

TR/VO/I

The TR/VO/I seal is an axial shaft seal and commonly used for the back-up rolls of hot and cold rolling mills.

The special design of the TR/VO/I seal enables improved axial sealing capability, especially under conditions, where traditional axial shaft seals have issues with the dimensional stability as well as the sealing performance in the long run.



The used components and materials are properly selected by our TENUTE Technical Department / SKF Seals Application Engineering according to the application demand and needs to be aligned prior to a quotation.

The assembling of the TR/VO/I is to be done at the inner diameter (please also see the assembly drawing at the next page).

Exclusive features of TR/VO/I seals are:

- Axial sealing function
- Absence of external metallic parts and consequent prevention of damages to housing bore
- Assembly at the inner diameter of the housing bore
- Possibility of assembly without retainer plate due to the L-shaped metal reinforcement

Possible size range for TR/VO/I seals: $\varnothing d_{\min} = 40 \text{ mm}$; $\varnothing D_{\max} = 1\,400 \text{ mm}$ (please also see the drawing at the next page)

Materials

The standard material for the TR/VO/I is nitril elastomer NBR filled with PTFE, but for particular working conditions the seals also are available in hydrogenated nitril elastomer (HNBR), fluorocarbon elastomer (FKM) or silicone elastomer (VMQ) materials. Other combinations are available on request.

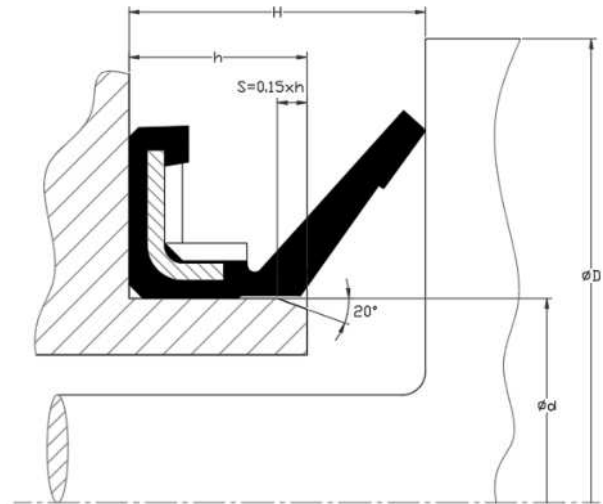
The table below shows working temperature ranges (minimum, maximum, peak (*)) applicable to each type of compound. The standard metal reinforcement is made of carbon steel.

Material	Temperature	
	min	max
	°C	°C (*)
NBR	-30	+100 (+120)
HNBR	-40	+150 (+175)
VMQ	-50	+200 (+250)
FKM	-20	+200 (+250)

Assembly of TR/VO/I

The drawing shows the details of the housing dimensions and the assembly of the TR/VO/I seal.

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



Seal housing inner diameter tolerance

Housing inner diameter Ød		Tolerance
Over	Up to	
mm	mm	
40	1 360	h8

Housing tolerance and chamfers

Housing height h – Tolerance	Working height H – Tolerance	Housing chamfer S
mm		
0 / +0,3	According to the axial movement	S = 0,15 x h

Sliding 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.

Sliding surface hardness

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

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