

TR/3/M/P

The TR/3/M/P seal is a rotary shaft seal based on the TR/3/M design with an additional dust lip, sufficiently robust to prevent foreign bodies penetration into the sealing system and damaging the main lip. It also featuring a flexible metal band in the seal back.



Same as the TR/3/M version, it can be installed without a retainer plate. However, in extreme cases, a retainer plate might be advisable.

Dimensions and tolerances are according to DIN 3760.

Lip flexibility and elasticity are identical to all other seals of the TR/3 product family.

Maximum pressure capability is 0,5 bar.

Exclusive features of TR/3/M/P seals are:

- No main lip deterioration due to additional dust lip
- Possibility of assembly without retainer plate
- Improved resistance to possible shaft misalignments
- Decreased radial force exerted on shaft
- Reduced friction and consequent temperature decrease
- Protected spring to avoid slipping/popping out from groove
- Reduced spring preload
- Absence of external metallic parts and consequent prevention of damages to housing bore

Possible size range for TR/3/M seals: $\varnothing d_{\min} = 60 \text{ mm}$; $\varnothing D_{\max} = 2\ 350 \text{ mm}$ (please also see the drawing at the next page)

Materials

The table below shows working temperature ranges (minimum, maximum, peak (*)) applicable to each type of compound as well as possible spring configurations.

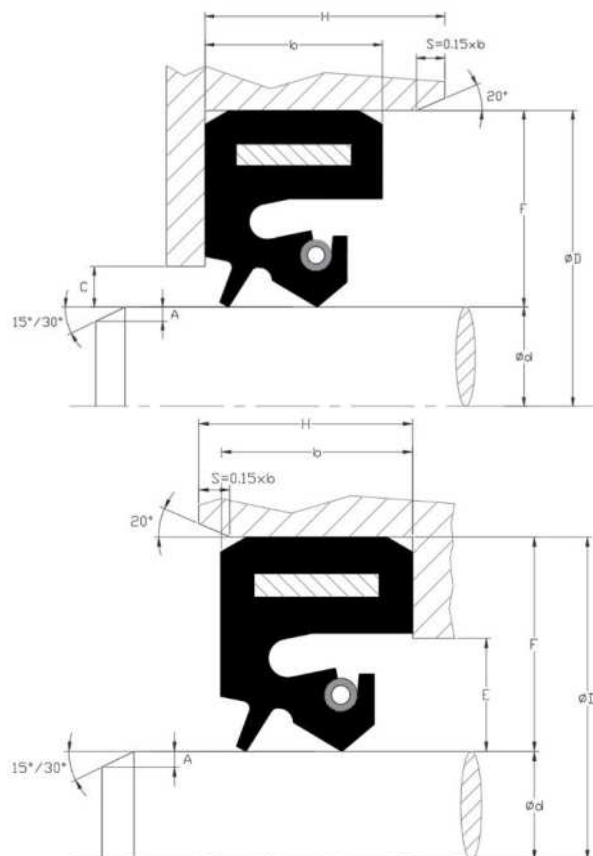
Material	Temperature		Standard spring	Special spring	Recommended circumferential shaft speed	Misalignment
	min	max				
	°C	°C (*)			m/s	
NBR	-30	+100 (+120)	Carbon steel	AISI 302	15	According to cross section
HNBR	-40	+150 (+175)	Carbon steel	AISI 302	20	
FKM	-20	+200 (+250)	AISI 302	AISI 316	25	

Assembly of TR/3/M/P seals

The drawing shows the details of the housing dimensions and the assembly of the TR/3/M/P seal in applications without pressure.

Particular applications or requirements different from those details shall be agreed with the TENUTE Technical Department / SKF Seals Application Engineering.

There are different ways of mounting the TR/3/M/P/PTV seal as shown in the drawings at the right-hand side.



$$C_{\text{maximum}} = 0,2 \times F$$

$$E_{\text{maximum}} = 0,5 \times F$$

Shaft and housing diameter tolerance

Shaft diameter Ød		Tolerance	Housing diameter ØD		Tolerance
Over	Up to		Over	Up to	
mm	mm		mm	mm	
60	1 000	h11	80	1 600	H8
1 000	2 290	h10	1 600	2 350	+0,2 / 0

Housing height tolerance and chamfers

Housing height			Shaft chamfer			Housing chamfer
b	H	Tolerance	Ød	Up to	A minimum	S
mm	mm	mm	Over mm	Up to mm	mm	
Up to 10	b + 0,3	+0,2 / 0	60	250	3	S = 0,15 x b
Over 10	b + 0,4	+0,3 / 0	250	800	4,5	
			800	1 500	6	
			1 500	2 290	7,5	

Shaft and housing surface finishing

A roughness of Ra from 0,2 to 0,6 μm is recommended for the shaft in standard applications, while in case of high speeds, a finishing to Ra from 0,2 to 0,4 μm is recommended. Plunge grinding is required. For the housing bore a finish turning is sufficient.

Shaft hardness

Up to 15 m/s	Over 15 m/s
40 HRC	50 HRC and above

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