Seal data sheet

T11/S/D

The T11/S/D seal is designed and used mostly in work rolls and back-up rolls for rolling mills and other applications, where a particularly strong seal is required.

The T11/S/D design has a robust sealing lip and a metal case back provided with metal spacers between the two seals used for a back-to-back arrangement, enabling lubrication.

Assembly of two T11/S/D seals in back-to-back arrangement, one facing the bearing, the other facing outboard, prevent from lubricant leakages and penetration of water, scales, and other contaminants.

A vulcanized finger spring provides a uniform distribution of pressure on the shaft exerted by the sealing lip.

All the inconveniencies shown by garter spring seals are avoided, such as lip overturning, the spring popping out from its housing and consequent damages of bearing and shaft.

This seal can withstand pressures up to 1 bar. The use of T11/S/D in applications with static or dynamic misalignment must be evaluated by SKF Seals Application Engineering respectively the TENUTE Technical Department.

Exclusive features of T11/S/D seals are:

- Possibility for back-to-back arrangement in aggressive environments
- Vulcanized finger spring
- Uniform distribution of the sealing lip pressure on the shaft
- Spring fixed in groove – therefore no inconveniences related to the spring coming out of its position e.g. during mounting
- Better heat dissipation due to the vulcanization of the sealing lip on the case back

Possible size range: $Ød_{min}$ = 36 mm; $ØD_{max}$ = 1 350 mm (please also see the drawing at the next page).

Materials

The materials used for the T11/S/D seal may vary depending on the application demands. Standard and special products are made according to the table below. SKF Seals Application Engineering / TENUTE Technical Department is available for any further investigation on different materials.

Standard production		**Special production on demand**	
Metal case	Carbon steel	Metal case	Stainless steel
Lip	NBR	Lip	HNBR, FKM, EPDM, MVQ
Spring	AISI 301	Spring	AISI 301 – AISI 316

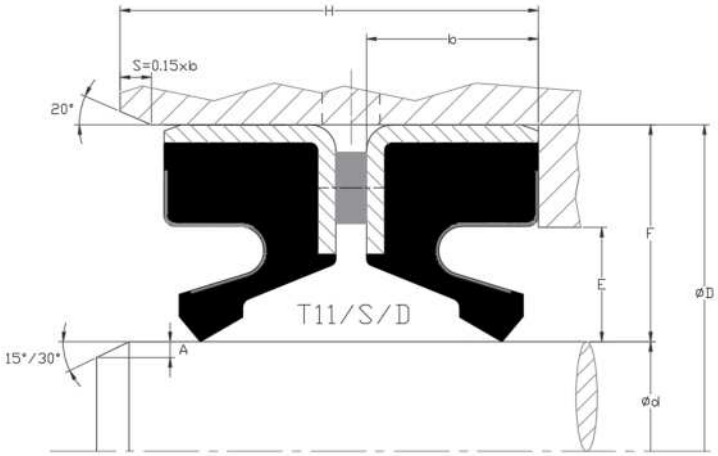
The table below shows working temperature ranges (minimum, maximum, peak (*)) applicable to each type of compound as well as possible spring configurations.

Material	Temperature		Recommended circumferential shaft speed
	min	max	max
	°C	°C (*)	m/s
NBR	-30	+100 (+120)	10
HNBR	-40	+150 (+175)	18
VMQ	-50	+200 (+250)	24
FKM	-20	+200 (+250)	24

Assembly of T11/S/D seals

The drawing shows the details of the housing dimensions and the assembly of the T11/S/D seal in a back-to-back arrangement in applications without pressure.

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



$E_{minimum}$ = 0,3 x F; $E_{maximum}$ = 0,5 x F

Shaft and housing diameter tolerance

Shaft diameter Ød		Tolerance	Housing diameter ØD		Tolerance
Over	Up to		Over	Up to	
mm	mm		mm	mm	
36	1 000	h11	56	1 350	H8
1 000	1 290	h10			

Housing height tolerance and chamfers

Housing height			Shaft chamfers			Housing chamfer
b	**H**	**Tolerance**	**Ød**		**A minimum**	**S**
mm	mm	mm	Over mm	Up to mm	mm	
Up to 10	b + 0,3	+0,2 / 0	36	50	1,5	S = 0,15 x b
Over 10	b + 0,4	+0,3 / 0	50	250	3	
			250	800	4,5	
			800	1 290	6	

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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