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# Scraper WRM



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Single Acting

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**Material:**  
NBR Elastomer

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## ■ Scraper WRM



### Description

Scraper rings are essential components of any hydraulic or pneumatic equipment.

These are protection components for axial moving rods: they ensure that foreign matter is not introduced into the system, avoiding costly wear and damage to all the internal components including seals.

WRM scrapers are manufactured in nitrile elastomer with precision machined wiper lip, which produces a very effective wiping action.

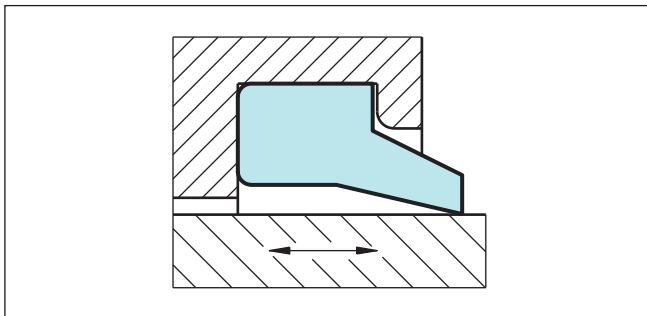


Figure 19 Scraper WRM

### Advantages

- Space-saving construction
- Low cost, economical solution
- Simple, easy-construction groove
- Easy installation and removal without tools

### Application Examples

Due to their outstanding wiping capacities WRM scrapers are recommended wherever there are dusty and humid conditions and especially for the following applications:

- Valve spindles
- Slide valves
- Hydraulic cylinders
- Agriculture machinery

### Technical Data

Operating conditions

Speed: Up to 1 m/s

Temperature: -30 °C to +110 °C

Media: Mineral oil based hydraulic fluids, polyglycol-water emulsions, water-oil emulsions

Groove type: Closed

#### 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 dependent on medium.

### Materials

Standard application:

Nitrile elastomer NBR 90 Shore A

Material code: N9T60

Polypac Ref. code: 2790



## Installation Recommendation

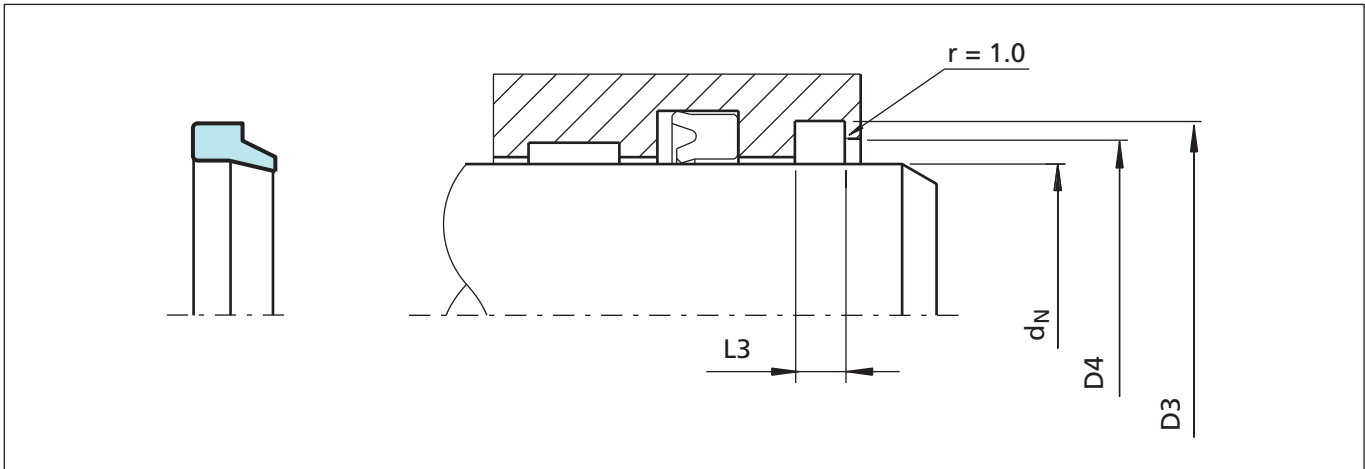


Figure 20 Installaton drawing

### Ordering Example

Rod diameter:  $d_N = 40 \text{ mm}$   
 TSS Part No.: WAP0 0 0400  
 Material Code: N9T60 (standard)  
 Polypac ref.: WRM 157188

TSS Article No.	WAP0	0	0400	-	N9T60
TSS Series No.					
Type (Standard)					
Rod diameter x 10					
Quality Index					
Material code					

Table XXIII Installation dimensions / TSS part numbers

Rod Diameter	Groove Diameter	Groove Width	Bore Diameter	TSS Part No.	Description
$d_N$ f8/h9	$D_3$ H9	$L_3$ +0.1	$D_4$ +0.2		
12.0	18.6	3.8	15.0	WAP000120	WRM047070
13.0	19.6	3.8	16.0	WAP000130	WRM051074
14.0	20.6	3.8	17.0	WAP000140	WRM055078
15.0	21.6	3.8	18.0	WAP000150	WRM059082
16.0	22.6	3.8	19.0	WAP000160	WRM062087
17.0	23.6	3.8	20.0	WAP000170	WRM066094
18.0	24.6	3.8	21.0	WAP000180	WRM070094
19.0	28.6	5.3	22.0	WAP000190	WRM074110
20.0	28.6	5.3	23.0	WAP000200	WRM078110

\* Available upon request

# Scraper WRM



Rod Diameter	Groove Diameter	Groove Width	Bore Diameter	TSS Part No.	Description
$d_N$ f8/h9	$D_3$ H9	$L_3$ +0.1	$D_4$ +0.2		
22.0	30.6	5.3	25.0	WAP000220	WRM086118
24.0	32.6	5.3	27.0	WAP000240	WRM094125
25.0	31.6	5.3	28.0	WAP100250	WRM098122/S
25.0	33.6	5.3	28.0	WAP000250	WRM098129
26.0	34.6	5.3	29.0	WAP000260	WRM102133
27.0	35.6	5.3	30.0	WAP000270	WRM106137
28.0	36.6	5.3	31.0	WAP000280	WRM110141
30.0	38.6	5.3	33.0	WAP000300	WRM118149
31.0	41.0	6.0	34.0	WAP000310	WRM4544907
32.0	40.6	5.3	35.0	WAP000320	WRM125157
33.0	41.6	5.3	36.0	WAP000330	WRM129161
35.0	43.6	5.3	38.0	WAP000350	WRM137169
36.0	44.6	5.3	39.0	WAP000360	WRM141173
38.0	46.6	5.3	41.0	WAP000380	WRM149181
40.0	48.6	5.3	43.0	WAP000400	WRM157188
42.0	50.6	5.3	45.0	WAP000420	WRM165196
45.0	53.6	5.3	48.0	WAP000450	WRM177208
45.0	55.6	5.3	49.0	WAP100450	WRM177216
46.0	54.6	5.3	49.0	WAP000460	WRM181212
48.0	56.6	5.3	51.0	WAP000480	WRM188220
49.0	57.6	5.3	52.0	WAP000490	WRM193225
50.0	58.6	5.3	53.0	WAP000500	WRM196228
50.0*	60.6	5.3	54.0	WAP100500	WRM196236
50.8	60.9	5.8	55.5	WAP000508	WRM200237
53.0*	61.6	5.3	56.0	WAP000530	WRM208240
55.0*	63.6	5.3	58.0	WAP000550	WRM216248
55.0	65.6	5.3	59.0	WAP100550	WRM216255
56.0	64.6	5.3	59.0	WAP000560	WRM220251
56.0*	66.6	5.3	60.0	WAP100560	WRM220259
60.0	66.6	5.3	63.0	WAP200600	WRM236259
60.0	68.6	5.3	63.0	WAP000600	WRM236267
63.0*	71.6	5.3	66.0	WAP000630	WRM248279
63.0	73.6	5.3	67.0	WAP100630	WRM248287
65.0	73.6	5.3	68.0	WAP000650	WRM255287
65.0	75.6	5.3	69.0	WAP100650	WRM255295
70.0*	76.0	4.3	72.0	WAP000700	WRM275299

\* Available upon request



## Scraper WRM

Rod Diameter	Groove Diameter	Groove Width	Bore Diameter	TSS Part No.	Description
$d_N$ f8/h9	$D_3$ H9	$L_3$ +0.1	$D_4$ +0.2		
70.0	78.6	5.3	73.0	WAP100700	WRM275307
70.0	80.6	5.3	72.0	WAP200700	WRM275314
70.0	82.6	7.1	76.0	WAP300700	WRM275322
72.0	80.6	5.3	75.0	WAP000720	WRM283317
73.0	81.6	5.3	76.0	WAP000730	WRM287318
75.0	83.6	5.3	78.0	WAP000750	WRM295326
75.0	87.2	7.1	81.0	WAP100750	WRM295345
76.5	88.7	7.1	82.5	WAP000765	WRM301348
78.0	92.2	7.1	85.0	WAP000780	WRM307362
80.0	88.6	5.3	83.0	WAP000800	WRM314346
80.0	92.6	7.1	86.0	WAP100800	WRM314362
83.0	91.6	5.3	86.0	WAP000830	WRM326358
84.0	92.0	5.3	87.0	WAP000840	WRM330362
85.0	93.6	5.3	88.0	WAP000850	WRM334366
85.0	97.2	7.1	91.0	WAP100850	WRM334381
88.0	100.2	7.1	94.0	WAP000880	WRM346393
90.0	102.2	7.1	96.0	WAP000900	WRM354401
95.0	107.2	7.1	101.0	WAP000950	WRM374421
97.0	111.0	7.1	104.0	WAP000970	WRM380437
100.0	112.2	7.1	106.0	WAP001000	WRM393440
101.0	111.0	5.3	105.0	WAP001010	WRM397437
103.0	115.2	7.1	109.0	WAP001030	WRM405452
104.0	116.2	7.1	110.0	WAP001040	WRM409457
105.0	117.2	7.1	111.0	WAP001050	WRM413460
110.0	122.2	7.1	116.0	WAP001100	WRM433480
115.0	127.2	7.1	121.0	WAP001150	WRM452500
116.0	128.2	7.1	121.0	WAP001160	WRM456504
116.0	130.2	7.1	123.0	WAP101160	WRM456511
118.0*	130.2	7.1	124.0	WAP001180	WRM464511
120.0	128.6	5.3	123.0	WAP001200	WRM472504
120.0	132.2	7.1	126.0	WAP101200	WRM472519
121.0*	131.0	5.3	125.0	WAP001210	WRM476515
125.0	137.2	7.1	131.0	WAP001250	WRM492539
127.0	135.6	5.3	132.0	WAP001270	WRM500531
127.0	139.2	7.1	133.0	WAP101270	WRM500550
130.0	142.2	7.1	136.0	WAP001300	WRM511559

\* Available upon request



Rod Diameter	Groove Diameter	Groove Width	Bore Diameter	TSS Part No.	Description
$d_N$ f8/h9	$D_3$ H9	$L_3$ +0.1	$D_4$ +0.2		
135.0	147.2	7.1	141.0	WAP001350	WRM531578
135.0	149.2	7.1	142.0	WAP101350	WRM531582
140.0	152.2	7.1	146.0	WAP001400	WRM551598
140.0	155.2	10.1	147.0	WAP101400	WRM551610
145.0	157.2	7.1	151.0	WAP001450	WRM570618
146.0*	158.0	6.3	152.0	WAP001460	WRM575622/1
146.05	158.25	7.1	152.05	WAP001461	WRM575622
150.0*	162.2	7.1	156.0	WAP001500	WRM590637
155.0	169.2	7.1	162.0	WAP001550	WRM610664
160.0	168.6	5.3	163.0	WAP001600	WRM629661
160.0	175.2	10.1	168.0	WAP101600	WRM629688
165.0	173.6	5.3	168.0	WAP001650	WRM649681
165.0	177.2	7.1	171.0	WAP101650	WRM649698
170.0	180.6	5.3	174.0	WAP001700	WRM669708
170.0	185.2	10.1	178.0	WAP101700	WRM669728
171.0	183.0	6.3	176.0	WAP001710	WRM673720
175.0	189.2	7.1	182.0	WAP001750	WRM688744
180.0	195.2	10.1	188.0	WAP001800	WRM708767
187.0*	195.6	5.3	190.0	WAP001870	WRM736768
196.0	210.2	7.1	203.0	WAP001960	WRM771826
197.0	219.0	6.3	202.0	WAP001970	WRM775823
200.0	215.2	10.1	207.0	WAP002000	WRM787847
210.0	224.2	7.1	217.0	WAP002100	WRM826883
210.0	225.0	7.0	217.0	WAP102100	WRM826885
219.5	233.7	7.1	226.5	WAP002195	WRM860919
223.0	235.0	6.3	228.0	WAP002230	WRM878925
244.5	258.7	7.1	251.5	WAP002445	WRM9621017
249.0	261.0	6.3	254.0	WAP002490	WRM9801027
260.0	275.2	10.1	268.0	WAP002600	WRM10241078

\* Available upon request



## Scraper WRM

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# Zurcon<sup>®</sup> Scraper ASW



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Single Acting

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**Material:**  
Zurcon<sup>®</sup>

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## ■ Scraper ASW



### Description

The scraper ASW is a single-acting polyurethane scraper.

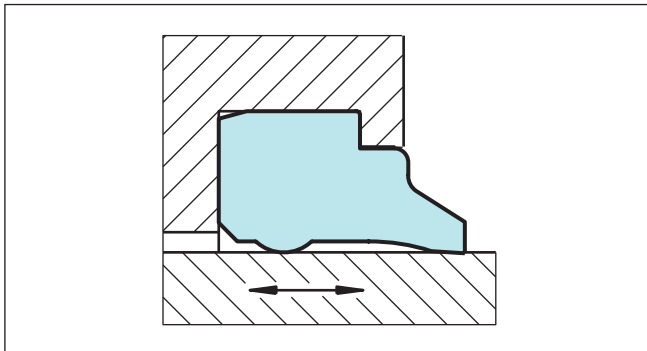


Figure 21 Scraper ASW

The special feature of this scraper is an additional supporting bead on the inner surface. It prevents tilting or twisting of the scraper in the groove. At the same time this support improves the firm seating in the groove, thus preventing the penetration of impurities via the back of the scraper. This represents a technical improvement compared with similar scraper types.

### Advantages

- Simple groove design
- Very good scraping effect, wear resistant
- No tilting or twisting in the groove
- Simple installation
- Flush fitting with the outer surface

### Technical Data

Speed:	Up to 1 m/s
Temperature:	-35 °C to +100 °C
Media:	Mineral oil-based hydraulic fluids.

#### 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 dependent on medium.

### Material

The standard material is a wear resistant Zurcon® polyurethane.

Standard material:	Polyurethane, 92 Shore A Material No. Z201
Colour:	turquoise



## ■ Installation Recommendation

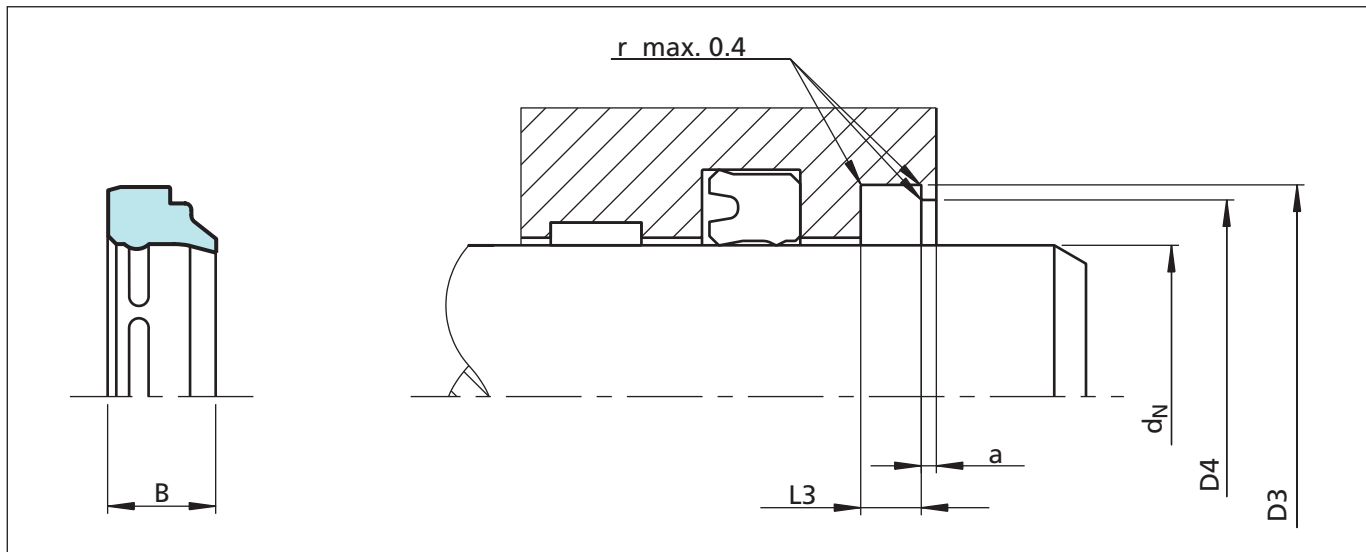


Figure 22 Installation drawing

### Ordering Example

Scraper ASW  
 Rod diameter:  $d_N = 50.0$  mm  
 TSS Part No.: WSW000500 (from Table XXIV)  
 Material: Z201

TSS Article No.	WSW0	0	0500	-	Z201
TSS Series No.					
Type (Standard)					
Rod diameter x 10					
Quality Index					
Material code					

Table XXIV Installation dimensions / TSS part numbers

Rod Diameter	Groove Diameter	Groove Width	Bore Diameter	Step Width	Width	TSS Part No.
$d_N$ f8/h9	$D_3$ H9	$L_3 +0.2$	$D_4$ H11	a min	B	
<b>6.0</b>	<b>10.0</b>	<b>2.0</b>	<b>9.0</b>	<b>1.0</b>	<b>4.0</b>	<b>WSW000060</b>
<b>8.0</b>	<b>14.0</b>	<b>2.6</b>	<b>12.0</b>	<b>1.0</b>	<b>5.0</b>	<b>WSW000080</b>
<b>10.0</b>	<b>16.0</b>	<b>2.6</b>	<b>14.0</b>	<b>1.0</b>	<b>5.0</b>	<b>WSW000100</b>
<b>10.0</b>	<b>18.0</b>	<b>4.0</b>	<b>16.0</b>	<b>1.0</b>	<b>7.0</b>	<b>WSW100100</b>
<b>12.0</b>	<b>18.0</b>	<b>2.6</b>	<b>16.0</b>	<b>1.0</b>	<b>5.0</b>	<b>WSW000120</b>
<b>12.0</b>	<b>20.0</b>	<b>4.0</b>	<b>18.0</b>	<b>1.0</b>	<b>7.0</b>	<b>WSW100120</b>

The rod diameters in **bold** type comply with the recommendations of ISO 3320.  
 Other dimensions on request. A split groove is required up to 14 mm diameter.



Rod Diameter	Groove Diameter	Groove Width	Bore Diameter	Step Width	Width	TSS Part No.
$d_N$ f8/h9	$D_3$ H9	$L_3$ +0.2	$D_4$ H11	a min	B	
<b>14.0</b>	<b>20.0</b>	<b>2.6</b>	<b>18.0</b>	<b>1.0</b>	<b>5.0</b>	<b>WSW000140</b>
<b>14.0</b>	<b>22.0</b>	<b>4.0</b>	<b>20.0</b>	<b>1.0</b>	<b>7.0</b>	<b>WSW100140</b>
15.0	23.0	4.0	21.0	1.0	7.0	WSW000150
<b>16.0</b>	<b>24.0</b>	<b>4.0</b>	<b>22.0</b>	<b>1.0</b>	<b>7.0</b>	<b>WSW000160</b>
<b>18.0</b>	<b>26.0</b>	<b>4.0</b>	<b>24.0</b>	<b>1.0</b>	<b>7.0</b>	<b>WSW000180</b>
<b>20.0</b>	<b>26.0</b>	<b>2.6</b>	<b>24.0</b>	<b>1.0</b>	<b>5.0</b>	<b>WSW100200</b>
<b>20.0</b>	<b>28.0</b>	<b>4.0</b>	<b>26.0</b>	<b>1.0</b>	7.0	<b>WSW000200</b>
<b>22.0</b>	<b>30.0</b>	<b>4.0</b>	<b>28.0</b>	<b>1.0</b>	7.0	<b>WSW000220</b>
24.0	32.0	4.0	30.0	1.0	7.0	WSW000240
<b>25.0</b>	<b>31.0</b>	<b>2.6</b>	<b>29.0</b>	<b>1.0</b>	<b>5.0</b>	<b>WSW100250</b>
<b>25.0</b>	<b>33.0</b>	<b>4.0</b>	<b>31.0</b>	<b>1.0</b>	<b>7.0</b>	<b>WSW000250</b>
<b>28.0</b>	<b>36.0</b>	<b>4.0</b>	<b>34.0</b>	<b>1.0</b>	<b>7.0</b>	<b>WSW000280</b>
30.0	36.0	2.6	34.0	1.0	5.0	WSW100300
30.0	38.0	4.0	36.0	1.0	7.0	WSW000300
<b>32.0</b>	<b>40.0</b>	<b>4.0</b>	<b>38.0</b>	<b>1.0</b>	<b>7.0</b>	<b>WSW000320</b>
34.0	42.0	4.0	40.0	1.0	7.0	WSW000340
35.0	43.0	4.0	41.0	1.0	7.0	WSW000350
<b>36.0</b>	<b>44.0</b>	<b>4.0</b>	<b>42.0</b>	<b>1.0</b>	<b>7.0</b>	<b>WSW000360</b>
38.0	46.0	4.0	44.0	1.0	7.0	WSW000380
<b>40.0</b>	<b>48.0</b>	<b>4.0</b>	<b>46.0</b>	<b>1.0</b>	<b>7.0</b>	<b>WSW000400</b>
42.0	50.0	4.0	48.0	1.0	7.0	WSW000420
<b>45.0</b>	<b>53.0</b>	<b>4.0</b>	<b>51.0</b>	<b>1.0</b>	<b>7.0</b>	<b>WSW000450</b>
<b>50.0</b>	<b>58.0</b>	<b>4.0</b>	<b>56.0</b>	<b>1.0</b>	<b>7.0</b>	<b>WSW000500</b>
52.0	60.0	4.0	58.0	1.0	7.0	WSW000520
55.0	63.0	4.0	61.0	1.0	7.0	WSW000550
<b>56.0</b>	<b>64.0</b>	<b>4.0</b>	<b>62.0</b>	<b>1.0</b>	<b>7.0</b>	<b>WSW000560</b>
60.0	68.0	4.0	66.0	1.0	7.0	WSW000600
<b>63.0</b>	<b>71.0</b>	<b>4.0</b>	<b>69.0</b>	<b>1.0</b>	<b>7.0</b>	<b>WSW000630</b>
65.0	73.0	4.0	71.0	1.0	7.0	WSW000650
<b>70.0</b>	<b>78.0</b>	<b>4.0</b>	<b>76.0</b>	<b>1.0</b>	<b>7.0</b>	<b>WSW000700</b>
75.0	83.0	4.0	81.0	1.0	7.0	WSW000750
<b>80.0</b>	<b>88.0</b>	<b>4.0</b>	<b>86.0</b>	<b>1.0</b>	<b>7.0</b>	<b>WSW000800</b>
85.0	93.0	4.0	91.0	1.0	7.0	WSW000850
<b>90.0</b>	<b>98.0</b>	<b>4.0</b>	<b>96.0</b>	<b>1.0</b>	<b>7.0</b>	<b>WSW000900</b>
<b>100.0</b>	<b>108.0</b>	<b>4.0</b>	<b>106.0</b>	<b>1.0</b>	<b>7.0</b>	<b>WSW001000</b>
105.0	113.0	4.0	111.0	1.0	7.0	WSW001050

The rod diameters in **bold** type comply with the recommendations of ISO 3320.  
Other dimensions on request. A split groove is required up to 14 mm diameter.



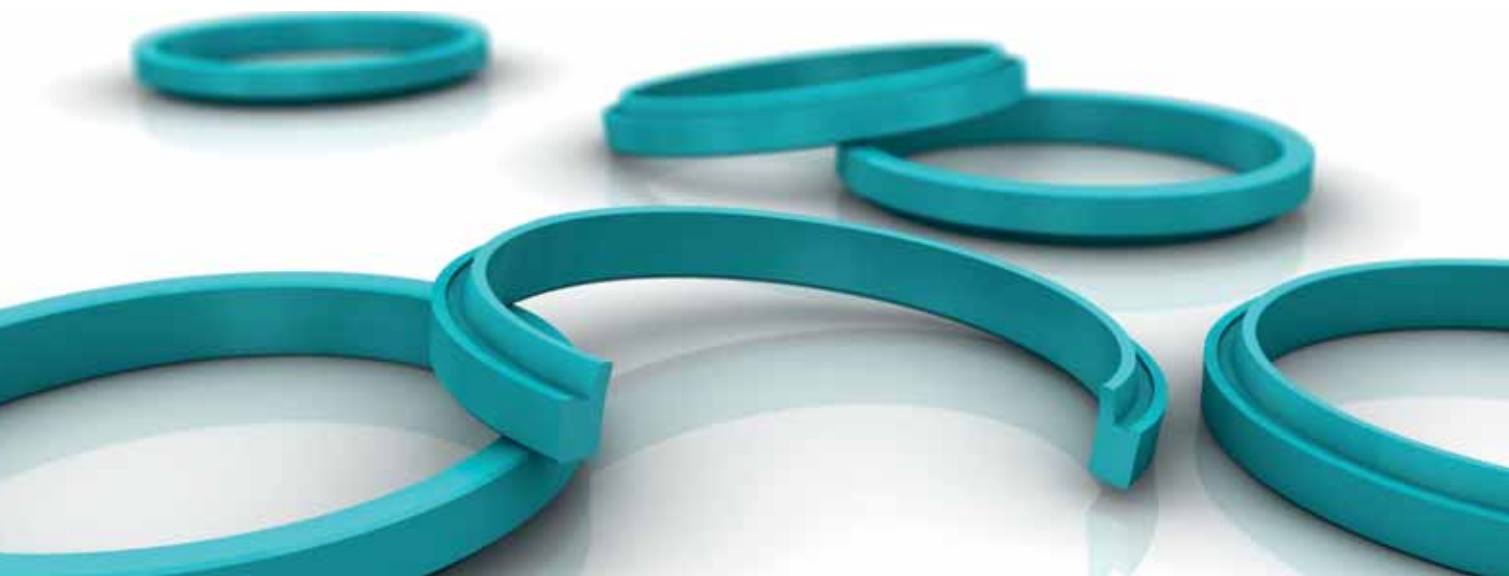
## Zurcon® Scraper ASW

Rod Diameter	Groove Diameter	Groove Width	Bore Diameter	Step Width	Width	TSS Part No.
$d_N$ f8/h9	$D_3$ H9	$L_3$ +0.2	$D_4$ H11	a min	B	
<b>110.0</b>	<b>122.0</b>	<b>5.5</b>	<b>119.0</b>	<b>1.5</b>	<b>10.0</b>	<b>WSW001100</b>
120.0	132.0	5.5	129.0	1.5	10.0	WSW001200
<b>125.0</b>	<b>137.0</b>	<b>5.5</b>	<b>134.0</b>	<b>1.5</b>	<b>10.0</b>	<b>WSW001250</b>
<b>140.0</b>	<b>152.0</b>	<b>5.5</b>	<b>149.0</b>	<b>1.5</b>	<b>10.0</b>	<b>WSW001400</b>
150.0	162.0	5.5	159.0	1.5	10.0	WSW001500
<b>160.0</b>	<b>172.0</b>	<b>5.5</b>	<b>169.0</b>	<b>1.5</b>	<b>10.0</b>	<b>WSW001600</b>
<b>180.0</b>	<b>192.0</b>	<b>5.5</b>	<b>189.0</b>	<b>1.5</b>	<b>10.0</b>	<b>WSW001800</b>

The rod diameters in **bold** type comply with the recommendations of ISO 3320.  
Other dimensions on request. A split groove is required up to 14 mm diameter.

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# Zurcon<sup>®</sup> Scraper WNE



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Single Acting

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Dynamic + Static Sealing Lip

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**Material:**  
Zurcon<sup>®</sup>

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## ■ Scraper WNE



### Description

These scrapers are manufactured in polyurethane. The static sealing lip ensures against the intrusion of dirt and fluids over the outer diameter.

The scraper WNE has an interference to the groove outside diameter.

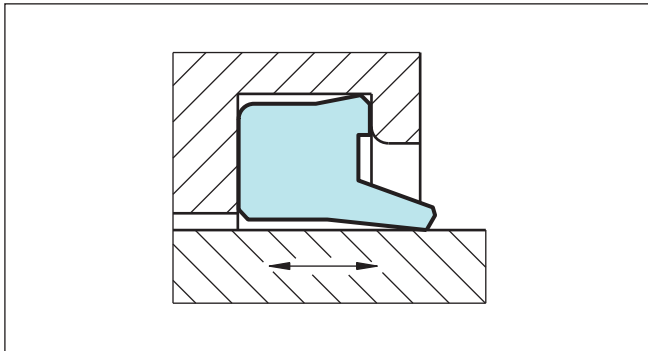


Figure 23 Scraper WNE

### Advantages

- High wear resistance
- Good prevention against external fluid intrusion
- Easy installation
- Space-saving construction

### Application Examples

These scrapers are recommended wherever there are dusty and humid conditions and especially for the following applications:

- Mobile hydraulic machinery
- Agriculture machinery

### Technical Data

Operating conditions

Speed:	Up to 1 m/s
Temperature:	-35 °C to +100 °C
Media:	Mineral oil based hydraulic fluids
Groove type:	Closed

#### 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 dependent on medium.

### Materials

Zurcon® Polyurethane:	92 Shore A
Material code:	Z201
Colour:	turquoise



■ Installation Recommendation

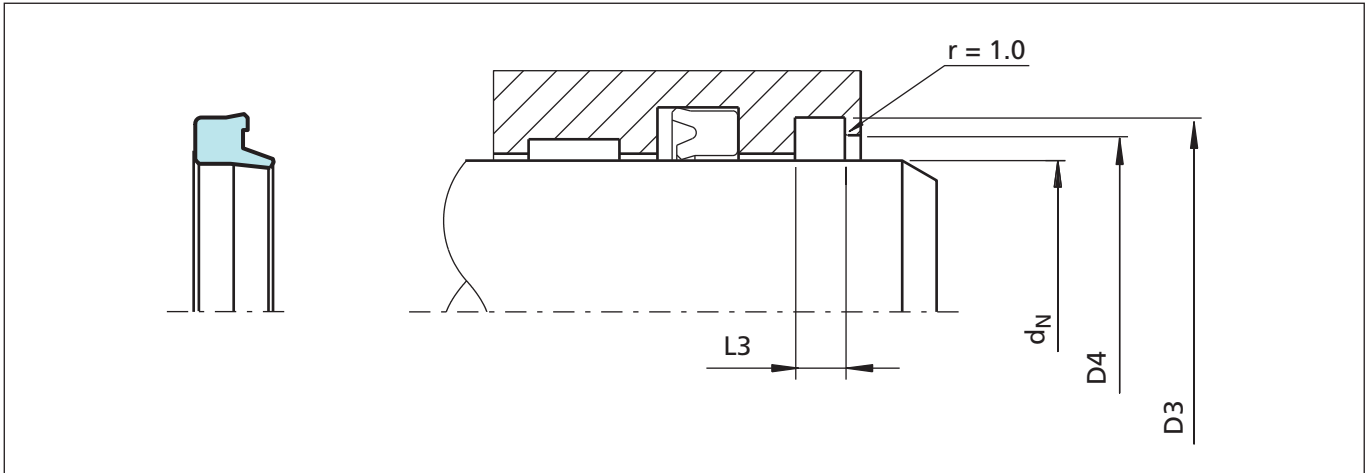


Figure 24 Installation drawing

Ordering Example

For WNE scrapers  
 Rod diameter:  
 Groove diameter:  
 TSS Part No.:  
 Material code:

$d_N = 45 \text{ mm}$   
 $D_3 = 53.6 \text{ mm}$   
 WNE000450  
 Z201

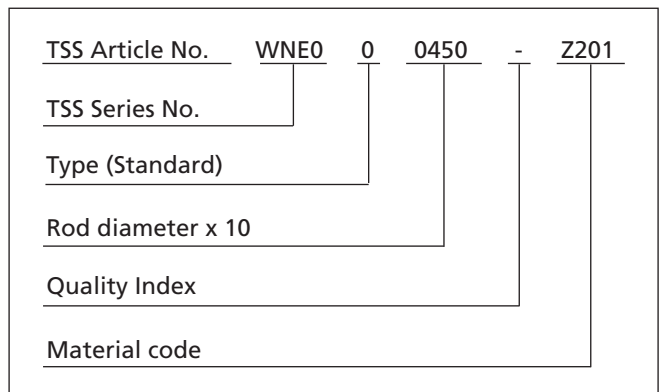


Table XXV Installation dimensions / TSS part numbers

Rod Diameter	Groove Diameter	Groove Width	Bore Diameter	TSS Part No.
$d_N$ h9	$D_3$ H11	$L_3$ +0.1	$D_4$ +0.2	
8.0	14.6	3.8	11.0	WNE000080
10.0	16.6	3.8	13.0	WNE000100
12.0	18.6	3.8	15.0	WNE000120
14.0	20.6	3.8	17.0	WNE000140
15.0	21.6	3.8	18.0	WNE000150
16.0	22.6	3.8	19.0	WNE000160
18.0	24.6	3.8	21.0	WNE000180
20.0	28.6	5.3	23.0	WNE000200
22.0	30.6	5.3	25.0	WNE000220
24.0	32.6	5.3	27.0	WNE000240
25.0	33.6	5.3	28.0	WNE000250
28.0	36.6	5.3	31.0	WNE000280



Rod Diameter	Groove Diameter	Groove Width	Bore Diameter	TSS Part No.
$d_N$ h9	$D_3$ H11	$L_3$ +0.1	$D_4$ +0.2	
30.0	38.0	5.3	33.0	WNE000300
30.0	38.6	5.3	33.0	WNE100300
32.0	40.6	5.3	35.0	WNE000320
35.0	43.0	5.3	38.0	WNE000350
35.0	43.6	5.3	38.0	WNE100350
36.0	44.6	5.3	39.0	WNE000360
38.0	46.6	5.3	41.0	WNE000380
40.0	48.6	5.3	43.0	WNE000400
45.0	53.6	5.3	48.0	WNE000450
46.0	54.6	5.3	49.0	WNE000460
50.0	58.0	5.3	53.0	WNE000500
50.0	58.6	5.3	53.0	WNE100500
55.0	63.6	5.3	58.0	WNE000550
56.0	64.6	5.3	59.0	WNE000560
60.0	68.6	5.3	63.0	WNE200600
61.0	69.6	5.3	64.0	WNE000610
63.0	71.6	5.3	66.0	WNE000630
65.0	73.6	5.3	68.0	WNE000650
70.0	78.6	5.3	73.0	WNE100700
75.0	83.6	5.3	78.0	WNE000750
80.0	88.6	5.3	83.0	WNE000800
85.0	97.2	7.1	91.0	WNE000850
90.0	102.2	7.1	96.0	WNE000900
95.0	107.2	7.1	101.0	WNE000950
100.0	112.2	7.1	106.0	WNE101000
110.0	122.2	7.1	116.0	WNE001100
120.0	132.0	7.1	126.0	WNE001200
125.0	137.2	7.1	131.0	WNE001250
135.0	147.2	7.1	141.0	WNE001350
140.0	152.2	7.1	146.0	WNE001400
160.0	175.2	10.1	168.0	WNE101600
180.0	195.2	10.1	188.0	WNE001800
200.0	215.2	10.1	208.0	WNE002000

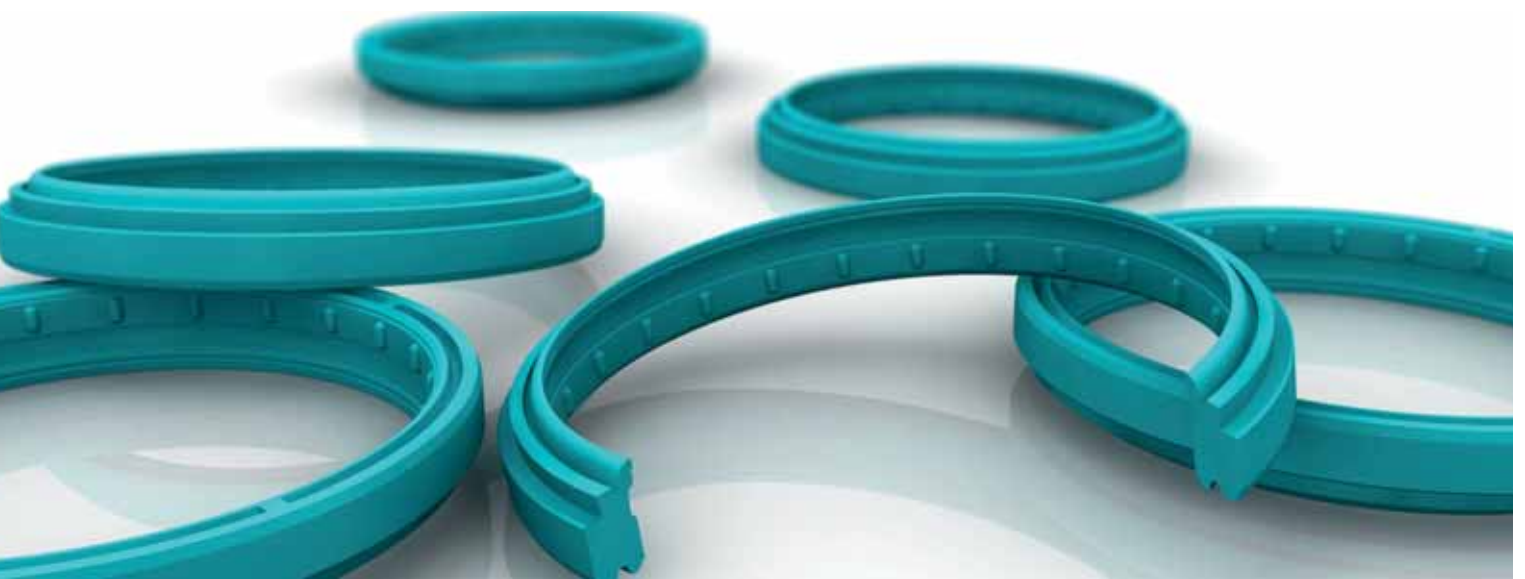


## Zurcon® Scraper WNE

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# Zurcon<sup>®</sup> Scraper WNV



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Double Acting

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**Material:**  
Zurcon<sup>®</sup>

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## ■ Scraper WNV



### Description

WNV is a double acting scraper in material Zurcon® polyurethane Z 201. The dynamic scraping lip is specially designed with an additional inwards sealing edge to keep the residual oil film in the system. If the volume of this oil film can not be backpumped by the main rod seal (e.g. u.cup) a pressure built up between u-cup and scraper will be prevented by releasing this pressure by lifting of the scraper lip.

The static sealing lip and edge respectively ensure against the intrusion of dirt and fluids (e.g. water) over the outer diameter of the scraper. The support on the reverse side of the scraper prevents it from twisting in the groove.

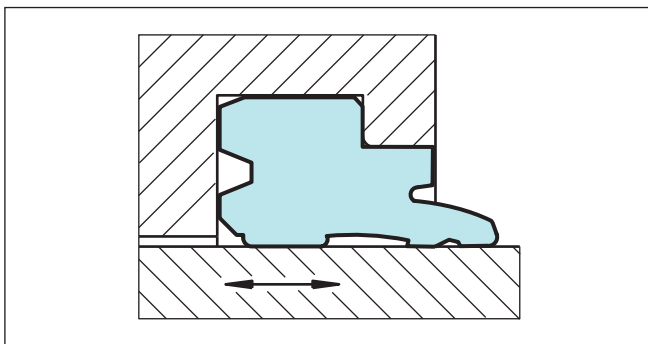


Figure 25 Scraper WNV

### Advantages

- Double acting
- Pressure release function
- Good static sealing performance due to additional seal lip at the housing
- Stable position of scraper in the housing
- Support bead with notches to support release function
- Housings in accordance to ISO 6195 type A

### Application Examples

- Mobile hydraulic machinery
- ISO-standard cylinders application
- Agriculture machinery
- Lift trucks
- Cargo tailboards
- Steering cylinders

### Technical Data

Speed:	Up to 1 m/s
Temperature:	-35 °C to +100 °C
Media:	Mineral oil based hydraulic fluids
Groove type:	Closed

#### 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 dependent on medium.

### Materials

Standard application:	
Zurcon® Polyurethane:	92 Shore A
Material code:	Z201
Colour:	turquoise



■ Installation Recommendation

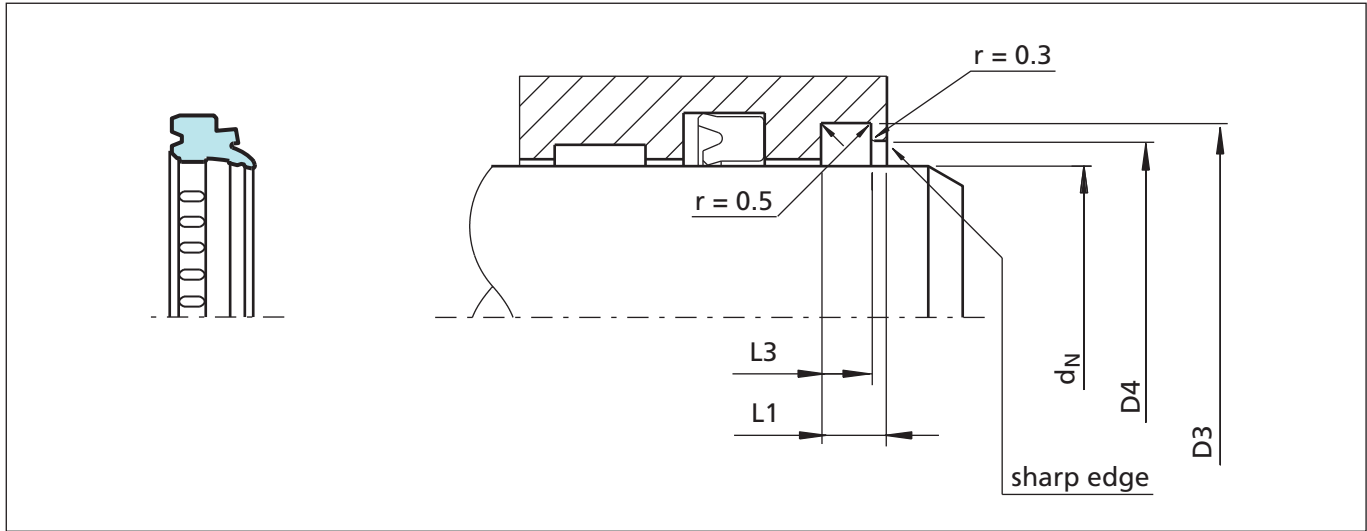


Figure 26 Installation drawing

Ordering Example

Rod diameter:  $d_N = 45.0$  mm  
 Groove diameter:  $D_3 = 53.0$  mm  
 TSS Part No.: WNV000450 (from Table XXVI)  
 Material code: Z201

TSS Article No.	WNV0	0	0450	-	Z201
TSS Series No.					
Type (Standard)					
Rod diameter x 10					
Quality Index (see table)					
Material-code					

Table XXVI Installation dimensions / TSS part numbers

Rod Diameter	Groove Diameter	Bore Diameter	Groove Width	Depth	TSS Part No.
$d_N$ h9	$D_3$ H8	$D_4$ H8	$L_3 +0.2$	$L_1 +0.2$	
16	24	21.5	5.0	7.0	WNV000160
18	26	23.5	5.0	7.0	WNV000180
20	28	25.5	5.0	7.0	WNV000200
25	33	30.5	5.0	7.0	WNV000250
30	38	35.5	5.0	7.0	WNV000300
32	40	37.5	5.0	7.0	WNV000320
35	43	40.5	5.0	7.0	WNV000350
40	48	45.5	5.0	7.0	WNV000400
45	53	50.5	5.0	7.0	WNV000450
50	58	55.5	5.0	7.0	WNV000500
60	68	65.5	5.0	7.0	WNV100600
70	80	77	6.3	8.3	WNV000700

The rod diameters in **bold** type comply with the recommendations of ISO 6195 Type A installation dimensions





<b>Rod Diameter</b>	<b>Groove Diameter</b>	<b>Bore Diameter</b>	<b>Groove Width</b>	<b>Depth</b>	<b>TSS Part No.</b>
<b><math>d_N</math> h9</b>	<b><math>D_3</math> H8</b>	<b><math>D_4</math> H8</b>	<b><math>L_3</math> +0.2</b>	<b><math>L_1</math> +0.2</b>	
80	90	87	6.3	8.3	WNV000800
100	115	110	9.5	12	WNV001000

The rod diameters in **bold** type comply with the recommendations of ISO 6195 Type A installation dimensions