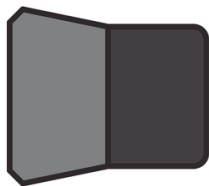


Compact seal type TSE



Type TSE is a single acting piston - rod seal which consists of reinforced cotton fabric and nitrile rubber vulcanized together forming an integral sealing element.

Characteristics

Type: TSE

Material seal: NBR/fabric

Max. operating pressure: 250 bar

Maximum speed: 0.5 m/s

Application

- Low to medium duty hydraulic cylinders, mobile hydraulics and presses.

Technical Information

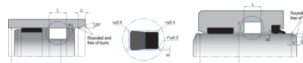
- Functions even with poor surfaces
- Reinforced cotton fabric base prevents the seal from extrusion
- Both rod and piston application
- Good sealing at low pressures

Operating Principle

- Type TSE is to be assembled into open grooves. It is very important that the assembly tools must be of soft material and have no sharp edges. Before installation the sealing element must be oiled with system oil.

Options

- The permissible sealing gap values of type TSE piston - rod seal is given in the below table.



Operating conditions			
Media	Mineral Oils [DIN 51524]	HFA and HFB	HFC
Temperature	-30°C + 105°C	+5°C + 60°C	-30°C + 60 °C
Pressure	≤250 bar	≤250 bar	≤250 bar
Speed	≤0,5 m/s	≤0,5 m/s	≤0,5 m/s

Note: The above data are maximum values, they may only be maintained for short periods of time and cannot be used at the same time simultaneously.

Surface roughness			
	Ra	Rmax	
Sliding Surface	≤0,4 µm	≤3,2 µm	
Groove Base	≤1,8 µm	≤6,3 µm	
Groove Flanks	≤3,2 µm	≤16 µm	

Maximum permissible sealing gap - S [mm]			
150 bar		250 bar	
0,20		0,10	

Note: The largest sealing gap value occurring on the non-pressurized side of the seal does have a vital importance for the function of the seal and in this respect it is very important to use an S value lower than the above indicated numbers.

Hardware tolerances			
Dimension	Ød	ØD	L
Tolerance	h9 [rod] / f8 [piston]	H10 [rod] / H9 [piston]	+0,2/-0 mm

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Internal diameter	Outer diameter	Groove width	Temperature range	Article
mm	mm	mm	°C	
4	12	6.3	-30 / 105	14194167
10	17	6.3	-30 / 105	14194168
10	19	6.3	-30 / 105	14194169
12	20	6.3	-30 / 105	14194170
14	22	6.3	-30 / 105	14194171
14	22	7	-30 / 105	14194172
14	22	8.5	-30 / 105	14194173
15	23	6.3	-30 / 105	14194174
16	24	6.3	-30 / 105	11182497
16	24	6.5	-30 / 105	14194175
16	24	7	-30 / 105	14194176
18	24	5.2	-30 / 105	14194178
18	26	6.3	-30 / 105	14194177
19.5	27.5	8.3	-30 / 105	14194179
20	26	5.5	-30 / 105	14194180
20	27	6.5	-30 / 105	10018715
20	28	6.3	-30 / 105	11396878
20	28	7	-30 / 105	10018588
20	30	8	-30 / 105	14194181
20	30	8.5	-30 / 105	10018716
22	30	6.3	-30 / 105	14194182
22	30	6.5	-30 / 105	14194183
22	30	7	-30 / 105	11204435
22	32	7.3	-30 / 105	14194184
25	32	6.3	-30 / 105	12182435
25	33	6	-30 / 105	14194186
25	33	6.3	-30 / 105	14194185
25	35	6	-30 / 105	14194188
25	35	8.3	-30 / 105	14194187
25	35	9	-30 / 105	10018589
28	35	4.5	-30 / 105	14194191
28	36	6.3	-30 / 105	14194189
28	36	6.4	-30 / 105	14194192
28	43	11	-30 / 105	14194190
28.57	41.27	10	-30 / 105	12961511
30	37.5	6.5	-30 / 105	14194195
30	38	6	-30 / 105	14194193
30	38	6.3	-30 / 105	12379934
30	38	6.4	-30 / 105	10018717
30	40	6.3	-30 / 105	14194194
30	40	7	-30 / 105	10018590
30	40	7.5	-30 / 105	11324389
30	50	14.5	-30 / 105	11204442
31.75	47.62	11.6	-30 / 105	10018953
32	40	6.3	-30 / 105	14194196
32	44	12.5	-30 / 105	14194197
35	43	6	-30 / 105	14194199
35	43	6.3	-30 / 105	14194198
35	43	6.5	-30 / 105	14194200
35	43	7.3	-30 / 105	14194201
35	45	7.5	-30 / 105	14194202
35	45	8	-30 / 105	12961512
35	50	11.5	-30 / 105	11204553

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Internal diameter	Outer diameter	Groove width	Temperature range	Article
mm	mm	mm	°C	
36	44	6.3	-30 / 105	14194203
36	51	11	-30 / 105	14194204
38	50	9.5	-30 / 105	10018720
38.1	50.8	12.4	-30 / 105	12250798
40	48	6.3	-30 / 105	14194205
40	48	7.3	-30 / 105	14194209
40	48	8	-30 / 105	14194206
40	50	7	-30 / 105	14194207
40	50	8	-30 / 105	10018596
40	50	11	-30 / 105	14194208
40	60	14.5	-30 / 105	11204560
42	50	6.3	-30 / 105	14194210
45	53	6.3	-30 / 105	14194213
45	53	8.5	-30 / 105	11119809
45	55	8	-30 / 105	14194211
45	55	10.5	-30 / 105	14194212
45	57	9.5	-30 / 105	13274312
45	60	11	-30 / 105	12606893
45	60	12	-30 / 105	14194214
45	65	14.5	-30 / 105	10018823
46	56	8	-30 / 105	14194215
48	60	10	-30 / 105	14194216
48	63	11	-30 / 105	14194217
50	60	7.5	-30 / 105	14194218
50	60	10	-30 / 105	14194219
50	62	9.5	-30 / 105	11499120
50	70	14.5	-30 / 105	11204575
55	63	8.3	-30 / 105	14194221
55	65	8	-30 / 105	10018599
55	67	10.5	-30 / 105	14194220
55	70	10.5	-30 / 105	12314963
56	66	8	-30 / 105	14194222
56	76	14	-30 / 105	14194223
60	70	7.5	-30 / 105	14194224
60	70	8	-30 / 105	10018600
60	72	9.5	-30 / 105	14194225
60	75	13	-30 / 105	11204668
60	80	12.5	-30 / 105	14194226
60	80	14.5	-30 / 105	14194227
63.5	82.55	14.28	-30 / 105	14194228
65	73	9.6	-30 / 105	14194229
65	77	9.6	-30 / 105	14194230
65	85	14.5	-30 / 105	14194231
70	80	7.5	-30 / 105	14194232
70	80	8	-30 / 105	11202706
70	82	9	-30 / 105	14194233
70	82	9.6	-30 / 105	11204683
70	85	8	-30 / 105	14194235
70	85	12	-30 / 105	14194236
70	90	14	-30 / 105	14194234
75	85	8	-30 / 105	12621729
75	87	9.3	-30 / 105	14194237
80	90	8	-30 / 105	11382279

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Internal diameter	Outer diameter	Groove width	Temperature range	Article
mm	mm	mm	°C	
80	92	9	-30 / 105	13392534
80	92	9.6	-30 / 105	10018721
80	96	10	-30 / 105	14194238
80	100	14	-30 / 105	14194239
85	97	9.6	-30 / 105	12961514
85	110	13.5	-30 / 105	12632214
88.9	101.6	10	-30 / 105	14194240
90	102	9.6	-30 / 105	11204715
90	110	12.5	-30 / 105	13425114
100	115	12	-30 / 105	10018831
100	120	14	-30 / 105	14194241
110	130	12	-30 / 105	14194242

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