	14MFO 141/9
	146	32	130 x 9,5	H-10	14MFO 146
	146	31	130 x 9,5	H-10A1	14MFO 146/31
135,5	154,5	28	139 x 8,3	H-12A2	14MFO 154,5
143	156,6	25	143 x 6,5	HN0-149	14MFO 156,6
	157	27	145 x 6,3	H-14	14MFO 157
	160	27	145,7 x 8,3	H-13	14MFO 160
146	172	38	147 x 12,7	H-18	14MFO 172
150	167	28	153,8 x 8,5	H-15	14MFO 167
	172	40	151 x 11,2	H-023	14MFO 172/40
153	171,5	28	157 x 8,3	H-15A3	14MFO 171,5
154	168	27	158 x 6	H-16	14MFO 168.2
	168	27	150 x 6,5	H-16A4	14MFO 168/6,5
	169	22	158,1 x 7	H-16A3	14MFO 169
	169	22	158,1 x 7	H-16A9	14MFO 169/9,2
	170	21	158,1 x 7	H-16A1	14MFO 170
	173,5	32	155 x 9,65	H-17	14MFO 173,5
155	168	27	158 x 6	H-16A5	14MFO 168/155

d	D	L	O-ring	Goetze® reference	Reference (without materials code)
163	191,5	38	166 x 12,7	H-20	14MFO 191,5
164	189	30	170 x 9,5	H-55	14MFO 189
165	180,5	27	170 x 7	H-17A3	14MFO 180,5
	181	27	170 x 7	H-17A7	14MFO 181
171,3	185,3	20	172 x 6	H-140	14MFO 185,3
172	194,4	31,8	175 x 9,5	H-124	14MFO 194,4
176	195	28	182 x 8,3	H-47	14MFO 195
177	200	30	184 x 9,5	H-21	14MFO 200
	200	30	184 x 9,5	H-21A3	14MFO 200/00
178	199	32	184 x 9,5	H-56	14MFO 199
	205	38	178 x 12,7	HNO	150 14MFO
182	210,5	38	185 x 12,5	H-22	14MFO 210,5
191	210	28	190 x 8,5	H-22A2	14MFO 210
192	209	30	190 x 9,5	H-94	14MFO 209
195	216,5	31,8	198 x 9,5	H-22A1	14MFO 216,5
200	228,5	38	205,5 x 13	H-25	14MFO 228,5
205	227	30	210 x 9,5	H-23	14MFO 227
	227	30	210 x 10	H-23A2	14MFO 227/10
208,7	222,8	26	208 x 6,2	H-81	14MFO 222,8
	222,8	26	208 x 6,2	H-81	14MFO 223
216	237	30	218 x 9,5	H-93	14MFO 237
220	239,5	31,8	224 x 9,5	H-24A3	14MFO 239,5
	241,4	25	226 x 7,7	H-109	14MFO 241,4
223	251,5	38	226 x 12,7	H-24	14MFO 251,5
238	261	31,8	245 x 9,58	H-40	14MFO 261
240	262,8	38	243 x 13	H-41	14MFO 262,8
242	262,8	38	243 x 13	H-41A1	14MFO 263/242
250	270	300	250 x 9,5	H-130	14MFO 270
252	280,5	38	255 x 12,7	H-62	14MFO 280,5



14MFO

Mechanical face seals

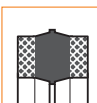


ALL-TEC
SEALING SYSTEMS



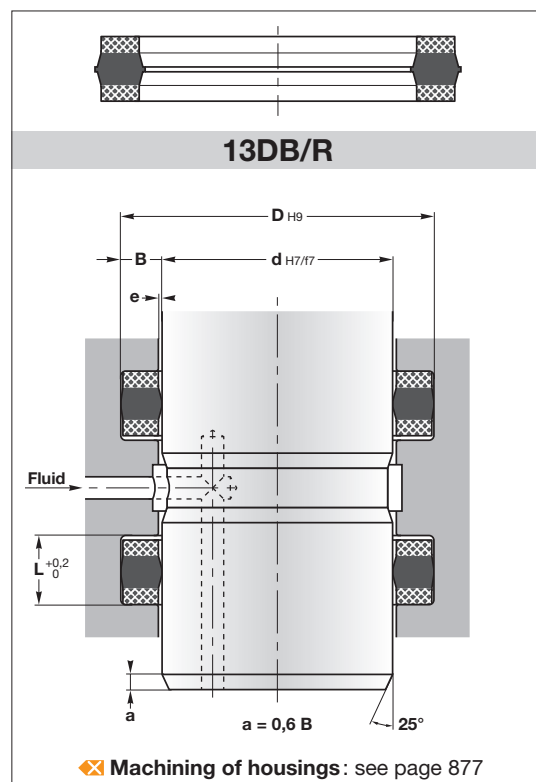
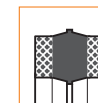
d	D	L	O-ring	Goetze® reference	Reference (without materials code)
265	293	38	268 x 12,7	H-26	14MFO 293
275	303	38	278 x 12,7	H-26A1	14MFO 303
300	324,65	38	305 x 12,7	H-27	14MFO 324,6
	325	38	305 x 12,7	H-27A4	14MFO 325
	328	38	300 x 12,7	H-042	14MFO 328
	328	38	300 x 12,7	H-042	14MFO 328
318	341	38	315 x 12,7	H-28	14MFO 341
	346	38	315 x 12,7	H-28A4	14MFO 346
	346	40	320 x 12,7	H-28A6	14MFO 346/40
350	375	38	355 x 12,7	H-30	14MFO 375
355	375	38	355 x 12,7	H-30A1	14MFO 375/355
366	394,4	38	359,5 x 12,7	H-60	14MFO 394,4
	394,4	40	359,5 x 12,7	H-60A2	14MFO 394,4/40
370	398	38	370 x 12,7	H-60A3	14MFO 398
388	415	38	385 x 12,7	H-70	14MFO 415
	416,2	38	385 x 12,7	H-70A1	14MFO 416,2
430	457	38	420 x 12,7	H-61	14MFO 457
	459,2	38	420 x 12,7	H-61A4	14MFO 459,2
450	480	50	454 x 16	H-65A1	14MFO 480
465	495	43,6	460 x 12,7	H-65A2	14MFO 495
	497,2	43,6	460 x 12,7	H-65A5	14MFO 497,2
470	500	50	474 x 16	H-65	14MFO 500
505	533,4	43,6	493 x 12,7	H-74	14MFO 533
	535,8	43,6	493 x 12,7	H-74A2	14MFO 535,8
530	560	50	530 x 16	H-89	14MFO 560
538	566,8	43,6	535 x 12,7	H-146	14MFO 566,8
559	590	50	560 x 16	H-82	14MFO 590
576	608	43,6	582 x 12,7	H-83	14MFO 608
581,5	608	43,6	582 x 12,7	H-83A2	14MFO 608/581
591	623	50	595 x 16	H-76	14MFO 623
596	628	50	595 x 16	H-90	14MFO 628

d	D	L	O-ring	Goetze® reference	Reference (without materials code)
660	695	53	660 x 16	H-75	14MFO 695
667	700	43,6	660 x 12,7	H-75A2	14MFO 700/43,6
667	700	50	660 x 12,7	H-75A3	14MFO 700



13DB/R

Fabric reinforced double acting rotary seal


ALL-TEC®
SEALING SYSTEMS


Pressure (MPa)	e (mm)
15	≤ 0,2
20	≤ 0,1

13DB/R is a single-piece seal consisting of an elastomeric sealing element in the middle and two fabric reinforced bases on the side.

Due to the radial pre-load an excellent sealing performance will be achieved even at low pressures.

The fabric reinforced bases prevents the seal from extrusion.

Operating conditions see page 8

Pressure	≤ 20 MPa
Temperature	-30°C to 100°C
Speed	≤ 0,1 m/s
pv value	≤ 2,5 MPa.m/s
Fluids	Mineral oils, water emulsions
Shaft surface hardness	≥ 55 HRC
Shaft hardness depth	≥ 0,3 mm

Materials see pages 10-19

Seal	NBR / NBR-C
------	-------------

Assembly

In open or closed groove

Advantages

- Efficient sealing even at low pressure
- Double acting
- Simple and economical solution

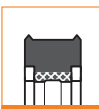
Please contact us for applications approaching maximum values.

More information

On www.all-tec-business.net, click first on the reference and then on the material code to obtain the data sheet of the material.

d	D	L	Reference
6	14	6,5	13DB/R 055023
10	18	6,5	13DB/R 070039
12	20	6,5	13DB/R 078047
15	23	7	13DB/R 090059
16	24	6,5	13DB/R 094062
20	28	6,5	13DB/R 110078
22	30	6,5	13DB/R 118086
25	35	8	13DB/R 137098
28	38	8	13DB/R 149110
26	40	10	13DB/R 157102
30	40	8	13DB/R 157118
32	42	8	13DB/R 165125
35	45	8	13DB/R 177137
36	46	8	13DB/R 181141
40	52	8	13DB/R 204157
42	54	8	13DB/R 212165
45	57	8	13DB/R 224177
50	62	8	13DB/R 244196
55	67	8	13DB/R 263216
65	71,6	6,7	13DB/R 281255
60	75	11	13DB/R 295236

d	D	L	Reference
60	76	9	13DB/R 299236
65	80	11	13DB/R 314255
70	85	11	13DB/R 334275
75	90	11	13DB/R 354295
80	95	11	13DB/R 374314
85	100	11	13DB/R 393334
90	110	13	13DB/R 433354
100	120	13	13DB/R 472393
110	130	13	13DB/R 511433
115	135	13	13DB/R 531452
125	145	13	13DB/R 570492
140	160	13	13DB/R 629551
150	175	16	13DB/R 688590
160	185	16	13DB/R 728629
180	205	16	13DB/R 807708
200	225	16	13DB/R 886787
225	255	19	13DB/R 1003885
250	270	16	13DB/R 1062984

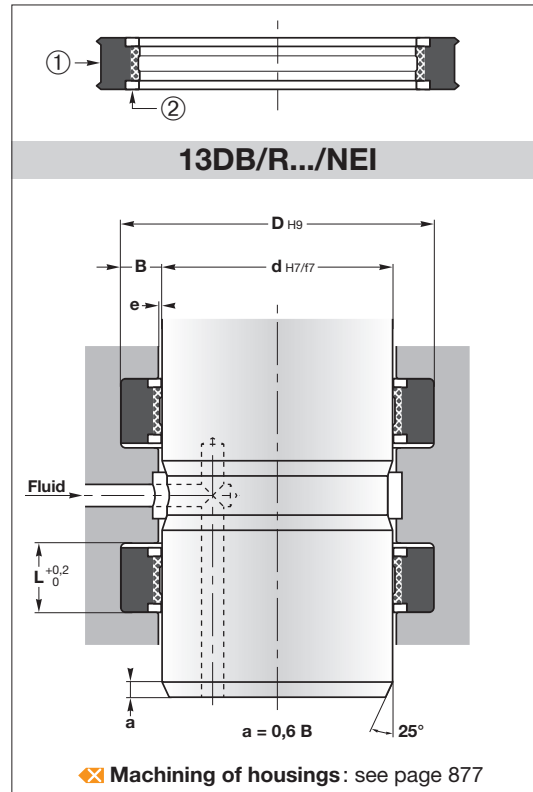
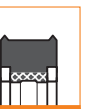


13DB/R.../NEI

Fabric reinforced double acting rotary seal with anti-extrusion rings



ALL-TEC
SEALING SYSTEMS



13DB/R.../NEI is a three pieces seal set consisting of an elastomer component with fabric reinforcement on the running surface and two anti-extrusion rings. The static seal is achieved by two external seal edges.

Operating conditions see page 8

Pressure	≤ 40 MPa
Temperature	-30°C to 100°C
Speed	≤ 0,2 m/s
Fluids	Mineral oils, water emulsions
Shaft surface hardness	≥ 55 HRC
Shaft hardness depth	≥ 0,3 mm

Materials see pages 10-19

Seal ①	NBR-C / NBR
Anti-extrusion rings ②	POM

Assembly

In open or closed groove

Advantages

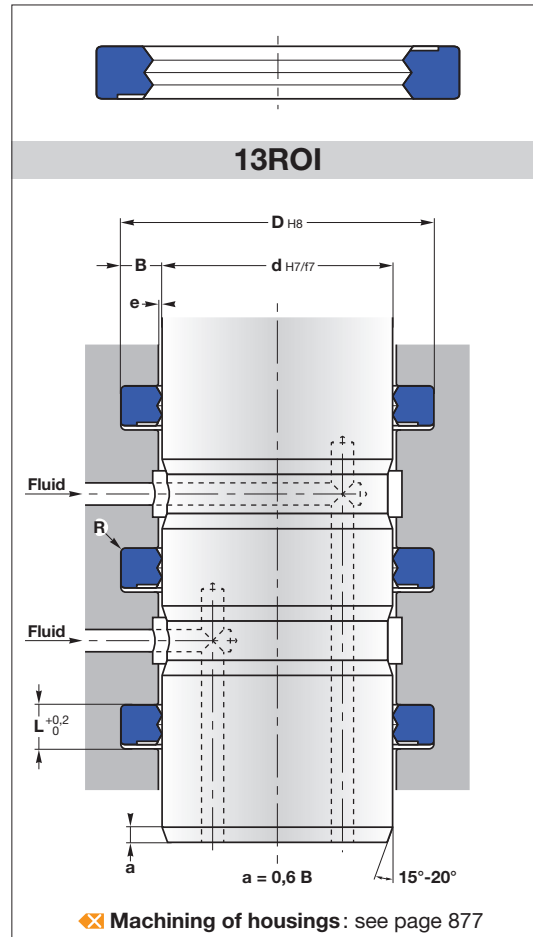
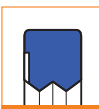
- Efficient sealing even at low pressure
- Double acting
- Good static sealing
- Simple, convenient and compact construction

Please contact us for applications approaching maximum values.

More information

On www.all-tec-business.net, click first on the reference and then on the material code to obtain the data sheet of the different materials.

d	D	L	Reference
65	77	7	13DB/R 303255/NEI
89	106	9,5	13DB/R 417350/NEI
90	108	10	13DB/R 425354/NEI
90	110	12	13DB/R 433354/NEI
95	112	11	13DB/R 441374/NEI
109	129	11	13DB/R 507429/NEI
110	130	11	13DB/R 511433/1/NEI
125	145	13	13DB/R 570492/NEI
130	145	11	13DB/R 570511/NEI
130	150	11	13DB/R 590511/NEI
140	170	13	13DB/R 669551/NEI



13ROI is a space-saving rotary seal. The seal is manufactured with a predefined interference fit on the outside diameter, which enables a stable fit in the housing and a good static sealing function. The dynamic seal is achieved by two internal seal edges.

Where extrusion gap are larger than those specified or for higher pressure conditions the serie **13ROI.../A** with two incorporated anti-extrusion rings shall be selected. The seal is produced in polyurethane, which increases the wear resistance and extends the service life.

Operating conditions see page 8

Pressure	≤ 35 MPa
Temperature	-30°C to 90°C
Speed	≤ 0,1 m/s
Fluids	Mineral oils
Shaft surface hardness	≥ 55 HRC
Shaft hardness depth	≥ 0,3 mm

Materials see pages 10-19

Seal	PU
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Assembly

In closed housings

Advantages

- Good static sealing
- Easy assembly without tools
- Compact design
- High abrasion resistance
- Long service life

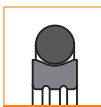
Please contact us for applications approaching maximum values.

More information

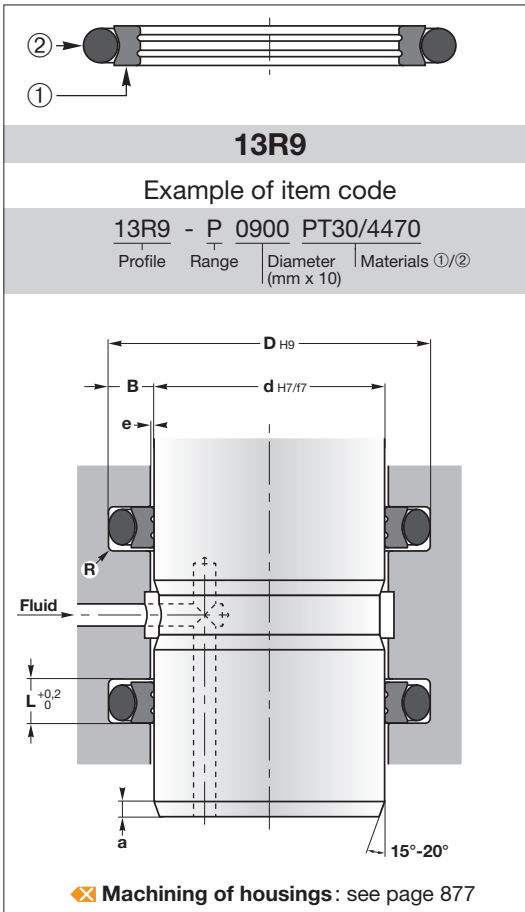
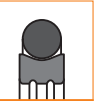
On www.all-tec-business.net, click first on the reference and then on the material code to obtain the data sheet of the different materials.

Pressure (MPa)	e (mm)
5	≤ 0,5
15	≤ 0,4
25	≤ 0,3
35	≤ 0,2

d	D	L	Reference
60	70	5	13ROI 60
70	80	5	13ROI 70
80	90	5	13ROI 80
90	100	5	13ROI 90
95	105	5	13ROI 95
100	110	5	13ROI 100
105	115	5	13ROI 105
110	120	5	13ROI 110
115	125	5	13ROI 115
120	130	5	13ROI 120
125	135	5	13ROI 125
130	140	5	13ROI 130
150	160	5	13ROI 150

**13R9**

Carbon graphite filled PTFE double acting rotary seal

**ALL-TEC**
SEALING SYSTEMS

13R9

Example of item code

13R9 - P 0900 PT30/4470

Profile	Range	Diameter (mm x 10)	Materials ①/②
13R9	P	0900	PT30/4470

13R9 is a double-acting rotary seal. The pressure can come from one or from both sides. This profile is composed of a PTFE ring and is activated by an O-ring for use under high pressures and at low sliding speed. The profile ring is designed with notches to provide activation of the energising O-ring, these ensure direct pressure loading of the seal under all operating conditions.

The contact surface of the PTFE ring is designed with one or two grooves, which form a lubricant reservoir for better sliding properties. These increase also the seal efficiency by increasing the specific surface load pressure against the sliding surface.

The PTFE has also an **excellent chemical resistance**, which enables by changing the O-ring material the use with different type of oils.

Operating conditions see page 8

Pressure	≤ 30 MPa
Temperature	-30°C to 100°C
Speed	≤ 2 m/s
pV value	≤ 2,5 MPa.m/s
Fluids	Mineral oils, water emulsions
Shaft surface hardness	≥ 55 HRC
Shaft hardness depth	≥ 0,3 mm

Materials see pages 10-19

Dynamic seal ①	PT30
Static seal ②	NBR 70 Sh A

Assembly see page 56

In closed housings

Advantages

- Low friction
- Stick-slip free
- Compact simple groove design
- High abrasion resistance and dimensional stability
- High chemical compatibility with the right O-ring
- Large temperature range -45°C up to 200°C with the right O-ring

Please contact us for applications approaching maximum values.

More information

On www.all-tec-business.net, click first on the reference and then on the material code to obtain the data sheet of the different materials.

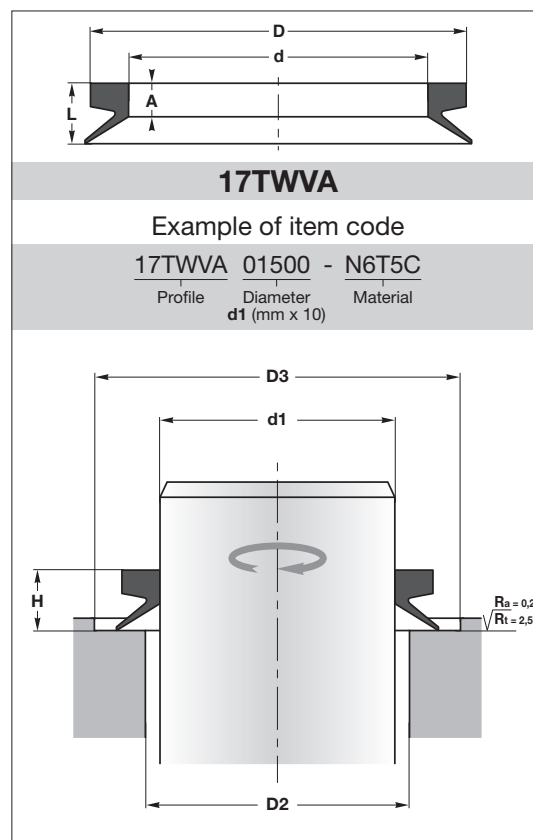
d	D	L	Reference
20	27,5	3,2	13R9 0200-PT30/4470
22	29,5	3,2	13R9 0220-PT30/4470
25	32,5	3,2	13R9 0250-PT30/4470
28	35,5	3,2	13R9 0280-PT30/4470
30	37,5	3,2	13R9 0300-PT30/4470
32	39,5	3,2	13R9 0320-PT30/4470
36	43,5	3,2	13R9 0360-PT30/4470
40	51	4,2	13R9 0400-PT30/4470
45	56	4,2	13R9 0450-PT30/4470
50	61	4,2	13R9 0500-PT30/4470
55	66	4,2	13R9 0550-PT30/4470
56	67	4,2	13R9 0560-PT30/4470
60	71	4,2	13R9 0600-PT30/4470
63	74	4,2	13R9 0630-PT30/4470
65	76	4,2	13R9 0650-PT30/4470
70	81	4,2	13R9 0700-PT30/4470
75	86	4,2	13R9 0750-PT30/4470
80	91	4,2	13R9 0800-PT30/4470
85	96	4,2	13R9 0850-PT30/4470
90	101 105,5	4,2 6,3	13R9 0900-PT30/4470 13R9-P 0900-PT30/4470

d	D	L	Reference
95	106	4,2	13R9 0950-PT30/4470
100	111 115,5	4,2 6,3	13R9 1000-PT30/4470 13R9-P 1000-PT30/4470
105	120,5	6,3	13R9-P 1050-PT30/4470
110	121 125,5	4,2 6,3	13R9 1100-PT30/4470 13R9-P 1100-PT30/4470
125	136 140,5	4,2 6,3	13R9 1250-PT30/4470 13R9-P 1250-PT30/4470
130	145,5	6,3	13R9-P 1300-PT30/4470
140	151 155,5	4,2 6,3	13R9 1400-PT30/4470 13R9-P 1400-PT30/4470
145	160,5	6,3	13R9-P 1450-PT30/4470
150	161 165,5	4,2 6,3	13R9 1500-PT30/4470 13R9-P 1500-PT30/4470
160	171 175,5	4,2 6,3	13R9 1600-PT30/4470 13R9-P 1600-PT30/4470
170	185,5	6,3	13R9-P 1700-PT30/4470
180	191 195,5	4,2 6,3	13R9 1800-PT30/4470 13R9-P 1800-PT30/4470
200	215,5 221	6,3 8,1	13R9 2000-PT30/4470 13R9-P 2000-PT30/4470
220	235,5	6,3	13R9 2200-PT30/4470
250	265,5	6,3	13R9 2500-PT30/4470
280	301	8,1	13R9 2800-PT30/4470
300	321	8,1	13R9 3000-PT30/4470

d (mm)		L (mm)	D (mm)	R (mm)	a (mm)	e max (mm)			O-ring	Number of grooves in the sealing surface
13R9 Standard range	13R9-P Heavy range					10 MPa	20 MPa	> 20 MPa		
6 → 18,9		2,2	d + 4,9	0,4	2	0,15	0,1		1,78	0
19 → 37,9	6 → 18,9	3,2	d + 7,5	0,6	2,5	0,2	0,15		2,62	1
38 → 199,9	19 → 37,9	4,2	d + 11	1	3,5	0,25	0,2		3,53	1
200 → 255,9	38 → 199,9	6,3	d + 15,5	1,3	5	0,3	0,25		5,34	2
256 → 649,9	200 → 255,9	8,1	d + 21	1,8	6,5	0,3	0,25		7	2
650 → 999,9	256 → 649,9	9,5	d + 28	2,5	7,5	0,45	0,3		8,4	2

13R9 seals with diameters between 20 and 1500 mm can be manufactured within short delivery time.

For prices and availability: www.all-tec-business.net

**17TWVA**

Example of item code

17TWVA 01500 - N6T5C
Profile Diameter Material
d1 (mm x 10)

17TWVA is a unique all-rubber face seal for rotary shafts. The V-ring is the perfect seal to prevent the ingress of dirt, dust, water or combinations of these media while positively retaining grease.

It can be also used as a secondary seal to protect primary seals that do not perform well in hostile environments. The profile A is the most common and available from 5,5 to 430 mm, inclusive.

The V-ring is normally stretched and mounted directly on the shaft. The sealing lip is flexible and applies only a relatively light contact pressure against the counter-face and yet is still sufficient to maintain sealing function.

Operating conditions see page 8

Pressure	none
Temperature	-30°C to 100°C
Speed	≤ 10 m/s
Medium	water splash, sand, dust, abrasive particles

Materials see pages 10-19

Seal	NBR
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Assembly

V-ring has to be stretched regularly around the shaft

Advantages

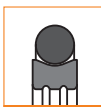
- Easy assembly
- Low axial forces, low power loss
- Compact seal

Please contact us for applications approaching maximum values.

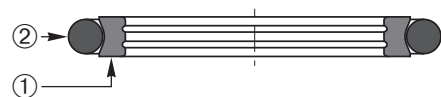
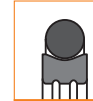
More information

On www.all-tec-business.net, click first on the reference and then on the material code to obtain the data sheet of the material.

d1	d	D	A	L	D2 max	D3 min	H	Forsheda® reference	Friction	Reference
5,5-6,5	5	9	2,4	3,7	d1 + 1	d1 + 6	3,0 +/-0,4	V-6A	Standard	17TWVA00060-N6T50
38-43	36	46	5,5	9	d1 + 2	d1 + 15	7,0 +/-1,0	V-40A	Standard	17TWVA00400-N6T50
48-53	45	55	5,5	9	d1 + 2	d1 + 15	7,0 +/-1,0	V-50A	Standard	17TWVA00500-N6T50
58-63	54	64	5,5	9	d1 + 2	d1 + 15	7,0 +/-1,0	V-60A	Standard	17TWVA00600-N6T50
68-73	63	75	6,8	11	d1 + 3	d1 + 18	9,0 +/-1,2	V-70A	Standard	17TWVA00700-N6T50
78-83	72	84	6,8	11	d1 + 3	d1 + 18	9,0 +/-1,2	V-80A	Standard	17TWVA00800-N6T50
88-93	81	93	6,8	11	d1 + 3	d1 + 18	9,0 +/-1,2	V-90A	Standard	17TWVA00900-N6T50
98-105	90	102	6,8	11	d1 + 3	d1 + 18	9,0 +/-1,2	V-100A	Standard	17TWVA01000-N6T50
105-115	99	113	7,9	12,8	d1 + 4	d1 + 21	10,5 +/-1,5	V-110A	Standard	17TWVA01100-N6T50
115-125	108	122	7,9	12,8	d1 + 4	d1 + 21	10,5 +/-1,5	V-120A	Low friction	17TWVA01200-N6T5C
125-135	117	131	7,9	12,8	d1 + 4	d1 + 21	10,5 +/-1,5	V-130A	Low friction	17TWVA01300-N6T5C
135-145	126	140	7,9	12,8	d1 + 4	d1 + 21	10,5 +/-1,5	V-140A	Low friction	17TWVA01400-N6T5C
145-155	135	149	7,9	12,8	d1 + 4	d1 + 21	10,5 +/-1,5	V-150A	Low friction	17TWVA01500-N6T5C
155-165	144	160	9	14,5	d1 + 4	d1 + 24	12,0 +/-1,8	V-160A	Low friction	17TWVA01600-N6T5C
165-175	153	169	9	14,5	d1 + 4	d1 + 24	12,0 +/-1,8	V-170A	Low friction	17TWVA01700-N6T5C
175-185	162	178	9	14,5	d1 + 4	d1 + 24	12,0 +/-1,8	V-180A	Standard	17TWVA01800-N6T50
185-195	171	187	9	14,5	d1 + 4	d1 + 24	12,0 +/-1,8	V-190A	Standard	17TWVA01900-N6T50
195-210	180	196	9	14,5	d1 + 4	d1 + 24	12,0 +/-1,8	V-199A	Low friction	17TWVA01990-N6T5C
190-210	180	210	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	V-200A	Standard	17TWVA02000-N6T50
210-235	198	228	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	V-220A	Standard	17TWVA02200-N6T50
235-265	225	255	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	V-250A	Standard	17TWVA02500-N6T50
290-310	270	300	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	V-300A	Standard	17TWVA03000-N6T50
390-430	360	390	14,3	25	d1 + 10	d1 + 45	20 +/-4,0	V-400A	Standard	17TWVA04000-N6T50

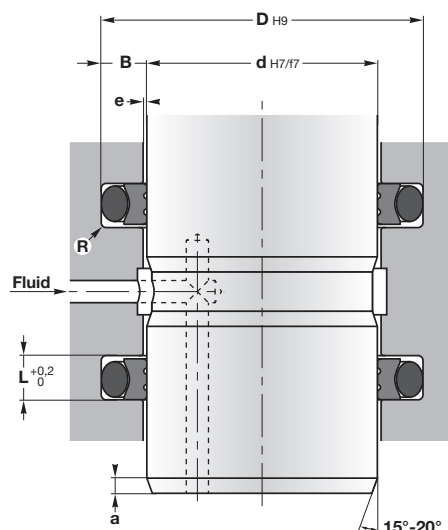


17TG3

Turcon® Roto Glyd Ring®
internal sealingALL-TEC®
SEALING SYSTEMS**17TG3**

Example of item code

17TG 32 0 0450 - T10N
 Profile Range Diameter Materials ①/②
 d (mm x 10)



✗ Machining of housings: see page 877

The Turcon Roto Glyd Ring **17TG3** is double-acting and can be exposed to pressure from one, or from both sides. It consists of a seal ring of Turcon material and is activated by an O-ring as an elastic energising element. The contact surface pressure of the seal ring is specially designed for use under high pressures and at low sliding speeds. Depending on the profile cross-section of the seal, the contact surface has one or two continuous machined grooves.

These have the following functions:

- Improved seal efficiency by increasing the specific surface load pressure against the sealed surface
- Formation of **lubricant reservoir** and reduction in friction.
- In order to improve the pressure activation of the O-ring, the Roto Glyd Ring has **notched end faces** as standard. The rear face which holds the O-ring has a concave form. This increases the contact surface and shall prevent the seal from turning with the rotating surface.

Operating conditions ✗ see page 8

Pressure	≤ 30 MPa
Temperature	-30°C to 100°C
Speed	≤ 2 m/s
pV value	≤ 2,5 MPa.m/s
Fluids	Mineral oils, water emulsions
Shaft surface hardness	≥ 55 HRC
Shaft hardness depth	≥ 0,3 mm

Materials ✗ see pages 10-19

Dynamic seal ①	T10
Static seal ②	NBR 70 Sh A

Assembly ✗ see page 56

In closed housings

Advantages

- Low friction
- Stick-slip free starting, no sticking
- High abrasion resistance and dimensional stability
- Simple groove design, small groove dimensions
- Lubricant reservoir

Please contact us for applications approaching maximum values.

More information

On www.all-tec-business.net, click first on the reference and then on the material code to obtain the data sheet of the different materials.

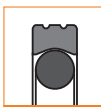
d	D	L	Reference
8	12,9	2,2	17TG300080-T10N
10	14,9	2,2	17TG3000100-T10N
12	16,9	2,2	17TG3000120-T10N
16	20,9	2,2	17TG3000160-T10N
18	22,9	2,2	17TG3000180-T10N
20	27,5	3,2	17TG3100200-T10N
22	29,5	3,2	17TG3100220-T10N
25	32,5	3,2	17TG3100250-T10N
28	35,5	3,2	17TG3100280-T10N
30	37,5	3,2	17TG3100300-T10N
32	39,5	3,2	17TG3100320-T10N
36	43,5	3,2	17TG3100360-T10N
40	51	4,2	17TG3200400-T10N
40	51	4,2	17TG3200400-T40N
45	56	4,2	17TG3200450-T10N
50	61	4,2	17TG3200500-T10N
55	66	4,2	17TG3200550-T10N
56	67	4,2	17TG3200560-T10N
60	71	4,2	17TG3200600-T10N
63	74	4,2	17TG3200630-T10N
65	76	4,2	17TG3200650-T10N

d	D	L	Reference
70	81	4,2	17TG3200700-T10N
75	86	4,2	17TG3200750-T10N
80	91	4,2	17TG3200800-T10N
90	101	4,2	17TG3200900-T10N
100	111	4,2	17TG3201000-T10N
110	121	4,2	17TG3201100-T10N
125	136	4,2	17TG3201250-T10N
125	136	4,2	17TG3201250-T40N
140	151	4,2	17TG3201400-T10N
150	161	4,2	17TG3201500-T10N
160	171	4,2	17TG3201600-T10N
180	191	4,2	17TG3201800-T10N
200	215,5	6,3	17TG3302000-T10N
220	235,5	6,3	17TG3302200-T10N
250	265,5	6,3	17TG3302500-T10N
280	301	8,1	17TG3402800-T40N
300	321	8,1	17TG3403000-T10N

Serie N°	d (mm)		L (mm)	D (mm)	R (mm)	a (mm)	e max (mm)			O-ring	Number of grooves in the sealing surface
	Standard range	Extended range					10 MPa	20 MPa	> 20 MPa		
17TG30	6 → 18,9	6 → 130	2,2	d + 4,9	0,4	2	0,15	0,1		1,78	0
17TG31	19 → 37,9	10 → 245	3,2	d + 7,5	0,6	2,5	0,2	0,15		2,62	1
17TG32	38 → 199,9	19 → 455	4,2	d + 11	1	3,5	0,25	0,2		3,53	1
17TG33	200 → 255,9	38 → 655	6,3	d + 15,5	1,3	5	0,3	0,25		5,34	2
17TG34	256 → 649,9	120 → 655	8,1	d + 21	1,8	6,5	0,3	0,25		7	2
17TG35	650 → 999,9	650 → 999,9	9,5	d + 28	2,5	7,5	0,45	0,3		8,4	2

17TG3 seals with diameters between 20 and 1500 mm can be manufactured within short delivery time.

For prices and availability: www.all-tec-business.net

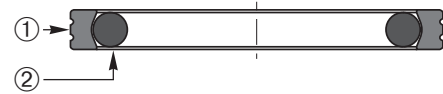


17TG4

Turcon® Roto Glyd Ring®
external sealing



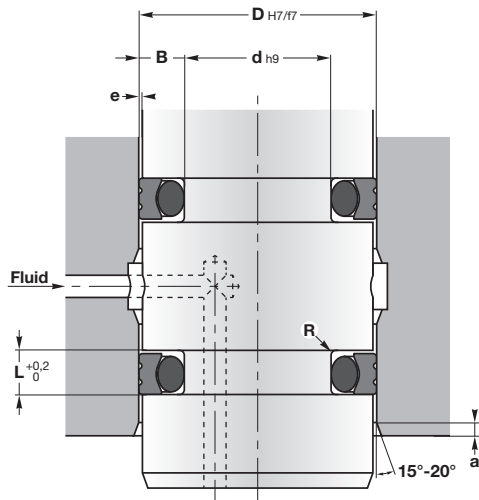
ALL-TEC®
SEALING SYSTEMS



17TG4

Example of item code

17TG 42 0 1250 - T10N
Profile Range Type Diameter
d (mm x 10) Materials ①/②



✕ Machining of housings: see page 877

The Turcon Roto Glyd Ring **17TG4** is double-acting and can be exposed to pressure from one, or from both sides. It consists of a seal ring of Turcon material and is activated by an O-ring as an elastic energising element. The contact surface pressure of the seal ring is specially designed for use under high pressures and at low sliding speeds. Depending on the profile cross-section of the seal, the contact surface has one or two continuous machined grooves.

These have the following functions:

- Improved seal efficiency by increasing the specific surface load pressure against the sealed surface
- Formation of **lubricant reservoir** and reduction in friction.
- In order to improve the pressure activation of the O-ring, the Roto Glyd Ring has **notched end faces** as standard. The rear face which holds the O-ring has a concave form. This increases the contact surface and shall prevent the seal from turning with the rotating surface.

Operating conditions

✕ see page 8

Pressure	≤ 30 MPa
Temperature	-30°C to 100°C
Speed	≤ 2 m/s
pv value	≤ 2,5 MPa.m/s
Fluids	Mineral oils, water emulsions

Materials

✕ see pages 10-19

Dynamic seal ①	T10
Static seal ②	NBR 70 Sh A

Assembly

✕ see page 57-58

In closed housings

Advantages

- Low friction
- Stick-slip free starting, no sticking
- High abrasion resistance and dimensional stability
- Simple groove design, small groove dimensions
- Lubricant reservoir

Please contact us for applications approaching maximum values.

More information

On www.all-tec-business.net, click first on the reference and then on the material code to obtain the data sheet of the different materials.

d	D	L	Reference
20	15,1	2,2	17TG4000200-T10N
25	20,1	2,2	17TG4000250-T10N
40	32,5	3,2	17TG4100400-T10N
50	42,5	3,2	17TG4100500-T10N
63	55,5	3,2	17TG4100630-T10N
80	69	4,2	17TG4200800-T10N
100	89	4,2	17TG4201000-T10N
120	109	4,2	17TG4201200-T40N
125	114	4,2	17TG4201250-T10N
160	144,5	6,3	17TG4301600-T10N
200	184,5	6,3	17TG4302000-T10N
250	234,5	6,3	17TG4302500-T10N
300	279	8,1	17TG4403000-T10N

Serie N°	d (mm)		L (mm)	d (mm)	R (mm)	a (mm)	e max (mm)			O-ring	Number of grooves in the sealing surface
	Standard range	Extended range					10 MPa	20 MPa	> 20 MPa		
17TG40	8→39,9	8→135	2,2	D - 4,9	0,4	2	0,15	0,1	H8/f7	1,78	0
17TG41	40→79,9	14→250	3,2	D - 7,5	0,6	2,5	0,2	0,15		2,62	1
17TG42	80→132,9	22→460	4,2	D - 11	1	3,5	0,25	0,2		3,53	1
17TG43	133→329,9	40→675	6,3	D - 15,5	1,3	5	0,3	0,25		5,34	2
17TG44	330→669,9	133→690	8,1	D - 21	1,8	6,5	0,3	0,25		7	2
17TG45	670→999,9	670→999,9	9,5	D - 28	2,5	7,5	0,45	0,3		8,4	2

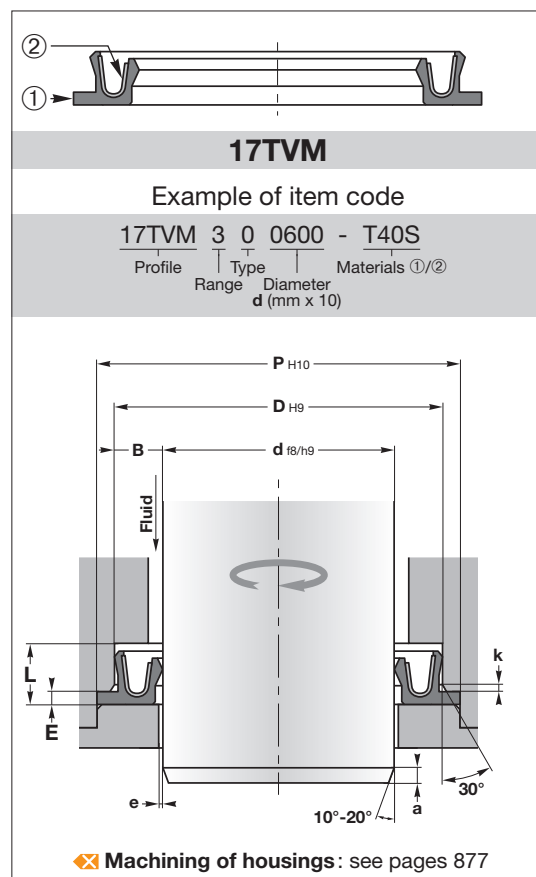


17TVM

Turcon® Roto Variseal®



ALL-TEC®
SEALING SYSTEMS



17TVM

Example of item code

17TVM 3 0 0600 - T40S
Profile Type Diameter Materials ①/②
Range d (mm x 10)

The Turcon Roto Variseal **17TVM** is a single-acting seal consisting of a U-shaped seal jacket and a V-shaped corrosion resistant metal spring.

The characteristic of the Roto Variseal is the flanged heel, which prevents the seal from rotating by clamping in the groove and the short and heavy dynamic lip offering reduced friction, long service life and a good scraping effect in highly viscous media.

At low and zero pressure, the metal spring provides the **primary sealing force**. As the system pressure increases, the main sealing force is achieved by the system pressure and ensures a tight seal from zero to high pressure.

Operating conditions

✗ see page 8

Pressure	≤ 15 MPa
Temperature	-100°C to 260°C
Speed	≤ 2 m/s
pv value	≤ 5 MPa.m/s
Fluids	Mineral oils, HFA, HFB, HFC, HFD
Shaft surface hardness	≥ 55 HRC
Shaft hardness depth	≥ 0,3 mm

Materials

✗ see pages 10-19

Seal ①	T40
Spring ②	SS (AISI 301)

Assembly

In open housings

Advantages

- Low friction
- Stick-slip free
- Protects against mechanical torsion
- Remains tight in groove even when subject to oscillating or helical movements
- High abrasion resistance
- Excellent chemical and temperature resistance
- Good scraping ability

Please contact us for applications approaching maximum values.

More information

On www.all-tec-business.net, click first on the reference and then on the material code to obtain the data sheet of the different materials.

d	D	P	L	E	Reference
30	37	42,5	4,8	1,35	17TVM200300-T24S
40	50,5	57,5	7,1	1,8	17TVM300400-T24S
40	50,5	57,5	7,1	1,8	17TVM300400-T40S
50	60,5	67,5	7,1	1,8	17TVM300500-T40S
60	70,5	77,5	7,1	1,8	17TVM300600-T40S
120	130,5	137,5	7,1	1,8	17TVM301200-T40S

Serie N°	d (mm)		D (mm)	P (mm)	L min. (mm)	E (mm)	R (mm)	k (mm)	a (mm)	e max (mm)		
	Standard range	Extended range								2 MPa	10 MPa	15 MPa
17TVM1	5 → 19,9	20 → 200	d + 5	d + 9	3,6	0,85 $\frac{0}{-0,1}$	0,3	0,8	4,5	0,25	0,15	0,1
17TVM2	20 → 39,9	10 → 400	d + 7	d + 12,5	4,8	1,35 $\frac{0}{-0,15}$	0,4	1,1	5	0,35	0,2	0,15
17TVM3	40 → 399,9	20 → 700	d + 10,5	d + 17,5	7,1	1,8 $\frac{0}{-0,2}$	0,5	1,4	8	0,5	0,25	0,2
17TVM4	400 → 999,9	35 → 999,9	d + 14	d + 22	9,5	2,8 $\frac{0}{-0,2}$	0,5	1,6	12	0,6	0,3	0,25

17TVM seals with diameters between 20 and 1500 mm can be manufactured within short delivery time.
For prices and availability: www.all-tec-business.net