

# Polypac® - Balsele



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Single-acting

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Compact Seal

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Without and with Back-up Ring

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**Material:**

Fabric Reinforced NBR + POM

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## ■ Balsele



### ■ Description

The Balsele is a compact rod seal consisting of an elastomeric sealing element and an integrated fabric reinforced base.

Due to the radial pre-load, an excellent sealing performance will be achieved even at low pressures. The fabric reinforced base prevents the seal from extrusion. Where extrusion gaps are greater than those specified or for higher pressure conditions the series B/NEI with incorporated anti-extrusion ring shall be selected.

### DESIGN

- 1) Sealing element manufactured from a specially developed nitrile compound particularly resistant to compression set. The sealing lips are produced to give optimum efficiency and wear resistance.
- 2) The reinforced base of the seal element is of cotton fabric impregnated with nitrile elastomer and vulcanized with the first sealing element, thus forming an integral component.
- 3) Guide rings or anti-extrusion rings are made from acetal resin. As previously described, these rings maintain the seal in the optimum position for maximum performance, and minimize all possible extrusion gaps.

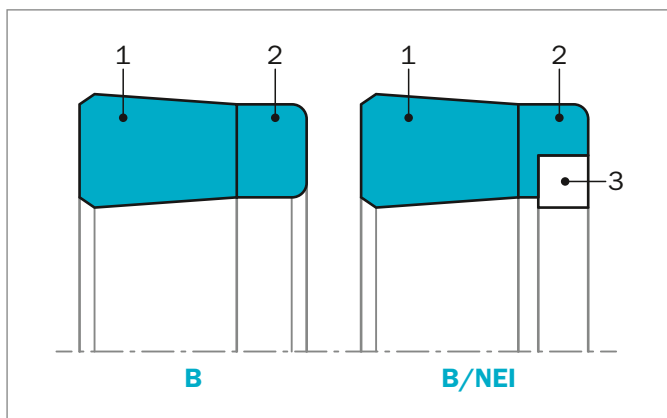


Figure 48: Balsele design

### ADVANTAGES

- Small cross section
- Good chemical resistance
- Large size range
- No hydrolysis problems
- Wide temperature range

### APPLICATION EXAMPLES

- Standard hydraulic cylinders (low to medium duty)
- Mobile hydraulic
- Water based fluids equipment
- After market
- Presses

### OPERATING CONDITIONS

<b>Pressure:</b>	Up to 25 MPa (Type B) Up to 40 MPa (Type B/NEI)
<b>Velocity:</b>	Up to 0.5 m/s
<b>Temperature:</b>	-30 °C to +130 °C
<b>Media:</b>	Mineral oil, water, air
<b>Groove Type:</b>	Open

### IMPORTANT NOTE

The above data are maximum values and cannot be used at the same time, e.g. the maximum operating speed depends on material type, pressure, temperature and gap value. Temperature range also depends on media.

### MATERIALS

#### For type B:

NBR + cotton fabric  
Material code N8CO

#### For type B/NEI:

NBR + cotton fabric  
Back-up Ring material POM  
Material code N8CO



## DESIGN INSTRUCTIONS

### Lead in chamfers

In order to avoid damage to the Balsele during installation, lead-in chamfers of min. 5 x 20° must be provided on the rods.

**Table 38: Lead in chamfers**

Rod Diameter	Lead in Chamfer
0 - 100	5 x 20°
101 - 200	7 x 20°
201 - 400	10 x 20°

### Surface roughness

**Table 39: Surface parameters**

Parameter	Mating Surface µm	Groove Surface µm
R <sub>max</sub>	0.63 - 2.50	< 16.0
R <sub>z</sub> DIN	0.40 - 1.60	< 10.0
R <sub>a</sub>	0.05 - 0.20	< 1.6

The material contact area R<sub>mr</sub> should be approximately 50 to 70%, determined at a cut depth c = 0.25 x R<sub>z</sub>, relative to a reference line of C<sub>ref</sub>. 5%.

### Clearance

**Table 40: Radial Clearance**

Operating max. Pressure MPa	Radial Clearance S <sub>max</sub>
16	0.20
25	0.10

For Type B/NEI (with Back-up Ring) the values can be double and with similar gap measure S<sub>max</sub> = 0.10 a pressure of 40 MPa can be tightened.



## ■ Installation Recommendation

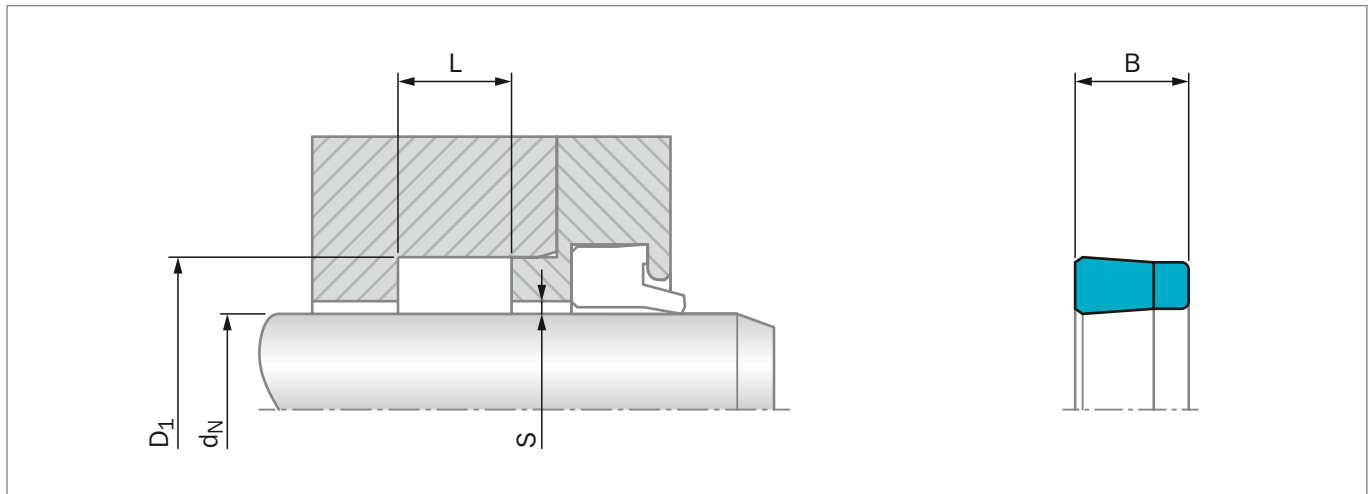


Figure 49: Installation Drawing

### ORDERING EXAMPLE

Balsele Type B

<b>Rod Diameter:</b>	$d_N = 6.0$ mm
<b>Groove Diameter:</b>	$D_1 = 10.0$ mm
<b>Groove Width:</b>	$L = 5.0$ mm
<b>TSS Part No.:</b>	RUM000060 -
<b>Compound:</b>	N8C0 (NBR + cotton fabric)

#### TSS Article No. RUM 0 0 0060 - N8C0

TSS Series No.	RUM	0	0	0060	-	N8C0
Design code						
Execution Mark						
Rod diameter x 10						
Quality Index (Standard)						
Material code (Seal Ring)						
Polypac Ref. No.:	B 039023					

Table 41: Installation Dimensions / TSS Article No.

Rod Diameter	Groove Diameter	Groove Width	Seal Width	TSS Article No. Standard	Description
$d_N$ h11	$D_1$ H11	L +0.1	B		
*4.76	12.70	6.40	5.75	RUM000047-N8C0	B 050018
*6.00	10.00	5.00	4.00	RUM000060-N8C0	B 039023
<b>*6.00</b>	<b>14.00</b>	<b>6.40</b>	<b>5.90</b>	<b>RUM100060-N8C0</b>	<b>B 055024</b>
*6.35	14.28	6.85	6.30	RUM000063-N8C0	B 056025
*8.00	15.00	6.40	5.90	RUM000080-N8C0	B 059031
*10.00	17.00	6.40	5.90	RUM100100-N8C0	B 066039
*11.11	20.63	7.65	7.00	RUM000111-N8C0	B 081043
*12.00	18.00	7.50	7.00	RUM000120-N8C0	B 070047
*12.00	19.00	6.30	5.80	RUM100120-N8C0	B 075047
<b>*12.00</b>	<b>20.00</b>	<b>6.40</b>	<b>5.80</b>	<b>RUM200120-N8C0</b>	<b>B 078047</b>
*12.70	19.05	5.25	4.80	RUM000127-N8C0	B 075050
*12.70	20.63	6.85	6.30	RUM100127-N8C0	B 081050
*12.70	22.22	7.65	7.00	RUM200127-N8C0	B 087050
*14.00	22.00	6.50	5.90	RUM000140-N8C0	B 086055



Rod Diameter	Groove Diameter	Groove Width	Seal Width	TSS Article No. Standard	Description
$d_N$ h11	$D_1$ H11	L +0.1	B		
*14.28	23.81	7.65	7.00	RUM000142-N8CO	B 093056
*15.00	23.00	6.40	5.80	RUM000150-N8CO	B 090059
*15.87	22.22	5.25	4.80	RUM000158-N8CO	B 087062
*15.87	25.40	7.65	7.00	RUM100158-N8CO	B 100062
<b>*16.00</b>	<b>24.00</b>	<b>6.40</b>	<b>5.90</b>	<b>RUM000160-N8CO</b>	<b>B 094063/1</b>
*16.00	24.00	7.00	6.50	RUM100160-N8CO	B 094063
*17.46	30.16	10.00	9.20	RUM000174-N8CO	B 118068
*18.00	25.00	8.00	7.30	RUM100180-N8CO	B 098070
<b>*18.00</b>	<b>26.00</b>	<b>6.40</b>	<b>5.80</b>	<b>RUM200180-N8CO</b>	<b>B 102070/1</b>
*18.00	26.00	7.00	6.50	RUM300180-N8CO	B 102070
*18.00	28.00	6.30	5.70	RUM400180-N8CO	B 110070
*19.05	28.58	9.00	8.00	RUM100190-N8CO	B 112075
*19.05	31.75	8.50	7.70	RUM000190-N8CO	B 125075/1
*20.00	27.00	6.50	5.90	RUM000200-N8CO	B 106078
<b>*20.00</b>	<b>28.00</b>	<b>6.30</b>	<b>5.70</b>	<b>RUM200200-N8CO</b>	<b>B 110078/1</b>
*20.00	28.00	7.00	6.50	RUM100200-N8CO	B 110078
*20.00	30.00	8.50	7.60	RUM300200-N8CO	B 118078
*20.00	35.00	11.50	10.60	RUM400200-N8CO	B 137078
*20.63	33.33	10.00	9.20	RUM000206-N8CO	B 131081
*22.00	30.00	6.50	5.90	RUM000220-N8CO	B 118086/1
*22.00	30.00	7.00	6.50	RUM100220-N8CO	B 118086
*22.00	35.00	10.00	9.20	RUM400220-N8CO	B 137086
*22.22	31.75	9.20	8.60	RUM000222-N8CO	B 125087
*23.81	36.51	10.00	9.20	RUM000238-N8CO	B 143093
*24.00	32.00	7.50	6.90	RUM000240-N8CO	B 125094
*24.00	34.00	6.50	5.90	RUM100240-N8CO	B 134094
<b>25.00</b>	<b>33.00</b>	<b>6.40</b>	<b>5.80</b>	<b>RUM000250-N8CO</b>	<b>B 129098/1</b>
*25.00	35.00	9.00	8.40	RUM100250-N8CO	B 137098
*25.00	38.00	10.00	9.15	RUM200250-N8CO	B 149098
*25.00	44.00	12.50	11.40	RUM300250-N8CO	B 173098
*25.40	31.75	5.25	4.70	RUM000254-N8CO	B 125100
*25.40	34.92	6.85	6.20	RUM100254-N8CO	B 137100
*25.40	38.10	10.00	9.20	RUM200254-N8CO	B 150100
*25.40	41.27	11.60	10.70	RUM300254-N8CO	B 162100
*26.00	40.00	10.00	9.20	RUM000260-N8CO	B 157102/1
*27.00	35.00	6.50	5.90	RUM000270-N8CO	B 137106
<b>28.00</b>	<b>36.00</b>	<b>6.40</b>	<b>5.80</b>	<b>RUM000280-N8CO</b>	<b>B 141110</b>
*28.19	39.68	8.00	7.30	RUM000281-N8CO	B 156111
*28.57	41.27	10.00	9.20	RUM100285-N8CO	B 162112
*28.57	44.45	11.60	10.70	RUM200285-N8CO	B 175112
30.00	37.50	6.50	6.00	RUM100300-N8CO	B 147118
30.00	38.00	6.40	5.80	RUM000300-N8CO	B 149118



Rod Diameter	Groove Diameter	Groove Width	Seal Width	TSS Article No. Standard	Description
$d_N$ h11	$D_1$ H11	L +0.1	B		
*30.00	40.00	7.50	6.80	RUM300300-N8CO	B 157118
*30.00	41.60	8.00	7.20	RUM500300-N8CO	B 164118
*30.00	45.00	9.00	8.50	RUM600300-N8CO	B 177118/1
*30.00	50.00	14.50	13.50	RUM700300-N8CO	B 196118
*31.75	47.62	11.60	10.60	RUM200317-N8CO	B 187125
32.00	40.00	6.30	5.80	RUM000320-N8CO	B 157125/1
*32.00	40.00	9.00	8.50	RUM100320-N8CO	B 157125
*34.92	50.80	10.00	9.10	RUM100349-N8CO	B 200137/1
*34.92	50.80	11.60	10.60	RUM200349-N8CO	B 200137/2
35.00	43.00	6.50	6.00	RUM000350-N8CO	B 169137
*35.00	45.00	8.00	7.20	RUM100350-N8CO	B 177137/5
*35.00	45.00	13.50	12.80	RUM300350-N8CO	B 177137/2
*35.00	50.00	11.50	10.60	RUM400350-N8CO	B 196137
36.00	43.00	6.50	6.00	RUM000360-N8CO	B 169141
36.00	44.00	6.40	5.90	RUM100360-N8CO	B 173141
*37.72	50.80	9.00	8.20	RUM000377-N8CO	B 200148
*38.00	50.00	9.50	8.80	RUM000380-N8CO	B 196149
*38.10	50.80	12.40	11.90	RUM100381-N8CO	B 200150/1
*38.10	53.97	11.50	10.50	RUM400381-N8CO	B 212150/1
*38.10	53.97	12.83	12.00	RUM500381-N8CO	B 212150/2
40.00	48.00	6.50	6.00	RUM000400-N8CO	B 188157
<b>40.00</b>	<b>50.00</b>	<b>8.00</b>	<b>7.40</b>	<b>RUM100400-N8CO</b>	<b>B 196157/3</b>
*40.00	50.00	11.00	10.30	RUM300400-N8CO	B 196157
*40.00	50.00	13.50	12.80	RUM400400-N8CO	B 196157/2
*40.00	60.00	14.50	13.30	RUM700400-N8CO	B 236157
41.27	57.12	11.60	10.70	RUM000412-N8CO	B 225162
42.00	50.00	6.40	6.00	RUM000420-N8CO	B 196165
*42.92	55.50	8.90	8.10	RUM000429-N8CO	B 218169
43.00	53.00	9.00	8.40	RUM000430-N8CO	B 208169
44.00	53.00	8.00	7.30	RUM000440-N8CO	B 208173
*44.45	60.32	11.60	10.70	RUM100444-N8CO	B 237175
*44.45	61.91	11.60	10.60	RUM200444-N8CO	B 243175
45.00	53.00	6.50	6.00	RUM000450-N8CO	B 208177
<b>45.00</b>	<b>55.00</b>	<b>8.00</b>	<b>7.30</b>	<b>RUM100450-N8CO</b>	<b>B 216177</b>
*45.00	63.00	11.00	10.00	RUM500450-N8CO	B 248177
*45.00	65.00	14.50	13.30	RUM600450-N8CO	B 255177
45.97	55.37	8.33	7.60	RUM000459-N8CO	B 218181
46.00	56.00	8.00	7.30	RUM100460-N8CO	B 220181
*47.23	60.32	10.00	9.20	RUM000472-N8CO	B 237186
*47.62	63.50	11.50	10.60	RUM000476-N8CO	B 250187
*48.00	60.00	7.00	6.30	RUM000480-N8CO	B 236188
*50.00	58.00	12.50	12.00	RUM000500-N8CO	B 228196



Rod Diameter	Groove Diameter	Groove Width	Seal Width	TSS Article No. Standard	Description
$d_N$ h11	$D_1$ H11	L +0.1	B		
<b>50.00</b>	<b>60.00</b>	<b>8.00</b>	<b>7.30</b>	<b>RUM100500-N8CO</b>	<b>B 236196</b>
*50.00	60.00	10.00	9.30	RUM200500-N8CO	B 236196/1
*50.00	62.00	9.50	8.50	RUM300500-N8CO	B 244196/1
*50.00	64.50	11.50	10.50	RUM400500-N8CO	B 254196
*50.00	70.00	14.50	13.30	RUM600500-N8CO	B 275196
50.80	60.35	11.00	10.30	RUM000508-N8CO	B 237200
*50.80	66.67	11.50	10.50	RUM100508-N8CO	B 262200
*53.97	73.02	14.80	13.80	RUM000539-N8CO	B 287212
55.00	70.00	10.50	9.60	RUM200550-N8CO	B 275216
*55.00	75.00	14.50	13.30	RUM300550-N8CO	B 295216
56.00	66.00	8.00	7.30	RUM000560-N8CO	B 259220
*56.00	76.00	14.50	13.40	RUM200560-N8CO	B 299220
57.00	67.00	8.00	7.30	RUM000570-N8CO	B 263224
57.15	69.85	10.00	9.20	RUM000571-N8CO	B 275225
*57.15	73.02	11.50	10.60	RUM100571-N8CO	B 287225
*57.15	76.20	10.00	8.90	RUM200571-N8CO	B 300225
*57.15	76.20	13.50	12.40	RUM300571-N8CO	B 300225/1
*57.15	76.20	14.28	13.20	RUM400571-N8CO	B 300225/2
60.00	69.50	7.00	6.40	RUM000600-N8CO	B 273236
60.00	70.00	8.00	7.50	RUM100600-N8CO	B 275236
60.00	71.00	9.60	9.00	RUM400600-N8CO	B 279236
60.00	72.00	10.00	9.20	RUM500600-N8CO	B 283236
60.00	75.00	13.00	12.10	RUM600600-N8CO	B 295236
*60.00	80.00	14.50	13.50	RUM700600-N8CO	B 314236
*60.32	79.37	14.80	13.80	RUM000603-N8CO	B 312237
61.00	69.00	8.50	7.90	RUM000610-N8CO	B 271240
63.00	75.00	9.60	8.80	RUM000630-N8CO	B 295248/1
*63.00	83.00	14.50	13.30	RUM300630-N8CO	B 326248
*63.50	82.55	14.28	13.13	RUM200635-N8CO	B 325250/1
65.00	75.00	8.50	7.80	RUM000650-N8CO	B 295255/1
65.00	75.00	13.50	12.30	RUM100650-N8CO	B 295255
65.00	77.00	9.60	8.80	RUM200650-N8CO	B 303255
65.00	80.00	11.50	10.60	RUM300650-N8CO	B 314255
*65.00	85.00	14.50	13.50	RUM600650-N8CO	B 334255
*65.00	95.00	17.50	15.80	RUM500650-N8CO	B 374255
*66.00	80.00	11.00	10.10	RUM000660-N8CO	B 314259
*66.67	85.72	14.80	13.70	RUM000667-N8CO	B 337262
68.00	76.00	8.00	7.40	RUM000680-N8CO	B 299267
70.00	80.00	8.00	7.30	RUM100700-N8CO	B 314275/1
70.00	82.00	9.60	8.80	RUM300700-N8CO	B 322275/1
70.00	84.00	12.50	11.20	RUM500700-N8CO	B 330275
70.00	85.00	12.00	11.00	RUM600700-N8CO	B 334275/1





Rod Diameter	Groove Diameter	Groove Width	Seal Width	TSS Article No. Standard	Description
$d_N$ h11	$D_1$ H11	L +0.1	B		
*70.00	90.00	14.50	13.50	RUM800700-N8C0	B 354275
*73.02	88.90	12.50	11.50	RUM000730-N8C0	B 350287
75.00	85.00	8.00	7.30	RUM000750-N8C0	B 334295/1
75.00	89.50	11.50	10.50	RUM200750-N8C0	B 352295
75.00	90.00	11.50	10.60	RUM300750-N8C0	B 354295
*75.00	95.00	11.00	10.00	RUM500750-N8C0	B 374295/1
76.00	84.00	8.50	7.90	RUM000760-N8C0	B 330299
76.20	88.90	9.40	8.70	RUM000762-N8C0	B 350300
*76.20	95.25	14.80	13.70	RUM200762-N8C0	B 375300
77.00	87.00	8.00	7.30	RUM000770-N8C0	B 342303
79.00	88.50	7.00	6.40	RUM000790-N8C0	B 348311
80.00	90.00	8.00	7.30	RUM000800-N8C0	B 354314
80.00	92.00	9.60	8.80	RUM100800-N8C0	B 362314
80.00	96.00	10.50	9.60	RUM400800-N8C0	B 377314
80.00	100.00	14.50	13.40	RUM600800-N8C0	B 393314
81.00	91.00	8.00	7.30	RUM000810-N8C0	B 358318
82.55	101.60	14.80	13.70	RUM000825-N8C0	B 400325/1
84.00	94.00	8.00	7.30	RUM100840-N8C0	B 370330
85.00	95.00	8.00	7.30	RUM000850-N8C0	B 374334
85.00	95.00	8.50	7.80	RUM100850-N8C0	B 374334/1
85.00	97.00	9.60	9.00	RUM200850-N8C0	B 381334
85.00	100.00	12.00	10.80	RUM300850-N8C0	B 393334/1
85.00	105.00	14.50	13.40	RUM400850-N8C0	B 413334
*85.00	110.00	13.50	12.20	RUM500850-N8C0	B 433334
*85.72	104.77	14.80	13.80	RUM000857-N8C0	B 412337
*85.72	111.12	19.50	18.20	RUM100857-N8C0	B 437337
88.00	96.00	8.00	7.50	RUM000880-N8C0	B 377346
88.90	101.60	10.00	9.20	RUM000889-N8C0	B 400350
*88.90	107.95	12.70	11.60	RUM100889-N8C0	B 425350
90.00	102.00	9.60	8.80	RUM100900-N8C0	B 401354
90.00	110.00	12.50	11.40	RUM500900-N8C0	B 433354
91.00	99.00	8.50	7.90	RUM000910-N8C0	B 389358
*92.07	117.45	13.20	12.00	RUM100920-N8C0	B 462362/1
95.00	105.00	11.00	10.30	RUM000950-N8C0	B 413374
95.00	107.00	12.50	11.70	RUM100950-N8C0	B 421374
95.00	110.00	12.50	11.36	RUM200950-N8C0	B 433374
95.25	114.30	13.50	12.40	RUM000952-N8C0	B 450375
*95.25	120.65	19.50	18.20	RUM100952-N8C0	B 475375
96.00	105.00	8.50	7.90	RUM000960-N8C0	B 413377
96.00	108.00	12.50	11.70	RUM100960-N8C0	B 425377
97.00	108.00	12.50	11.80	RUM000970-N8C0	B 425381
98.00	107.50	7.00	6.20	RUM000980-N8C0	B 423385



Rod Diameter	Groove Diameter	Groove Width	Seal Width	TSS Article No. Standard	Description
$d_N$ h11	$D_1$ H11	L +0.1	B		
100.00	113.00	13.50	12.70	<a href="#">RUM001000-N8CO</a>	B 444393
100.00	115.00	11.50	10.60	<a href="#">RUM101000-N8CO</a>	B 452393/1
100.00	120.00	12.00	11.20	<a href="#">RUM301000-N8CO</a>	B 472393/1
100.00	120.00	14.50	13.40	<a href="#">RUM401000-N8CO</a>	B 472393
101.50	123.82	17.18	16.00	<a href="#">RUM001015-N8CO</a>	B 487400
101.60	127.00	19.50	18.00	<a href="#">RUM001016-N8CO</a>	B 500400
103.00	115.00	12.50	11.80	<a href="#">RUM001030-N8CO</a>	B 452405
104.00	120.00	12.00	11.20	<a href="#">RUM001040-N8CO</a>	B 472409
104.00	130.00	19.50	18.00	<a href="#">RUM101040-N8CO</a>	B 511409
105.00	115.00	11.00	10.00	<a href="#">RUM001050-N8CO</a>	B 452413
105.00	117.00	12.50	11.80	<a href="#">RUM101050-N8CO</a>	B 460413
105.00	120.00	12.00	11.00	<a href="#">RUM201050-N8CO</a>	B 472413
105.00	125.00	12.50	11.40	<a href="#">RUM301050-N8CO</a>	B 492413
106.00	116.00	8.50	7.80	<a href="#">RUM001060-N8CO</a>	B 457417
107.00	115.00	8.00	7.40	<a href="#">RUM001070-N8CO</a>	B 452421
107.95	133.35	19.00	17.70	<a href="#">RUM001079-N8CO</a>	B 525425
110.00	125.00	12.00	11.20	<a href="#">RUM001100-N8CO</a>	B 492433
110.00	140.00	16.50	15.00	<a href="#">RUM301100-N8CO</a>	B 551433
114.30	133.35	12.40	11.40	<a href="#">RUM001143-N8CO</a>	B 525450
114.30	139.70	19.50	18.00	<a href="#">RUM101143-N8CO</a>	B 550450
115.00	125.00	8.00	7.40	<a href="#">RUM001150-N8CO</a>	B 492452
115.00	135.00	16.00	14.80	<a href="#">RUM101150-N8CO</a>	B 531452
118.00	130.00	12.50	11.80	<a href="#">RUM001180-N8CO</a>	B 511464
120.00	130.00	8.00	7.40	<a href="#">RUM001200-N8CO</a>	B 511472
120.00	132.70	10.00	9.20	<a href="#">RUM101200-N8CO</a>	B 522472
120.00	140.00	12.50	11.40	<a href="#">RUM301200-N8CO</a>	B 551472
120.65	146.05	19.50	18.20	<a href="#">RUM001206-N8CO</a>	B 575475
123.00	133.00	8.00	7.40	<a href="#">RUM001230-N8CO</a>	B 523484
125.00	135.00	8.50	7.80	<a href="#">RUM001250-N8CO</a>	B 531492
125.00	140.00	12.00	11.00	<a href="#">RUM101250-N8CO</a>	B 551492
126.00	134.00	8.00	7.50	<a href="#">RUM001260-N8CO</a>	B 527496
126.00	136.00	8.50	7.80	<a href="#">RUM101260-N8CO</a>	B 535496
127.00	139.70	10.00	8.70	<a href="#">RUM001270-N8CO</a>	B 550500
127.00	152.40	19.50	18.20	<a href="#">RUM201270-N8CO</a>	B 600500
130.00	140.00	8.00	7.40	<a href="#">RUM001300-N8CO</a>	B 551511
131.00	144.00	13.50	12.70	<a href="#">RUM001310-N8CO</a>	B 566515
133.35	158.75	14.00	12.60	<a href="#">RUM001333-N8CO</a>	B 625525/1
139.70	165.10	19.50	18.20	<a href="#">RUM001397-N8CO</a>	B 650550
140.00	155.00	13.00	12.00	<a href="#">RUM001400-N8CO</a>	B 610551
146.05	171.45	19.50	18.20	<a href="#">RUM101460-N8CO</a>	B 675575
152.40	177.80	19.50	18.20	<a href="#">RUM001524-N8CO</a>	B 700600
152.40	184.15	25.80	24.20	<a href="#">RUM101524-N8CO</a>	B 725600



Rod Diameter	Groove Diameter	Groove Width	Seal Width	TSS Article No. Standard	Description
$d_N$ h11	$D_1$ H11	L +0.1	B		
155.00	170.00	9.50	8.55	RUM001550-N8CO	B 669610
158.75	190.50	25.80	24.20	RUM001587-N8CO	B 750625
160.00	174.00	11.50	10.60	RUM001600-N8CO	B 685629
163.00	178.00	13.00	12.00	RUM001630-N8CO	B 700641
165.10	177.80	10.00	9.20	RUM001651-N8CO	B 700650
165.10	196.85	25.80	24.20	RUM101651-N8CO	B 775650
170.00	182.70	10.00	9.20	RUM001700-N8CO	B 719669
171.45	203.20	25.80	24.20	RUM001714-N8CO	B 800675
175.00	200.00	14.50	13.10	RUM001750-N8CO	B 787688
177.80	203.20	22.70	21.40	RUM001778-N8CO	B 800700
180.00	195.00	12.50	11.50	RUM001800-N8CO	B 767708
184.15	215.90	25.80	24.20	RUM001841-N8CO	B 850725
187.00	202.00	11.50	10.60	RUM001870-N8CO	B 795736
188.00	203.00	13.00	12.00	RUM001880-N8CO	B 799740
190.50	222.25	25.80	24.20	RUM001905-N8CO	B 875750
196.00	208.70	9.50	8.70	RUM001960-N8CO	B 821771
196.85	228.60	25.80	24.20	RUM001968-N8CO	B 900775
203.20	235.00	25.80	24.20	RUM002032-N8CO	B 925800
214.00	229.00	13.00	12.10	RUM002140-N8CO	B 901842
215.90	247.65	25.80	24.20	RUM002159-N8CO	B 975850
222.25	254.00	25.80	24.20	RUM002222-N8CO	B 1000875
224.00	236.70	9.50	8.70	RUM002240-N8CO	B 931881
228.60	260.35	25.80	24.20	RUM002286-N8CO	B 1025900
238.00	258.00	15.50	14.40	RUM002380-N8CO	B 1015937
240.00	255.00	13.00	12.00	RUM002400-N8CO	B 1003944
241.30	273.05	25.80	24.20	RUM002413-N8CO	B 1075950
250.00	290.00	25.40	23.30	RUM002500-N8CO	B 1141984
254.00	285.75	25.80	24.20	RUM002540-N8CO	B 11251000
260.35	292.10	25.80	24.20	RUM002603-N8CO	B 11501025
266.70	298.45	25.80	24.20	RUM002667-N8CO	B 11751050
273.05	304.80	25.80	24.20	RUM002730-N8CO	B 12001075
279.40	311.15	25.80	24.20	RUM002794-N8CO	B 12251100
280.00	320.00	22.50	20.30	RUM002800-N8CO	B 12591102
285.75	317.50	25.80	24.20	RUM002857-N8CO	B 12501125
298.45	330.20	25.80	24.20	RUM002984-N8CO	B 13001175
304.80	336.55	25.80	24.20	RUM003048-N8CO	B 13251200
318.00	355.00	13.00	11.90	RUM003180-N8CO	B 13191252
<b>320.00</b>	<b>360.00</b>	<b>25.50</b>	<b>23.30</b>	<b>RUM003200-N8CO</b>	<b>B 14171259</b>
350.00	385.00	25.40	23.50	RUM003500-N8CO	B 15151377
375.00	415.00	25.40	23.20	RUM003750-N8CO	B 16331476
445.00	482.00	35.50	33.50	RUM004450-N8CO	B 19001750

Dimensions and TSS Part Numbers in bold according to ISO/DIN 5597 and ISO 5597/1. \* Split groove



## ■ Installation Recommendation

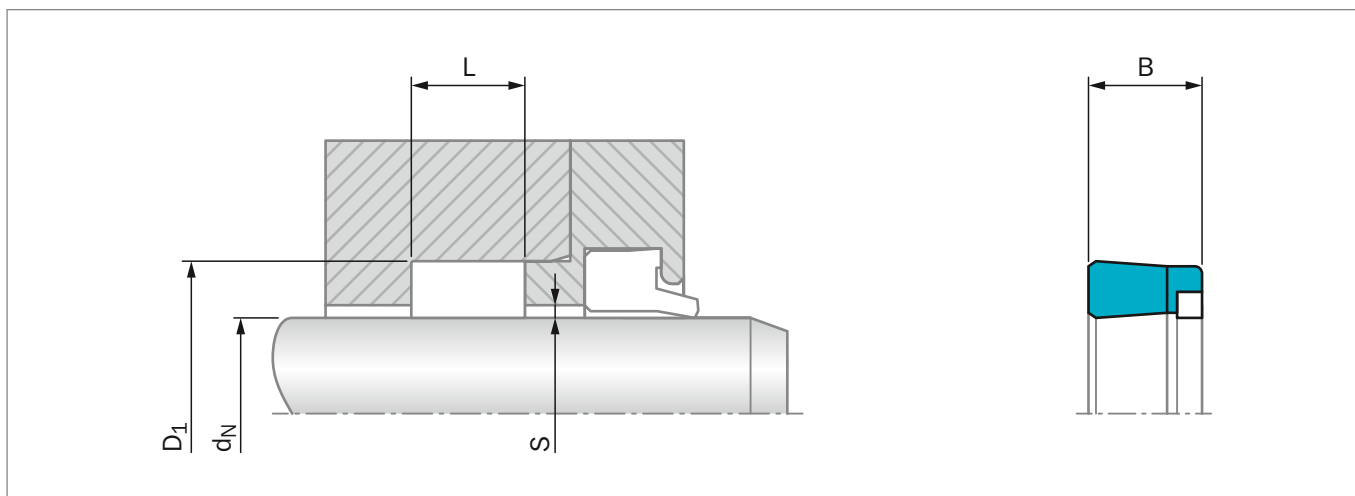


Figure 50: Installation Drawing

### ORDERING EXAMPLE

Balsele Type B/NEI

<b>Rod Diameter:</b>	$d_N = 20.0$ mm
<b>Groove Diameter:</b>	$D_1 = 28.0$ mm
<b>Groove Width:</b>	$L = 7.0$ mm
<b>TSS Part No.:</b>	RUM1E0200 -
<b>Compound:</b>	N8CO (NBR + cotton fabric and POM Back-up Ring)

**TSS Article No.**     **RUM 1 E 0200 - N8CO**

TSS Series No. \_\_\_\_\_  
 Design Code \_\_\_\_\_  
 Execution Mark \_\_\_\_\_  
 Rod Diameter x 10 \_\_\_\_\_  
 Quality Index (Standard) \_\_\_\_\_  
 Material Code (Seal Ring) \_\_\_\_\_  
 Polypac Ref. No.: B 110078/NEI

Table 42: Installation Dimensions / TSS Article No.

Rod Diameter	Groove Diameter	Groove Width	Seal Width	TSS Article No. Standard	Description
$d_N$ h11	$D_1$ H11	L +0.1	B		
*12.00	23.00	7.50	6.80	RUM3E0120-N8CO	B090047/NEI
*15.00	27.00	7.00	6.30	RUM1E0150-N8CO	B106059/NEI
*16.00	24.00	7.00	6.50	RUM1E0160-N8CO	B094063/NEI
*16.00	28.00	7.50	6.90	RUM2E0160-N8CO	B110062/NEI
<b>*18.00</b>	<b>28.00</b>	<b>6.30</b>	<b>5.70</b>	<b>RUM4E0180-N8CO</b>	<b>B110070/NEI</b>
*18.00	30.00	7.50	6.90	RUM5E0180-N8CO	B118070/NEI
<b>*20.00</b>	<b>28.00</b>	<b>6.30</b>	<b>5.70</b>	<b>RUM2E0200-N8CO</b>	<b>B110078/1/NEI</b>
*20.00	28.00	7.00	6.50	RUM1E0200-N8CO	B110078/NEI
*20.00	30.00	8.50	7.60	RUM3E0200-N8CO	B118078/NEI
*22.00	30.00	7.00	6.50	RUM1E0220-N8CO	B118086/NEI
*22.00	32.00	10.00	9.00	RUM2E0220-N8CO	B125086/NEI
*22.00	34.00	9.50	8.90	RUM3E0220-N8CO	B133086/NEI



Rod Diameter	Groove Diameter	Groove Width	Seal Width	TSS Article No. Standard	Description
$d_N$ h11	$D_1$ H11	L +0.1	B		
*22.00	35.00	10.00	9.20	RUM4E0220-N8CO	B137086/NEI
<b>*25.00</b>	<b>33.00</b>	<b>6.40</b>	<b>5.80</b>	<b>RUM0E0250-N8CO</b>	<b>B129098/1/NEI</b>
*25.00	35.00	9.00	8.40	RUM1E0250-N8CO	B137098/NEI
*25.00	38.00	10.00	9.15	RUM2E0250-N8CO	B149098/NEI
*25.40	38.10	10.00	9.20	RUM2E0254-N8CO	B150100/NEI
*28.00	36.00	6.40	5.80	RUM0E0280-N8CO	B141110/NEI
<b>*28.00</b>	<b>38.00</b>	<b>8.00</b>	<b>7.40</b>	<b>RUM1E0280-N8CO</b>	<b>B149110/1/NEI</b>
*28.00	40.00	9.50	8.90	RUM2E0280-N8CO	B157110/NEI
*28.00	41.00	10.00	9.30	RUM3E0280-N8CO	B161110/NEI
*28.57	39.68	9.25	8.50	RUM0E0285-N8CO	B156112/NEI
*30.00	38.00	6.40	5.80	RUM0E0300-N8CO	B149118/NEI
*30.00	40.00	7.50	6.80	RUM3E0300-N8CO	B157118/NEI
*30.00	40.00	10.50	9.80	RUM4E0300-N8CO	B157118/1/NEI
*30.00	45.00	9.00	8.50	RUM6E0300-N8CO	B177118/1/NEI
*30.00	50.00	14.50	13.50	RUM7E0300-N8CO	B196118/NEI
*31.75	47.62	11.60	10.60	RUM2E0317-N8CO	B187125/NEI
*32.00	40.00	6.30	5.80	RUM0E0320-N8CO	B157125/1/NEI
*32.00	40.00	9.00	8.50	RUM1E0320-N8CO	B157125/NEI
*32.00	42.00	8.50	7.80	RUM2E0320-N8CO	B165125/1/NEI
*32.00	42.00	11.00	10.30	RUM3E0320-N8CO	B165125/NEI
*32.00	45.00	10.00	9.50	RUM4E0320-N8CO	B177125/NEI
*34.92	50.80	8.50	7.50	RUM0E0349-N8CO	B200137/4/NEI
*34.92	50.80	11.60	10.60	RUM2E0349-N8CO	B200137/2/NEI
35.00	43.00	6.50	6.00	RUM0E0350-N8CO	B169137/NEI
*35.00	45.00	10.50	9.80	RUM2E0350-N8CO	B177137/3/NEI
*35.00	50.00	11.50	10.60	RUM4E0350-N8CO	B196137/NEI
36.00	43.00	6.50	6.00	RUM0E0360-N8CO	B169141/NEI
36.00	44.00	6.40	5.90	RUM1E0360-N8CO	B173141/NEI
*36.00	46.00	8.50	7.80	RUM2E0360-N8CO	B181141/NEI
*36.00	48.00	9.50	8.70	RUM3E0360-N8CO	B188141/NEI
*36.00	48.00	12.00	11.20	RUM4E0360-N8CO	B188141/1/NEI
*38.10	50.80	10.00	9.22	RUM2E0381-N8CO	B200150/NEI
*38.10	53.97	10.50	9.50	RUM3E0381-N8CO	B212150/5/NEI
40.00	48.00	6.50	6.00	RUM0E0400-N8CO	B188157/NEI
<b>*40.00</b>	<b>50.00</b>	<b>8.00</b>	<b>7.40</b>	<b>RUM1E0400-N8CO</b>	<b>B196157/3/NEI</b>
*40.00	50.00	10.50	9.80	RUM2E0400-N8CO	<b>B196157/1/NEI</b>
*40.00	50.00	11.00	10.30	RUM3E0400-N8CO	B196157/NEI
<b>*40.00</b>	<b>55.00</b>	<b>8.00</b>	<b>7.00</b>	<b>RUM5E0400-N8CO</b>	<b>B216157/NEI</b>
*40.00	55.00	11.00	10.10	RUM6E0400-N8CO	B216157/1/NEI
*40.00	60.00	14.50	13.30	RUM7E0400-N8CO	B236157/NEI
*42.00	52.00	9.00	8.40	RUM1E0420-N8CO	B204165/NEI
44.45	53.97	7.62	7.00	RUM0E0444-N8CO	B212175/1/NEI



Rod Diameter	Groove Diameter	Groove Width	Seal Width	TSS Article No. Standard	Description
$d_N$ h11	$D_1$ H11	L +0.1	B		
*44.45	60.32	11.60	10.70	RUM1E0444-N8CO	B237175/NEI
<b>45.00</b>	<b>55.00</b>	<b>8.00</b>	<b>7.30</b>	<b>RUM1E0450-N8CO</b>	<b>B216177/NEI</b>
45.00	55.00	11.00	10.00	RUM2E0450-N8CO	B216177/1/NEI
*45.00	57.00	10.00	9.00	RUM3E0450-N8CO	B224177/NEI
*45.00	60.00	10.50	9.60	RUM4E0450-N8CO	B236177/NEI
*45.00	65.00	14.50	13.30	RUM6E0450-N8CO	B255177/NEI
<b>50.00</b>	<b>60.00</b>	<b>8.00</b>	<b>7.30</b>	<b>RUM1E0500-N8CO</b>	<b>B236196/NEI</b>
50.00	60.00	10.00	9.30	RUM2E0500-N8CO	B236196/1/NEI
*50.00	62.00	9.50	8.50	RUM3E0500-N8CO	B244196/1/NEI
50.00	65.00	11.00	10.10	RUM5E0500-N8CO	B255196/NEI
*50.00	70.00	14.50	13.30	RUM6E0500-N8CO	B275196/NEI
*54.00	66.00	9.50	8.70	RUM0E0540-N8CO	B259212/NEI
55.00	65.00	8.00	7.30	RUM0E0550-N8CO	B255216/1/NEI
55.00	65.00	11.00	10.30	RUM1E0550-N8CO	B255216/NEI
55.00	70.00	10.50	9.60	RUM2E0550-N8CO	B275216/NEI
*55.00	75.00	14.50	13.30	RUM3E0550-N8CO	B295216/NEI
*56.00	71.00	10.50	9.60	RUM1E0560-N8CO	B279220/NEI
*56.00	76.00	14.50	13.40	RUM2E0560-N8CO	B299220/NEI
57.15	69.85	10.00	9.20	RUM0E0571-N8CO	B275225/NEI
60.00	69.50	7.00	6.40	RUM0E0600-N8CO	B273236/NEI
60.00	70.00	8.00	6.40	RUM1E0600-N8CO	B275236/NEI
60.00	70.00	11.00	10.30	RUM2E0600-N8CO	B275236/1/NEI
60.00	70.00	13.00	12.25	RUM3E0600-N8CO	B275236/2/NEI
60.00	72.00	10.00	9.20	RUM5E0600-N8CO	B283236/NEI
*60.00	75.00	13.00	12.10	RUM6E0600-N8CO	B295236/NEI
*60.00	80.00	14.50	13.50	RUM7E0600-N8CO	B314236/NEI
63.00	75.00	11.00	10.20	RUM1E0630-N8CO	B295248/NEI
<b>*63.00</b>	<b>78.00</b>	<b>12.50</b>	<b>11.50</b>	<b>RUM2E0630-N8CO</b>	<b>B307248/NEI</b>
*63.00	83.00	14.50	13.30	RUM3E0630-N8CO	B326248/NEI
63.50	76.20	8.50	7.70	RUM0E0635-N8CO	B300250/NEI
*63.50	77.78	11.50	10.70	RUM1E0635-N8CO	B306250/NEI
65.00	75.00	13.50	12.30	RUM1E0650-N8CO	B295255/NEI
65.00	77.00	9.60	8.80	RUM2E0650-N8CO	B303255/NEI
*65.00	80.00	11.50	10.60	RUM3E0650-N8CO	B314255/NEI
*65.00	80.00	12.50	11.50	RUM4E0650-N8CO	B314255/2/NEI
70.00	80.00	8.00	7.30	RUM0E0700-N8CO	B314275/1/NEI
70.00	80.00	13.00	12.30	RUM2E0700-N8CO	B314275/NEI
70.00	82.00	10.50	9.70	RUM4E0700-N8CO	B322275/NEI
70.00	84.00	12.50	11.20	RUM5E0700-N8CO	B330275/NEI
*70.00	85.00	12.00	11.00	RUM6E0700-N8CO	B334275/1/NEI
<b>*70.00</b>	<b>85.00</b>	<b>12.50</b>	<b>11.50</b>	<b>RUM7E0700-N8CO</b>	<b>B334275/NEI</b>
*70.00	90.00	14.50	13.50	RUM8E0700-N8CO	B354275/NEI



Rod Diameter	Groove Diameter	Groove Width	Seal Width	TSS Article No. Standard	Description
$d_N$ h11	$D_1$ H11	L +0.1	B		
*72.00	87.00	11.00	10.00	RUM0E0720-N8CO	B342283/NEI
75.00	85.00	11.00	10.30	RUM1E0750-N8CO	B334295/2/NEI
75.00	90.00	11.50	10.60	RUM3E0750-N8CO	B354295/NEI
75.00	90.00	12.80	11.80	RUM4E0750-N8CO	B354295/1/NEI
*75.00	95.00	14.50	13.50	RUM6E0750-N8CO	B374295/NEI
80.00	93.00	14.50	13.50	RUM2E0800-N8CO	B366314/NEI
80.00	95.00	12.00	11.10	RUM3E0800-N8CO	B374314/NEI
80.00	96.00	10.50	9.60	RUM4E0800-N8CO	B377314/NEI
*80.00	100.00	12.00	10.80	RUM5E0800-N8CO	B393314/1/NEI
*80.00	100.00	14.50	13.40	RUM6E0800-N8CO	B393314/NEI
85.00	95.00	8.00	7.30	RUM0E0850-N8CO	B374334/NEI
85.00	97.00	9.60	9.00	RUM2E0850-N8CO	B381334/NEI
85.00	100.00	12.00	10.80	RUM3E0850-N8CO	B393334/1/NEI
*85.00	105.00	14.50	13.40	RUM4E0850-N8CO	B413334/NEI
*88.90	114.30	19.50	18.20	RUM2E0889-N8CO	B450350/2/NEI
<b>90.00</b>	<b>105.00</b>	<b>9.50</b>	<b>8.70</b>	<b>RUM2E0900-N8CO</b>	<b>B413354/NEI</b>
<b>90.00</b>	<b>105.00</b>	<b>12.50</b>	<b>11.60</b>	<b>RUM3E0900-N8CO</b>	<b>B413354/1/NEI</b>
90.00	106.20	10.80	9.80	RUM4E0900-N8CO	B418354/NEI
* <b>90.00</b>	<b>110.00</b>	<b>12.50</b>	<b>11.40</b>	<b>RUM5E0900-N8CO</b>	<b>B433354/NEI</b>
*92.07	111.12	12.50	11.30	RUM0E0920-N8CO	B437362/NEI
95.00	105.00	11.00	10.30	RUM0E0950-N8CO	B413374/NEI
95.00	112.00	12.00	11.10	RUM3E0950-N8CO	B441374/NEI
*95.00	115.00	14.50	13.30	RUM4E0950-N8CO	B452374/NEI
100.00	113.00	13.50	12.70	RUM0E1000-N8CO	B444393/NEI
100.00	115.00	11.50	10.60	RUM1E1000-N8CO	B452393/1/NEI
100.00	115.00	12.50	11.50	RUM2E1000-N8CO	B452393/NEI
100.00	120.00	12.00	11.20	RUM3E1000-N8CO	B472393/1/NEI
100.00	120.00	14.50	13.40	RUM4E1000-N8CO	B472393/NEI
105.00	115.00	11.00	10.00	RUM0E1050-N8CO	B452413/NEI
105.00	125.00	12.50	11.40	RUM3E1050-N8CO	B492413/NEI
110.00	125.00	12.00	11.20	RUM0E1100-N8CO	B492433/NEI
<b>110.00</b>	<b>130.00</b>	<b>12.50</b>	<b>11.40</b>	<b>RUM1E1100-N8CO</b>	<b>B511433/NEI</b>
110.00	135.00	15.50	14.20	RUM2E1100-N8CO	B531433/NEI
120.00	132.70	10.00	9.20	RUM1E1200-N8CO	B522472/NEI
120.00	135.00	12.50	11.60	RUM2E1200-N8CO	B531472/NEI
120.00	140.00	12.50	11.40	RUM3E1200-N8CO	B551472/NEI
120.00	145.00	18.80	17.50	RUM4E1200-N8CO	B570472/NEI
125.00	150.00	14.50	13.10	RUM2E1250-N8CO	B590492/NEI
130.00	145.00	13.00	12.00	RUM2E1300-N8CO	B570511/1/NEI
130.00	145.00	15.00	14.00	RUM3E1300-N8CO	B570511/NEI
130.00	150.00	16.00	14.80	RUM4E1300-N8CO	B590511/NEI
133.35	158.75	14.00	12.60	RUM0E1333-N8CO	B625525/1/NEI



Rod Diameter	Groove Diameter	Groove Width	Seal Width	TSS Article No. Standard	Description
$d_N$ h11	$D_1$ H11	L +0.1	B		
135.00	150.00	14.00	13.00	<a href="#">RUM0E1350-N8CO</a>	B590531/1/NEI
135.00	155.00	16.00	14.80	<a href="#">RUM1E1350-N8CO</a>	B610531/NEI
135.00	160.00	14.00	12.70	<a href="#">RUM2E1350-N8CO</a>	B629531/NEI
140.00	155.00	13.00	12.00	<a href="#">RUM0E1400-N8CO</a>	B610551/NEI
<b>140.00</b>	<b>160.00</b>	<b>12.50</b>	<b>11.40</b>	<a href="#">RUM1E1400-N8CO</a>	<b>B629551/NEI</b>
140.00	160.00	14.50	13.40	<a href="#">RUM2E1400-N8CO</a>	B629551/1/NEI
140.00	170.00	22.80	21.20	<a href="#">RUM3E1400-N8CO</a>	B669551/NEI
145.00	157.70	10.00	9.20	<a href="#">RUM0E1450-N8CO</a>	B620570/NEI
150.00	170.00	14.50	13.40	<a href="#">RUM1E1500-N8CO</a>	B669590/1/NEI
160.00	175.00	16.00	15.50	<a href="#">RUM1E1600-N8CO</a>	B688629/NEI
160.00	180.00	14.50	13.30	<a href="#">RUM2E1600-N8CO</a>	B708629/NEI
165.00	184.00	16.00	14.80	<a href="#">RUM0E1650-N8CO</a>	B728649/NEI
165.00	195.00	20.40	18.70	<a href="#">RUM1E1650-N8CO</a>	B767649/NEI
175.00	200.00	23.00	21.55	<a href="#">RUM1E1750-N8CO</a>	B787688/1/NEI
180.00	200.00	14.50	13.30	<a href="#">RUM1E1800-N8CO</a>	B787708/NEI
180.00	210.00	20.50	18.90	<a href="#">RUM2E1800-N8CO</a>	B826708/1/NEI
190.00	210.00	14.50	13.40	<a href="#">RUM0E1900-N8CO</a>	B826748/NEI
198.00	208.00	12.00	11.30	<a href="#">RUM0E1980-N8CO</a>	B819779/NEI
200.00	220.00	14.50	13.30	<a href="#">RUM0E2000-N8CO</a>	B866787/NEI
210.00	230.00	14.50	13.30	<a href="#">RUM0E2100-N8CO</a>	B905826/NEI
210.00	240.00	22.50	21.00	<a href="#">RUM1E2100-N8CO</a>	B944826/NEI
220.00	250.00	20.50	18.90	<a href="#">RUM0E2200-N8CO</a>	B984866/NEI
230.00	260.00	20.50	19.00	<a href="#">RUM0E2300-N8CO</a>	B1023905/NEI
500.00	540.00	35.00	32.80	<a href="#">RUM0E5000-N8CO</a>	B21261968/NEI
530.00	570.00	25.00	23.00	<a href="#">RUM0E5300-N8CO</a>	B22442086/NEI
640.00	680.00	25.00	23.00	<a href="#">RUM0E6400-N8CO</a>	B26772519/NEI
702.00	752.40	30.00	27.50	<a href="#">RUM0E7020-N8CO</a>	B29612764/NEI
760.00	820.00	35.00	32.00	<a href="#">RUM0E7600-N8CO</a>	B32282992/NEI
785.00	845.00	35.00	32.00	<a href="#">RUM0E7850-N8CO</a>	B33273090/NEI
845.00	905.00	35.00	32.00	<a href="#">RUM0E8450-N8CO</a>	B35633327/NEI
921.00	981.00	35.00	32.00	<a href="#">RUM0E9210-N8CO</a>	B38623626/NEI
1,040.00	1,110.00	35.00	32.00	<a href="#">RUMOX1040-N8CO</a>	B43704094/NEI
1,195.00	1,265.00	35.00	32.00	<a href="#">RUMOX1195-N8CO</a>	B49804705/NEI

Dimensions and TSS Part Numbers in bold according to ISO/DIN 5597 and ISO 5597/1. \* Split groove