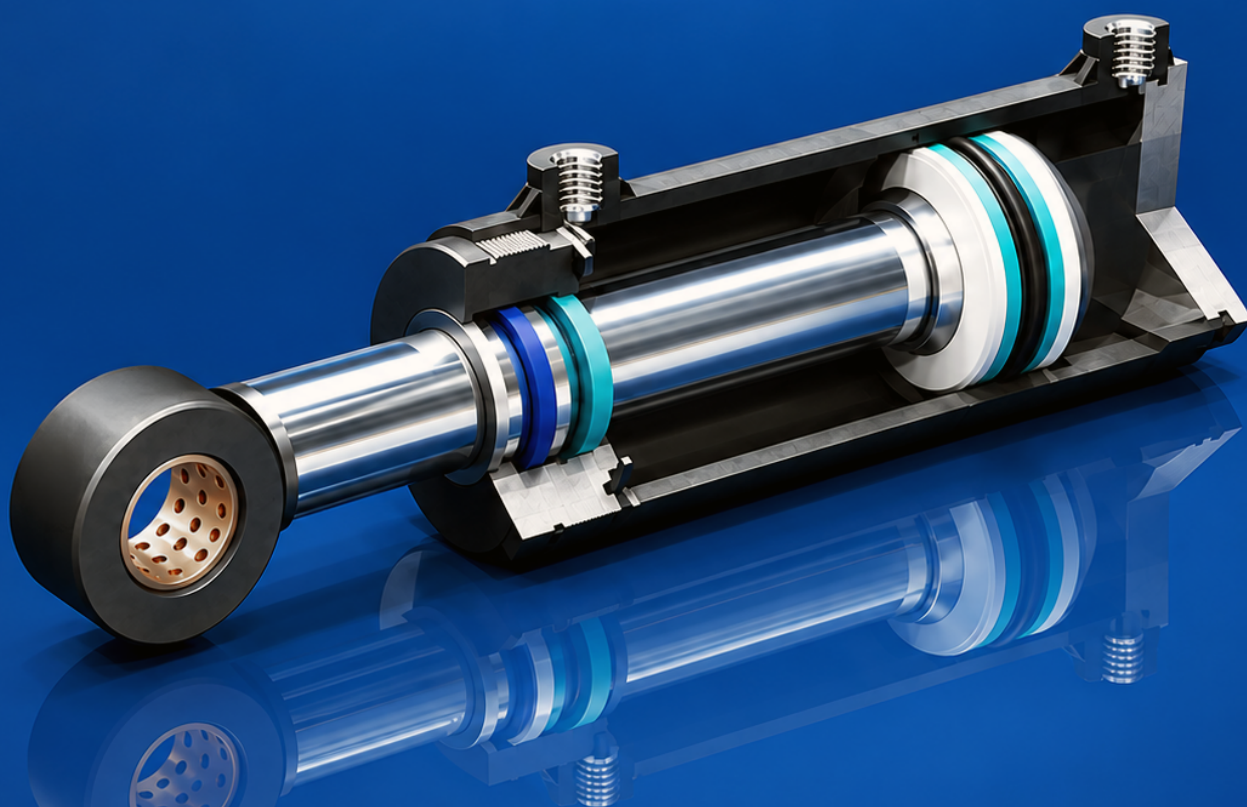


Hydraulic

Seals



DISCLAIMERS

This catalogue presents Techné's expertise and products, along with general information regarding their areas of application. This information is based on Techné's experience and reflects its current knowledge. The sealing performance of the products in this catalogue does not depend on the component alone but is largely influenced by other application parameters, namely installation, contact surface, pressure, operating temperature, the fluids to be sealed, lubrication, operational stresses, and external contamination. All of these factors, as well as other unknown variables that may arise during practical use, can have a significant impact on the performance of Techné products. For this reason, it is not possible to provide general and exhaustive information regarding the performance of the products.

The information provided in this catalogue is therefore intended solely as general, non-binding guidelines and does not apply to all applications. It is the Customer's responsibility to select a product that meets its technical requirements or those of its own customer and to ensure that the product is suitable for the intended application. As a general rule, Techné recommends discussing specific application cases with its technical department. Furthermore, in the event of more demanding or specialized requirements, we believe such consultation with the technical department is necessary, given that testing to verify the proper functioning of the products is, in most cases, essential.

In order to respond to technological developments or regulatory compliance requirements, we reserve the right to modify, without prior notice, product lines, products, tolerances, materials, production sites, and processes, as well as the information provided in this catalogue.

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Piston seals

					
Type	JP3	JP5	CPPU SR	CPPU OR	CPDE
Materials	NBR / Fabric-reinforced NBR + POM	NBR + TPE + POM	TPU + NBR	TPU + NBR	40% Bronze PTFE + NBR or FKM
Max. Pressure	400	400	400	250	500
Temperature (°C)	-25 / +100	-25 / +100	-25 / +100	-30 / +110	-25 / +100 or -15 / +200°C
Speed (m/s)	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5	≤ 15
Part Number	40.3000	40.5000	40.1400	40.1250	42.0701
Page	14	16	18	20	22

Rod seals

					
Type	ID SL	UMLR PU	CTSE	UN	TYPE B
Materials	TPU	TPU	40% Bronze-filled PTFE + NBR or FKM	TPU	TPU + NBR
Max. Pressure	400	400	500	300	350
Temperature (°C)	-40 / +110	-30 / +110	-25 / +100 or -15 / +200	-30 / +100	-30 / +100
Speed (m/s)	≤ 0.5	≤ 0.5	≤ 15	≤ 0.5	≤ 0.5
Part Number	70.0304	70.0199	43.0600	70.0100	70.0210
Page	26	28	30	34	42

Piston / rod seals

Wipers

					
Type	TRM NBR	TPA	TDJR PU	TDJR NBR	TDK
Materials	NBR / Steel	TPU	TPU	NBR	TPU
Temperature (°C)	-30 / +110	-30 / +90	-30 / +110	-30 / +100	-30 / +110
Speed (m/s)	≤ 1	≤ 1	≤ 2	≤ 2	≤ 1
Part Number	18.0101	18.0205	18.0213	18.0214	18.0218
Page	48	52	54	56	58

Guidings

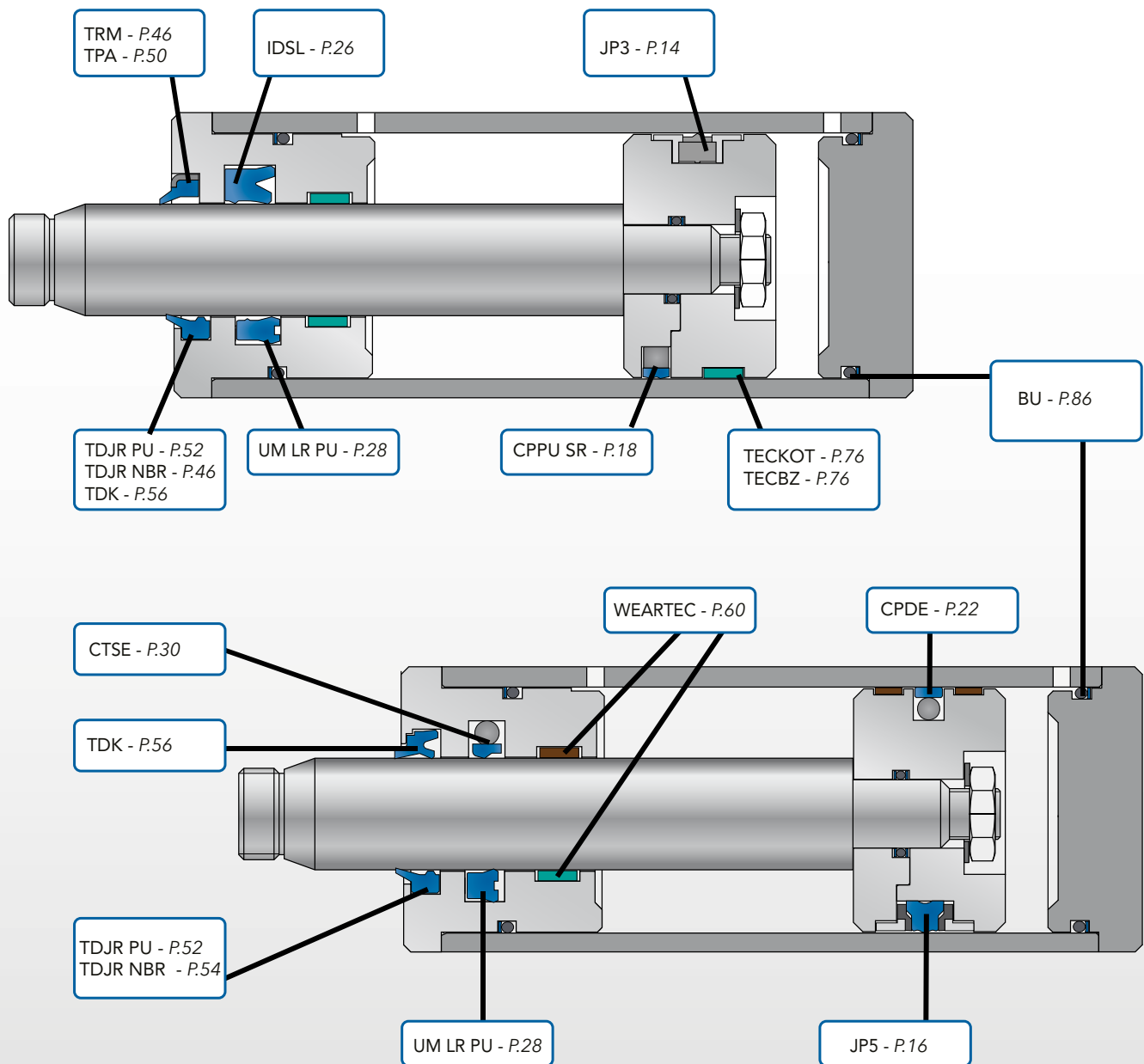
							
Type	WEARTEC T1	WEARTEC T3	WRI	WRI P	WRI R	TECBZ	TECKOT
Materials	Phenolic resin + cotton fibers	Polyester resin + synthetic fibers + PTFE	POM + glass fiber	POM + glass beads	POM + glass beads	40% bronze PTFE	Polyester resin + synthetic fibers + PTFE
Temperature (°C)	-40 / +130	-40 / +120	-30 / +100	-40 / +110	-40 / +110	-200 / +200	-40/ +120
Speed (m/s)	≤ 1.6	≤ 2.5	≤ 1	≤ 0.8	≤ 0.8	≤ 15	≤ 1
Part Number	21.6120	21.6124	44.0802	44.0810	44.0811	46.0101	46.0144
Page	62	62	62	62	62	78	78

Back-up rings

					
Type	BU NBR	BU PU	OPPU	BHS	SAE
Materials	NBR	TPU	TPU	TPU	TPU
Max. Pressure	See graph	See graph	400	400	500
Temperature (°C)	-20 / +100	-20 / +100	-30 / +100	-30 / +100	-30 / +100
Speed (m/s)	≤ 0.5	≤ 0.5	-	-	-
Part Number	80.0101	80.0104	05.0310	05.0110	05.0100
Page	88	88	94	96	98

Static hydraulic seals

Cross-section view of a cylinder



Materials

INTRODUCTION

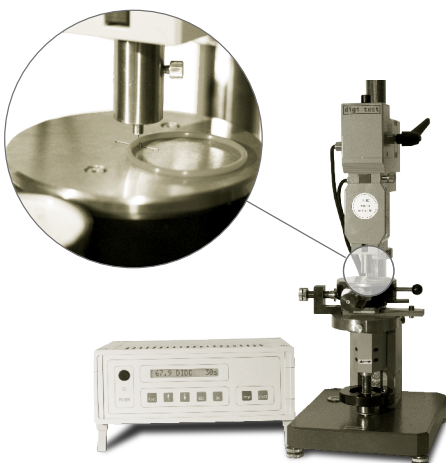
Techné uses different material families to manufacture sealing solutions for hydraulic systems: elastomers, thermoplastic elastomers, and thermoplastics.

These materials are characterized by their specific properties, which determine their sealing performance and service life.

Hardness

The hardness of a material defines the resistance of a sample surface to the penetration of a harder body, such as the ball or tip of a durometer.

The hardness of elastomers is expressed in IRHD (International Rubber Hardness Degree), as defined by ISO 48, or in Shore A, as defined by ASTM D2240.



Durometer

IRHD or Shore A ?

IRHD

The ISO 48 standard defines the different methods for measuring IRHD hardness. Techné uses the M method (micro-test) and the CM method (micro-test on curved surfaces), which allow measurements:

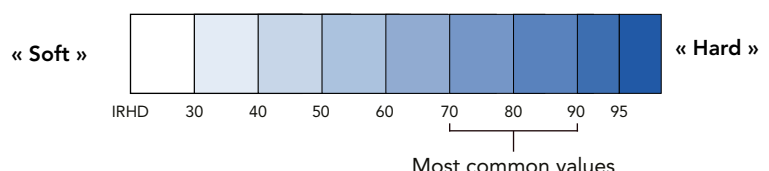
- Over the 30–95 IRHD range
- Directly on parts, including those with radii of curvature > 0.8 mm
- On a standard thickness of 2 mm (thicknesses from one to several millimetres are accepted)
- If possible, at 2 mm from any edge; otherwise, as far as possible from any edge

SHORE A

The ASTM D2240 standard requires Shore A measurements:

- Over the 0–100 Shore A range
- On a flat, non-rough surface
- On a sample with two parallel surfaces
- With a minimum thickness of 6 mm
- At 12 mm from any edge
- For 3 seconds.

IRHD Scale

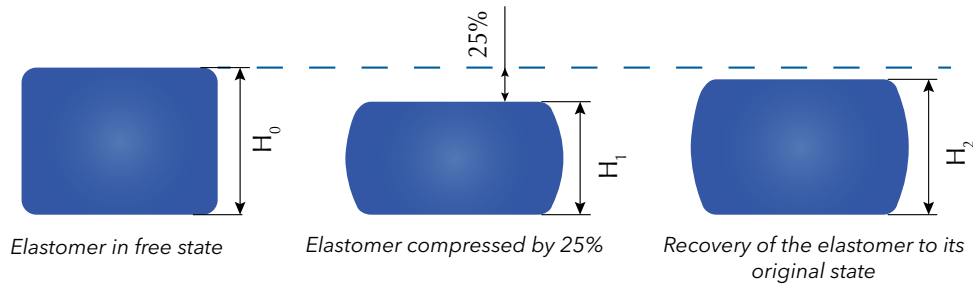


Compression Set (CS)

During compression, elastomers exhibit both an elastic deformation range and a plastic deformation range. To determine the elastic recovery of the elastomer, Techné measures the compression set (CS), also commonly referred to as compression set.

$$AC (\%) = \frac{H_0 - H_2}{H_0 - H_1}$$

This measurement is used to evaluate the quality of vulcanization, with vulcanization being a term specific to elastomers that defines their cross-linking process.



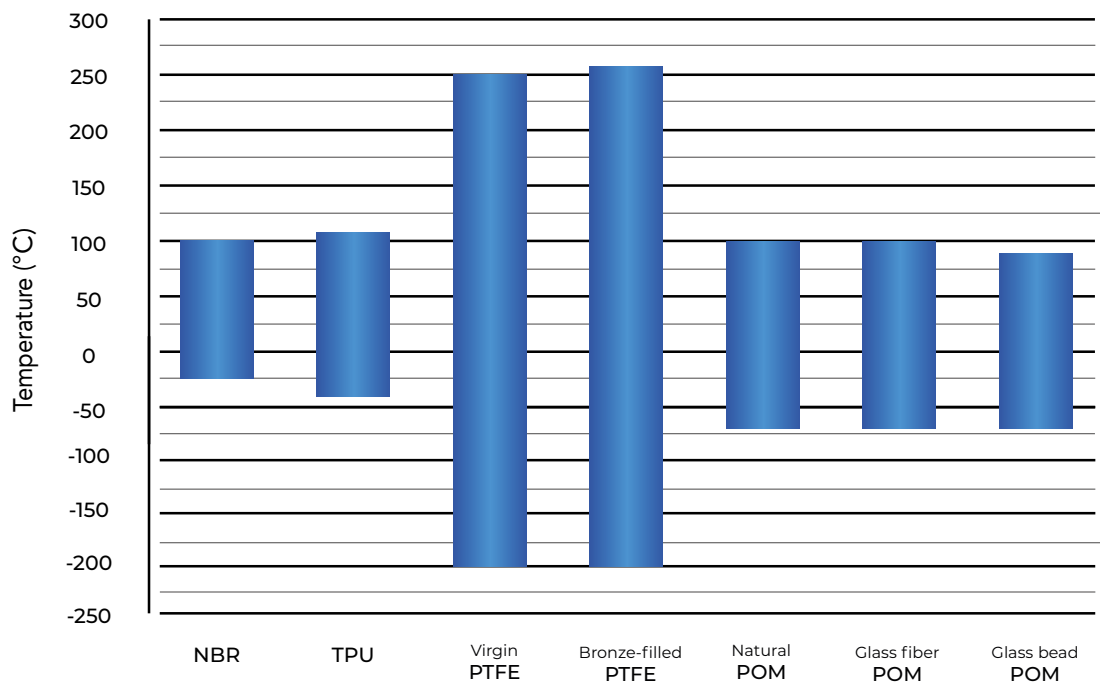
The compression set test is carried out according to ASTM D395/B, after an initial compression of 25% and storage in an oven for 24, 48 hours, or longer, at the maximum operating temperature of the material.

The lower the value, the better the compression set performance:

- For a compression set of 0%, the elastomer has excellent recovery properties (purely elastic behaviour).
- For a compression set of 100%, the elastomer has no recovery properties (purely plastic behaviour).

Temperature Resistance

Elastomer, thermoplastic elastomer, and thermoplastic materials are characterized by their operating temperature range. Some materials can be supplied with extended temperature ranges. For example, NBR materials are generally used down to -25°C ; however, Techné also supplies low-temperature NBR grades that can be used down to -55°C .



Tensile Strength

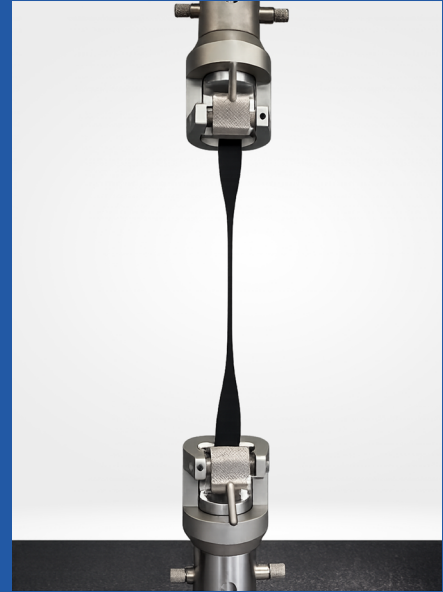
The force required to break dumbbell-shaped specimens is measured according to ASTM D412/C during a tensile test at a constant speed. The tensile stress T is expressed in MPa, while the elongation A is expressed as a percentage (%) relative to the initial dimension.

Techné uses a tensile testing machine to perform tests on specimens as well as on O-rings (minimum inside diameter of 20 mm).

Like compression set measurement, the elongation at break of an O-ring is lower than that of a dumbbell specimen.

Elongation at break and tensile strength depend on the material hardness:

- Low hardness: high elongation (A), low tensile strength (T)
- High hardness: low elongation (A), high tensile strength (T)



Tensile strength test

Aging Resistance

The selection of a material requires an analysis of the fluid in contact with the application. It is therefore necessary to specify the environment in which the material will operate.

If the material is not compatible, this will directly affect the sealing performance of the seal: material softening or hardening, loss of elongation at break, loss of tensile strength, swelling, or shrinkage of the material.

According to ASTM D471, specimens are immersed in a fluid for a defined period of time at a specified temperature. After aging, the following variations are measured:

- Hardness
- Volume
- Tensile strength and elongation at break
- Weight



Oil Aging Test

Storage

Storage conditions have a direct influence on the mechanical properties of the part. The ISO 2230 standard defines the storage conditions to be followed.

Storage must comply with strict requirements. Parts must be protected from:

- Direct light and UV radiation
- Ionizing radiation
- Ozone
- Contact with liquids and steam
- Compression or crushing

The storage temperature must be between 15 and 25°C, in a ventilated environment.

Seals must not be stored in a stretched condition or assembled in their final installation configuration.

Materials	Period
TPU	5 years (up to 7 years)
NBR	7 years (up to 10 years)

The storage period may be extended; in this case, a complete inspection of the finished parts is carried out to verify that the mechanical properties of the material have been properly maintained.

There is no storage standard for thermoplastic materials (PTFE and POM).

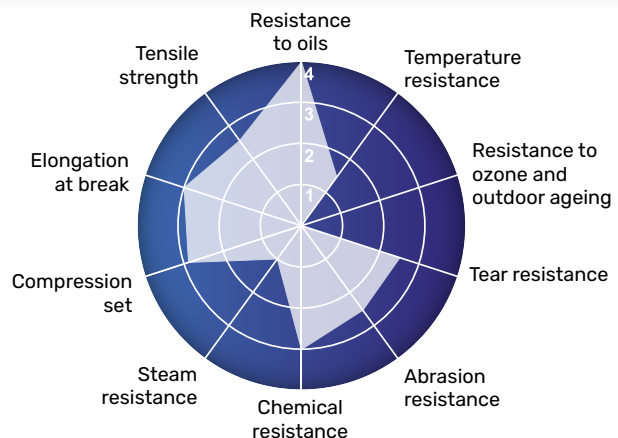
MATERIALS

NBR

NBR (nitrile butadiene rubber) is the most commonly used elastomer for sealing applications thanks to its excellent resistance to oils, low cost, and good mechanical properties.

Techné also offers specific NBR grades:

- Improved abrasion resistance
- Ozone resistance
- Low-temperature resistance (-40°C , down to -55°C)



TPU

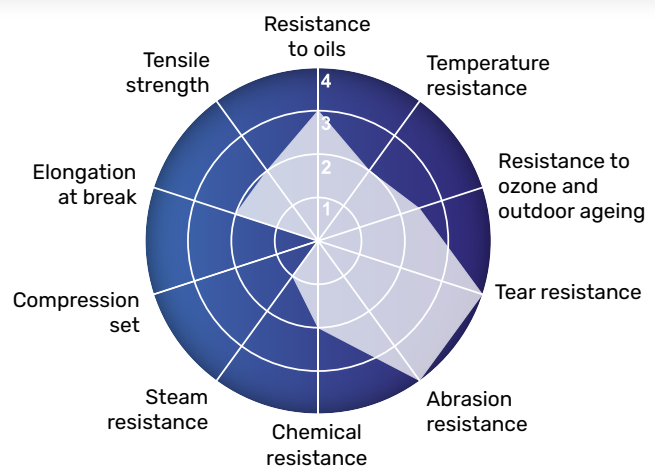
TPU (thermoplastic polyurethane) is a thermoplastic elastomer based on polyurethane, combining the mechanical properties of thermoplastics with the elastic properties of elastomers.

The main property of TPU is its excellent resistance to abrasion and wear, making it a material of choice for seals used in hydraulic applications.

Two types of TPU:

TPU AU : polyester-based
They are sensitive to hydrolysis and have excellent oil resistance.

TPU EU : polyether-based
They are not affected by hydrolysis and have lower oil resistance than TPU AU grades.



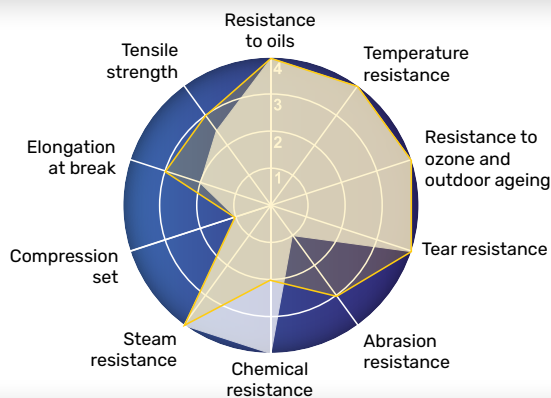
In hydraulic sealing applications, thermoplastics are often combined with elastomer energizers to provide elastic memory and achieve enhanced sealing performance. It is therefore important to understand the properties of thermoplastics.

Virgin PTFE and Filled PTFE

Virgin PTFE (polytetrafluoroethylene) is the thermoplastic material with the lowest coefficient of friction. Its chemical compatibility is almost universal, and it covers a very wide operating temperature range, from low to high temperatures.

However, virgin PTFE has low wear resistance and is highly sensitive to creep.

To overcome these limitations, Techné offers filled PTFE grades. Compared with virgin PTFE, bronze-filled PTFE, for example, provides higher wear resistance and is less susceptible to creep deformation. However, the addition of bronze filler reduces its chemical resistance.



Virgin PTFE:



Bronze-filled PTFE:



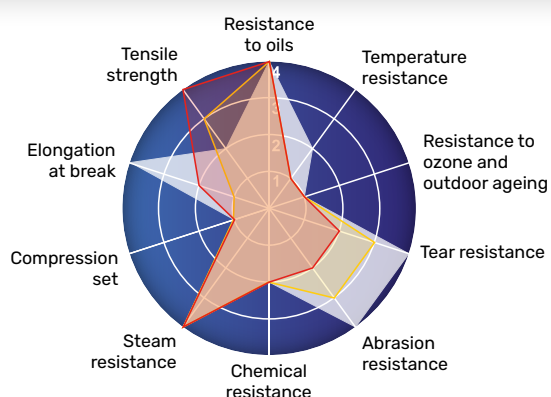
Glass Fiber or Glass Bead-filled POM

POM (polyoxymethylene) is a thermoplastic material characterized by excellent wear resistance and good creep resistance.

As with PTFE, the addition of fillers modifies its mechanical properties.

Glass fiber-reinforced POM provides higher tensile strength but reduced elongation at break. It also offers excellent creep resistance and increased dimensional stability. However, glass fiber-reinforced POM is more prone to abrasion than virgin POM and may therefore wear prematurely.

Glass bead-filled POM has tensile strength similar to virgin POM, with reduced elongation at break. It provides good creep resistance and good dimensional stability. Glass bead-filled POM offers better abrasion resistance than glass fiber-reinforced POM.



Virgin POM:



Glass fiber-reinforced POM:



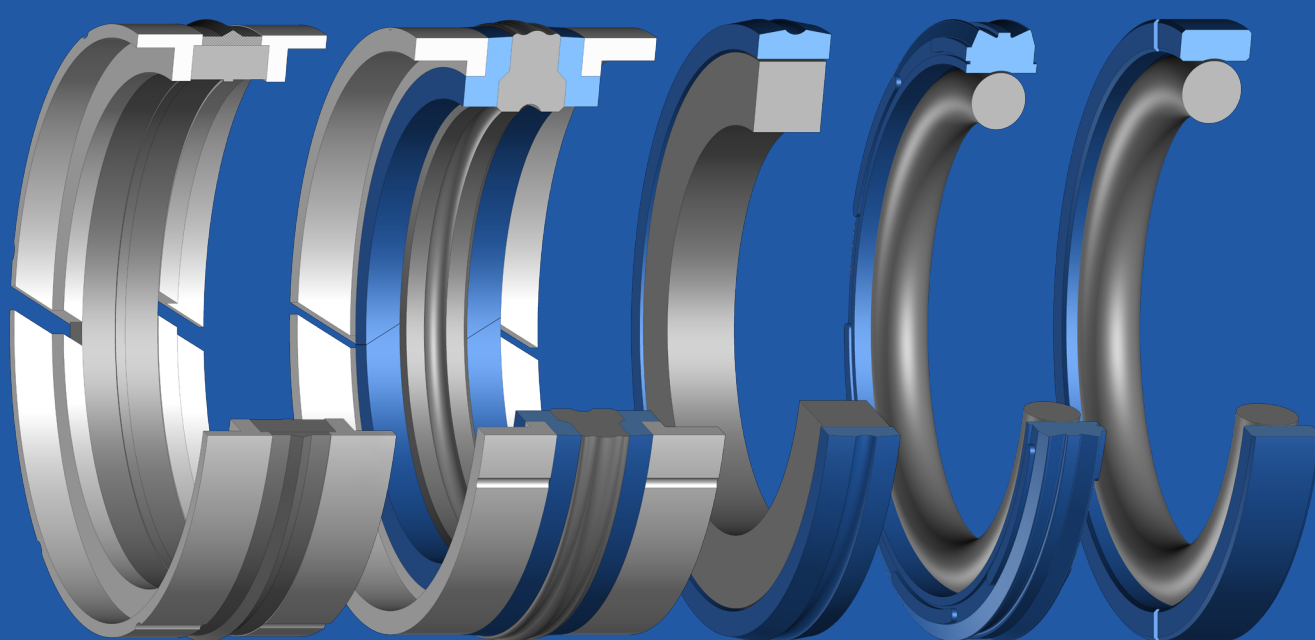
Glass bead-filled POM:



Comparative table

Properties	NBR	TPU	Virgin PTFE	Bronze-filled PTFE	Natural POM	Glass fiber-filled POM	Glass bead-filled POM
Chemical nature	Elastomer	Thermoplastic elastomer	Thermoplastic	Thermoplastic	Thermoplastic	Thermoplastic	Thermoplastic
Rigidity	★	★★	★	★★	★★	★★★	★★★
Tensile strength	★	★★★★	★	★★	★★	★★★	★★
Creep resistance	★	★★	★	★★	★★	★★★	★★★
High load resistance	★	★★	★	★★★	★★	★★★	★★★
Impact resistance	★★★	★★★★	★★	★	★★★	★★	★★
Dimensional stability	★	★★	★★	★★★	★★	★★★	★★★
Low deformation under load	★	★★	★	★★	★★	★★★	★★★
Wear resistance	★★	★★★★	★★	★★★	★★★	★★	★★
Low coefficient of friction	★	★	★★★	★★★	★★	★★	★★
Temperature range	-25 / +100	-30 / +110	-200 / +250	-200 / +260	-40 / +100	-40 / +100	-40 / +80

Piston seals



JP3

40.3000 | K17

Double-acting compact piston seal composed of 3 elements: a central part made of NBR & fabric-reinforced NBR ensuring sealing, and two guide rings on each side made of POM.

Applications

- Standard cylinders
- Hydraulic equipment
- Construction machinery
- Agricultural equipment

Advantages

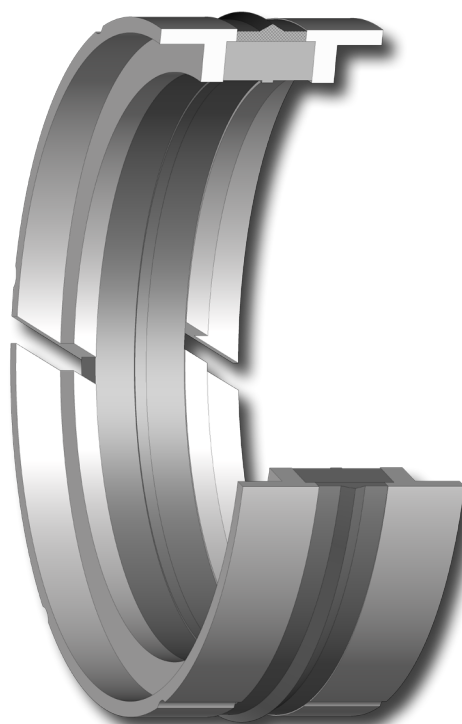
- Good resistance to extrusion and abrasion

Assembly

- Closed groove
- Lubrication recommended before installation

Recommendations

- Rod surface finish:
 $0.05 \mu\text{m} < R_a \leq 0.3 \mu\text{m}$
- Housing surface finish:
 - Groove flanks: $R_a < 3.0 \mu\text{m}$
 - Groove bottom: $R_a < 1.6 \mu\text{m}$



Materials

NBR + Fabric-reinforced NBR + POM

Colors

Black / White

Hardness

NBR 80 Sh A

Speed

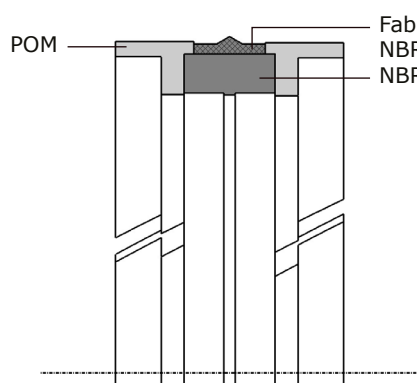
$\leq 0.5 \text{ m/s}$

Pressure

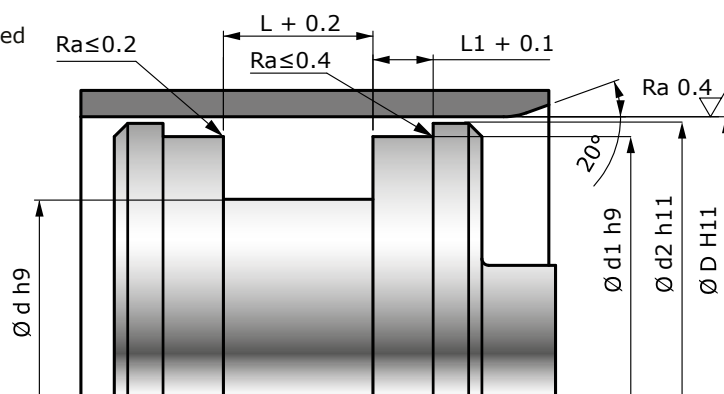
$\leq 400 \text{ bar}$

Temperature

$-30 / +100 \text{ }^{\circ}\text{C}$



JP3 composition



JP3 assembly recommendation

Dimensional list

Ø D	Ø d	L	L1	Part number
32	24	15.5	3.2	40 3000 3224
35	27	15.5	3.2	40 3000 3527
40	32	15.5	3.2	40 3000 4032
45	37	15.5	3.2	40 3000 4537
50	38	20.5	4.2	40 3000 5038
55	43	20.5	4.2	40 3000 5543
60	48	20.5	4.2	40 3000 6048
63	51	20.5	4.2	40 3000 6351
65	53	20.5	4.2	40 3000 6553
70	58	20.5	4.2	40 3000 7058
75	63	20.5	4.2	40 3000 7563
80	66	22.5	5.2	40 3000 8066
85	71	22.5	5.2	40 3000 8571
90	76	22.5	5.2	40 3000 9076
100	86	22.5	5.2	40 3000 0100
110	96	22.5	5.2	40 3000 0110
120	106	22.5	5.2	40 3000 0120
125	108	26.5	7.2	40 3000 0125
140	123	26.5	7.2	40 3000 0140
150	133	26.5	7.2	40 3000 0150
160	143	26.5	7.2	40 3000 0160
180	163	26.5	7.2	40 3000 0180
200	180	31.5	9.2	40 3000 0200
220	200	31.5	9.2	40 3000 0220
250	230	31.5	9.2	40 3000 0250

JP5

40.5000 | K50

Double-acting compact piston seal composed of 5 elements: a central part made of NBR ensuring sealing, two anti-extrusion rings made of TPE, and two guide rings made of POM.

Applications

- Standard cylinders
- Hydraulic equipment
- Construction machinery
- Mining equipment
- Industrial presses
- Agricultural equipment

Advantages

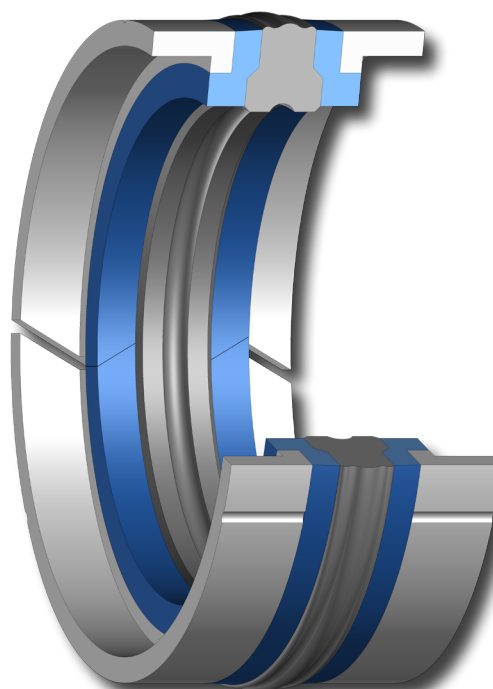
- Good resistance to extrusion and abrasion

Assembly

- Closed groove
- Lubrication recommended before installation

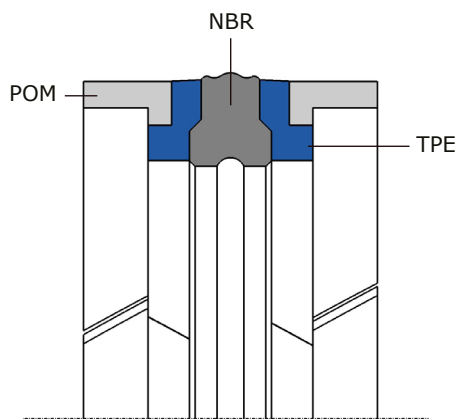
Recommendations

- Rod surface finish:
 $0.05 \mu\text{m} \leq Ra \leq 0.3 \mu\text{m}$
- Housing surface finish:
 - Groove flanks: $Ra < 3.0 \mu\text{m}$
 - Groove bottom: $Ra < 1.6 \mu\text{m}$

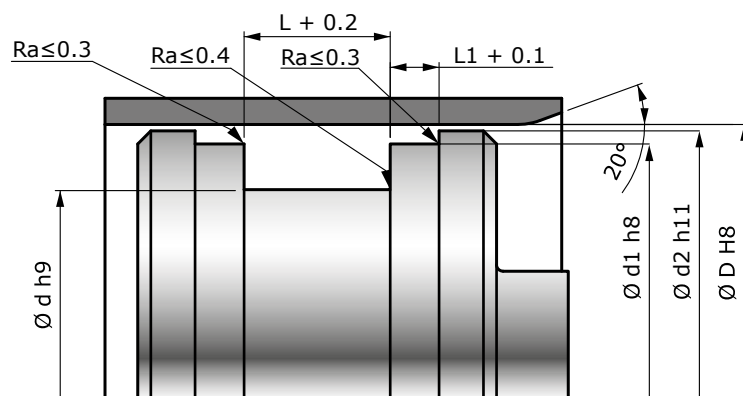


Materials	NBR + TPE + POM
Colors	White / Turquoise / Black
Hardness	NBR 80 Sh A

Speed	$\leq 0.5 \text{ m/s}$
Pressure	$\leq 400 \text{ bar}$
Temperature	$-30 / +100 \text{ }^{\circ}\text{C}$



JP5 composition



JP5 assembly recommendation

Dimensional list

Ø D	Ø d	L	L1	Part number
30	21	13.5	2.1	40 5000 3021
32	22	15.5	2.6	40 5000 3215
32	22	16.4	6.35	40 5000 3222
32	24	15.5	3.3	40 5000 3224
35	25	16.4	6.35	40 5000 3525
35	27	15.5	3.2	40 5000 3527
40	24	18.4	6.35	40 5000 4024
40	30	12.5	4	40 5000 4012
40	30	16.4	6.35	40 5000 4030
40	32	15.5	3.2	40 5000 4032
45	29	18.4	6.35	40 5000 4529
45	35	16.4	6.35	40 5000 4535
50	34	18.4	6.35	40 5000 5034
50	34	20.5	3.1	40 5000 5020
50	38	20.5	4.2	40 5000 5038
55	39	18.4	6.35	40 5000 5539
55	39	20.5	3.1	40 5000 5520
60	44	18.4	6.35	40 5000 6044
60	44	20.5	3.1	40 5000 6020
60	48	20.5	4.2	40 5000 6048
63	47	18.4	6.35	40 5000 6347
63	47	19.4	6.35	40 5000 6319
63	48	20	5	40 5000 6348
63	51	20.5	4.2	40 5000 6351
65	49	20.5	3.1	40 5000 6549
65	50	18.4	6.35	40 5000 6550
70	50	22.4	6.35	40 5000 7050
70	54	20.5	3.1	40 5000 7054
70	58	20.5	4.2	40 5000 7058
75	55	22.4	6.35	40 5000 7555
75	59	20.5	3.1	40 5000 7559
80	60	22.4	6.35	40 5000 8060
80	62	22.5	3.6	40 5000 8062
80	65	20	5	40 5000 8065

Ø D	Ø d	L	L1	Part number
80	66	22.5	5.2	40 5000 8066
85	65	22.4	6.35	40 5000 8565
90	70	22.4	6.35	40 5000 9070
90	72	22.5	3.6	40 5000 9072
90	76	22.5	5.2	40 5000 9076
95	75	22.4	6.35	40 5000 9575
100	75	22.4	6.35	40 5000 0100
100	82	22.5	3.6	40 5000 1100
100	86	22.5	5.2	40 5000 2100
105	80	22.5	6.35	40 5000 0105
110	85	22.4	6.35	40 5000 0110
110	92	22.5	3.6	40 5000 1110
115	90	22.4	6.35	40 5000 0115
120	95	22.4	6.35	40 5000 0120
125	100	25.4	6.35	40 5000 0125
130	105	25.4	6.35	40 5000 0130
130	105	25.4	9.5	40 5000 1130
140	115	25.4	6.35	40 5000 0140
140	115	25.4	9.5	40 5000 1140
150	125	25.4	6.35	40 5000 0150
150	125	25.4	9.5	40 5000 1150
150	128	26.5	5.1	40 5000 2150
160	130	25.4	6.35	40 5000 1160
160	130	25.4	9.5	40 5000 1601
160	135	25.4	9.5	40 5000 0160
170	145	25.4	12.7	40 5000 0170
175	150	25.4	12.7	40 5000 0175
180	150	35.4	6.35	40 5000 0180
180	155	25.4	12.7	40 5000 1180
200	175	25.4	12.7	40 5000 0200
220	190	35.4	6.35	40 5000 1220
220	195	25.4	12.7	40 5000 0220
250	220	35.4	6.35	40 5000 1250
250	225	25.4	12.7	40 5000 0250

CPPU SR

40.1400 | K70E

Double-acting piston seal composed of two parts, consisting of a TPU sealing ring and a square-section preloading seal made of elastomer.

Applications

- Standard cylinders
- Hydraulic equipment
- Construction machinery
- Agricultural equipment
- Cranes
- Loading platforms
- Injection molding presses

Advantages

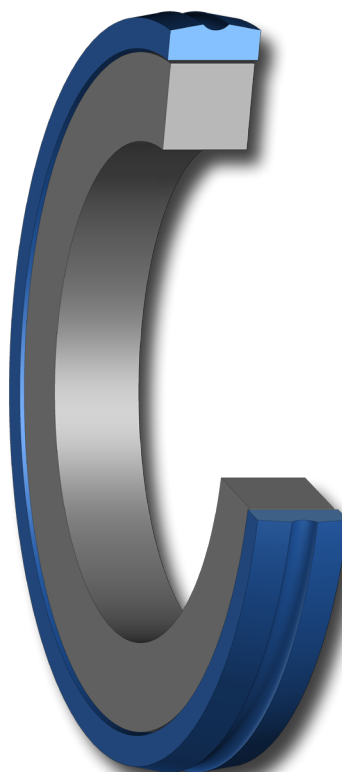
- Good resistance to extrusion and abrasion

Assembly

- Closed groove
- Lubrication recommended before installation

Recommendations

- Rod surface finish:
 $R_a < 0.4 \mu\text{m}$
- Housing surface finish:
 - Groove flanks: $R_a < 3.0 \mu\text{m}$
 - Groove bottom: $R_a < 1.6 \mu\text{m}$



Materials **TPU + NBR**

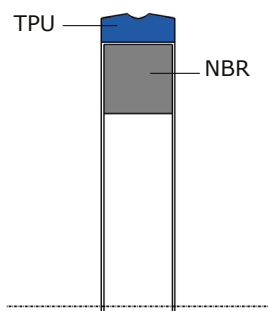
Colors **Blue / Black**

Hardness **93 Sh A**

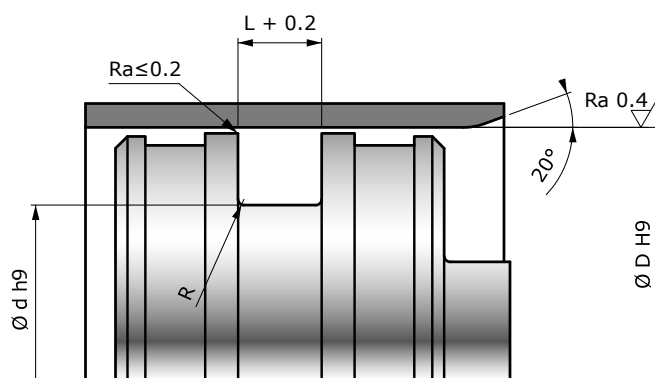
Speed **$\leq 0.5 \text{ m/s}$**

Pressure **$\leq 400 \text{ bar}$**

Temperature **$-25 / +110 \text{ }^{\circ}\text{C}$**



CPPU SR composition



CPPU SR assembly recommendation

Dimensional list

Ø D	Ø d	L1	Part number
20	12,5	3,2	40 1400 2012
25	17,5	3,2	40 1400 2517
30	22,5	3,2	40 1400 3022
32	24,5	3,2	40 1400 3224
40	29	4,2	40 1400 4029
45	34	4,2	40 1400 4534
50	34,5	6,3	40 1400 5034
50	39	4,2	40 1400 5039
55	39,5	6,3	40 1400 5539
60	44,5	6,3	40 1400 6044
60	49	4,2	40 1400 6049
63	52	4,2	40 1400 6352
65	49,5	6,3	40 1400 6549
70	54,5	6,3	40 1400 7054

Ø D	Ø d	L1	Part number
70	59	4,2	40 1400 7059
75	59,5	6,3	40 1400 7559
80	59	8,1	40 1400 8059
80	64,5	6,3	40 1400 8064
85	69,5	6,3	40 1400 8569
90	69	8,1	40 1400 9069
90	74,5	6,3	40 1400 9074
100	79	8,1	40 1400 1007
100	84,5	6,3	40 1400 0100
110	89	8,1	40 1400 1108
110	94,5	6,3	40 1400 1109
120	99	8,1	40 1400 0120
125	104	8,1	40 1400 0125

CPPU OR

40.1250 | K70

Double-acting piston seal composed of two parts, consisting of a TPU sealing ring and an elastomer preloading O-ring.

Applications

- Standard cylinders
- Hydraulic equipment
- Agricultural equipment
- Cranes
- Machine tools
- Injection molding presses
- Handling equipment

Advantages

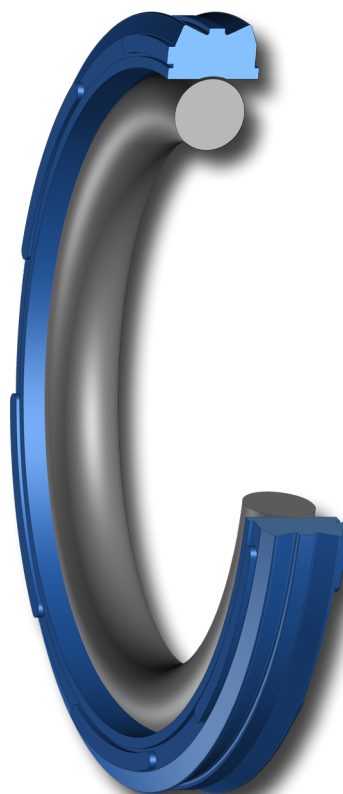
- Good resistance to extrusion and abrasion

Assembly

- Closed groove
- Lubrication recommended before installation

Recommendations

- Rod surface finish:
 $R_a < 0.4 \mu\text{m}$
- Housing surface finish:
 - Groove flanks: $R_a < 3.0 \mu\text{m}$
 - Groove bottom: $R_a < 1.6 \mu\text{m}$



Materials **TPU + NBR**

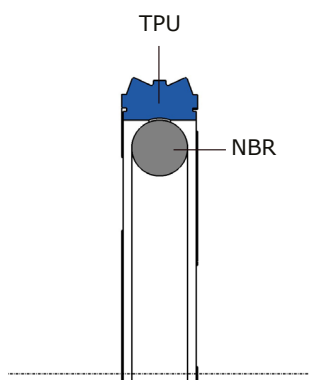
Colors **Blue / Black**

Hardness **93 Sh A**

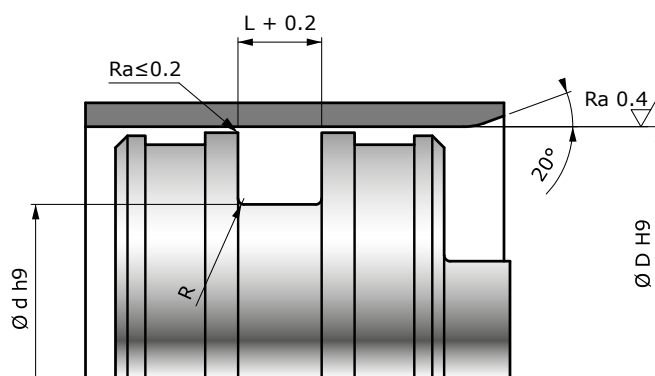
Speed **$\leq 0.5 \text{ m/s}$**

Pressure **$\leq 250 \text{ bar}$**

Temperature **$-30 / +110 \text{ }^{\circ}\text{C}$**



CPPU OR composition



CPPU OR assembly recommendation

Dimensional list

Ø D	Ø d	L1	Part number
20	12,5	3,2	40 1250 2012
25	14	4,2	40 1250 2514
25	17,5	3,2	40 1250 2517
32	21	4,2	40 1250 3221
32	24,5	3,2	40 1250 3224
35	27,5	3,2	40 1250 3527
40	29	4,2	40 1250 4029
40	32,5	3,2	40 1250 4032
45	34	4,2	40 1250 4534
50	34,5	6,3	40 1250 5034
50	39	4,2	40 1250 5039
55	39,5	6,3	40 1250 5539
55	44	4,2	40 1250 5544
60	44,5	6,3	40 1250 6044
60	49	4,2	40 1250 6049
63	47,5	6,3	40 1250 6347
63	52	4,2	40 1250 6352
65	49,5	6,3	40 1250 6549

Ø D	Ø d	L1	Part number
65	54	4,2	40 1250 6554
70	54,5	6,3	40 1250 7054
70	59	4,2	40 1250 7059
75	59,5	6,3	40 1250 7559
75	64	4,2	40 1250 7564
80	64,5	6,3	40 1250 8064
80	69	4,2	40 1250 8069
85	69,5	6,3	40 1250 8569
90	74,5	6,3	40 1250 9074
100	84,5	6,3	40 1250 0100
110	94,5	6,3	40 1250 0110
115	99,5	6,3	40 1250 0115
120	104,5	6,3	40 1250 0120
125	109,5	6,3	40 1250 0125
130	114,5	6,3	40 1250 0130
140	119	8,1	40 1250 0140
160	139	8,1	40 1250 0160
200	179	8,1	40 1250 0200

CPDE

42.0701 | K8

Double-acting piston seal composed of two parts, consisting of a bronze-filled PTFE sealing ring and an elastomer preloading O-ring.

Applications

- Standard cylinders
- Hydraulic equipment
- Agricultural equipment
- Cranes
- Industrial presses
- Injection molding presses
- Handling equipment
- Control valves
- Marine equipment

Advantages

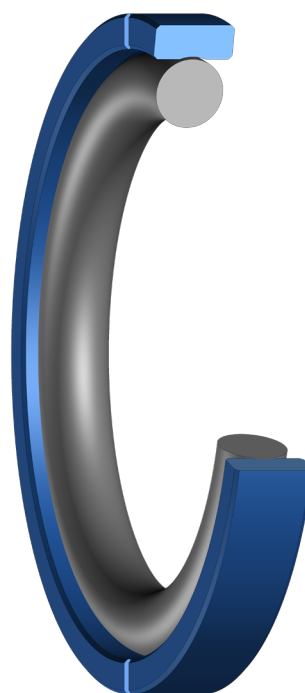
- No stick-slip effect
- Low installation space requirement

Assembly

- Closed groove
- Use a suitable installation tool (see [page 112](#))

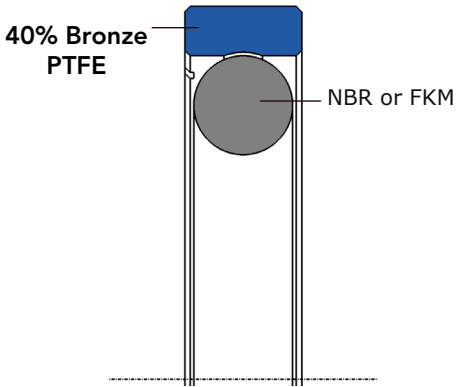
Recommendations

- Rod surface finish:
 $R_a < 0.4 \mu\text{m}$
- Housing surface finish:
 - Groove flanks: $R_a < 3.0 \mu\text{m}$
 - Groove bottom: $R_a < 1.6 \mu\text{m}$

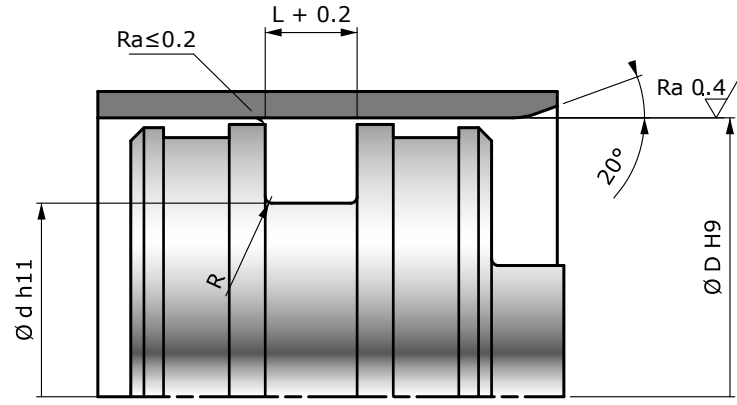


	NBR energizer	FKM energizer
Materials	40% Bronze PTFE + NBR	40% Bronze PTFE + FKM
Colors	Dark green / Black	Dark green / Black
Speed	$\leq 15 \text{ m/s}$	$\leq 15 \text{ m/s}$
Pressure	$\leq 500 \text{ bar}$	$\leq 500 \text{ bar}$
Temperature	$-25 / +100 \text{ }^{\circ}\text{C}$	$-15 / +200 \text{ }^{\circ}\text{C}$

Other energizer materials available depending on your application (Silicone, EPDM).



CPDE composition



CPDE assembly recommendation

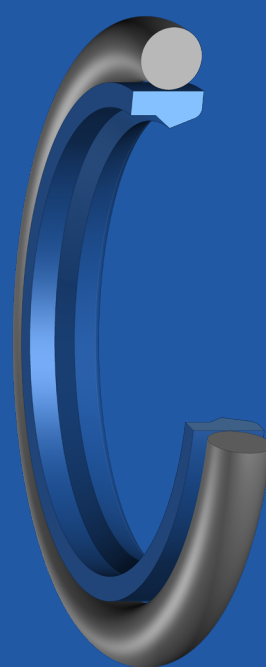
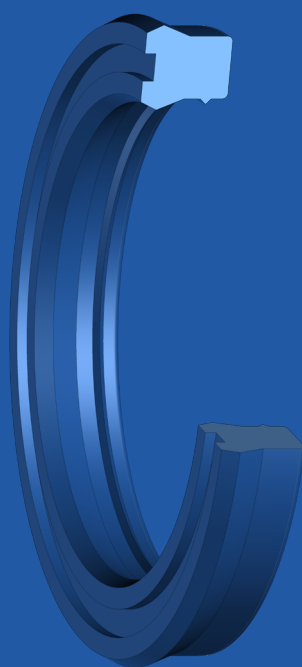
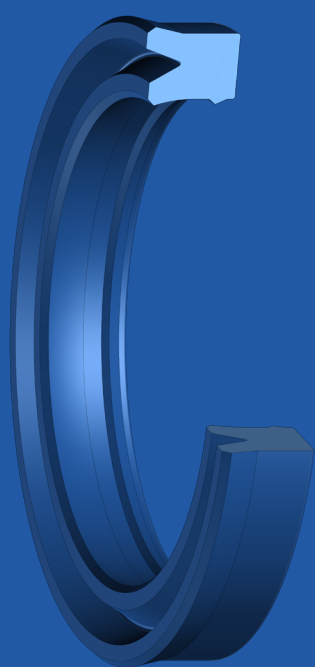
Dimensional list

Ø D	Ø d	L	Part number	Ø D	Ø d	L	Part number	Ø D	Ø d	L	Part number
8	3.1	2.2	42 0701 0008	38	30.5	3.2	42 0701 0038	70	59	4.2	42 0701 0070
10	5.1	2.2	42 0701 0010	38	33.1	2.2	42 0701 0382	72	56.5	6.3	42 0701 5672
12	7.1	2.2	42 0701 0012	39	31.5	3.2	42 0701 0039	75	59.5	6.3	42 0701 0751
13	8.1	2.2	42 0701 0013	40	29	4.2	42 0701 0040	75	64	4.2	42 0701 0075
14	9.1	2.2	42 0701 0014	40	32.5	3.2	42 0701 4032	76.2	65.2	4.2	42 0701 0762
15	7.5	3.2	42 0701 0015	42	31	4.2	42 0701 0042	80	59	8.1	42 0701 0802
16	8.5	3.2	42 0701 0016	45	29.5	6.3	42 0701 0451	80	64.5	6.3	42 0701 0080
16	11.1	2.2	42 0701 0162	45	34	4.2	42 0701 0045	80	69	4.2	42 0701 8069
17	12.1	2.2	42 0701 0017	48	37	4.2	42 0701 0048	82.5	67	6.3	42 0701 0825
18	10.5	3.2	42 0701 0018	50	34.5	6.3	42 0701 0501	85	64	8.1	42 0701 0851
18	13.1	2.2	42 0701 0182	50	39	4.2	42 0701 0050	85	69.5	6.3	42 0701 0085
20	12.5	3.2	42 0701 0020	50	41.5	4.2	42 0701 0005	85	77.8	3.2	42 0701 0778
20	15.1	2.2	42 0701 0201	50	42.5	3.2	42 0701 0051	89	73.5	6.3	42 0701 0089
22	14.5	3.2	42 0701 0022	50.8	39.8	4.2	42 0701 0508	90	69	8.1	42 0701 0901
22	17.1	2.2	42 0701 0222	52	41	4.2	42 0701 0052	90	74.5	6.3	42 0701 0090
24	16.5	3.2	42 0701 0024	55	39.5	6.3	42 0701 0395	95	74	8.1	42 0701 0951
25	17.5	3.2	42 0701 0025	55	44	4.2	42 0701 0055	95	79.5	6.3	42 0701 0095
25.4	17.9	3.2	42 0701 0254	56	45	4.2	42 0701 0056	100	79	8.1	42 0701 1001
27	19.5	3.2	42 0701 0027	57.1	46.1	4.2	42 0701 0571	100	84.5	6.3	42 0701 0100
28	20.5	3.2	42 0701 0028	60	44.5	6.3	42 0701 0445	100	89	4.2	42 0701 0891
28	23.1	2.2	42 0701 0282	60	49	4.2	42 0701 0049	101.6	86.1	6.3	42 0701 1016
28.5	21	3.2	42 0701 0285	62	51	4.2	42 0701 0062	105	84	8.1	42 0701 1051
29.5	37	3.2	42 0701 0037	63	47.5	6.3	42 0701 0631	105	89.5	6.3	42 0701 0105
30	22.5	3.2	42 0701 0030	63	52	4.2	42 0701 0063	110	89	8.1	42 0701 1101
31.7	24.2	3.2	42 0701 0317	63.5	52.2	4.2	42 0701 0635	110	94.5	6.3	42 0701 0110
32	21	4.2	42 0701 0003	64	53	4.2	42 0701 0064	110	99	4.2	42 0701 1102
32	24.5	3.2	42 0701 0032	65	49.5	6.3	42 0701 0495	112	96.5	6.3	42 0701 0112
35	24.3	4.2	42 0701 0004	65	54	4.2	42 0701 0065	114.3	98.8	6.3	42 0701 1143
35	27.5	3.2	42 0701 0035	69.8	58.8	4.2	42 0701 0698	115	94	8.1	42 0701 1151
36	28.5	3.2	42 0701 0036	70	54.5	6.3	42 0701 0701	115	99.5	6.3	42 0701 0115

Ø D	Ø d	L	Part number
120	99	8.1	42 0701 1201
120	104.5	6.3	42 0701 0120
125	104	8.1	42 0701 1251
125	109.5	6.3	42 0701 0125
127	111.5	6.3	42 0701 0127
130	109	8.1	42 0701 1301
130	114.5	6.3	42 0701 0130
132	116.5	6.3	42 0701 0132
133	112	8.1	42 0701 0133
135	114	8.1	42 0701 0135
135	119.5	6.3	42 0701 1351
140	119	8.1	42 0701 0140
140	124.5	6.3	42 0701 1401
145	124	8.1	42 0701 0145
150	129	8.1	42 0701 0150
154	133	8.1	42 0701 0154
155	134	8.1	42 0701 0155
160	135.5	8.1	42 0701 1316
160	139	8.1	42 0701 3726
160	144.5	6.3	42 0701 0161
165	144	8.1	42 0701 0165
170	149	8.1	42 0701 0170
170	154.5	6.3	42 0701 1545
175	154	8.1	42 0701 0175
175	159.5	6.3	42 0701 1751
180	159	8.1	42 0701 0180
180	164.5	6.3	42 0701 1803
185	164	8.1	42 0701 0185
190	169	8.1	42 0701 0190
200	179	8.1	42 0701 0200
210	189	8.1	42 0701 0210
215	194	8.1	42 0701 0215
216.5	196	8.1	42 0701 2165
218	202.5	6.3	42 0701 0218
220	199	8.1	42 0701 0220
225	204	8.1	42 0701 0225
230	209	8.1	42 0701 0230
240	219	8.1	42 0701 0240
240	224.5	6.3	42 0701 2402
250	229	8.1	42 0701 0250
260	239	8.1	42 0701 0260
265	244	8.1	42 0701 0265
270	249	8.1	42 0701 0270
275	254	8.1	42 0701 0275
280	259	8.1	42 0701 0280
290	269	8.1	42 0701 0290
300	279	8.1	42 0701 0300
300	284.5	6.3	42 0701 0302
310	289	8.1	42 0701 0310
320	299	8.1	42 0701 0320

Ø D	Ø d	L	Part number
330	305.5	8.1	42 0701 0330
340	315.5	8.1	42 0701 0340
340	324.5	6.3	42 0701 3403
350	325.5	8.1	42 0701 0350
360	335.5	8.1	42 0701 0360
370	345.5	8.1	42 0701 0370
375	350.5	8.1	42 0701 0375
380	355.5	8.1	42 0701 0380
385	360.5	8.1	42 0701 0385
390	365.5	8.1	42 0701 0390
400	375.5	8.1	42 0701 0400
410	385.5	8.1	42 0701 0410
420	395.5	8.1	42 0701 0420
430	405.5	8.1	42 0701 0430
440	415.5	8.1	42 0701 0440
450	425.5	8.1	42 0701 0450
460	435.5	8.1	42 0701 0460
470	445.5	8.1	42 0701 0470
480	455.5	8.1	42 0701 0480
490	465.5	8.1	42 0701 0490
500	475.5	8.1	42 0701 0500
510	482	9.5	42 0701 5104
510	485.5	8.1	42 0701 0510
520	495.5	8.1	42 0701 0520
525	500.5	8.1	42 0701 0525
530	505.5	8.1	42 0701 0530
540	515.5	8.1	42 0701 0540
550	525.5	8.1	42 0701 0550
560	535.5	8.1	42 0701 0560
570	545.5	8.1	42 0701 0570
580	555.5	8.1	42 0701 0580
590	565.5	8.1	42 0701 0590
600	575.5	8.1	42 0701 0600
610	585.5	8.1	42 0701 0610
620	595.5	8.1	42 0701 0620
630	605.5	8.1	42 0701 0630
640	615.5	8.1	42 0701 0640
650	622	9.5	42 0701 0650
680	644.65	12.7	42 0701 0680

Rod seals



ID SL

70.0304 | S17

Single-acting TPU rod seal, consisting of an active sealing lip ensuring sealing performance and a second scraping lip. The latter provides two advantages: storage of any residual oil traces between the two lips, as well as enhanced protection against external contaminants.

Applications

- Single-acting cylinders
- Compact cylinders
- Mobile hydraulics
- Agricultural equipment
- Construction machinery

Advantages

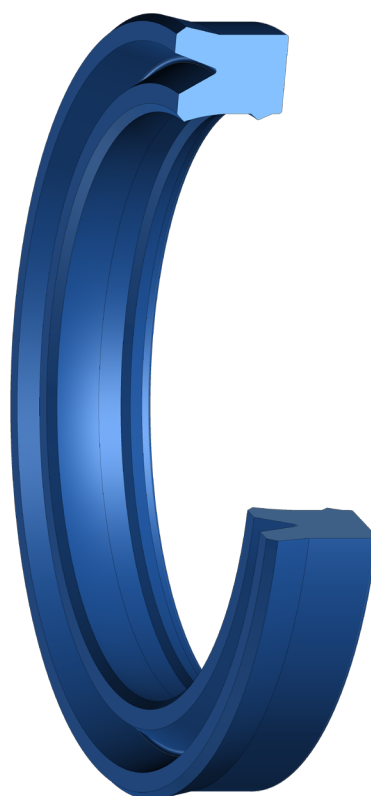
- Low installation space requirement
- Excellent stability
- Double barrier against contamination

Assembly

- Closed groove
- By deformation

Recommendations

- Rod surface finish:
 $R_a < 0.3 \mu\text{m}$
- Housing surface finish:
 - Groove flanks: $R_a < 3.0 \mu\text{m}$
 - Groove bottom: $R_a < 1.6 \mu\text{m}$



Material **TPU**

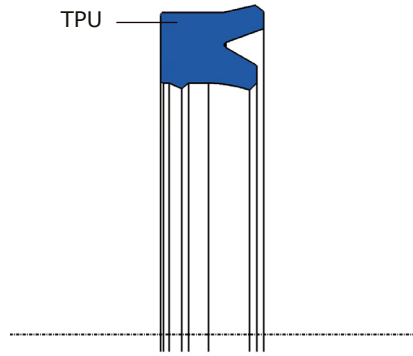
Color **Blue**

Hardness **94 Sh A**

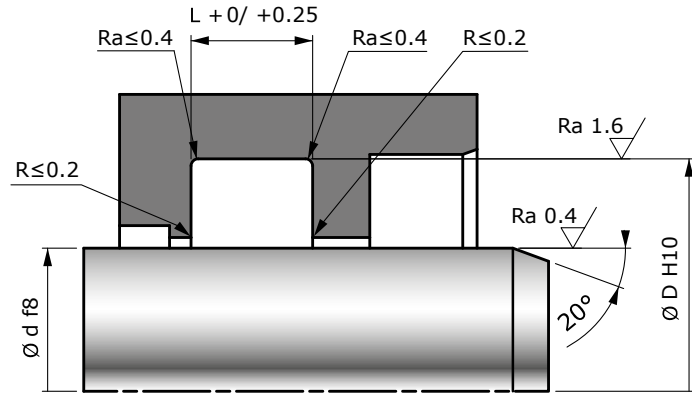
Speed **$\leq 0.5 \text{ m/s}$**

Pressure **$\leq 400 \text{ bar}$**

Temperature **$-40 / +110 \text{ }^{\circ}\text{C}$**



IDSL composition



IDSL assembly recommendation

Dimensional list

Ø d	Ø D	L1	L2	Part number
25	33	6.3	5.7	70 0304 2533
25	35	8	7.3	70 0304 2535
28	36	7	6.3	70 0304 2836
28	38	8	7.3	70 0304 2838
30	38	6.3	5.8	70 0304 3038
30	40	11	10	70 0304 3040
30	45	11	10	70 0304 3045
32	40	6.3	5.7	70 0304 3240
32	42	8	7.3	70 0304 3242
32	42	11	10	70 0304 3211
35	43	6.3	5.8	70 0304 3543
35	45	9	8	70 0304 3545
35	45	11	10	70 0304 3511
35	50	11	10	70 0304 3550
36	46	8	7.3	70 0304 3646
40	48	6.3	5.7	70 0304 4048
40	50	8	7.3	70 0304 4008
40	50	11	10	70 0304 4050
40	55	11	10	70 0304 4055

Ø d	Ø D	L1	L2	Part number
45	53	6.3	5.6	70 0304 4553
45	55	8	7.3	70 0304 4555
45	55	11	10	70 0304 4511
45	60	12.5	11.4	70 0304 4560
50	60	8	7.3	70 0304 5060
50	60	11	10	70 0304 5011
50	65	12.5	11.5	70 0304 5065
55	65	8	7.3	70 0304 5565
55	65	11	10	70 0304 5511
56	71	12.5	11.5	70 0304 5671
60	70	8	7.3	70 0304 6070
60	75	12.5	11.7	70 0304 6075
63	78	12.5	11.4	70 0304 6378
63	83	16	14.6	70 0304 6383
70	85	12.5	11.5	70 0304 7085
75	85	12.5	11.5	70 0304 7585
80	90	8	7.3	70 0304 8090
80	95	12.5	11.5	70 0304 8095

UM LR PU

70.0199

Single-acting TPU rod seal featuring an active sealing lip ensuring sealing performance and an additional scraping lip located at the heel. The latter provides two advantages: storage of any residual oil traces between the two lips, as well as enhanced protection against external contaminants. Compact, it is suitable for low-section grooves.

Applications

- Compact cylinders
- Telescopic cylinders
- Mobile hydraulics
- Tail lifts and forklifts
- Construction machinery

Advantages

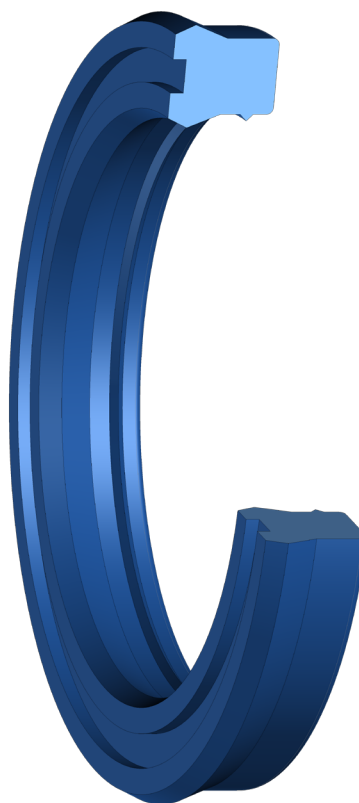
- Low installation space requirement
- Operates at low pressure
- Low sensitivity to pressure shocks

Assembly

- Closed groove
- Deformation required

Recommendations

- Rod surface finish:
 $R_a < 0.3 \mu\text{m}$
- Housing surface finish:
-Groove flanks: $R_a < 3.0 \mu\text{m}$
-Groove bottom: $R_a < 2.0 \mu\text{m}$



Materials **TPU**

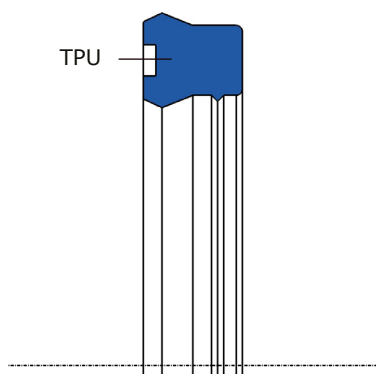
Color **Dark blue**

Hardness **94 Sh A**

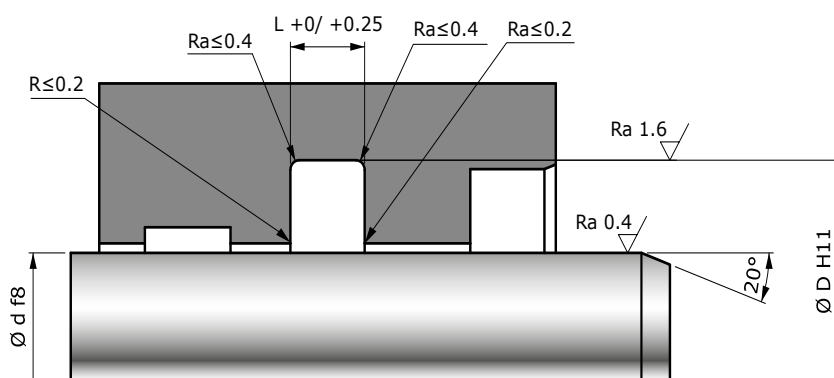
Speed $\leq 0.5 \text{ m/s}$

Pressure $\leq 400 \text{ bar}$

Temperature $-30 / +110 \text{ }^{\circ}\text{C}$



UM LR PU composition



UM LR PU assembly recommendation

Dimensional list

Ø d	Ø D	L1	L2	Part number
18	28	8	7	70 0199 1828
30	38	6.5	5.8	70 0199 3038
30	40	8	7	70 0199 3048
35	43	6.3	5.8	70 0199 0005
36	44	6.3	5.8	70 0199 0111
40	48	7	6	70 0199 4048
40	48	9	8	70 0199 4049
40	50	8	7	70 0199 0007
40	50	8	7.3	70 0199 0004
45	53	6.3	5.8	70 0199 0002
45	55	8	7	70 0199 4555
45	57	10	9	70 0199 4557
46	54	8.5	8	70 0199 4654
46	54	9	8	70 0199 0112
50	60	8	7	70 0199 0010
50	60	10	9	70 0199 5060
50	67	10	9	70 0199 0008
55	65	8	7	70 0199 0001
60	68	13	12	70 0199 6068
60	70	8	7	70 0199 0003

Ø d	Ø D	L1	L2	Part number
60	70	8.5	7.5	70 0199 6070
61	69	9	8	70 0199 6169
65	73	9	8	70 0199 6573
65	75	13	12	70 0199 6575
68	76	9	8	70 0199 6876
70	80	10	9	70 0199 0011
70	80	13	12	70 0199 0009
75	83	9	8	70 0199 7583
75	90	11.5	10.5	70 0199 0006
76	84	9	8	70 0199 7684
88	96	9	8	70 0199 0109
91	99	9	8	70 0199 9199
100	110	12	11	70 0199 0012
100	115	13	12	70 0199 0110
107	115	9	8	70 0199 0107
107	115	9	8	70 0199 0108
125	133	7.5	6.5	70 0199 0125
165	173	9	8	70 0199 0165
170	180	11	10	70 0199 1718

CTSE

43.0600 | S9

Single-acting rod seal composed of two parts, consisting of a bronze-filled PTFE sealing ring and an elastomer preloading O-ring.

Applications

- Single-acting cylinders
- Machine tools
- Industrial presses
- Injection molding presses

Advantages

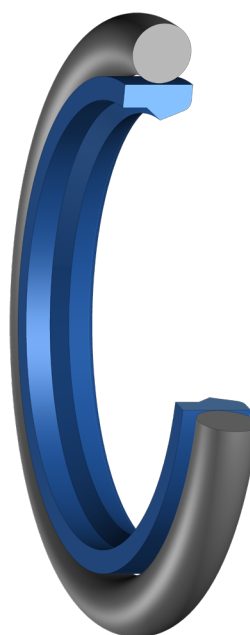
- No stick-slip effect
- Low installation space requirement

Assembly

- Closed groove
- Use a suitable installation tool (see page 112)

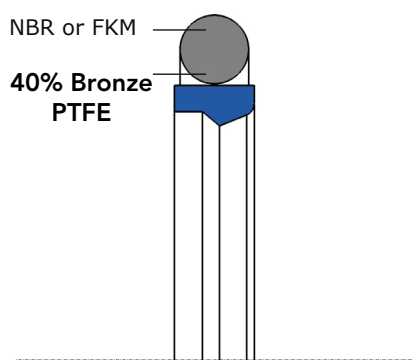
Recommendations

- Rod surface finish:
 $R_a < 0.4 \mu\text{m}$
- Housing surface finish:
- Groove flanks: $R_a < 3.0 \mu\text{m}$
- Groove bottom: $R_a < 1.6 \mu\text{m}$

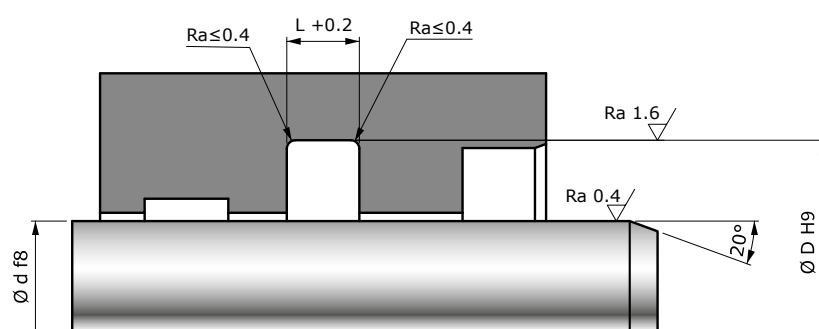


	NBR energizer	FKM energizer
Materials	40% Bronze PTFE	40% Bronze PTFE
Colors	Dark green / Black	Dark green / Black
Speed	$\leq 15 \text{ m/s}$	$\leq 15 \text{ m/s}$
Pressure	$\leq 500 \text{ bar}$	$\leq 500 \text{ bar}$
Temperature	$-25 / +100 \text{ }^{\circ}\text{C}$	$-15 / +200 \text{ }^{\circ}\text{C}$

Other energizer materials available depending on your application (Silicone, EPDM, etc.)



CTSE composition



CTSE assembly recommendation

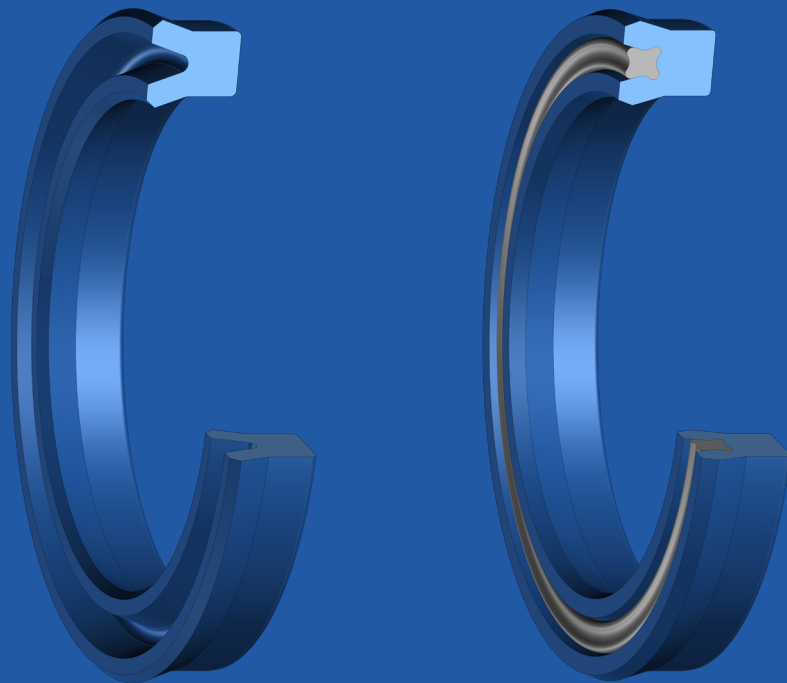
Dimensional list

Ø d	Ø D	L	Part number	Ø d	Ø D	L	Part number	Ø d	Ø D	L	Part number
4	8.9	2.2	43 0600 0004	30	37.3	3.2	43 0600 0302	60	75.1	6.3	43 0600 0060
5	9.9	2.2	43 0600 0005	30	40.7	4.2	43 0600 0030	63	73.7	4.2	43 0600 0632
6	10.9	2.2	43 0600 0006	30	45.1	6.3	43 0600 0301	63	78.1	6.3	43 0600 0063
7	11.9	2.2	43 0600 0007	32	39.3	3.2	43 0600 0322	64	79.1	6.3	43 0600 0064
8	12.9	2.2	43 0600 0082	32	42.7	4.2	43 0600 0032	65	80.1	6.3	43 0600 0065
8	15.3	3.2	43 0600 0008	35	42.3	3.2	43 0600 0352	70	80.7	4.2	43 0600 0702
10	14.9	2.2	43 0600 0102	35	45.7	4.2	43 0600 0035	70	85.1	6.3	43 0600 0070
10	17.3	3.2	43 0600 0010	36	43.3	3.2	43 0600 0362	75	90.1	6.3	43 0600 0075
12	16.9	2.2	43 0600 0122	36	46.7	4.2	43 0600 0036	80	90.1	6.3	43 0600 0023
12	19.3	3.2	43 0600 0012	38	48.7	4.2	43 0600 0382	80	90.7	4.2	43 0600 0802
14	18.9	2.2	43 0600 0142	38	53.1	6.3	43 0600 0038	80	95.1	6.3	43 0600 0080
14	21.3	3.2	43 0600 0014	40	50.7	4.2	43 0600 0402	80	100.5	8.1	43 0600 8010
15	19.9	2.2	43 0600 0152	40	55.1	6.3	43 0600 0040	85	100.1	6.3	43 0600 0085
15	22.3	3.2	43 0600 0015	42	52.7	4.2	43 0600 0422	90	100.7	4.2	43 0600 0902
16	20.9	2.2	43 0600 0162	42	57.1	6.3	43 0600 0042	90	105.1	6.3	43 0600 0090
16	23.3	3.2	43 0600 0016	45	55.7	4.2	43 0600 0452	95	110.1	6.3	43 0600 0095
18	22.9	2.2	43 0600 0182	45	60.1	6.3	43 0600 0045	100	110.7	4.2	43 0600 0011
18	25.3	3.2	43 0600 0018	46	61.1	6.3	43 0600 4661	100	115.1	6.3	43 0600 0100
19	26.3	3.2	43 0600 0192	47.5	62.6	6.3	43 0600 0021	105	120.1	6.3	43 0600 0105
20	27.3	3.2	43 0600 0202	48	63.1	6.3	43 0600 0048	110	125.1	6.3	43 0600 0110
20	30.7	4.2	43 0600 0020	50	60.7	4.2	43 0600 0502	115	130.1	6.3	43 0600 0115
22	29.3	3.2	43 0600 0222	50	65.1	6.3	43 0600 0050	120	135.1	6.3	43 0600 0120
22	32.7	4.2	43 0600 0022	52	67.1	6.3	43 0600 0052	125	140.1	6.3	43 0600 0125
24	34.7	4.2	43 0600 0024	55	65.7	4.2	43 0600 0552	130	145.1	6.3	43 0600 0130
25	32.3	3.2	43 0600 0252	55	70.1	6.3	43 0600 0055	135	150.1	6.3	43 0600 0135
25	32.3	3.2	43 0600 0254	56	65	4.2	43 0600 0017	140	155.1	6.3	43 0600 0140
25	32.3	4.2	43 0600 0253	56	66.7	4.2	43 0600 0562	140	155.1	6.3	43 0600 0026
25	35.7	4.2	43 0600 0025	56	71.1	6.3	43 0600 0056	140	160.5	8.1	43 0600 1401
28	35.3	3.2	43 0600 0282	57.15	68.15	4.2	43 0600 5715	145	160.1	6.3	43 0600 0009
28	38.7	4.2	43 0600 0028	60	70.7	4.2	43 0600 0602	150	165.1	6.3	43 0600 0150

Ø d	Ø D	L	Part number
155	165.7	4.2	43 0600 1551
155	170.5	6.3	43 0600 0155
160	175.1	6.3	43 0600 0160
160	180.5	8.1	43 0600 1601
165	175.7	4.2	43 0600 1652
170	185.1	6.3	43 0600 0170
175	190.1	6.3	43 0600 0175
180	195.1	6.3	43 0600 1800
180	195.1	6.3	43 0600 0180
180	200.5	8.1	43 0600 1801
190	205.1	6.3	43 0600 0019
190	210.5	8.1	43 0600 0190
200	220.5	8.1	43 0600 0200
210	230.5	8.1	43 0600 0210
220	240.5	8.1	43 0600 0220
220	244	8.1	43 0600 2201
225	240.1	6.3	43 0600 2250
225	245.5	8.1	43 0600 0225
230	245.1	6.3	43 0600 2300
230	250.5	8.1	43 0600 0230
235	255.5	8.1	43 0600 0235
235	255.5	8.1	43 0600 0235
240	260.5	8.1	43 0600 0240
250	265.5	6.3	43 0600 2502
250	270.5	8.1	43 0600 0250
250	274	8.1	43 0600 2501
255	275.5	8.1	43 0600 0255
260	280.5	8.1	43 0600 2600
260	284	8.1	43 0600 0260
270	290.5	8.1	43 0600 2701
270	294	8.1	43 0600 0270
280	304	8.1	43 0600 0280
285	309	8.1	43 0600 0285
290	314	8.1	43 0600 0290
300	324	8.1	43 0600 0300
310	334	8.1	43 0600 0310
320	344	8.1	43 0600 0320
320	357.3	9.5	43 0600 3201
330	354	8.1	43 0600 0330
340	364	8.1	43 0600 0340
350	374	8.1	43 0600 0350
360	384	8.1	43 0600 0360
360	387.3	9.5	43 0600 3601
370	394	8.1	43 0600 0370
380	404	8.1	43 0600 0380
390	414	8.1	43 0600 0390
400	424	8.1	43 0600 0400
410	434	8.1	43 0600 0410
420	444	8.1	43 0600 0420
430	454	8.1	43 0600 0430

Ø d	Ø D	L	Part number
440	464	8.1	43 0600 0440
450	474	8.1	43 0600 0450
460	484	8.1	43 0600 0460
470	494	8.1	43 0600 0470
480	504	8.1	43 0600 0480
490	514	8.1	43 0600 0490
500	524	8.1	43 0600 0500
510	534	8.1	43 0600 0510
520	544	8.1	43 0600 0520
530	554	8.1	43 0600 0530
540	564	8.1	43 0600 0540
550	574	8.1	43 0600 0550
560	584	8.1	43 0600 0560
570	594	8.1	43 0600 0570
580	604	8.1	43 0600 0580
590	614	8.1	43 0600 0590
600	624	8.1	43 0600 0600
610	634	8.1	43 0600 0610
620	644	8.1	43 0600 0620
670	694	8.1	43 0600 0670

Piston / rod seals



UN

70.0100 | S6
K6

Single-acting symmetrical TPU seal, which can be installed either as a rod seal or a piston seal. Both lips provide a sealing function.

Applications

- Standard cylinders
- Hydraulic equipment
- Industrial presses
- Lifting platforms
- Agricultural equipment
- Forestry equipment
- Spare parts

Advantages

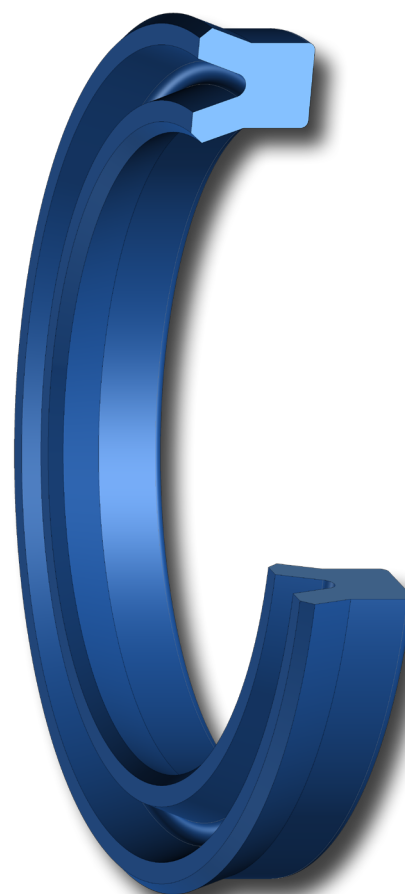
- High versatility
- Good abrasion resistance

Assembly

- Closed groove
- Lubrication recommended before installation

Recommendations

- Rod surface finish:
 $R_a < 0.4 \mu\text{m}$
- Housing surface finish:
 - Groove flanks: $R_a < 3.0 \mu\text{m}$
 - Groove bottom: $R_a < 1.6 \mu\text{m}$



Material **TPU**

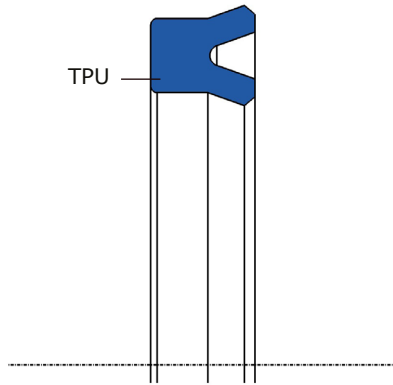
Color **Dark blue**

Hardness **93 Sh A**

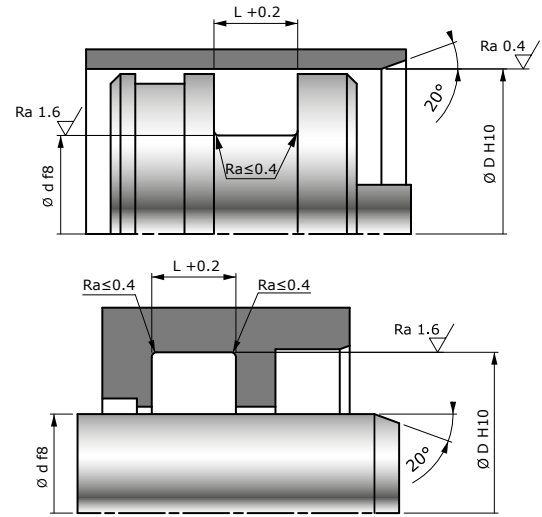
Speed **$\leq 0.5 \text{ m/s}$**

Pressure **$\leq 300 \text{ bar}$**

Temperature **$-30 / +100 \text{ }^\circ\text{C}$**



UN composition



UN assembly recommendation

Dimensional list

Ø d	Ø D	L	H	Part number	Ø d	Ø D	L	H	Part number	Ø d	Ø D	L	H	Part number
3	10	7	6	70 0100 0310	10	18	6.3	5.7	70 0100 1018	14	22	5	4	70 0100 0142
4	10	4	3	70 0100 0410	10	18	7	6	70 0100 1187	14	22	6	5	70 0100 0080
4	10	4.5	4	70 0100 0104	10	18	9	8	70 0100 0060	14	22	6.3	6	70 0100 1422
4	10	4.5	4	70 0100 0234	10	19	9	8	70 0100 0108	14	22	7	6	70 0100 0227
5	11	7.5	6.5	70 0100 0172	10	20	8	7	70 0100 1027	14	22	9	8	70 0100 0229
5	12	6	5	70 0100 0512	10	20	9	8	70 0100 0061	14	22	12	11	70 0100 2212
6	12	4.5	4	70 0100 0612	10	22	10	9	70 0100 1022	14	24	7	6	70 0100 1424
6	12	6	5	70 0100 0606	10	25	11	10	70 0100 0078	14	24	8	7	70 0100 2408
6	12	6.5	6	70 0100 6126	10	28	11	10	70 0100 1028	14	24	9	8	70 0100 2409
6	13	5.5	4.5	70 0100 0613	12	18	5	4	70 0100 0081	14	28	11	10	70 0100 0082
6	14	6.3	5.7	70 0100 0614	12	18	5.5	4.5	70 0100 1205	15	23	6.3	5.7	70 0100 1523
6	15	9	8	70 0100 0615	12	18	6	5	70 0100 1218	15	25	9	8	70 0100 1525
7	15	8	7	70 0100 0715	12	18	7	6	70 0100 1207	15	25	11	10	70 0100 0073
8	12	3.5	3	70 0100 0812	12	20	6	5	70 0100 0071	15	26	8	7	70 0100 1526
8	14	7	6	70 0100 0814	12	20	6.3	5.7	70 0100 1263	15	28	11	10	70 0100 1528
8	15	6.3	5.7	70 0100 8156	12	20	8	7	70 0100 1220	15	30	9	8	70 0100 1530
8	15	9	8	70 0100 0815	12	20	9	8	70 0100 0129	15	30	11	10	70 0100 0083
8	16	6.3	6	70 0100 0816	12	22	6	5	70 0100 0126	16	22	5	4	70 0100 0074
8	18	9	8	70 0100 0818	12	22	7	6	70 0100 1226	16	22	5.5	4.5	70 0100 2255
8	18	10	9	70 0100 8181	12	22	8	7	70 0100 0062	16	22	6	5	70 0100 1622
8	20	8	7	70 0100 0820	12	22	9	8	70 0100 1222	16	24	6	5	70 0100 1606
9	15	9	8	70 0100 0915	12	24	7	6	70 0100 0079	16	24	6.3	5.7	70 0100 1624
9	19	7	6	70 0100 0919	12	24	9	8	70 0100 0063	16	24	7	6	70 0100 1607
10	15	4	3	70 0100 0221	12	24	10	9	70 0100 1224	16	24	10	9	70 0100 2410
10	15	5	4	70 0100 0222	12	24	11	10	70 0100 1241	16	26	6	5	70 0100 0266
10	16	5	4	70 0100 1004	12	25	9	8	70 0100 0072	16	26	7	6	70 0100 0084
10	16	6.5	5.5	70 0100 1065	13	20	6.5	5.5	70 0100 0231	16	26	8	7	70 0100 0268
10	16	7	6	70 0100 0116	14	20	5	4	70 0100 1420	16	26	9	8	70 0100 1626
10	18	6	5	70 0100 0059										

Ø d	Ø D	L	H	Part number
16	26	10	9	70 0100 2610
16	26	11	10	70 0100 2611
16	28	7	6	70 0100 0287
16	32	9	8	70 0100 1632
17	25	11	10	70 0100 1725
18	24	5.2	4.5	70 0100 1824
18	25	5.5	5	70 0100 1825
18	25	7	6	70 0100 1807
18	26	5	4	70 0100 0086
18	26	6	5	70 0100 1265
18	26	6.3	5.7	70 0100 1863
18	26	7	6	70 0100 1827
18	26	7.5	6.5	70 0100 1875
18	26	9	8	70 0100 1826
18	26	9.5	8.5	70 0100 1895
18	28	8	7	70 0100 1808
18	28	9	8	70 0100 1828
18	30	7	6	70 0100 1830
18	30	9	8	70 0100 1839
18	30	11	10	70 0100 0085
18	32	8	7	70 0100 1832
19	34	9	8	70 0100 1934
20	26	5	4	70 0100 0156
20	26	5.5	5	70 0100 2026
20	28	5	4	70 0100 2029
20	28	6	5	70 0100 2285
20	28	6.3	5.7	70 0100 2063
20	28	6.5	5.5	70 0100 0244
20	28	7	6	70 0100 0206
20	28	8	7	70 0100 2008
20	28	9	8	70 0100 2028
20	29	5.5	4.5	70 0100 2955
20	30	7	6	70 0100 2306
20	30	8	7	70 0100 0308
20	30	9	8	70 0100 2030
20	30	11	10	70 0100 2011
20	32	6	5	70 0100 0088
20	32	7	6	70 0100 2032
20	32	8.5	8	70 0100 3220
20	32	12	11	70 0100 0087
20	35	11	10	70 0100 2031
20	35	13	12	70 0100 2035
20	36	9	8	70 0100 0184
20	40	11	10	70 0100 2041
20	40	13	12	70 0100 2040
22	28	5.5	4.5	70 0100 2228
22	28	9	8	70 0100 0169
22	30	5	4	70 0100 3022
22	30	6	5	70 0100 2231
22	30	7	6	70 0100 0020

Ø d	Ø D	L	H	Part number
22	30	8	7	70 0100 2238
22	30	11	10	70 0100 2230
22	32	8	7	70 0100 2232
22	32	8	7.3	70 0100 2273
22	32	9	8	70 0100 2233
22	32	11	10	70 0100 2211
22	34	7	6	70 0100 2346
22	34	11	10	70 0100 2234
22	35	7	6	70 0100 0217
22	35	11	10	70 0100 2235
22.4	30	6	5	70 0100 2243
24	32	5	4	70 0100 0089
24	32	6	5	70 0100 0236
24	32	7	6	70 0100 0183
24	32	8	7	70 0100 2432
24	34	8	7	70 0100 2434
24	34	9.5	8.5	70 0100 2439
24	36	7	6	70 0100 0243
24	40	9	8	70 0100 2440
25	32	6	5	70 0100 2532
25	33	6.3	5	70 0100 2533
25	33	7	6	70 0100 2507
25	33	7.5	6.5	70 0100 2508
25	33	8	7	70 0100 2501
25	33	9	8	70 0100 2500
25	33	11	10	70 0100 2511
25	35	5.5	5	70 0100 0025
25	35	7	6	70 0100 2356
25	35	8	7	70 0100 2534
25	35	9	8	70 0100 2535
25	35	11	10	70 0100 0016
25	37	8	7	70 0100 0091
25	38	10	9	70 0100 2537
25	38	11	10	70 0100 2538
25	40	11	10	70 0100 2540
25	40	12	11	70 0100 0090
25	42	9	8	70 0100 2542
25	45	11	10	70 0100 2545
26	32	4	3	70 0100 0191
26	32	6	5	70 0100 2632
27	35	5	4	70 0100 2735
27	36	7	6	70 0100 2736
27	37	7	6	70 0100 0233
28	35	5.5	4.5	70 0100 2835
28	36	6	5	70 0100 0186
28	36	6.3	5.7	70 0100 2863
28	36	7.5	6.5	70 0100 2836
28	36	9	8	70 0100 2808
28	38	6	5	70 0100 0092
28	38	8	7	70 0100 2837

Ø d	Ø D	L	H	Part number
28	38	8.5	7.5	70 0100 2829
28	38	9	8	70 0100 2838
28	38	11	10	70 0100 2811
28	40	9.5	8.5	70 0100 2840
28	40	11	10	70 0100 2841
28	43	11	10	70 0100 2431
28	43	12.5	11.5	70 0100 2843
28	44	9	8	70 0100 0196
28.57	36.5	7.5	6.5	70 0100 2857
30	36	4	3	70 0100 3036
30	36	6.5	5.5	70 0100 3065
30	37	7	6	70 0100 3037
30	38	5	4	70 0100 0093
30	38	6	5.5	70 0100 0094
30	38	6.3	5.7	70 0100 3063
30	38	7	6	70 0100 3038
30	38	8	7	70 0100 3008
30	38	9	8	70 0100 3009
30	38	11	10	70 0100 0095
30	40	5.5	5	70 0100 3040
30	40	6.3	5.7	70 0100 3043
30	40	7	6	70 0100 0138
30	40	7.5	6.5	70 0100 3046
30	40	8	7	70 0100 3048
30	40	10	9	70 0100 0226
30	40	11	10	70 0100 3011
30	42	10	9	70 0100 3044
30	42	11	10	70 0100 3042
30	43	10	9	70 0100 3010
30	45	9	8	70 0100 0021
30	45	11	10	70 0100 3045
30	50	11	10	70 0100 3050
30	50	13	12	70 0100 3013
30.15	42.85	10.02	9.53	70 0100 3015
31.5	41.5	7	6	70 0100 3154
31.75	41.27	7.5	6.5	70 0100 3175
32	38	4	3	70 0100 3238
32	40	5	4	70 0100 4004
32	40	6	5	70 0100 3206
32	40	6.3	5.5	70 0100 3240
32	40	7	6	70 0100 0201
32	40	7.7	6.3	70 0100 3277
32	40	8	7	70 0100 3207
32	40	9	8	70 0100 3208
32	40	11	10	70 0100 3211
32	41.5	8	7	70 0100 3241
32	42	7	6	70 0100 0096
32	42	8	7	70 0100 0017
32	42	9	8	70 0100 0189
32	42	11	10	70 0100 3242

Ø d	Ø D	L	H	Part number
32	44	7	6	70 0100 3244
32	45	11	10	70 0100 3245
32	47	11	10	70 0100 3247
32	48	11	10	70 0100 3248
32	50	10	9	70 0100 0235
32	50	13	12	70 0100 3250
32	52	11	10	70 0100 0153
33	43	11	10	70 0100 3343
34	40	6	5	70 0100 3440
34	44	9	8	70 0100 3444
34	44	11	10	70 0100 0216
34	45	8	7	70 0100 3445
34	45	10	9	70 0100 3410
34	50	15	14	70 0100 3450
35	43	6.3	5.7	70 0100 3563
35	43	7	6	70 0100 3544
35	43	8	7	70 0100 3543
35	43	9	8	70 0100 3509
35	45	7	6	70 0100 3547
35	45	8	7	70 0100 3501
35	45	9	8	70 0100 3545
35	45	11	10	70 0100 3546
35	45	13.5	12.5	70 0100 3513
35	46	9	8	70 0100 0023
35	46	10	9	70 0100 3549
35	47	7	6	70 0100 0354
35	47	10	9	70 0100 3510
35	48	11	10	70 0100 3548
35	50	8.5	7.5	70 0100 0097
35	50	10	9	70 0100 0192
35	50	11	10	70 0100 3550
35	51	10	9	70 0100 0024
35	51	11	10	70 0100 3551
35	55	11	10	70 0100 3511
35	55	13	12	70 0100 3555
35.5	46	7	6	70 0100 3554
36	44	5	4	70 0100 3644
36	44	6.3	5.7	70 0100 3663
36	44	7	6	70 0100 0007
36	46	6	5	70 0100 0346
36	46	8	7	70 0100 0026
36	46	8.5	7.5	70 0100 0008
36	46	11	10	70 0100 3646
36	48	7	6	70 0100 0098
36	48	9	8	70 0100 3648
36	51	11	10	70 0100 3651
36	51	12.5	11.5	70 0100 3652
36	70	11	10	70 0100 3670
37	45	5	4	70 0100 3745
37	45	6.3	5.7	70 0100 3746

Ø d	Ø D	L	H	Part number
38	45	5.5	4.5	70 0100 3845
38	45	7	6	70 0100 3807
38	46	7.5	6.5	70 0100 3846
38	48	9	8	70 0100 3809
38	48	10	9	70 0100 3848
38	48	11	10	70 0100 3810
38	50	7	6	70 0100 0070
38	50	7.5	6.5	70 0100 3850
38	50	10	9	70 0100 3851
38	50	11	10	70 0100 0099
38	55	8	7	70 0100 5538
38	55	11	10	70 0100 3855
38	58	11	10	70 0100 3858
38.1	47.62	7.5	6.5	70 0100 0381
38.1	53.97	11	10	70 0100 3815
40	44.8	4	3	70 0100 0448
40	48	6.3	5.7	70 0100 4063
40	48	7	6	70 0100 0247
40	48	9	8	70 0100 4049
40	48	10	9	70 0100 0215
40	48	12	11	70 0100 4048
40	49.52	10.5	9.5	70 0100 4952
40	50	6	5	70 0100 4050
40	50	7	6	70 0100 4053
40	50	7.5	6.5	70 0100 4075
40	50	8	7	70 0100 0027
40	50	9	8	70 0100 4051
40	50	10	9	70 0100 4010
40	50	11	10	70 0100 4052
40	50	13.5	12.5	70 0100 4013
40	52	8	7	70 0100 0204
40	52	9	8	70 0100 4009
40	55	8	7	70 0100 0102
40	55	10	9	70 0100 0193
40	55	11	10	70 0100 4055
40	55	12.5	11.5	70 0100 4012
40	56	11	10	70 0100 4056
40	60	11	10	70 0100 4060
40	60	13	12	70 0100 0009
40	60	14	13	70 0100 0018
40	60	19	18	70 0100 4061
40	65	11	10	70 0100 0101
40	65	13	12	70 0100 4065
40	70	16	15	70 0100 4070
40	75	11	10	70 0100 4011
42	50	6	5	70 0100 0103
42	50	7	6	70 0100 0197
42	50	9	8	70 0100 4250
42	50	12.5	11.5	70 0100 4212
42	52	9	8	70 0100 4213

Ø d	Ø D	L	H	Part number
42	52	10	9	70 0100 4211
42	52	11	10	70 0100 4252
42	53	10	9	70 0100 4253
42	62	11	10	70 0100 4262
42	62	13	12	70 0100 4263
43	63	11	10	70 0100 4363
44.45	53.97	7.5	6.5	70 0100 4445
45	50	6	5	70 0100 4550
45	53	6.3	5.7	70 0100 4553
45	53	8	7	70 0100 0111
45	53	9	8	70 0100 4554
45	53	11	10	70 0100 4511
45	53	12.5	11.5	70 0100 0028
45	53	13	12	70 0100 4512
45	55	6	5	70 0100 5554
45	55	6.5	5.5	70 0100 0029
45	55	7	6	70 0100 4507
45	55	7.5	6.5	70 0100 4555
45	55	8	7	70 0100 0014
45	55	9	8	70 0100 4509
45	55	11	10	70 0100 4551
45	55	12	11	70 0100 4552
45	57	7	6	70 0100 4576
45	57	10	9	70 0100 4510
45	57.7	10.5	9.5	70 0100 4557
45	58	10	9	70 0100 4558
45	58	11	10	70 0100 0109
45	60	11	10	70 0100 4560
45	60	12.5	11.5	70 0100 4561
45	63	11	10	70 0100 4563
45	63	13	12	70 0100 4631
45	65	11	10	70 0100 4565
45	65	13	12	70 0100 4566
45	65	14.5	13.5	70 0100 4562
45	70	13	12	70 0100 4570
46	54	7	6	70 0100 0241
46	56	8	7	70 0100 0030
46	56	9	8	70 0100 4656
47	56.3	10	9	70 0100 4756
48	56	12.5	11.5	70 0100 0031
48	56	13	12	70 0100 4856
48	58	11	10	70 0100 4858
48	60	7	6	70 0100 0119
48	60	10	9	70 0100 4860
48	63	11	10	70 0100 0002
48	63	13	12	70 0100 4863
48	68	11	10	70 0100 0005
50	55	6	5	70 0100 5055
50	57	11	10	70 0100 5057
50	58	9	8	70 0100 5608

Ø d	Ø D	L	H	Part number
50	58	12.5	11.5	70 0100 5058
50	60	6	5	70 0100 6005
50	60	7.5	6.5	70 0100 5066
50	60	8	7	70 0100 5075
50	60	9	8	70 0100 0560
50	60	10	9	70 0100 0214
50	60	11	10	70 0100 5060
50	60	12	11	70 0100 5061
50	60	13	12	70 0100 5062
50	62	9	8	70 0100 0032
50	62	10	9	70 0100 5064
50	62	11	10	70 0100 5011
50	62.7	10.5	9.5	70 0100 5067
50	63	7	6	70 0100 5007
50	63	11	10	70 0100 5063
50	65	11	10	70 0100 5065
50	65	13	12	70 0100 0121
50	65	16.5	15.5	70 0100 5016
50	68	10	9	70 0100 5068
50	70	11	10	70 0100 5070
50	70	13	12	70 0100 5072
50	70	15	14	70 0100 5074
50	70	19	18	70 0100 5071
50.8	60.32	7	6.4	70 0100 0508
52	62	13	12	70 0100 5262
53	63	6	5	70 0100 6305
53	63	7.5	6.5	70 0100 5363
53	63	13	12	70 0100 5631
53	65	7	6	70 0100 0203
53	65	9	8	70 0100 5365
53	70	9	8	70 0100 5370
53.5	70.8	9	8	70 0100 5357
54	70	9.5	8.5	70 0100 5470
55	62.5	10	9	70 0100 5562
55	63	9	8	70 0100 5563
55	63	13	12	70 0100 5564
55	65	6	5	70 0100 0034
55	65	7	6	70 0100 5566
55	65	8	7	70 0100 5568
55	65	9.5	8.5	70 0100 5569
55	65	11	10	70 0100 5565
55	65	13	12	70 0100 5567
55	65	14.5	13.5	70 0100 0019
55	67	11	10	70 0100 5561
55	70	11	10	70 0100 5571
55	70	13	12	70 0100 5570
55	75	11	10	70 0100 0174
55	75	13	12	70 0100 5575
55	75	14.5	13.5	70 0100 5576
55	80	13	12	70 0100 5580

Ø d	Ø D	L	H	Part number
55	80	16	15	70 0100 0122
56	66	6	5	70 0100 5665
56	66	8	7	70 0100 5666
56	66	11	10	70 0100 5667
56	71	9.5	8.5	70 0100 5671
56	71	11	10	70 0100 0123
56	71	12.5	11.5	70 0100 5672
56	76	8	7	70 0100 5676
56	76	13	12	70 0100 5677
56	76	14.5	13.5	70 0100 5678
56	76	16	15	70 0100 5679
57.1	66.7	10.5	9.5	70 0100 5716
58	70	7	6	70 0100 5870
60	65	6.5	5.5	70 0100 6065
60	68	12.5	11.5	70 0100 6068
60	70	6	5	70 0100 7060
60	70	7	6	70 0100 6072
60	70	8	7	70 0100 0036
60	70	9	8	70 0100 6073
60	70	11	10	70 0100 6070
60	70	12	11	70 0100 0199
60	70	12.5	11.5	70 0100 0037
60	70	13	12	70 0100 6071
60	70	16	15	70 0100 6074
60	72	9	8	70 0100 6010
60	72	10	9	70 0100 6009
60	73	9	8	70 0100 0167
60	75	10	9	70 0100 0179
60	75	11	10	70 0100 6076
60	75	12.5	11.5	70 0100 6175
60	75	13	12	70 0100 6075
60	75	14	13	70 0100 0202
60	75	16.5	15.5	70 0100 6016
60	77	12	11	70 0100 6077
60	80	11	10	70 0100 6080
60	80	13	12	70 0100 6081
60	80	14.5	13.5	70 0100 6083
60	80	19	18	70 0100 6082
60	85	13.5	12.5	70 0100 6085
60	90	16	15	70 0100 6090
60.3	76.2	10.2	9	70 0100 0603
60.32	76.2	14.78	14.3	70 0100 0246
61	69	8.5	7.5	70 0100 6169
62	74	14	13	70 0100 6274
63	73	5.5	5	70 0100 6373
63	73	7	6	70 0100 6374
63	73	11	10	70 0100 6311
63	73	13	12	70 0100 6313
63	75	9.5	8.7	70 0100 6387
63	75	10	9	70 0100 0228

Ø d	Ø D	L	H	Part number
63	75	11	10	70 0100 6375
63	75	13	12	70 0100 6312
63	78	11	10	70 0100 6310
63	78	12.5	11.5	70 0100 0011
63	78	13	12	70 0100 6378
63	83	10.5	9.5	70 0100 6383
63	83	13	12	70 0100 8313
63	83	16	15	70 0100 8316
63.5	76.2	10.5	9.5	70 0100 0635
64	76	10	9	70 0100 6476
65	73	12.5	11.5	70 0100 6573
65	75	9	8	70 0100 0658
65	75	11	10	70 0100 0659
65	75	12.5	11.5	70 0100 0038
65	75	13	12	70 0100 6575
65	75	14.5	13.5	70 0100 6576
65	77	10	9	70 0100 6577
65	77.7	10.5	9.5	70 0100 6578
65	80	11	10	70 0100 6579
65	80	12	11	70 0100 0039
65	80	13	12	70 0100 6580
65	85	11	10	70 0100 6585
65	85	13	12	70 0100 6512
65	85	14.5	13.5	70 0100 6513
65	90	14	13	70 0100 6590
66	76	9	8	70 0100 6676
66	80	11	10	70 0100 6680
66	80	14	13	70 0100 6681
67	75	12.5	11.5	70 0100 6775
67	77	11	10	70 0100 6777
67	77	13	12	70 0100 0040
69.8	82.5	10.5	9.5	70 0100 6988
70	77.5	10	9	70 0100 7077
70	78	12.5	11.5	70 0100 7078
70	79	14	13	70 0100 7079
70	80	6	5	70 0100 7080
70	80	6.4	5.4	70 0100 7805
70	80	6.5	6	70 0100 7081
70	80	8	7	70 0100 7084
70	80	9	8	70 0100 7082
70	80	11	10	70 0100 7086
70	80	12.5	11.5	70 0100 7087
70	80	13	12	70 0100 8070
70	83	11	10	70 0100 7083
70	85	7	6	70 0100 0195
70	85	9	8	70 0100 0188
70	85	11	10	70 0100 0041
70	85	12	11	70 0100 7012
70	85	13	12	70 0100 7085
70	90	11	10	70 0100 0168

Ø d	Ø D	L	H	Part number
70	90	13	12	70 0100 7090
70	90	14.5	13.5	70 0100 7092
70	90	16	15	70 0100 7093
70	90	19	18	70 0100 7091
70	95	13	12	70 0100 7095
71	91	13	12	70 0100 7191
73	82.5	8	7	70 0100 7384
75	80	6.5	5.5	70 0100 7580
75	83	12.5	11.5	70 0100 7583
75	85	7	6	70 0100 7506
75	85	8	7	70 0100 7588
75	85	9.5	8.5	70 0100 7089
75	85	11	10	70 0100 7511
75	85	12.5	11.5	70 0100 7512
75	85	13	12	70 0100 7585
75	87	9.6	9	70 0100 7587
75	90	8.5	7.5	70 0100 7598
75	90	11	10	70 0100 7591
75	90	13	12	70 0100 7590
75	95	11	10	70 0100 0163
75	95	13	12	70 0100 7595
75	95	14.5	13.5	70 0100 7094
76	84	9.5	8.5	70 0100 7684
76.2	88.9	10.5	9.5	70 0100 7628
77	86	15	14	70 0100 7786
78	86	12.5	11.5	70 0100 7882
78	86	14.5	13.5	70 0100 7884
78	88	13	12	70 0100 7883
78	90	13	12	70 0100 7890
78	93	11.5	10.5	70 0100 7893
80	88	12.5	11.5	70 0100 8088
80	90	6	5	70 0100 8090
80	90	7	6	70 0100 8096
80	90	8	7	70 0100 8098
80	90	11	10	70 0100 8091
80	90	13	12	70 0100 8092
80	90	13.5	12.5	70 0100 8093
80	90	15	14	70 0100 8094
80	95	9	8	70 0100 0144
80	95	11	10	70 0100 0043
80	95	12	11	70 0100 8012
80	95	13	12	70 0100 8095
80	100	11	10	70 0100 8011
80	100	13	12	70 0100 8010
80	100	14.5	13.5	70 0100 8014
80	100	16	15	70 0100 8016
82	92	11	10	70 0100 8292
85	92.5	12	11	70 0100 8592
85	93	12.5	11.5	70 0100 8593
85	95	8	7	70 0100 8596

Ø d	Ø D	L	H	Part number
85	95	9.5	8.5	70 0100 8599
85	95	10	9	70 0100 0145
85	95	10.5	9.5	70 0100 0158
85	95	12	11	70 0100 8512
85	95	13	12	70 0100 8595
85	100	10	9	70 0100 8519
85	100	12	11	70 0100 0045
85	100	13	12	70 0100 0047
85	105	13	12	70 0100 8510
85	105	14.5	13.5	70 0100 8515
85	110	13	12	70 0100 0149
85	115	16	15	70 0100 8511
88	96	9	8	70 0100 8896
90	98	12.5	11.5	70 0100 9098
90	100	6	5	70 0100 0100
90	100	7.8	6.8	70 0100 0901
90	100	8	7	70 0100 9008
90	100	9	8	70 0100 9009
90	100	13	12	70 0100 9012
90	102	10	9	70 0100 9002
90	105	10	9	70 0100 9000
90	105	12.5	11.5	70 0100 9007
90	105	13	12	70 0100 9010
90	110	11	10	70 0100 9110
90	110	13	12	70 0100 9011
90	110	14	13	70 0100 9111
90	110	16	15	70 0100 9112
90	110	19	18	70 0100 9113
90	115	13	12	70 0100 0154
90	115	16	15	70 0100 9114
90	115	23	22	70 0100 9115
90	120	16	15	70 0100 9121
91	99	8.5	7.5	70 0100 9199
93	104	11	10	70 0100 9310
95	103	12.5	11.5	70 0100 9510
95	105	9.5	8.5	70 0100 9595
95	105	11	10	70 0100 9501
95	105	13	12	70 0100 9513
95	110	13	12	70 0100 9511
95	110	16	15	70 0100 9516
95	112	12	11	70 0100 9502
95	115	13	12	70 0100 9512
95	115	16	15	70 0100 0124
95	115	19	18	70 0100 9519
95	120	13	12	70 0100 0133
97	105	12.5	11.5	70 0100 9712
97	105	14.5	13.5	70 0100 9714
97	106	15	14	70 0100 9715
99	109	13	12	70 0100 9913
100	108	12.5	11.5	70 0100 1012

Ø d	Ø D	L	H	Part number
100	110	6	5	70 0100 0010
100	110	9	8	70 0100 0075
100	110	11	10	70 0100 1011
100	110	12	11	70 0100 1010
100	110	15	14	70 0100 1015
100	113	13.5	12.5	70 0100 1013
100	115	10	9	70 0100 1110
100	115	12	11	70 0100 0048
100	115	13	12	70 0100 1001
100	120	11	10	70 0100 0049
100	120	13	12	70 0100 1002
100	120	14.5	13.5	70 0100 1014
100	120	16	15	70 0100 0013
100	125	13	12	70 0100 0012
100	125	16	15	70 0100 1016
100	125	19	18	70 0100 1019
100	130	13	12	70 0100 1003
100	130	16	15	70 0100 1130
101.6	114.3	7	6	70 0100 1007
105	113	7.7	6.9	70 0100 0003
105	113	12.5	11.5	70 0100 1120
105	113	14.5	13.5	70 0100 1145
105	115	11	10	70 0100 1151
105	115	12	11	70 0100 0239
105	115	12.5	11.5	70 0100 1125
105	115	14.5	13.5	70 0100 1511
105	120	9	8	70 0100 1009
105	120	10	9	70 0100 0105
105	120	11	10	70 0100 0106
105	120	16	15	70 0100 0107
105	125	11	10	70 0100 0050
105	125	13	12	70 0100 0051
105	125	15	14	70 0100 1052
105	125	16	15	70 0100 1051
106	120	9.5	8.5	70 0100 1061
107	122	11	10	70 0100 1071
108.5	116.5	12.5	11.5	70 0100 1085
110	118	12.5	11.5	70 0100 1112
110	125	10	9	70 0100 1109
110	125	12	11	70 0100 1113
110	125	13	12	70 0100 0125
110	125	14	13	70 0100 0110
110	125	16	15	70 0100 1116
110	130	11	10	70 0100 0052
110	130	13	12	70 0100 0015
110	130	16	15	70 0100 1101
110	130	19	18	70 0100 1119
110	135	19	18	70 0100 0237
110	135	20	19	70 0100 1020
112	122	11	10	70 0100 0112

Ø d	Ø D	L	H	Part number
112	125	10	9	70 0100 1129
113	123	9.5	8.5	70 0100 0113
113	125	10.5	9.5	70 0100 1131
113	135	16	15	70 0100 1132
114.3	127	7	6	70 0100 0114
115	123	12.5	11.5	70 0100 1153
115	125	13	12	70 0100 1152
115	125	15	14	70 0100 0053
115	125	16	15	70 0100 0076
115	126	16	15	70 0100 1156
115	130	11	10	70 0100 0064
115	135	13	12	70 0100 0065
115	135	16	15	70 0100 0115
115	140	16	15	70 0100 0146
115	140	23	22	70 0100 1123
117	126	15	14	70 0100 0117
118	126	14.5	13.5	70 0100 0118
120	128	12.5	11.5	70 0100 0066
120	130	6	5	70 0100 1206
120	130	8	7	70 0100 1208
120	130	12.5	11.5	70 0100 1202
120	130	13	12	70 0100 1213
120	130	15	14	70 0100 1215
120	130	16	15	70 0100 0120
120	132	11	10	70 0100 1232
120	135	10	9	70 0100 1209
120	135	12.5	11.5	70 0100 1225
120	135	16	15	70 0100 1214
120	140	11	10	70 0100 0067
120	140	13	12	70 0100 1413
120	140	16	15	70 0100 1201
121	135	10	9	70 0100 1211
125	133	7.7	6.9	70 0100 0004
125	133	12.5	11.5	70 0100 1251
125	135	11	10	70 0100 1252
125	140	8	7	70 0100 1254
125	140	9.5	8.5	70 0100 0134
125	140	10	9	70 0100 1259
125	140	12	11	70 0100 1212
125	140	13	12	70 0100 0054
125	140	16	15	70 0100 1216
125	145	11	10	70 0100 0055
125	145	13	12	70 0100 1253
125	145	16	15	70 0100 1255
125	145	19	18	70 0100 1258
125	150	15	14	70 0100 1257
125	150	19	18	70 0100 0077
125	150	20	19	70 0100 1250
125	155	16	15	70 0100 0056
125	155	19	18	70 0100 0057

Ø d	Ø D	L	H	Part number
127	140	12.5	11.5	70 0100 0127
127	150	16	15	70 0100 1271
128	136	12.5	11.5	70 0100 0128
130	138	12.5	11.5	70 0100 0130
130	140	8	7	70 0100 1311
130	140	16	15	70 0100 0001
130	145	12	11	70 0100 1312
130	145	15	14	70 0100 1313
130	145	16	15	70 0100 1314
130	150	13	12	70 0100 1315
130	150	16	15	70 0100 1301
130	160	19	18	70 0100 1316
131	150	14	13	70 0100 0131
132	140	13	12	70 0100 0132
132	142	9.5	8.5	70 0100 1321
135	143	12.5	11.5	70 0100 1322
135	150	12.5	11.5	70 0100 1323
135	150	16	15	70 0100 1325
135	155	16	15	70 0100 1351
135	160	16	15	70 0100 1356
136	150	9.5	8.5	70 0100 1369
137	146	15	14	70 0100 0137
137	152	13	12	70 0100 1371
140	148	12.5	11.5	70 0100 1401
140	150	6	5	70 0100 1402
140	150	12.5	11.5	70 0100 1415
140	155	10	9	70 0100 1409
140	155	13	12	70 0100 1403
140	155	16	15	70 0100 1404
140	160	11	10	70 0100 1405
140	160	13	12	70 0100 0140
140	160	16	15	70 0100 0141
140	165	16	15	70 0100 1406
140	165	18	0	70 0100 0242
140	165	20	19	70 0100 1407
140	170	19	18	70 0100 0135
141	151	13	12	70 0100 1411
143	151	12.5	11.5	70 0100 0143
143	151	14.5	13.5	70 0100 1431
145	155	13	12	70 0100 1455
145	157.7	10	9	70 0100 1456
145	160	10	9	70 0100 1459
145	160	13	12	70 0100 1457
145	165	16	15	70 0100 0068
147	160	13	12	70 0100 0147
147	170	16	15	70 0100 1471
148	160	13	12	70 0100 0148
148.5	156.5	13.5	12.5	70 0100 1485
150	160	14.5	13.5	70 0100 0150
150	160	16	15	70 0100 1501

Ø d	Ø D	L	H	Part number
150	170	13	12	70 0100 1513
150	170	14	13	70 0100 1514
150	170	14.5	13.5	70 0100 0157
150	170	16	15	70 0100 1502
150	170	19	18	70 0100 1503
150	180	14.5	13.5	70 0100 1508
152	160	12.5	11.5	70 0100 0152
152	162	11	10	70 0100 1521
152	171	12.5	11.5	70 0100 1527
155	163	12.5	11.5	70 0100 0155
155	170	11	10	70 0100 1551
160	168	12.5	11.5	70 0100 0161
160	170	6	5	70 0100 1602
160	170	12.5	11.5	70 0100 1605
160	175	10	9	70 0100 1609
160	180	11	10	70 0100 1608
160	180	13	12	70 0100 1603
160	180	16	15	70 0100 0160
160	185	20	19	70 0100 1600
162	172	13	12	70 0100 0162
165	177	9	8	70 0100 1657
165	180	10	9	70 0100 1659
165	184	14	13	70 0100 1658
165	195	21	20	70 0100 0058
170	178	12.5	11.5	70 0100 0170
170	180	13	12	70 0100 0171
170	182.7	10	9	70 0100 1701
170	190	13	12	70 0100 1713
170	190	16	15	70 0100 1719
170	200	16	15	70 0100 0139
170	200	19	18	70 0100 1720
171	179	12.5	11.5	70 0100 1711
175	185	13	12	70 0100 0175
175	200	16	15	70 0100 1752
177	205	20	19	70 0100 0177
180	188	14.5	13.5	70 0100 1801
180	190	11	10	70 0100 1819
180	195	13.5	12.5	70 0100 1835
180	200	11	10	70 0100 1820
180	200	13	12	70 0100 0181
180	200	16	15	70 0100 0180
180	200	20	19	70 0100 0182
180	210	23	22	70 0100 1821
180	220	21	20	70 0100 1822
185	193	12.5	11.5	70 0100 0185
190	206	21	20	70 0100 0190
190	210	13	12	70 0100 1921
190	210	16	15	70 0100 1916
190	220	16	15	70 0100 0164
194.5	202.5	12.5	11.5	70 0100 0194

Ø d	Ø D	L	H	Part number
198	207.6	7.5	6.5	70 0100 0198
200	208	12.5	11.5	70 0100 0208
200	210	13	12	70 0100 0210
200	212	16	15	70 0100 0212
200	220	11	10	70 0100 0211
200	220	13	12	70 0100 0213
200	220	16	15	70 0100 0200
200	220	18	17	70 0100 0218
200	220	19	18	70 0100 0219
200	225	20	19	70 0100 0220
200	230	19	18	70 0100 0136
200	230	23	22	70 0100 0203
200	240	21	20	70 0100 0204
205	220	13.5	12.5	70 0100 0205
207	217	16	15	70 0100 0207
208	216	9	8	70 0100 02082
208	220	10	9	70 0100 02010
209	228	14	13	70 0100 0209
210	230	13	12	70 0100 02113
210	230	16	15	70 0100 02116
210	235	26	25	70 0100 02126
210	240	19	18	70 0100 02124
212	220	14.5	13.5	70 0100 02114
220	240	13	12	70 0100 02213
220	240	16	15	70 0100 02216
220	250	16	15	70 0100 0069
220	250	19	18	70 0100 02219
225	245	16	15	70 0100 0225
230	250	13	12	70 0100 0230
230	250	16	15	70 0100 02325
232	246	13	12	70 0100 0232
238	250	10	9	70 0100 0238
240	260	13	12	70 0100 02413
240	260	16	15	70 0100 02402
240	260	17	16	70 0100 02426
240	270	18	17	70 0100 0240
240	270	19	18	70 0100 02419
245	270	16	15	70 0100 0245
250	270	13	12	70 0100 02513
250	270	16	15	70 0100 0250
250	275	20	19	70 0100 02527
250	280	19	18	70 0100 02519
250	280	23	22	70 0100 02523
255	270	13	12	70 0100 02552
260	275	12	11	70 0100 0260
260	290	16	15	70 0100 0165
260	290	24	23	70 0100 0187
265	280	12	11	70 0100 02652
265	290	18	17	70 0100 0265
270	290	18	17	70 0100 02718

Ø d	Ø D	L	H	Part number
270	300	16	15	70 0100 0270
270	300	19	18	70 0100 02719
280	300	16	15	70 0100 0280
280	305	16	15	70 0100 02816
280	310	25	24	70 0100 02825
285	300	12	11	70 0100 0285
300	320	16	15	70 0100 0300
310	330	16	15	70 0100 03133
320	340	16	15	70 0100 0320
320	350	16	15	70 0100 0223
340	360	16	15	70 0100 03436
360	380	16	15	70 0100 0360
360	380	17	16	70 0100 0166
360	390	21	20	70 0100 0224
360	390	23	22	70 0100 03623
380	400	16	15	70 0100 0380
400	420	16	15	70 0100 0400

TYPE B

70.0210 | **S7**
S7-JT4

Single-acting symmetrical TPU seal, which can be installed either as a rod seal or a piston seal. Both lips can provide a sealing function. It includes a JT4 seal positioned between the two lips, improving sealing performance at low pressure and/or negative temperatures. This profile is also available with an O-ring.

Applications

- Injection molding presses
- Agricultural equipment
- Tail lifts and forklifts

Advantages

- Highly versatile for replacement applications
- Good abrasion resistance

Assembly

- Closed groove
- Lubrication recommended before installation
- High versatility

Recommendations

- Rod surface finish:
 $R_a < 0.4 \mu\text{m}$
- Housing surface finish:
 - Groove flanks: $R_a < 3.0 \mu\text{m}$
 - Groove bottom: $R_a < 1.6 \mu\text{m}$



Materials **TPU + NBR**

Color **Blue**

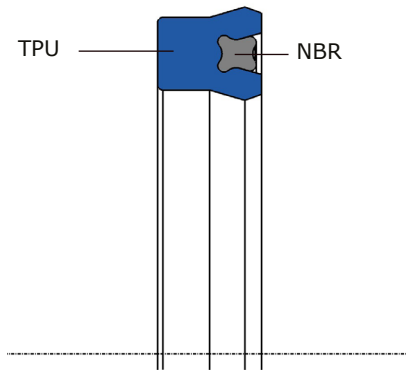
Hardness **93 Sh A**

Speed $\leq 0.5 \text{ m/s}$

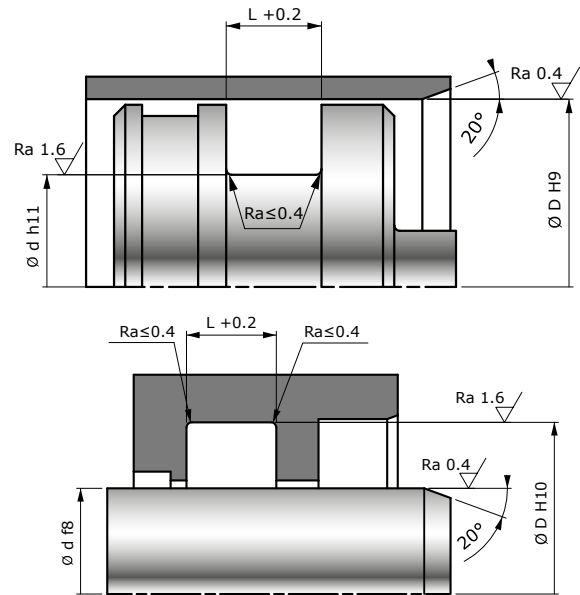
Pressure $\leq 350 \text{ bar}$

Temperature $-30 / +100 \text{ }^{\circ}\text{C}$

*Type B seal can be supplied with a JT4 energizer or an O-ring.
Other dimensions available upon request.*



TYPE B composition



TYPE B assembly recommendation

Dimensional list

Ø d	d D	L	H	Part number
3.18	9.52	4	3.2	70 0210 0318
3.18	9.52	7.1	6.4	70 0210 0193
4.75	11.1	7.1	6.4	70 0210 0194
5	12	6	5	70 0210 0036
6.35	12.7	4	3.2	70 0210 0088
6.35	12.7	7.1	6.4	70 0210 0089
6.35	15.88	5.5	4.8	70 0210 0091
7.94	14.29	4	3.2	70 0210 0714
8	16	6.5	5.7	70 0210 0816
9	17	6.5	5.7	70 0210 0917
9.52	15.88	4	3.2	70 0210 0952
9.52	15.88	7.1	6.4	70 0210 0915
10	16	7	6	70 0210 0106
10	18	6.5	5.7	70 0210 1018
10	20	9	8	70 0210 1020
11.1	17.45	4	3.2	70 0210 0141
11.11	17.45	4	3.2	70 0210 0238
12	18	5	4	70 0210 0227
12	18	7	6	70 0210 1218
12	19	5.5	4.6	70 0210 1219
12	20	7.1	6.4	70 0210 1220
12.27	22.22	5.3	4.76	70 0210 1222
12.7	19.05	4	3.2	70 0210 0121
12.7	19.05	7	6.35	70 0210 0209
14	21	5.5	4.6	70 0210 1421
14	22	6	5	70 0210 1422
14.28	20.63	4	3.2	70 0210 1428
14.28	20.63	4	3.2	70 0210 0237
15	22	6	5	70 0210 1522

Ø d	d D	L	H	Part number
15	25	9	8	70 0210 1525
15.88	22.23	4	3.2	70 0210 1588
15.88	22.23	5.5	4.76	70 0210 0208
16	24	6	5	70 0210 1624
16	26	9	8	70 0210 0043
17	25	11	10	70 0210 1725
17.46	23.81	4	3.2	70 0210 1746
17.46	23.81	7.1	6.4	70 0210 0092
18	25	5.5	4.6	70 0210 1825
18	26	6	5	70 0210 1826
19.05	25.4	4	3.2	70 0210 1925
19.05	25.4	7.1	6.4	70 0210 1905
19.05	26.98	8.9	7.9	70 0210 0093
19.05	28.58	5.5	4.8	70 0210 0094
20	26	6	5	70 0210 2026
20	27	5	4.3	70 0210 2027
20	27	7	6	70 0210 0007
20	28	6	5	70 0210 0157
20	28	7	5.7	70 0210 2028
20	30	7	6	70 0210 2030
20	30	8.1	7.9	70 0210 0233
20	30	8.2	7.2	70 0210 0044
20	32	7	6	70 0210 2032
20	35	11	10	70 0210 2035
22	28	6	5	70 0210 0068
22	29	5.5	4.6	70 0210 2229
22	30	6	5	70 0210 2205
22	30	6.6	6	70 0210 0236
22	30	7	6	70 0210 0051

Ø d	d D	L	H	Part number
22	30	8	7	70 0210 2230
22	32	6	5	70 0210 0217
22	32	8	7.3	70 0210 2232
22.23	28.58	4	3.2	70 0210 2223
22.23	28.58	7.1	6.4	70 0210 2228
22.23	34.92	7.1	6.4	70 0210 0096
22.4	30	6	5	70 0210 0224
23.5	31.5	6	5	70 0210 0235
23.81	30.16	4.17	3.17	70 0210 2330
25	33	6.5	5.5	70 0210 0009
25	33	7	6.3	70 0210 0172
25	33	7.5	6.5	70 0210 0162
25	33	8	7	70 0210 0147
25	33	9	8	70 0210 2533
25	35	7	6	70 0210 0155
25	35	8	7.3	70 0210 0013
25	35	9	8	70 0210 2508
25	35	11	10	70 0210 2535
25	38	11	10	70 0210 2510
25	40	11	10	70 0210 0243
25	40	11	10	70 0210 2540
25.4	31.75	4	3.2	70 0210 2531
25.4	31.75	5.5	4.76	70 0210 0210
25.4	31.75	7.1	6.4	70 0210 0254
25.4	34.93	5.5	4.8	70 0210 0097
25.4	34.93	7	6.35	70 0210 0205
25.4	34.93	9	7.9	70 0210 2534
25.4	38.1	7.1	6.4	70 0210 0098
25.4	38.1	10.5	9.5	70 0210 2538

Ø d	d D	L	H	Part number
25.4	41.28	13.5	12.7	70 0210 0099
25.4	44.45	10.5	9.52	70 0210 2544
26	36	11	10	70 0210 2636
26.98	33.33	4	3.2	70 0210 2698
26.98	33.33	7.1	6.4	70 0210 0101
28	35.5	6	5	70 0210 2835
28	36	7	5.3	70 0210 2836
28	38	7	6	70 0210 2806
28	38	8	7	70 0210 0241
28	38	8	7.3	70 0210 2838
28	38	9	8	70 0210 0204
28	38	11	10	70 0210 0133
28	40	10	9	70 0210 2849
28	40	11	10	70 0210 2840
28	48	13	12	70 0210 2848
28.58	34.93	4	3.2	70 0210 2858
28.58	34.93	7.1	6.4	70 0210 2834
28.58	38.1	8.9	7.9	70 0210 0102
28.58	41.28	10.5	9.5	70 0210 0103
28.58	44.45	10.5	9.5	70 0210 0104
30	38	6.3	5.7	70 0210 0015
30	38	7	6.3	70 0210 3038
30	38	9	8	70 0210 3057
30	40	7	6	70 0210 3006
30	40	7.5	6.5	70 0210 0167
30	40	8	7.3	70 0210 3073
30	40	9	8	70 0210 0156
30	40	10	9	70 0210 0223
30	40	11	10	70 0210 3040
30	42	9	8	70 0210 0219
30	42	10	9	70 0210 3042
30	42	11	10	70 0210 0045
30	45	10	9	70 0210 3045
30	45	11	10	70 0210 3010
30.15	38.1	5	4	70 0210 0063
31.75	38.1	5.5	4.8	70 0210 3138
31.75	38.1	7.1	6.4	70 0210 3175
31.75	41.27	5.5	4.8	70 0210 3141
31.75	41.27	8.5	7.93	70 0210 0059
31.75	41.27	10.5	9.5	70 0210 0317
31.75	44.45	7.1	6.4	70 0210 0107
31.75	44.45	10.5	9.5	70 0210 4128
32	40	6.3	5.7	70 0210 0018
32	40	8.5	7.5	70 0210 0035
32	40	9	8	70 0210 3240
32	42	6.5	5.7	70 0210 0069
32	42	8	7.3	70 0210 3242
32	42	11	10	70 0210 0020
32	44	6.5	5.5	70 0210 3244
32	45	11	10	70 0210 3245

Ø d	d D	L	H	Part number
32	47	11	10	70 0210 3247
33	40	9	8	70 0210 3340
33	43	11	10	70 0210 3343
33.33	39.68	4	3.2	70 0210 0232
33.33	42.95	8.9	7.9	70 0210 3333
34.5	42.5	6	5	70 0210 0345
34.93	41.28	4.2	3.18	70 0210 0221
34.93	41.28	5.5	4.8	70 0210 3492
34.93	41.28	7.1	6.4	70 0210 3441
34.93	42.85	5	3.96	70 0210 3442
34.93	44.45	5.8	4.8	70 0210 3444
34.93	44.45	8.9	7.9	70 0210 0108
34.93	44.45	10.5	9.5	70 0210 3493
34.93	47.62	10.5	9.5	70 0210 0131
34.93	50.8	8.9	7.9	70 0210 3450
34.93	50.8	10.5	9.5	70 0210 0109
35	43	6.3	5.7	70 0210 0038
35	43	7	6	70 0210 3506
35	43	7.1	6.4	70 0210 0001
35	43	9	8	70 0210 3508
35	45	7	6	70 0210 0056
35	45	8	7.3	70 0210 3573
35	45	9	8	70 0210 0356
35	45	10	9	70 0210 3509
35	45	11	10	70 0210 3510
35	45	11	10	70 0210 3545
35	50	10	9	70 0210 0228
35	50	11	10	70 0210 3550
35	55	11	10	70 0210 3555
36	44	6	5	70 0210 0189
36	44	7	6	70 0210 0008
36	44	9	8	70 0210 3644
36	46	6.5	5.7	70 0210 0163
36	46	8	7.3	70 0210 3646
36	46	11	10	70 0210 3610
36	52	11	10	70 0210 3652
36.5	42.85	4	3.2	70 0210 0365
37	47	9	8	70 0210 0070
37	47	11	10	70 0210 3747
38.1	44.45	4	3.18	70 0210 0198
38.1	44.45	7.1	6.4	70 0210 3844
38.1	47.62	7.1	6.4	70 0210 3847
38.1	47.62	10.5	9.5	70 0210 0381
38.1	47.63	5.5	4.8	70 0210 0192
38.1	50.8	7.1	6.4	70 0210 0191
38.1	50.8	10.5	9.5	70 0210 3810
38.1	53.98	10.5	9.5	70 0210 3853
38.1	53.98	13.5	12.7	70 0210 0111
40	48	6	5	70 0210 4805
40	48	6.3	5.7	70 0210 4048

Ø d	d D	L	H	Part number
40	48	7	6	70 0210 0024
40	48	9	8	70 0210 4008
40	50	6.5	5.5	70 0210 0071
40	50	7	6	70 0210 0039
40	50	8	7	70 0210 0143
40	50	8	7.3	70 0210 4073
40	50	8	7.3	70 0210 4050
40	50	9	8	70 0210 4058
40	50	9	8	70 0210 0196
40	50	11	10	70 0210 0002
40	55	7	6	70 0210 0215
40	55	10	9	70 0210 0054
40	55	11	10	70 0210 4055
40	56	11	10	70 0210 4056
40	60	11	10	70 0210 4010
40	60	13	12	70 0210 4060
41.28	50.8	5.5	4.8	70 0210 4150
41.28	50.8	8.9	7.9	70 0210 0135
41.28	50.8	10.5	9.5	70 0210 4127
41.28	53.98	7.35	6.35	70 0210 0218
41.28	53.98	10.5	9.5	70 0210 4153
42	50	7	6	70 0210 4250
42	55	8	7	70 0210 4255
44.45	50.8	4.2	3.17	70 0210 4450
44.45	53.98	5.5	4.8	70 0210 0113
44.45	53.98	8.9	7.9	70 0210 0116
44.45	53.98	10.5	9.5	70 0210 0016
44.45	53.98	10.5	9.5	70 0210 0117
44.45	57.15	7.1	6.35	70 0210 4457
44.45	57.15	8.94	7.94	70 0210 4479
44.45	57.15	10.5	9.5	70 0210 4445
44.45	63.5	7.5	6.7	70 0210 0118
45	53	5.7	5.3	70 0210 0072
45	53	7	6	70 0210 0226
45	53	9	8	70 0210 4553
45	55	6.5	5.8	70 0210 0148
45	55	7	6	70 0210 0073
45	55	7.5	6.5	70 0210 0206
45	55	8	7	70 0210 4507
45	55	8	7.3	70 0210 0033
45	55	9	8	70 0210 0199
45	55	11	10	70 0210 4555
45	57	10	9	70 0210 4557
45	60	10	9	70 0210 0012
45	60	11	10	70 0210 4510
45	65	13	12	70 0210 4565
47.62	57.15	5.8	4.76	70 0210 0476
47.62	63.5	9	8.5	70 0210 4785
47.63	57.15	8.9	7.9	70 0210 0216
47.63	57.15	10.5	9.5	70 0210 4757

Ø d	d D	L	H	Part number
47.63	60.33	7.1	6.4	70 0210 0119
47.63	60.33	10.5	9.5	70 0210 0122
47.63	63.5	10.5	9.5	70 0210 4763
48	63	11	10.2	70 0210 4863
48	68	13	12	70 0210 4868
50	58	9	8	70 0210 5058
50	60	7	6	70 0210 0506
50	60	8	7	70 0210 5007
50	60	8	7.3	70 0210 5073
50	60	9	8	70 0210 5008
50	60	11	10	70 0210 0004
50	60	11	10	70 0210 5060
50	60	13	12	70 0210 0060
50	63	11	10	70 0210 5063
50	65	10	9	70 0210 0025
50	65	11	10	70 0210 0161
50	65	12.5	11.4	70 0210 5065
50	70	13	12	70 0210 5070
50.8	60.33	5.5	4.75	70 0210 0229
50.8	60.33	9	7.94	70 0210 0197
50.8	60.33	10.5	9.5	70 0210 0027
50.8	63.5	7.1	6.4	70 0210 0062
50.8	63.5	9	7.9	70 0210 0029
50.8	63.5	9.4	8.4	70 0210 0222
50.8	63.5	10.5	9.5	70 0210 0028
50.8	66.68	10.5	9.5	70 0210 0580
51	63	9	8	70 0210 5163
53	63	7	6	70 0210 0142
53	63	8	7.3	70 0210 5363
53	63	9	8	70 0210 0171
53	63	11	10	70 0210 0065
53.98	63.5	7.1	6.4	70 0210 0123
53.98	63.5	7.1	6.4	70 0210 0124
53.98	63.5	8.5	7.9	70 0210 0061
53.98	63.5	10.5	9.5	70 0210 5398
53.98	69.85	8.9	7.9	70 0210 5369
55	63	8	7.3	70 0210 0017
55	65	7	6	70 0210 0055
55	65	8	7	70 0210 5507
55	65	8	7.3	70 0210 5573
55	65	9	8	70 0210 0152
55	65	11	10	70 0210 5565
55	65	11	10	70 0210 5510
55	65	13	12	70 0210 5512
55	70	10	9	70 0210 5509
55	70	13	12	70 0210 5570
55	75	13	12	70 0210 0057
55	80	16	15	70 0210 5580
56	64	9	8	70 0210 5664
56	66	7	6	70 0210 5666

Ø d	d D	L	H	Part number
56	66	11	10	70 0210 0021
56	71	12.5	11.4	70 0210 5671
57	65	6	5	70 0210 5765
57.15	66.68	7	6.35	70 0210 0201
57.15	66.68	8.9	7.9	70 0210 5766
57.15	66.68	10.5	9.5	70 0210 0149
57.15	69.85	7.1	6.4	70 0210 0173
57.15	69.85	10.5	9.5	70 0210 5715
57.15	76.2	10.5	9.5	70 0210 0058
60	68	9	8	70 0210 0047
60	70	7	6	70 0210 6006
60	70	8	7.2	70 0210 0168
60	70	9	8	70 0210 6070
60	70	11	10	70 0210 0005
60	70	13	12	70 0210 0034
60	73	11	10	70 0210 0128
60	75	10	9	70 0210 6075
60	80	13	12	70 0210 6012
60.33	69.85	8.9	7.9	70 0210 0166
60.33	73	10.5	9.5	70 0210 6073
60.33	79.03	10.5	9.5	70 0210 6033
62	72	13	12	70 0210 6272
63	71	9	8	70 0210 6371
63	73	7	6	70 0210 0074
63	73	13	12	70 0210 6373
63	75	9.5	8.7	70 0210 6375
63	78	11	10	70 0210 6310
63	78	12.5	11.4	70 0210 6378
63	83	16	15	70 0210 6383
63.5	73.03	10.5	9.5	70 0210 0144
63.5	76.2	7.1	6.4	70 0210 0635
63.5	76.2	8.9	7.9	70 0210 6376
63.5	76.2	10.5	9.5	70 0210 0011
65	75	7	6	70 0210 6506
65	75	8	7	70 0210 0164
65	75	8	10	70 0210 0240
65	75	11	10	70 0210 0003
65	75	13	12	70 0210 0022
65	80	10	9	70 0210 6580
65	80	12.5	11.4	70 0210 0076
65	80	13	12	70 0210 0042
65	83	11	10	70 0210 6583
65	85	13	12	70 0210 0046
66.68	76.2	5.76	4.76	70 0210 6676
66.68	76.2	10.5	9.5	70 0210 0174
66.68	79.34	7.1	6.4	70 0210 6668
66.68	79.34	10.5	9.52	70 0210 6679
66.68	82.55	13.5	12.7	70 0210 0175
69.85	82.55	10.5	9.5	70 0210 6985
69.85	88.9	16.9	15.9	70 0210 6988

Ø d	d D	L	H	Part number
70	78	9	8	70 0210 7078
70	80	7	6	70 0210 7080
70	80	11	10	70 0210 0006
70	80	13	12	70 0210 0010
70	85	11	10	70 0210 7085
70	85	12.5	11.4	70 0210 0041
70	90	13	12	70 0210 0053
72	82	9	8	70 0210 7282
73.03	82.55	10.5	9.52	70 0210 0225
73.03	85.73	10.5	9.5	70 0210 0176
75	83	7	6	70 0210 0048
75	85	7	6	70 0210 0075
75	85	13	12	70 0210 0037
75	90	10	9	70 0210 7509
75	90	11	10	70 0210 0212
75	90	12	11	70 0210 7590
75	95	13	12	70 0210 7595
75	100	16	15	70 0210 7510
76.2	85.73	5.5	4.76	70 0210 0049
76.2	88.9	7.1	6.4	70 0210 0178
76.2	88.9	10.5	9.5	70 0210 7688
76.2	92.08	13.5	12.7	70 0210 9208
79.38	88.9	7	6.35	70 0210 7988
79.38	92.08	10.5	9.5	70 0210 7938
80	88	9	8	70 0210 8088
80	90	7	6	70 0210 8090
80	90	11	10	70 0210 0023
80	90	13	12	70 0210 0026
80	92	10.5	9.5	70 0210 8092
80	95	10	9	70 0210 0077
80	95	12.5	11.4	70 0210 8095
80	100	13	12	70 0210 8010
80	100	15.5	14.5	70 0210 0080
82	92	11	10	70 0210 8292
82.55	95.25	10.5	9.5	70 0210 8295
82.55	101.6	13.5	12.7	70 0210 0179
84	98	13	12	70 0210 8498
85	97	0	9.6	70 0210 0239
85	100	10	9	70 0210 0066
85	100	13	12	70 0210 8510
85	100	13	12	70 0210 8512
85	105	13	12	70 0210 0085
85.73	101.6	13.5	12.7	70 0210 8573
87	100	7.5	6.5	70 0210 0087
88.9	101.6	10.5	9.5	70 0210 0889
90	98	9	8	70 0210 9098
90	100	7	6	70 0210 9010
90	105	10	9	70 0210 0105
90	105	12.5	11.4	70 0210 9099
90	105	13	11.4	70 0210 0090

Ø d	d D	L	H	Part number
90	110	13	12	70 0210 9011
92	102	11	10	70 0210 9210
92.08	107.95	10.5	9.5	70 0210 0169
95	110	10	9	70 0210 0095
95	110	13	12	70 0210 0078
95	115	13	12	70 0210 0242
95	115	13	12	70 0210 0032
95.25	107.95	10.5	9.5	70 0210 9525
98	110	17	16	70 0210 9811
100	110	7	6	70 0210 1106
100	115	10	9	70 0210 0014
100	115	13	12	70 0210 1001
100	120	13	12	70 0210 0100
100	120	15.5	14.5	70 0210 0079
100	125	13.4	12.4	70 0210 0040
100	125	16	15	70 0210 0081
101.6	111.13	10.5	9.5	70 0210 0132
101.6	114.3	10.5	9.5	70 0210 0153
101.6	114.3	10.5	9.5	70 0210 0195
101.6	114.3	16	14.3	70 0210 0139
101.6	117.48	16	14.3	70 0210 0134
101.6	120.6	16.9	15.9	70 0210 1016
105	120	10	9	70 0210 1012
105	125	13	12	70 0210 0031
107.95	120.65	10.5	9.5	70 0210 1079
107.95	127	10.5	9.5	70 0210 0187
107.95	127	16.9	15.9	70 0210 0180
110	130	13	12	70 0210 0110
111.13	123.83	7.1	6.4	70 0210 0050
111.13	127	13.7	12.7	70 0210 0231
111.13	130.18	13	12.7	70 0210 1111
112	125	8	7	70 0210 0112
114.3	127	7.1	6.4	70 0210 0188
114.3	127	8.9	7.9	70 0210 1143
114.3	127	10.5	9.5	70 0210 0151
114.3	127	16	14.3	70 0210 0154
114.3	130.18	13.5	12.7	70 0210 0181
114.3	133.36	16.9	15.9	70 0210 0114
114.3	139.71	20.1	19.1	70 0210 1141
115	140	19	18	70 0210 0115
117.48	130.18	16	14.3	70 0210 0182
117.48	136.53	16.9	15.9	70 0210 0183
120	135	10	9	70 0210 1209
120	135	16	15	70 0210 1213
120	140	13	12	70 0210 0120
120	140	15.5	14.5	70 0210 0082
120.65	127	4	3.2	70 0210 0137
120.65	133.35	7.1	6.4	70 0210 0159
120.65	133.36	10.5	9.5	70 0210 1206
120.65	139.71	10.5	9.5	70 0210 0146

Ø d	d D	L	H	Part number
120.65	139.71	16.9	15.9	70 0210 0067
125	140	16	15	70 0210 0125
125	145	16	15	70 0210 0052
127	139.7	7.1	6.4	70 0210 0019
127	139.71	16	14.3	70 0210 0138
127	146.06	13.5	12.7	70 0210 0129
127	146.06	16.9	15.9	70 0210 0127
127	152.4	13.5	12.7	70 0210 0184
130	150	16	15	70 0210 0030
130.18	149.23	16.9	15.9	70 0210 0185
133.36	146.06	10.5	9.5	70 0210 1333
133.36	152.41	16.9	15.9	70 0210 0064
139.7	152.4	16.3	15.7	70 0210 0234
139.71	152.41	10.5	9.52	70 0210 0214
139.71	158.76	13.5	12.7	70 0210 0136
139.71	165.11	20	19.05	70 0210 5500
140	160	16	15	70 0210 0140
145	160	8	7	70 0210 0145
150	170	16	15	70 0210 0150
150	180	19	18	70 0210 0083
152.41	165.11	10.5	9.8	70 0210 0186
152.41	168.28	16.9	15.9	70 0210 1524
152.41	171.46	16.88	15.88	70 0210 0211
152.41	177.81	20	19.05	70 0210 0213
158.76	177.81	13.5	12.7	70 0210 0158
158.8	177.8	10.5	9.5	70 0210 1580
160	180	16	15	70 0210 0160
165.11	190.51	20	19.1	70 0210 0165
170	195	17	16	70 0210 0170
175	200	17	16	70 0210 0202
177.81	196.86	16.9	15.9	70 0210 0177
190	210	16	15	70 0210 0190
200	220	16	15	70 0210 0200
203.21	222.26	16.9	15.9	70 0210 0222
203.21	228.61	20	19.1	70 0210 0203
215.91	241.31	20	19.1	70 0210 0126
220	240	16	15	70 0210 0220
230	255	20	19	70 0210 0230
230	260	20	19	70 0210 0084
230	260	26	24	70 0210 0086
250	275	20	19	70 0210 0250
254.01	279.41	20	19.1	70 0210 0130
270	300	20	19	70 0210 0270

Wipers



TRM

18.0101 | A3

Single-acting scraper seal consisting of a metal case and an NBR scraping lip. It is designed for installation in an open groove. The metal case provides stability in the housing, while the lip ensures the scraping function. This profile is installed in combination with a sealing element and protects it against external contamination.

Applications

- Standard cylinders
- Agricultural machinery
- Construction equipment
- Handling equipment
- Mobile hydraulics

Advantages

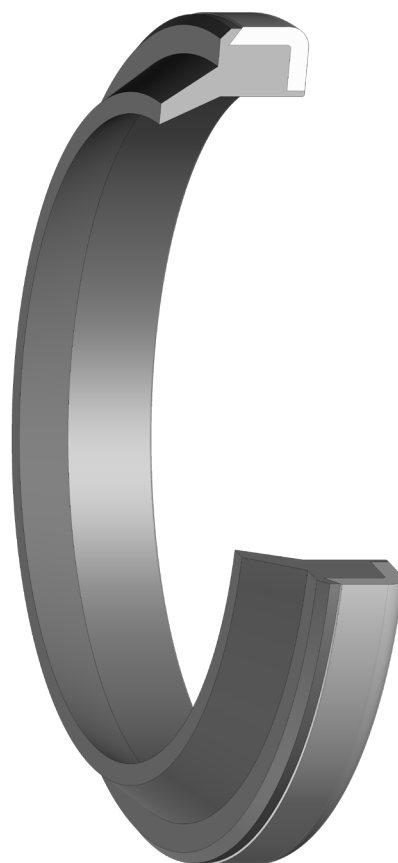
- Simplified groove manufacturing
- Excellent robustness

Assembly

- Open groove
- Easy installation
- Press the scraper seal evenly into its groove

Recommendations

- Rod surface finish:
 $R_a < 0.4 \mu\text{m}$
- Housing surface finish:
 - Groove flanks: $R_a < 3.0 \mu\text{m}$
 - Groove bottom: $R_a < 1.6 \mu\text{m}$



Material **NBR**

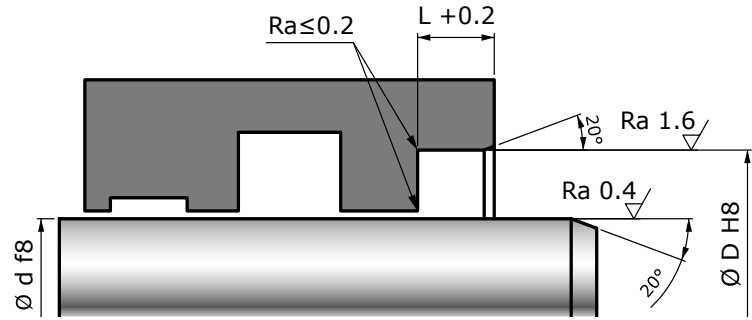
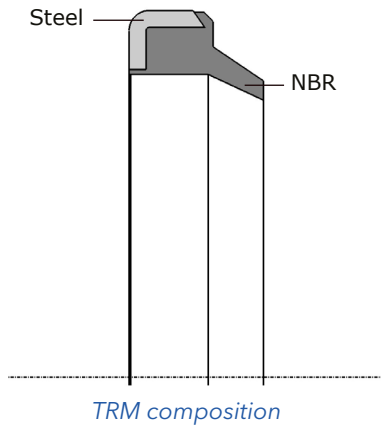
Color **Black**

Hardness **90 Sh A**

Cage **Steel**

Speed **$\leq 1 \text{ m/s}$**

Temperature **30 / +110 °C**



Dimensional list

Ø d	Ø D	L	H	Part number	Ø d	Ø D	L	H	Part number	Ø d	Ø D	L	H	Part number
6	13	3	4.5	18 0101 0013	18	28	7	10	18 0101 1828	25	31	5	7	18 0101 0004
6	13	4	6	18 0101 6134	18	30	6	9	18 0101 1830	25	32	7	5	18 0101 0032
8	14	3	4.5	18 0101 0034	18	32	5	9	18 0101 1832	25	33	4	7	18 0101 2533
8	14	3.5	5	18 0101 0039	19.05	25.4	4.78	7.95	18 0101 0043	25	35	5	8	18 0101 2534
8	15	3	5	18 0101 0815	19.05	28.58	4.78	6.35	18 0101 2844	25	35	7	10	18 0101 2535
8	22	3	4.5	18 0101 0008	20	26	3.5	5	18 0101 0010	25	36	5	8	18 0101 0033
10	16	3	4.5	18 0101 1016	20	26	4	7	18 0101 0020	25	37	6	9	18 0101 2537
10	17	2.5	3.2	18 0101 0042	20	26	5	8	18 0101 2026	25.4	34.93	4.76	7.14	18 0101 0254
10	20	5	8	18 0101 1020	20	28	3	5	18 0101 2820	26	34	5	8	18 0101 0026
12	18	3.5	5	18 0101 0012	20	28	3.5	5	18 0101 2028	26	35	7	10	18 0101 2635
12	20	4	6	18 0101 1220	20	28	3.5	5	18 0101 0016	28	33	5	8	18 0101 0006
12	20	4	6	18 0101 0024	20	28	5	8	18 0101 0011	28	36	5	7	18 0101 2836
12	22	5	8	18 0101 1222	20	30	4	6	18 0101 2030	28	38	5	8	18 0101 2838
14	19.8	3	4.5	18 0101 1419	20	30	5	8	18 0101 2029	28	38	7	10	18 0101 2839
14	20	3.5	5	18 0101 1420	20	30	7	10	18 0101 2031	28	40	7	10	18 0101 2840
14	20	3.5	5	18 0101 0029	20	35	7	10	18 0101 2035	28.58	38.1	4.78	7.14	18 0101 0284
14	22	3	4	18 0101 1422	21	28	3.5	5	18 0101 2128	30	36	5	8	18 0101 3036
14	22	3	4	18 0101 0025	21	28	3.5	5	18 0101 0031	30	40	5	8	18 0101 3040
14	25	5	8	18 0101 1425	21	28	3.5	5.5	18 0101 0021	30	40	7	10	18 0101 3041
15	21	3.5	5	18 0101 1521	22	28	5	9	18 0101 2228	30	42	6	9	18 0101 3042
15	22	3	4	18 0101 1522	22	32	4	6	18 0101 0022	30	45	5	8	18 0101 0030
15	25	5	8	18 0101 1525	22	32	5	7	18 0101 2233	31.75	41.28	4.76	7.14	18 0101 3175
16	22	3	4	18 0101 1622	22	32	7	10	18 0101 2232	32	40	4	7	18 0101 3240
16	22	3	4	18 0101 0027	22	34	6	9	18 0101 2234	32	42	5	7	18 0101 3241
16	26	5	8	18 0101 1626	22	35	5	8	18 0101 2235	32	42	7	10	18 0101 3242
16	26	7	10	18 0101 0019	23	33	5	8	18 0101 2333	32	44	8	9.5	18 0101 3244
18	26	5	7	18 0101 0041	24	32	5	7	18 0101 2432	32	45	4	8	18 0101 3248
18	28	5	7	18 0101 1827	24	35	7	10	18 0101 0035	32	45	5	7	18 0101 3246

Ø d	Ø D	L	H	Part number
32	45	7	10	18 0101 3245
35	43	5	8	18 0101 0037
35	45	5	8	18 0101 3546
35	45	7	10	18 0101 3545
35	47	7	10	18 0101 3547
35	52	7	10	18 0101 3552
36	45	7	10	18 0101 3645
36	46	5	8	18 0101 0036
36	46	7	10	18 0101 3646
37	47	5	8	18 0101 0009
38	48	7	10	18 0101 3848
38.1	47.63	4.76	7.14	18 0101 0381
40	46	5	8	18 0101 4046
40	50	5	8	18 0101 4050
40	50	7	10	18 0101 4051
40	52	5	8	18 0101 0050
40	52	7	10	18 0101 4052
40	62	10	7	18 0101 0044
42	52	7	10	18 0101 4252
44.45	53.97	4.76	7.14	18 0101 4445
45	53	5	8	18 0101 4553
45	53.5	5	8	18 0101 0045
45	55	5	7	18 0101 4550
45	55	7	10	18 0101 4555
45	57	7	10	18 0101 4557
45	60	7	10	18 0101 4560
48	60	7	10	18 0101 4860
50	56	5	7	18 0101 5056
50	56	7	10	18 0101 0003
50	58	5	7	18 0101 5058
50	60	5	7	18 0101 5059
50	60	7	10	18 0101 5060
50	62	5	7	18 0101 5062
50	62	7	10	18 0101 0028
50	65	7	10	18 0101 5065
50	70	7	10	18 0101 5070
50.8	60.33	4.76	7.14	18 0101 0508
50.8	63.5	6.35	9.53	18 0101 0018
50.8	69.85	6.35	9.53	18 0101 0017
52	62	7	10	18 0101 5262
52	66	8	9	18 0101 5266
55	63	7	10	18 0101 5563
55	65	5	8	18 0101 0014
55	65	7	10	18 0101 5565
55	66	7	10	18 0101 0002
55	69	8	11	18 0101 5569
55	70	7	10	18 0101 5570
56	65	7	10	18 0101 5665
56	66	7	10	18 0101 5666
57.15	66.68	5	7	18 0101 5715

Ø d	Ø D	L	H	Part number
60	70	5	7	18 0101 6057
60	70	7	10	18 0101 6070
60	74	5	8	18 0101 0060
60	75	7	10	18 0101 6075
60	78	11	15	18 0101 6078
60	80	7	10	18 0101 6080
62	72	7	10	18 0101 6272
63	73	7	10	18 0101 6373
63	75	7	10	18 0101 6375
63.5	73.03	4.78	7.14	18 0101 0635
65	75	5	7	18 0101 0065
65	75	7	10	18 0101 6575
65	80	7	10	18 0101 6580
67	83	7	10	18 0101 6783
70	80	7	10	18 0101 7080
70	84	8	11	18 0101 0038
72	82	7	10	18 0101 7282
75	83	7	10	18 0101 0075
75	85	7	10	18 0101 7585
75	87	5	7	18 0101 7587
76.2	85.73	4.76	7.14	18 0101 0762
78	88	7	10	18 0101 7888
80	88	7	10	18 0101 8088
80	90	7	10	18 0101 8090
80	100	12	15	18 0101 0080
82	92	7	10	18 0101 8292
85	95	7	10	18 0101 8595
90	100	7	10	18 0101 9010
95	105	7	10	18 0101 9511
100	110	7	10	18 0101 1001
100	115	8	10	18 0101 0001
104	115	7	10	18 0101 1041
105	115	7	10	18 0101 1051
110	120	7	10	18 0101 1101
110	125	9	12	18 0101 1103
115	125	7	10	18 0101 1152
120	130	7	10	18 0101 1203
125	135	7	10	18 0101 0023
125	137	7	10	18 0101 0125
125	140	9	12	18 0101 1251
130	140	7	10	18 0101 0040
130	145	9	12	18 0101 1302
135	145	7	10	18 0101 1352
135	150	7	10	18 0101 0135
135	150	9	12	18 0101 1351
140	150	7	10	18 0101 1400
140	155	9	12	18 0101 1401
145	160	9	12	18 0101 1451
150	165	9	12	18 0101 1651
154	170	7	10	18 0101 0154

Ø d	Ø D	L	H	Part number
160	175	9	12	18 0101 1601
163	175	7	10	18 0101 1631
170	185	9	12	18 0101 0170
170	185	10	14	18 0101 1701
180	195	9	12	18 0101 1801
180	195	10	14	18 0101 0180
185	200	10	14	18 0101 0015
190	202	9	12	18 0101 0190
200	220	12	16	18 0101 2002
210	230	12	16	18 0101 2102
220	240	12	16	18 0101 0220
225	250	12	16	18 0101 2252
230	255	12	16	18 0101 0230
260	290	12	16	18 0101 2629
270	295	12	16	18 0101 2702
280	300	12	16	18 0101 0005
320	340	12	16	18 0101 3203
360	380	15	18	18 0101 3603

TPA

18.0205

Single-acting TPU scraper seal with a metal case. The TPA is designed for installation in an open groove. The metal case provides stability in the housing, while the lip ensures the scraping function. This profile is installed in combination with a sealing element and protects it against external contamination.

Applications

- Agricultural equipment
- Mobile hydraulics
- Construction machinery
- Forklifts
- Cranes

Advantages

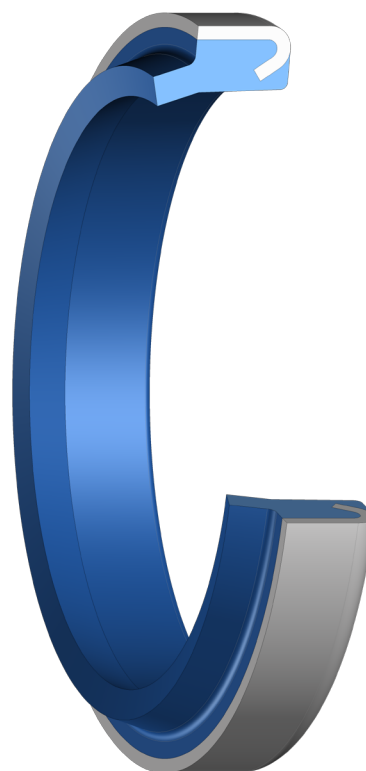
- Excellent stability in the groove
- Good wear resistance

Assembly

- Open groove
- Use a suitable installation tool (see page [112](#))

Recommendations

- Rod surface finish:
 $R_a < 0.4 \mu\text{m}$
- Housing surface finish:
 - Groove flanks: $R_a < 3.0 \mu\text{m}$
 - Groove bottom: $R_a < 1.6 \mu\text{m}$



Material **TPU**

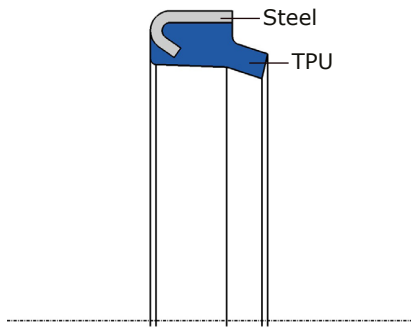
Color **Blue**

Hardness **93 Sh A**

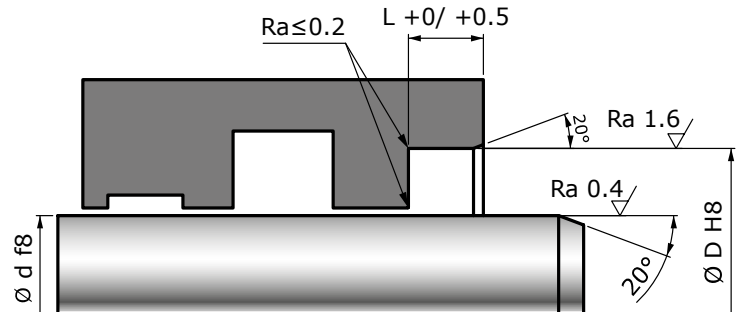
Cage **Steel**

Speed **$\leq 1 \text{ m/s}$**

Temperature **-30 / +90 °C**



TPA composition



TPA assembly recommendation

Dimensional list

Ø d	Ø D	L	H	Part number
20	30	7	10	18 0205 2030
25	35	7	10	18 0205 2535
28	38	7	10	18 0205 2838
30	40	7	10	18 0205 3040
32	42	7	10	18 0205 3242
35	45	7	10	18 0205 3545
40	50	7	10	18 0205 4050
45	55	7	10	18 0205 4555
50	60	7	10	18 0205 5060
55	65	7	10	18 0205 5565
60	70	7	10	18 0205 6070
70	80	7	10	18 0205 7080
80	90	7	10	18 0205 8090
90	100	7	10	18 0205 9010
120	130	7	10	18 0205 0120
125	140	9	12	18 0205 0125

TDJR PU

18.0213 | A2

Single-acting flexible TPU scraper seal, consisting of an inner main lip and an additional small outer lip to prevent the ingress of contaminants. Designed for installation in a semi-open groove, it also features an internal reinforcement providing increased stability in the housing. Its main advantage lies in its ease of installation.

Applications

- Standard cylinders
- Injection molding presses
- Construction machinery
- Agricultural machinery
- Loading platforms
- Forklifts
- Mining equipment

Advantages

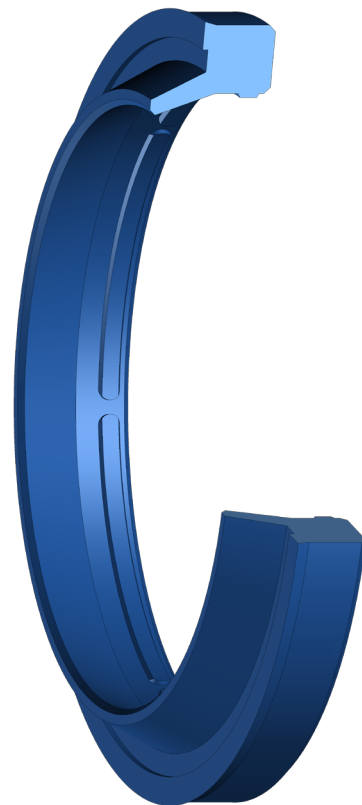
- Easy installation
- Excellent wear resistance

Assembly

- Semi-open groove
- By deformation

Recommendations

- Rod surface finish:
 $R_a < 0.3 \mu\text{m}$
- Housing surface finish:
 - Groove flanks: $R_a < 3.0 \mu\text{m}$
 - Groove bottom: $R_a \leq 1.6 \mu\text{m}$



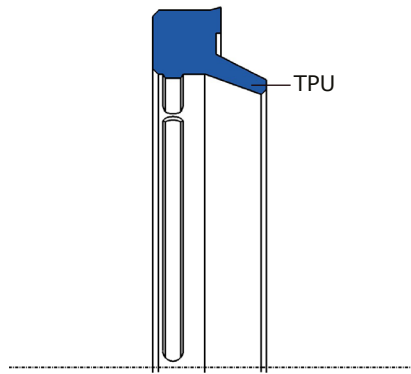
Material **TPU**

Color **Dark blue**

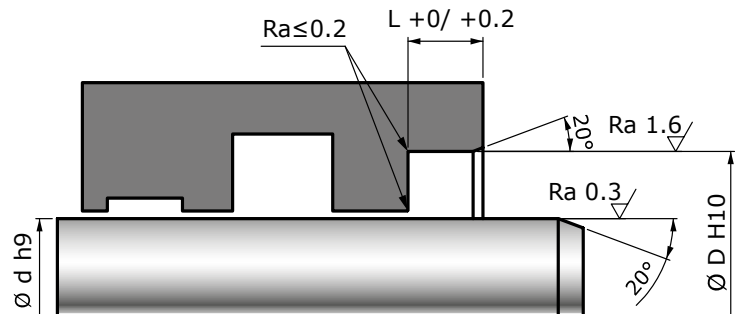
Hardness **94 Sh A**

Speed **$\leq 2 \text{ m/s}$**

Temperature **$-30 / +110 \text{ }^{\circ}\text{C}$**



TDJR PU composition



TDJR PU assembly recommendation

Dimensional list

Ø d	Ø D	L	H	Part number
12	18.6	3.8	5.3	18 0213 1218
14	20.6	3.8	5.3	18 0213 1420
15	21.6	3.8	5.3	18 0213 1521
16	22.6	3.8	5.3	18 0213 1622
18	24.6	3.8	5.3	18 0213 1824
20	28.6	5.3	6.5	18 0213 2028
22	30.6	5.3	6.5	18 0213 2230
24	32.6	5.3	6.5	18 0213 2432
25	33.6	5.3	6.5	18 0213 2533
28	36.6	5.3	6.5	18 0213 2836
30	38.6	5.3	6.5	18 0213 3038
32	40.6	5.3	6.5	18 0213 3240
35	43.6	5.3	6.5	18 0213 3543
36	44.6	5.3	6.5	18 0213 3644
38	46.6	5.3	6.5	18 0213 3846
40	48.6	5.3	6.5	18 0213 4048
45	53.6	5.3	6.5	18 0213 4553
50	58.6	5.3	6.5	18 0213 5058
55	63.6	5.3	6.5	18 0213 5563
55	65.6	5.3	7	18 0213 5565
60	68.6	5.3	6.5	18 0213 6068
60	70.6	5.3	7	18 0213 6070
63	71.6	5.3	6.5	18 0213 6371
63	73.6	5.3	7	18 0213 6373
65	73.6	5.3	6.5	18 0213 6573
65	75.6	5.3	7	18 0213 6575
70	78.6	5.3	6.5	18 0213 7078
70	80.6	5.3	7	18 0213 7080
75	83.6	5.3	6.5	18 0213 7583
75	87.2	7.1	12	18 0213 7587
80	88.6	5.3	6.5	18 0213 8088
80	92.2	7.1	12	18 0213 8092
85	93.6	5.3	6.5	18 0213 8593
85	97.2	7.1	12	18 0213 8597
90	102.2	7.1	12	18 0213 9010

TDJR NBR

18.0214 | A2

Single-acting flexible NBR scraper seal. Designed for installation in a semi-open groove, it also features an internal reinforcement providing increased stability in the housing. Its main advantage lies in its ease of installation.

Applications

- Rolling mills
- Presses

Advantages

- Easy installation

Assembly

- Semi-open groove
- By deformation

Recommendations

- Rod surface finish:
 $R_a \leq 0.3 \mu\text{m}$
- Housing surface finish:
 - Groove flanks: $R_a \leq 3.0 \mu\text{m}$
 - Groove bottom: $R_a \leq 1.6 \mu\text{m}$



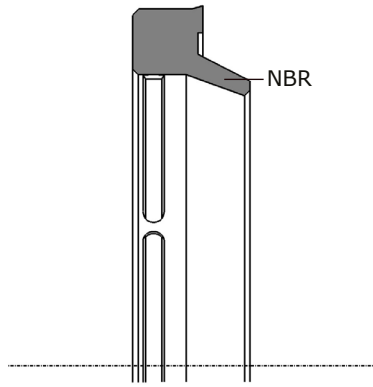
Material **NBR**

Color **Dark blue**

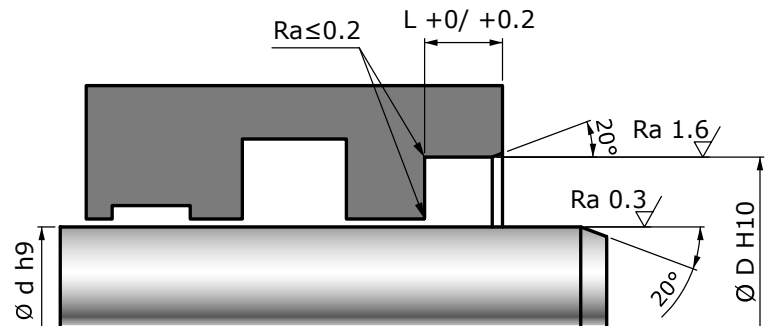
Hardness **90 Sh A**

Speed **$\leq 2 \text{ m/s}$**

Temperature **$-30 / +100 \text{ }^{\circ}\text{C}$**



TDJR NBR composition



TDJR NBR assembly recommendation

Dimensional list coming soon

TDK DL PU

18.0218 | A11

Double-acting flexible TPU scraper seal. In addition to a scraping lip, it features an inward-facing U-shaped profile capable of withstanding low pressure. It is designed for installation in a closed groove. Its main advantage lies in its dual function as a scraper seal and a low-pressure sealing element. It is often used in combination with a composite seal.

Applications

- Standard cylinders
- Injection molding presses
- Agricultural equipment

Advantages

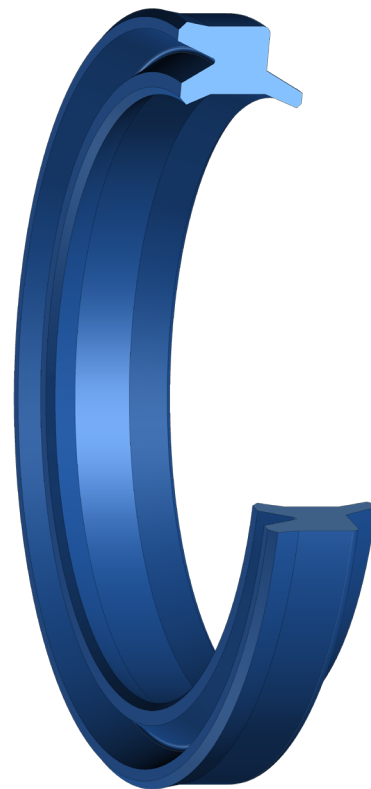
- Easy installation
- Sealing performance also at low pressure

Assembly

- Semi-open groove
- Deformation required

Recommendations

- Rod surface finish:
 $R_a < 0.3 \mu\text{m}$
- Housing surface finish:
 - Groove flanks: $R_a < 3.0 \mu\text{m}$
 - Groove bottom: $R_a < 1.6 \mu\text{m}$



Materials **TPU**

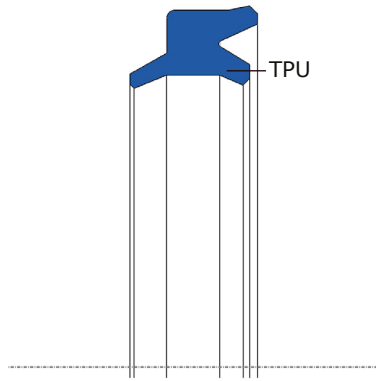
Colors **Dark blue**

Hardness **95 Sh A**

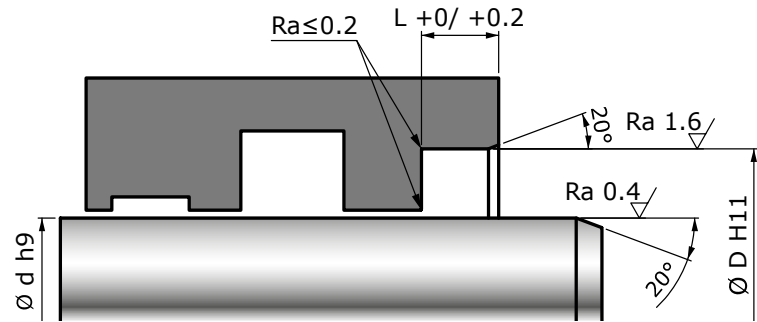
Speed **$\leq 1 \text{ m/s}$**

Pressure **$\leq 16 \text{ bar}$**

Temperature **$-30 / +110 \text{ }^{\circ}\text{C}$**



TDK DL PU composition

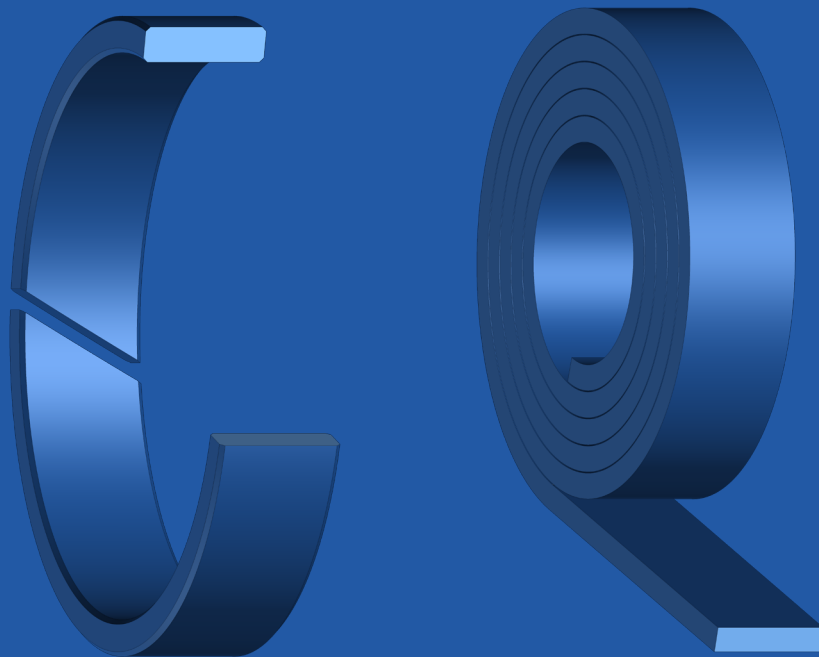


TDK DL PU assembly recommendation

Dimensional list

Ø d	Ø D	L	H	Part number
12	18	4	6	18 0218 1218
14	20	4	6	18 0218 1420
16	22	4	6	18 0218 1622
18	24	4	6	18 0218 1824
22	28	4	6	18 0218 2228
25	31	4	6	18 0218 2531
28	36	5	7.5	18 0218 2836
30	38	5	7.5	18 0218 3038
35	43	5	7.5	18 0218 3543
36	44	5	7.5	18 0218 3644
40	48	5	7.5	18 0218 4048
45	53	5	7.5	18 0218 4553
50	58	5	7.5	18 0218 5058
55	65	6	8.5	18 0218 5565
56	66	6	8.5	18 0218 5666
60	70	6	8.5	18 0218 6070
65	75	6	8.5	18 0218 6575
70	80	6	8.5	18 0218 7080
75	85	6	8.5	18 0218 7585
80	90	6	8.5	18 0218 8090
90	100	6	8.5	18 0218 9010
100	110	6	8.5	18 0218 0100
110	125	8.5	12	18 0218 0110
140	155	8.5	12	18 0218 0140

Guidings



GUIDINGS

Guide rings ensure coaxiality between a shaft and its bore in dynamic applications. Techné offers different guide ring solutions depending on the application.

WEARTEC T1

The WEARTEC T1 guide ring is composed of a phenolic resin base reinforced with cotton fibers. It is used in high-load applications.

WEARTEC T3

The WEARTEC T3 guide ring is composed of a polyester resin base reinforced with synthetic fibers and PTFE.

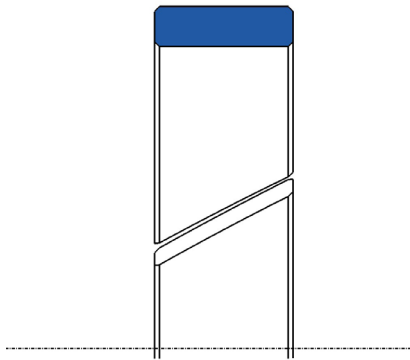
WRI

The WRI guide ring is composed of glass fiber-filled POM. It is used in high-speed applications, for both rod and piston installations.

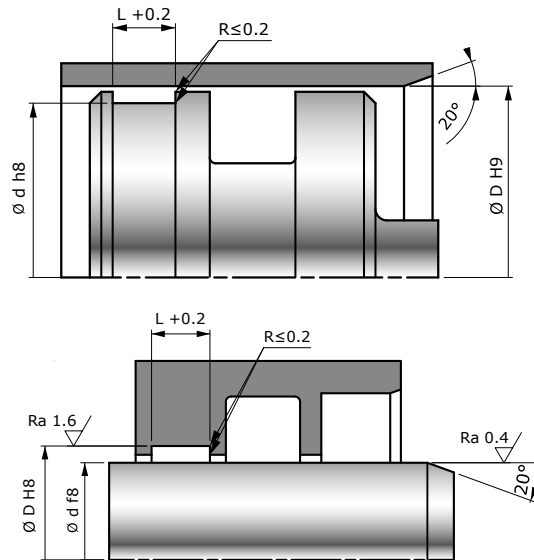
WRI R & WRI P

For rod installation, the WRI R guide ring is available. For piston head installation, the WRI P guide ring is available.





Guide ring composition



Guide ring assembly recommendation

Comparative technical analysis

	WEARTEC T1	WEARTEC T3	WRI	WRI P & WRI R
Material	Phenolic resin + Cotton fibers	Polyester resin + Synthetic fibers + PTFE	POM + Glass fibers	POM + Glass beads
Static load (MPa)	< 235	< 330	< 100	< 70
Dynamic load (MPa)	< 45	< 70	< 30	< 30
Permissible speed (m/s)	< 1.6	< 2.5	< 0.8	< 0.5
Density (g/cm ³)	1.2 – 1.4	1.21 – 1.25	1.50 – 1.7	1.55 – 1.7
Hardness	HRM 92–105	HRM 90–100	HRM 85–100	85–92 Shore D
Impact and vibration resistance	Very good	Good	Medium	Medium
Creep resistance	Excellent	Good	Limited	Very good
Particle absorption	Good	Very good	Limited	Limited
Operating temperature (°C)	-40 / +130	-40 / +120	-40 / +100	-40 / +80

Advantages & limitations

	WEARTEC T1	WEARTEC T3	WRI	WRI P & WRI R
Radial load capacity	Very good static resistance Excellent resistance to overloads and vibrations	Excellent static resistance Good dynamic resistance	Medium static resistance Creep possible under prolonged load	Very good static resistance Low deformation under load
Dynamic speed	Medium permissible speed Not suitable for high-speed cycles	Medium permissible speed Suitable for high-frequency cycles and oscillating movements	Limited permissible speed Suitable for low-speed cycles	Limited permissible speed Suitable for continuous movements
Impact resistance	Excellent	Good Flexible and slightly damping	Medium	Good
Thermal behaviour	Good dimensional stability up to 130°C	Good performance up to 120°C Low heat generation due to friction	Good performance up to 100°C Loss of stiffness above 80°C	Good performance up to 80°C
Chemical resistance	Good compatibility with mineral oils and emulsions Sensitive to strong solvents	Excellent compatibility with oils, phosphate esters and synthetic fluids	Excellent compatibility with oils and weak acids Sensitive to strong acids	Excellent compatibility with oils, fuels and aliphatic solvents
Particle absorption	Good	Very good	Limited	Limited
Typical applications	Standard cylinders Construction equipment Mobile hydraulics Hydraulic presses Hydraulic excavators Guide columns	Standard cylinders Servo cylinders Precision equipment Mining machinery Tunnel boring machines	Standard cylinders Light-duty hydraulics	Standard cylinders Light-duty hydraulics

WEARTEC T1

21.6120 | FIC*

Dimensional list

Ø D	Ø d	L	Part number	Ø D	Ø d	L	Part number	Ø D	Ø d	L	Part number
15	12	5.6	21 6120 0550	33	29.8	3.8	21 6120 0606	42	38	8.1	21 6120 0545
17	14	4	21 6120 1417	33	30	5.6	21 6120 3033	43	35	7.6	21 6120 0482
19.1	16	4	21 6120 0468	35	28	8	21 6120 3835	43	38	5.6	21 6120 0501
20	15	5.6	21 6120 1520	35	30	5.6	21 6120 3055	43	38	10	21 6120 4338
20	17	4	21 6120 0064	35	30	6.3	21 6120 3035	43	38	12.7	21 6120 0640
21	16	5.6	21 6120 0379	35	30	6.3	21 6120 0444	43	40	5.5	21 6120 4043
21	16	9.7	21 6120 0467	35	30	9.7	21 6120 3097	44	39	9.7	21 6120 0571
22	18	9.8	21 6120 1822	35	31.9	4	21 6120 0418	44	39	20	21 6120 3944
23	18	9.7	21 6120 0341	35	32	9.7	21 6120 3532	44	40	5	21 6120 0473
23	20	5.6	21 6120 2023	36	32	9.7	21 6120 3236	44	40	6.3	21 6120 4000
25	20	5.6	21 6120 2025	37	32	6.3	21 6120 0315	44	40	6.3	21 6120 4063
25	20	6.3	21 6120 0130	37	32	9.7	21 6120 3237	44	40	8.6	21 6120 4440
25	21	8	21 6120 2521	37	32	12.7	21 6120 3732	44	40	9.7	21 6120 4097
25	22	5.6	21 6120 2522	37	32	15	21 6120 0490	44	40	10	21 6120 4410
26	21	5.6	21 6120 2126	37.4	35	5.4	21 6120 0653	44	40	15	21 6120 4044
26	21	9.7	21 6120 0025	38	33	6.3	21 6120 3338	44.2	40	39.8	21 6120 0292
27	22	5.6	21 6120 0131	38	34	20	21 6120 3438	45	35	15	21 6120 3545
27	22	6.3	21 6120 2227	38	35	5.6	21 6120 3538	45	37	10	21 6120 3745
27	22	9.7	21 6120 0489	38	35	9.7	21 6120 0508	45	39	15	21 6120 3945
28	24.8	3.8	21 6120 0605	39	31	8.1	21 6120 0598	45	40	5.4	21 6120 0623
28	25	3.4	21 6120 0463	39	34	10	21 6120 0611	45	40	5.6	21 6120 0158
28	25	4	21 6120 2528	39	35	6.3	21 6120 3539	45	40	9.7	21 6120 4045
28	25	5.6	21 6120 2556	39	35	8	21 6120 0452	45	40	12.7	21 6120 0639
29	24	6.3	21 6120 0273	39	44	5.7	21 6120 0637	45	40	15	21 6120 4540
29	25	9.5	21 6120 2529	40	32	8.1	21 6120 3240	45	40	20	21 6120 2045
29	25	15	21 6120 2925	40	35	5.6	21 6120 3554	45	41	5	21 6120 4541
30	24	24.8	21 6120 2425	40	35	6.3	21 6120 0316	45	41	9.7	21 6120 0591
30	25	5.6	21 6120 0132	40	35	9.7	21 6120 3540	45	41	12	21 6120 4145
30	25	6.3	21 6120 0384	40	35	14.8	21 6120 0485	45	41	15	21 6120 4542
30	25	9.7	21 6120 0329	40	35	15	21 6120 0595	45	41	20	21 6120 0422
30	26	6	21 6120 0492	40	36	5	21 6120 4036	45	42	25	21 6120 4525
30	26	8.1	21 6120 2630	40	37	5.6	21 6120 3740	46.9	44.7	20	21 6120 0135
31	26	5.6	21 6120 2631	40	38	5	21 6120 3840	47	38	8	21 6120 3847
31.5	23.5	9.7	21 6120 0642	41	36	5.6	21 6120 0469	47	42	9.4	21 6120 4247
32	27	5.6	21 6120 0442	41	36	6.3	21 6120 3641	47	42	10.3	21 6120 4742
32	27	6.3	21 6120 2732	41	36	9.7	21 6120 3642	47.1	37.1	11.2	21 6120 0500
32	28	9.7	21 6120 2832	41	36	15	21 6120 0240	48.5	52.5	9.7	21 6120 0630
33	28	5.6	21 6120 0328	41	36	25	21 6120 4136	49	44	9.7	21 6120 0439
33	28	6.3	21 6120 5004	41	37	20	21 6120 0136	49	45	24.7	21 6120 0507
33	28	9.7	21 6120 2833	42	35	9.7	21 6120 3542	49	45	25	21 6120 0293
33	28	15	21 6120 0156	42	37	5.6	21 6120 3742	50	40	40	21 6120 0371

Ø D	Ø d	L	Part number
50	41	12	21 6120 4150
50	42	9.7	21 6120 4250
50	44	5	21 6120 0600
50	44	8.1	21 6120 4451
50	44	9.7	21 6120 4450
50	45	5.6	21 6120 4554
50	45	6.3	21 6120 4563
50	45	8.1	21 6120 4573
50	45	9.5	21 6120 4550
50	45	9.7	21 6120 0594
50	45	15	21 6120 0303
50	45	20	21 6120 4520
50	46	4.9	21 6120 4650
50	46	5	21 6120 5046
50	46	6	21 6120 0599
50	46	9.7	21 6120 0429
50	46	10	21 6120 0584
50	46	15	21 6120 4614
50	47	4	21 6120 5047
50.8	44.46	12.7	21 6120 4446
51	45	9.7	21 6120 4553
51	45	20	21 6120 0321
51.5	45	12.6	21 6120 4551
53	48	9.7	21 6120 0478
54	46	9.7	21 6120 5446
54	49	9.7	21 6120 4953
54	50	10	21 6120 0059
55	45	24	21 6120 0481
55	47	11.8	21 6120 4755
55	49	8.1	21 6120 4955
55	49	15.8	21 6120 0483
55	50	5.6	21 6120 5054
55	50	6.3	21 6120 0401
55	50	9.7	21 6120 5055
55	50	15	21 6120 0353
55	50	20	21 6120 5555
55	50	25	21 6120 5025
55	50	25.3	21 6120 0649
55	50	29.5	21 6120 0506
55	50	30	21 6120 0007
55	51	5	21 6120 5551
55	51	10	21 6120 5155
56	50	12.7	21 6120 0045
56	50	20	21 6120 5020
56	50	29.3	21 6120 0577
56	50	40	21 6120 0238
56	51	10	21 6120 5651
57	52	9.7	21 6120 5257
57	52	19.7	21 6120 0538
58	53	9.7	21 6120 0618

Ø D	Ø d	L	Part number
59	54	9.6	21 6120 5459
60	54	9.7	21 6120 0487
60	54	12	21 6120 6054
60	55	5.6	21 6120 0466
60	55	8.1	21 6120 6055
60	55	9.7	21 6120 5595
60	55	10	21 6120 0609
60	55	15	21 6120 5560
60	55	20.2	21 6120 0641
60	56	6	21 6120 0520
60	56	10	21 6120 5660
61	55	9.5	21 6120 6195
61	55	12.7	21 6120 5561
61	55	19.8	21 6120 0457
61	55	30.4	21 6120 6155
61	56	5.6	21 6120 0005
61	56	9.7	21 6120 5661
61	56	9.7	21 6120 6156
61	56	15	21 6120 0566
62	56	9.7	21 6120 5662
62	56	25	21 6120 6256
62	56	30	21 6120 0491
62.2	57	5.5	21 6120 0624
63	57	12.7	21 6120 0020
63	57	15	21 6120 6357
63	58	5.6	21 6120 0421
63	58	8.1	21 6120 6308
63	58	9.7	21 6120 5863
63	58	20	21 6120 0437
63	58	25	21 6120 0534
63	59	4	21 6120 6359
63	59	6	21 6120 0519
63	59	7.7	21 6120 5963
63	59	12	21 6120 0486
63.5	57.13	12.7	21 6120 5713
64	56	25	21 6120 5664
64	59	5.6	21 6120 0021
64	59	9.7	21 6120 0592
64	59	15	21 6120 5964
65	59	10	21 6120 5965
65	59	12.7	21 6120 5912
65	59	15	21 6120 0596
65	59	15.7	21 6120 0613
65	60	5.6	21 6120 6056
65	60	8.1	21 6120 6578
65	60	9.7	21 6120 6065
65	60	14.8	21 6120 6560
65	60	20	21 6120 6520
65	60	25	21 6120 0580
65	60	32	21 6120 0299

Ø D	Ø d	L	Part number
65	60	34.8	21 6120 6535
65	60	35	21 6120 6035
65	60	40	21 6120 6045
65	60	40	21 6120 0570
65	61	6	21 6120 6561
65	61	10	21 6120 6165
67	62	5.6	21 6120 6267
67	63	6.3	21 6120 6367
67	63	9.7	21 6120 6397
68	63	5.6	21 6120 0425
68	63	9.7	21 6120 6368
69	63	12.7	21 6120 0181
69	63	19.2	21 6120 6369
69	63	30	21 6120 0465
69	64	9.7	21 6120 6469
69	65	35	21 6120 0372
69.84	63.5	12.7	21 6120 0635
69.85	63.5	6.35	21 6120 6350
70	62	11.8	21 6120 6270
70	62	19.6	21 6120 0497
70	63	6	21 6120 0615
70	63	24.5	21 6120 7063
70	63.2	24.7	21 6120 6370
70	64	10	21 6120 7064
70	64	12.7	21 6120 6470
70	64	15.8	21 6120 0413
70	64	20	21 6120 0412
70	65	5.6	21 6120 6556
70	65	6.9	21 6120 0496
70	65	9.7	21 6120 7567
70	65	15	21 6120 6570
70	65	20	21 6120 0124
70	65	25	21 6120 0525
70	66	6	21 6120 7066
70	66	9.7	21 6120 0056
70	66	10	21 6120 0528
70	66	25	21 6120 7025
71	65	12.7	21 6120 6571
71	65	15.7	21 6120 6575
71	66	19.8	21 6120 0459
72	67	9.8	21 6120 7267
73	68	5.6	21 6120 7368
73	68	15	21 6120 6873
73	68	25	21 6120 0018
73.025	79.375	25.7	21 6120 0632
74	66	24.3	21 6120 6674
74	70	8	21 6120 0484
75	67	12	21 6120 0243
75	69	20	21 6120 0436
75	70	5.6	21 6120 0010

Ø D	Ø d	L	Part number
75	70	6.3	21 6120 0166
75	70	6.9	21 6120 7569
75	70	9.5	21 6120 0707
75	70	10	21 6120 7070
75	70	15	21 6120 7075
75	70	15	21 6120 7570
75	70	15.8	21 6120 7515
75	70	19.6	21 6120 0017
75	70	25	21 6120 0370
75	70	34.5	21 6120 0652
75	70	40	21 6120 7040
75	70	45	21 6120 7074
75	70	50	21 6120 0108
75	71	6	21 6120 7571
75	71	9.7	21 6120 0171
76	70	12.7	21 6120 0462
76	70	19.6	21 6120 6707
76	70	20.2	21 6120 0522
76	70	30	21 6120 7670
76	70	50	21 6120 0350
76.2	69.9	12.6	21 6120 0414
77.8	73	7.9	21 6120 0608
78	70	60	21 6120 7078
79	75	10	21 6120 0610
79	75	30	21 6120 0502
80	72	12	21 6120 7280
80	72	25	21 6120 8025
80	74	9.7	21 6120 0543
80	74	12.7	21 6120 7481
80	74	15.8	21 6120 7480
80	74	19.85	21 6120 0628
80	75	5.6	21 6120 0470
80	75	9.7	21 6120 0176
80	75	13	21 6120 8013
80	75	15	21 6120 0178
80	75	15	21 6120 0530
80	75	20	21 6120 0125
80	75	25	21 6120 7580
80	76	5	21 6120 8076
80	76	8	21 6120 0521
80	76	9.7	21 6120 5010
81	75	18.8	21 6120 7581
81	75	20	21 6120 0185
82	76	12.7	21 6120 7682
82.55	76.2	12.7	21 6120 0762
83	78	20	21 6120 0393
84	70	31.8	21 6120 7084
84	76	24.8	21 6120 7684
84	79	5.6	21 6120 7984
84	79	9.7	21 6120 7997

Ø D	Ø d	L	Part number
84	80	8.1	21 6120 0447
84	80	15	21 6120 0093
85	70	32	21 6120 7085
85	78.5	12	21 6120 0039
85	78.5	12.6	21 6120 0475
85	79	20	21 6120 7985
85	79	25	21 6120 0069
85	80	5.6	21 6120 8053
85	80	9.7	21 6120 0808
85	80	15	21 6120 8085
85	80	16	21 6120 8016
85	80	20	21 6120 0102
85	80	24.7	21 6120 0554
85	80	25	21 6120 0364
85	80	50	21 6120 0027
85	81	8	21 6120 8581
85	81	15	21 6120 0085
85.6	79.6	19.7	21 6120 0796
86	80	15	21 6120 8680
86	80	20	21 6120 0129
86	80	30	21 6120 8086
86	80	35	21 6120 0886
86	80	50	21 6120 0415
86	80	50	21 6120 0495
86	80	80	21 6120 8079
87.5	82.5	48	21 6120 0471
88.9	82.6	15.7	21 6120 8260
89	84	5.6	21 6120 0013
89	84	20	21 6120 0349
90	82	6	21 6120 8206
90	82	15	21 6120 8290
90	82	25	21 6120 9025
90	84	8	21 6120 8490
90	84	12.8	21 6120 0407
90	84	14.8	21 6120 0435
90	84	20	21 6120 0323
90	84	24.8	21 6120 0441
90	85	5.6	21 6120 8590
90	85	9.7	21 6120 0016
90	85	15	21 6120 0111
90	85	20	21 6120 9020
90	85	24.8	21 6120 0504
90	85	35	21 6120 0023
90	85	40	21 6120 0043
90	86	8	21 6120 9086
90	86	10.3	21 6120 0648
90	86	15	21 6120 0120
90	86	15	21 6120 0539
90	86	15.2	21 6120 0512
91	80	29.8	21 6120 8091

Ø D	Ø d	L	Part number
91	85	15	21 6120 9185
91	85	20	21 6120 8591
93	88	15	21 6120 8893
94	90	15	21 6120 0029
95	87	24.7	21 6120 9587
95	89	10	21 6120 9589
95	89	15	21 6120 8915
95	89	25	21 6120 0423
95	89	30	21 6120 8930
95	90	5.6	21 6120 0191
95	90	9.7	21 6120 0909
95	90	10	21 6120 9590
95	90	15	21 6120 9095
95	90	15	21 6120 0549
95	90	25	21 6120 0052
95	90	40	21 6120 9040
95	91	8	21 6120 9591
95.25	88.9	12.7	21 6120 0889
96	90	30	21 6120 9030
96	90	40	21 6120 9096
96	90	50	21 6120 9050
98	90	40	21 6120 9039
98	90	90	21 6120 9098
100	90	14.8	21 6120 0601
100	90	15	21 6120 0295
100	90	15.9	21 6120 0094
100	92	15	21 6120 9210
100	93	16.8	21 6120 0631
100	94	15	21 6120 9410
100	94	25	21 6120 9425
100	94	25.3	21 6120 1009
100	94	35	21 6120 0419
100	95	5.6	21 6120 0461
100	95	9.7	21 6120 0951
100	95	9.8	21 6120 0301
100	95	15	21 6120 9510
100	95	20	21 6120 9520
100	95	25	21 6120 9525
100	96	6	21 6120 0514
100	96	9.7	21 6120 0396
100	96	15	21 6120 0051
100	106	25	21 6120 0587
101	94.2	16.5	21 6120 0622
101	96	9.7	21 6120 1019
103	95	25	21 6120 0579
105	97	10	21 6120 0453
105	97	24.5	21 6120 0646
105	99	10	21 6120 0553
105	99	25	21 6120 9910
105	100	9.7	21 6120 0103

Ø D	Ø d	L	Part number
105	100	15	21 6120 0097
105	100	20.2	21 6120 0654
105	100	25	21 6120 1010
105	100	30	21 6120 0119
105	100	60	21 6120 0110
106	100	12.7	21 6120 0088
106	100	18.8	21 6120 1000
106	100	20	21 6120 0100
108	100	4	21 6120 0351
110	100	15	21 6120 0529
110	103	14	21 6120 0627
110	104	9.7	21 6120 0032
110	104	12.7	21 6120 0202
110	104	15	21 6120 0024
110	104	19.7	21 6120 0494
110	104	25	21 6120 1101
110	104	30	21 6120 1014
110	104	35	21 6120 0536
110	104	50	21 6120 1114
110	104	52.8	21 6120 0454
110	105	9.7	21 6120 1105
110	105	15	21 6120 1051
110	105	20	21 6120 0456
110	106	6	21 6120 0651
111.1	106.1	15	21 6120 1061
113	105	20	21 6120 0049
113	105	50	21 6120 0048
113	105	70	21 6120 1013
114	106	15.9	21 6120 0440
115	105	17	21 6120 1111
115	106	15	21 6120 0561
115	108	17	21 6120 0617
115	109	15	21 6120 0038
115	109	30	21 6120 0424
115	109	40	21 6120 0551
115	110	9.7	21 6120 0403
115	110	15	21 6120 0207
115	110	20	21 6120 0055
115	110	25	21 6120 0445
116	110	15	21 6120 1116
116	110	25.4	21 6120 0346
116	110	30	21 6120 0655
118	113	9.7	21 6120 0449
120	110	14.7	21 6120 0458
120	110	15.9	21 6120 0555
120	111	15	21 6120 0560
120	112	15	21 6120 1120
120	113.4	17	21 6120 1211
120	114	10	21 6120 0552
120	114	15	21 6120 1141

Ø D	Ø d	L	Part number
120	114	20	21 6120 0583
120	114	30	21 6120 0114
120	114	30	21 6120 0568
120	114	40	21 6120 0573
120	115	9.7	21 6120 0254
120	115	9.7	21 6120 0542
120	115	15	21 6120 0096
120	115	20	21 6120 0541
120	115	25	21 6120 0446
125	115	15	21 6120 0567
125	115	17	21 6120 0058
125	117	25	21 6120 0404
125	119	12.5	21 6120 0488
125	119	15	21 6120 1192
125	119	19.7	21 6120 0578
125	119	20	21 6120 0448
125	119	25	21 6120 0633
125	119	30	21 6120 0513
125	119	40	21 6120 0464
125	119	46.8	21 6120 1191
125	120	9.7	21 6120 0354
125	120	12.7	21 6120 0532
125	120	15	21 6120 1212
125	120	20	21 6120 0604
125	120	24.8	21 6120 0503
125	121	8	21 6120 0515
126	120	50	21 6120 1265
126.5	123.5	14.8	21 6120 1235
128	120	35	21 6120 0581
128	123	15	21 6120 0211
129	124	15	21 6120 0212
130	120	15	21 6120 0381
130	120	25	21 6120 1301
130	120	30	21 6120 1201
130	123	10	21 6120 1231
130	123	15	21 6120 1485
130	123	18	21 6120 0556
130	123	30	21 6120 0123
130	123	35	21 6120 1230
130	124	20	21 6120 0597
130	125	9.7	21 6120 0014
130	125	15	21 6120 0215
130	125	19.7	21 6120 0527
130	125	25	21 6120 1251
131	125	12.7	21 6120 0405
131	125	29.4	21 6120 0498
131	125	49.7	21 6120 0450
131	126	15	21 6120 0004
133	125	90	21 6120 1250
135	130	9.7	21 6120 0067

Ø D	Ø d	L	Part number
135	130	15	21 6120 0216
135	130	20	21 6120 0593
135	130	25	21 6120 0590
139	133	20	21 6120 1332
139.7	133.2	31.6	21 6120 0409
140	130	16	21 6120 0438
140	132	8	21 6120 1321
140	132	25	21 6120 0086
140	133	35	21 6120 0133
140	134	12.7	21 6120 0084
140	134	20	21 6120 0585
140	134	30	21 6120 1341
140	134	50	21 6120 1400
140	135	9.7	21 6120 1354
140	135	9.7	21 6120 0535
140	135	15	21 6120 1351
140	135	25	21 6120 0369
140	136	8	21 6120 0516
145	133	17.4	21 6120 0562
145	138	35	21 6120 1453
145	140	9.7	21 6120 1497
145	140	15	21 6120 1401
145	140	25	21 6120 0400
146	140	34.7	21 6120 1414
150	138	17.4	21 6120 0612
150	140	16	21 6120 0071
150	142	25	21 6120 0557
150	143	9.5	21 6120 0558
150	143	35	21 6120 0143
150	143	35	21 6120 0559
150	144	39.7	21 6120 0337
150	144	42.8	21 6120 1441
150	145	9.7	21 6120 0225
150	145	15	21 6120 0226
150	145	20	21 6120 0455
150	145	25	21 6120 0499
150	145	44.5	21 6120 0511
151	146	15	21 6120 0227
152.4	146.06	12.7	21 6120 1460
155	150	9.5	21 6120 1502
155	150	15	21 6120 1501
156	150	24.6	21 6120 0476
158	151	20	21 6120 0531
160	148	20	21 6120 0563
160	152	20	21 6120 0629
160	153	20	21 6120 0533
160	153	40	21 6120 0480
160	154	19.7	21 6120 0432
160	154	30	21 6120 1529
160	154	41.8	21 6120 0410

Ø D	Ø d	L	Part number
160	154	50	21 6120 1540
160	155	8.1	21 6120 0160
160	155	9.7	21 6120 0003
160	155	15	21 6120 1551
160	155	15	21 6120 0139
160	155	25	21 6120 1559
160	156	8	21 6120 0517
160	156	9.8	21 6120 0472
160	156	10	21 6120 0621
160	168	30.2	21 6120 0636
162	154	25	21 6120 0073
164	160	31.5	21 6120 0121
165	153	20	21 6120 0460
165	160	9.7	21 6120 0493
165	160	15	21 6120 1601
165	160	25	21 6120 0333
166	158	25	21 6120 5001
170	158	25	21 6120 1705
170	162	24.9	21 6120 0443
170	164	19.7	21 6120 0638
170	164	20	21 6120 1671
170	165	9.7	21 6120 0526
170	165	15	21 6120 0582
170	165	30	21 6120 0565
171	165	20	21 6120 0261
173	168	20	21 6120 0231
175	170	15	21 6120 1701
175	170	25	21 6120 1717
175	170	40	21 6120 0625
177.8	171.45	12.7	21 6120 1714
178	173	25	21 6120 0524
180	172	22.5	21 6120 0510
180	172	45	21 6120 1804
180	174	29.7	21 6120 0451
180	174	40	21 6120 0589
180	175	15	21 6120 0232
180	175	20	21 6120 0008
180	175	25	21 6120 0118
180	176	8	21 6120 0518
185	180	9.7	21 6120 0280
185	180	15	21 6120 1801
185	180	25	21 6120 1802
186	180	15	21 6120 0588
186	180	19	21 6120 0546
186	180	19.3	21 6120 0406
186	180	25	21 6120 0509
188	180	30	21 6120 0537
190	178	22.5	21 6120 0620
190	185	12	21 6120 0547
190	185	25	21 6120 0650

Ø D	Ø d	L	Part number
194	200	19.2	21 6120 0572
195	190	24.8	21 6120 0505
200	188	22.5	21 6120 0574
200	188	25	21 6120 0564
200	192	22.5	21 6120 0477
200	194	11.8	21 6120 1942
200	194	30	21 6120 0586
200	194	50	21 6120 1940
200	195	15	21 6120 0116
200	195	20	21 6120 0603
200	195	35	21 6120 0634
200	195	40	21 6120 0626
203.2	196.85	12.7	21 6120 2032
205	200	20	21 6120 0645
205	200	25	21 6120 2002
205	200	30	21 6120 0399
206	198	35.5	21 6120 1920
210	200	60	21 6120 2102
210	200	60	21 6120 0411
210	205	14.8	21 6120 0602
215	210	25	21 6120 2115
216	210	20	21 6120 0647
220	215	9.7	21 6120 0614
220	215	15	21 6120 0474
220	215	15	21 6120 0336
220	215	24.8	21 6120 0479
220	215	29.7	21 6120 2201
221	215	19	21 6120 0607
225	220	27.5	21 6120 0575
225	220	35	21 6120 0548
230	225	15	21 6120 2223
240	232	40	21 6120 0544
240	235	15	21 6120 2324
245	240	25	21 6120 0430
250	241	34	21 6120 2500
250	242	40	21 6120 0616
250	244	50	21 6120 0619
250	245	15	21 6120 0236
250	245	20	21 6120 0276
255	250	15	21 6120 2503
255	250	25	21 6120 2502
260	248	27.5	21 6120 0569
260	254	40	21 6120 0420
260	255	25	21 6120 0523
275	270	25	21 6120 2702
280	272	60	21 6120 2722
280	275	15	21 6120 0643
284	290	40	21 6120 0576
290	285	15	21 6120 0644
305	300	25	21 6120 3005

Ø D	Ø d	L	Part number
305	300	25	21 6120 3003
325	320	20	21 6120 0433
330	325	25	21 6120 0431
360	355	25	21 6120 0434
365	360	25	21 6120 3600
470	430	20	21 6120 4702
500	495	25	21 6120 0417
908	900	25	21 6120 0900

Dimensional list

Ø D	Ø d	L	Part number
19.1	16	4	21 6124 0042
25	20	6.3	21 6124 2520
30	25	9.7	21 6124 0068
30.16	25.4	17.46	21 6124 0077
31.1	28	3.85	21 6124 3128
31.1	28	4	21 6124 0080
33	28	5.6	21 6124 2833
35	30	5.6	21 6124 3035
37	32	5.6	21 6124 3237
37	32	15	21 6124 0032
38	35	4	21 6124 3538
40	35	4	21 6124 3540
41	36	5.6	21 6124 0078
43	38	9.7	21 6124 0038
45	40	5.6	21 6124 0073
45	40	9.5	21 6124 4045
45	40	9.7	21 6124 4597
50	45	5.6	21 6124 4550
50	45	9.7	21 6124 0045
50	45	15	21 6124 4514
55	48	9.7	21 6124 0069
55	50	5.6	21 6124 5055
55	50	5.6	21 6124 0505
55	50	9.7	21 6124 0500
55	50	15	21 6124 0050
60	55	9.7	21 6124 0055
60	55	9.7	21 6124 0053
60	55	15	21 6124 6055
61	56	9.7	21 6124 5661
63	58	5.6	21 6124 5863
63	58	9.7	21 6124 0058
65	60	5.6	21 6124 6065
65	60	9.7	21 6124 0060
65	60	14.8	21 6124 0043
65	60	15	21 6124 0036
68	63	15	21 6124 0063
68	63	15	21 6124 0079
70	65	9.7	21 6124 6570
70	65	9.7	21 6124 0051
75	69	9.7	21 6124 7569
75	70	5.6	21 6124 0067
75	70	9.7	21 6124 7075
75	70	15	21 6124 0070

Ø D	Ø d	L	Part number
75	70	15	21 6124 0071
75	70	25	21 6124 7025
80	75	5.6	21 6124 0034
80	75	9.7	21 6124 7580
80	75	9.7	21 6124 0054
80	75	15	21 6124 0075
85	80	9.7	21 6124 0061
85	80	9.7	21 6124 0072
85	80	15	21 6124 8085
85	80	25	21 6124 0040
90	85	15	21 6124 0085
95	90	9.7	21 6124 0090
95	90	15	21 6124 9590
95	90	25	21 6124 9024
100	95	5.6	21 6124 0056
100	95	9.7	21 6124 9595
100	95	15	21 6124 0095
105	100	9.7	21 6124 0035
105	100	15	21 6124 0100
105	100	15	21 6124 0059
105	100	24.7	21 6124 0074
105	100	25	21 6124 0105
110	105	9.7	21 6124 1051
110	105	9.7	21 6124 1101
110	105	15	21 6124 0064
110	105	24.5	21 6124 1011
115	110	15	21 6124 0110
120	115	9.7	21 6124 0046
120	115	10	21 6124 1215
120	115	15	21 6124 1211
120	115	25	21 6124 0115
125	120	9.7	21 6124 1209
125	120	15	21 6124 0120
125	120	15	21 6124 0065
125	120	20	21 6124 0037
125	120	25	21 6124 1202
125	120	30	21 6124 1203
130	125	9.7	21 6124 1259
130	125	15	21 6124 0125
130	125	25	21 6124 1250
135	130	15	21 6124 1301
140	135	9.6	21 6124 0052
140	135	9.7	21 6124 1359

Ø D	Ø d	L	Part number
140	135	15	21 6124 1351
140	135	15	21 6124 0066
140	135	25	21 6124 0135
145	140	15	21 6124 1400
145	140	25	21 6124 0140
150	145	9.7	21 6124 1451
150	145	15	21 6124 0076
150	145	25	21 6124 0145
155	150	25	21 6124 0150
160	155	9.7	21 6124 0033
160	155	15	21 6124 0155
160	155	20	21 6124 0039
160	155	25	21 6124 1552
165	160	24.4	21 6124 0049
165	160	25	21 6124 0160
170	165	15	21 6124 1651
170	165	20	21 6124 0170
170	165	25	21 6124 0165
175	170	25	21 6124 1717
180	175	9.5	21 6124 0041
180	175	15	21 6124 1751
180	175	25	21 6124 0175
185	180	15	21 6124 0185
185	180	15	21 6124 0062
185	180	25	21 6124 0180
195	190	25	21 6124 0195
200	195	9.5	21 6124 0048
200	195	15	21 6124 2001
200	195	25	21 6124 0200
210	205	15	21 6124 0205
210	205	25	21 6124 2052
220	215	6.3	21 6124 0044
220	215	9.7	21 6124 0220
220	215	15	21 6124 0215
220	215	25	21 6124 2152
228	220	20	21 6124 0228
240	235	15	21 6124 0047
265	260	25	21 6124 0260
275.2	269.2	15	21 6124 0269
300	295	15	21 6124 0295
908	900	25	21 6124 0900
1050	1042	25	21 6124 1042

Dimensional list

Ø d	Ø D	L	Part number	Ø d	Ø D	L	Part number	Ø d	Ø D	L	Part number
12	16	9.7	44 0802 0012	30	34	9.7	44 0802 3000	36	41	5.6	44 0802 3641
14	18	9.7	44 0802 0014	30	35	5.6	44 0802 3035	36	41	5.6	44 0802 4136
16	20	9.7	44 0802 1620	30	35	5.6	44 0802 3530	36	41	6.3	44 0802 3663
16	21	6.3	44 0802 1621	30	35	6.3	44 0802 0093	36	41	8	44 0802 3675
18	22	9.7	44 0802 1822	30	35	8.1	44 0802 3582	36	41	9.7	44 0802 3696
18	23	6.3	44 0802 1823	30	35	9.7	44 0802 3597	36	42	9.7	44 0802 3642
20	23	5	44 0802 0020	30	35	15.2	44 0802 3515	38	41	20.8	44 0802 4138
20	24	9.7	44 0802 2024	30	36	9.7	44 0802 3036	38	42	9.7	44 0802 0038
20	25	5.6	44 0802 2025	31	35	8	44 0802 0031	38.1	44.45	12.7	44 0802 3844
20	25	6.3	44 0802 2063	31	35	9.7	44 0802 3135	38.1	44.45	19.05	44 0802 3819
20	25	9.7	44 0802 2096	31	35	9.7	44 0802 3531	39	45	9.7	44 0802 4539
20	26	9.7	44 0802 2026	32	35	4	44 0802 0351	40	44	9.7	44 0802 4044
21	25	8.2	44 0802 2125	32	35	9.7	44 0802 3235	40	45	5	44 0802 4540
21	25	9.7	44 0802 2196	32	36	6	44 0802 3236	40	45	5	44 0802 0040
22	25	4.2	44 0802 2522	32	36	9.7	44 0802 0032	40	45	5.6	44 0802 4056
22	26	9.7	44 0802 2226	32	37	5.6	44 0802 3237	40	45	5.6	44 0802 4556
22	27	6.3	44 0802 2227	32	37	5.6	44 0802 3732	40	45	8	44 0802 4077
22	27	9.7	44 0802 0141	32	37	6.3	44 0802 3263	40	45	9.7	44 0802 4045
22	28	9.7	44 0802 2228	32	37	9.7	44 0802 3296	40	45	9.7	44 0802 4597
24	28	9.7	44 0802 0025	32	38	9.7	44 0802 3238	40	45	15.2	44 0802 4515
24	30	9.7	44 0802 3097	32	38	15	44 0802 3215	40	45	20.2	44 0802 4520
25	29	5	44 0802 2529	33	37	8	44 0802 0033	40	46	9.7	44 0802 4046
25	29	9.7	44 0802 2596	33	39	9.7	44 0802 3339	40	46	12.7	44 0802 4012
25	30	5.6	44 0802 2530	34	38	4.7	44 0802 3438	40	46	12.7	44 0802 4640
25	30	5.6	44 0802 3025	34	40	9.7	44 0802 3440	41	45	8	44 0802 0041
25	30	6.3	44 0802 2563	34	40	9.9	44 0802 4034	41	45	9.7	44 0802 4145
25	30	9.7	44 0802 2539	35	39	8	44 0802 0035	41	45	9.7	44 0802 4541
25	31	9.7	44 0802 2531	35	39	9.7	44 0802 3539	41	45	10.2	44 0802 4110
26	30	9.7	44 0802 3026	35	40	5.6	44 0802 3556	41	46	5.6	44 0802 4641
26	32	7.8	44 0802 0013	35	40	5.6	44 0802 4035	41.27	47.63	19.05	44 0802 0153
26	32	9.7	44 0802 2632	35	40	6.3	44 0802 4063	42	46	9.7	44 0802 0042
27	32	5.6	44 0802 0027	35	40	6.3	44 0802 3563	42	48	9.7	44 0802 4248
27	32	6.3	44 0802 2763	35	40	9.7	44 0802 3540	44	50	9.7	44 0802 5044
28	32	9.7	44 0802 3228	35	40	9.7	44 0802 4097	44	50	9.7	44 0802 0044
28	32	9.7	44 0802 0028	35	40	15.2	44 0802 4015	44	50	12.7	44 0802 4450
28	33	5.6	44 0802 2833	35	41	9.7	44 0802 3541	44.45	50.8	19.05	44 0802 4445
28	33	6.3	44 0802 2863	35	41	12.7	44 0802 0107	45	49	9.7	44 0802 4996
28	33	9.7	44 0802 0162	35	41	20	44 0802 4135	45	49	20	44 0802 4945
28	34	9.7	44 0802 2834	36	40	5	44 0802 3647	45	49	20	44 0802 4549
28.9	32	3.8	44 0802 3200	36	40	8	44 0802 3640	45	50	5.6	44 0802 4550
29	35	9.7	44 0802 3529	36	40	9.7	44 0802 3697	45	50	5.6	44 0802 5045
30	34	8	44 0802 3008	36	40	9.7	44 0802 0036	45	50	9.7	44 0802 5097
30	34	9.5	44 0802 3095	36	40	20	44 0802 3620	45	50	15.2	44 0802 5015

Ø d	Ø D	L	Part number
45	51	9.7	44 0802 0045
45	51	12.7	44 0802 4551
45	58	6.3	44 0802 5845
46	50	10	44 0802 0046
46	50	12	44 0802 4650
46	50	15.2	44 0802 4615
46	55	12	44 0802 4655
47	52	30	44 0802 0047
47	53	12.7	44 0802 5347
47.62	53.98	19.05	44 0802 4762
49	55	9.7	44 0802 0049
49	55	12.7	44 0802 4912
49	55	15.8	44 0802 0168
50	54	9.7	44 0802 5054
50	55	5.6	44 0802 5055
50	55	8.2	44 0802 5582
50	55	9.7	44 0802 5597
50	55	9.7	44 0802 5096
50	55	15.2	44 0802 5515
50	55	15.2	44 0802 0019
50	55	20.2	44 0802 5520
50	56	9.7	44 0802 0050
50	56	12.7	44 0802 0051
50.8	57.15	19.25	44 0802 5080
51	55	9.7	44 0802 5551
51	55	10	44 0802 5110
51	56	9.7	44 0802 5697
52	55	15	44 0802 0052
52	58	9.7	44 0802 5258
53.97	60.32	19.05	44 0802 0156
53.97	63.5	19.05	44 0802 5360
53.98	60.33	12.7	44 0802 0167
54	59	9.7	44 0802 0001
54	60	9.7	44 0802 6054
54	60	9.7	44 0802 0054
54	60	12.7	44 0802 6012
54	60	12.7	44 0802 5460
55	59	8	44 0802 0055
55	59	9.7	44 0802 0087
55	60	5.6	44 0802 6055
55	60	5.8	44 0802 5560
55	60	9.7	44 0802 5596
55	60	9.9	44 0802 6097
55	60	15.2	44 0802 0030
55	61	9.7	44 0802 5561
55	61	12.7	44 0802 5512
55	61	25.8	44 0802 5525
56	60	9.7	44 0802 0056
56	60	10.2	44 0802 5610
56	61	5.6	44 0802 5661

Ø d	Ø D	L	Part number
56	61	9.7	44 0802 5696
56	62	9.7	44 0802 5662
56	62	12.7	44 0802 5612
57	63	9.7	44 0802 6357
57	63	9.7	44 0802 0057
57	63	12.7	44 0802 5712
57.15	63.5	9.52	44 0802 0375
57.15	63.5	12.7	44 0802 0097
57.15	63.5	15.88	44 0802 5763
57.15	63.5	19.05	44 0802 5715
57.15	63.5	25.4	44 0802 5725
58	63	5.6	44 0802 6358
58	63	5.6	44 0802 0058
58	63	9.7	44 0802 6397
58	63	9.7	44 0802 5863
58	63	10	44 0802 5810
59	63	8	44 0802 0059
59	63	9.7	44 0802 6359
59	63	10	44 0802 5963
59	65	9.7	44 0802 5965
59	65	12.7	44 0802 5912
59	65	12.7	44 0802 6559
60	64	10.2	44 0802 6064
60	64	15	44 0802 0003
60	64	19.2	44 0802 6019
60	64	20	44 0802 6460
60	65	5.6	44 0802 6065
60	65	6.3	44 0802 6063
60	65	8.2	44 0802 6582
60	65	9.7	44 0802 6096
60	65	15.2	44 0802 6515
60	65	20.2	44 0802 6560
60	65	30	44 0802 6030
60	66	9.7	44 0802 6066
60	66	12.7	44 0802 0060
60	66	15	44 0802 6015
60.33	66.68	19.05	44 0802 6033
62	65	20	44 0802 6520
62	65	20	44 0802 0062
63	68	5.6	44 0802 0063
63	68	9.7	44 0802 6368
63	68	9.7	44 0802 6863
63	69	12.7	44 0802 6312
63	69	23.5	44 0802 6323
63.5	69.85	9.52	44 0802 0635
63.5	69.85	12.7	44 0802 6369
63.5	69.85	19.05	44 0802 0103
64	70	9.7	44 0802 0064
64	70	12.7	44 0802 6470
64	70	12.7	44 0802 7064

Ø d	Ø D	L	Part number
64	70	16	44 0802 6416
64	70	20	44 0802 6420
65	69	9.7	44 0802 6569
65	69	10	44 0802 0065
65	70	5.6	44 0802 7065
65	70	9.7	44 0802 6570
65	70	15.2	44 0802 7015
65	71	12.7	44 0802 6571
66	70	9.7	44 0802 0066
66	70	25.5	44 0802 6670
69	75	9.7	44 0802 0069
69	75	12.7	44 0802 6975
69	75	12.7	44 0802 7569
69.85	76.2	6.35	44 0802 6985
69.85	76.2	9.52	44 0802 6976
69.85	76.2	19.25	44 0802 0143
70	75	5.6	44 0802 7570
70	75	9.7	44 0802 7075
70	75	9.7	44 0802 7597
70	75	15.2	44 0802 7515
70	76	9.7	44 0802 7076
70	76	12.7	44 0802 0070
70	76	19.2	44 0802 7019
70	76	27	44 0802 7027
72	80	6.3	44 0802 8072
74	80	12.7	44 0802 0074
74	80	12.75	44 0802 8074
74	80	16	44 0802 8016
74	80	19.2	44 0802 7480
75	79	8	44 0802 7579
75	80	5.6	44 0802 8075
75	80	8.2	44 0802 8082
75	80	9.7	44 0802 8097
75	80	9.7	44 0802 7580
75	80	15.2	44 0802 8015
75	81	12.7	44 0802 0017
75	81	15	44 0802 7581
75	81	19.2	44 0802 0076
76	80	7	44 0802 0023
76	80	15.2	44 0802 7680
76.2	82.55	12.7	44 0802 7682
79	85	12.7	44 0802 8579
79	85	12.7	44 0802 0079
80	85	9.7	44 0802 8580
80	85	9.7	44 0802 8010
80	85	15.2	44 0802 8515
80	85	20	44 0802 8520
80	85	20	44 0802 8019
80	86	12.7	44 0802 0080
80	86	15	44 0802 8086

Ø d	Ø D	L	Part number
80	86	19.2	44 0802 0081
80	86	25	44 0802 8024
81	85	8	44 0802 8185
82	88	12.7	44 0802 0082
82	88	13	44 0802 8288
82.55	88.9	9.52	44 0802 0083
82.55	88.9	12.7	44 0802 0147
82.55	88.9	19.05	44 0802 8255
84	89	9.7	44 0802 0002
84	90	12.7	44 0802 9084
84	90	12.7	44 0802 0084
84	90	25	44 0802 8490
85	90	5.6	44 0802 9085
85	90	9.7	44 0802 8590
85	90	15.2	44 0802 9015
85	91	12.7	44 0802 8591
85	91	19.2	44 0802 8519
85	91	25	44 0802 8524
86	90	15	44 0802 0086
88.9	95.25	19.05	44 0802 8895
89	95	12.7	44 0802 9589
89	95	12.7	44 0802 0089
90	94	15.2	44 0802 9094
90	95	5.6	44 0802 0157
90	95	9.7	44 0802 9095
90	95	15.2	44 0802 9515
90	96	9.7	44 0802 9096
90	96	12.7	44 0802 0090
90	96	19.2	44 0802 0091
90	98	18	44 0802 9098
92	98	12.7	44 0802 0092
94	100	12.7	44 0802 1012
94	100	12.7	44 0802 0094
94	100	19.2	44 0802 1094
95	99	8	44 0802 9599
95	100	5.6	44 0802 1056
95	100	9.7	44 0802 1097
95	100	9.7	44 0802 9510
95	100	15.2	44 0802 1015
95	100	20	44 0802 9520
95	100	25	44 0802 0163
95	101	12.7	44 0802 9512
95	101	19.2	44 0802 0095
95.25	101.6	9.52	44 0802 0152
95.25	101.6	15.87	44 0802 9525
95.25	101.6	25.4	44 0802 0024
96	100	10.2	44 0802 9610
96	100	15	44 0802 0096
99	105	12.7	44 0802 0099
99	105	19.2	44 0802 9919

Ø d	Ø D	L	Part number
100	104	15.2	44 0802 0088
100	105	9.7	44 0802 1096
100	105	15.2	44 0802 0043
100	106	12.7	44 0802 0100
100	106	19.2	44 0802 0101
101	105	15.2	44 0802 0048
101	105	20	44 0802 1011
101.6	107.95	9.52	44 0802 1019
101.6	107.95	19.05	44 0802 1016
102	108	12.7	44 0802 0102
102	108	13	44 0802 1021
102	110	10	44 0802 1020
104	110	12.7	44 0802 0104
104	110	12.7	44 0802 0053
104	110	19.2	44 0802 1041
104	110	25	44 0802 1042
105	110	9.7	44 0802 1051
105	110	9.7	44 0802 1197
105	110	12.7	44 0802 0108
105	111	12.7	44 0802 0015
105	111	19.2	44 0802 0106
105	115	17	44 0802 0061
106	110	15	44 0802 1061
106	110	15	44 0802 1100
106	110	20	44 0802 1062
107.95	114.3	12.7	44 0802 0111
109	115	12.7	44 0802 0109
109	115	12.7	44 0802 0067
109	115	19.2	44 0802 1091
109	115	25	44 0802 1092
110	115	9.7	44 0802 0110
110	115	15	44 0802 0004
110	116	12.7	44 0802 1106
110	116	19.2	44 0802 1116
110	116	25	44 0802 1102
110	118	20	44 0802 1118
112	120	10	44 0802 0112
113	117	8	44 0802 0113
114	120	12.7	44 0802 0114
114	120	12.7	44 0802 1212
114	120	19.2	44 0802 1141
114	120	25	44 0802 1142
114	120	30	44 0802 1143
114.3	120.65	50.8	44 0802 1112
115	120	15.2	44 0802 1215
115	121	12.7	44 0802 0115
115	121	19.2	44 0802 1151
115	121	25	44 0802 1152
119	125	12.7	44 0802 0119
119	125	12.7	44 0802 0068

Ø d	Ø D	L	Part number
119	125	19.2	44 0802 1191
119	125	25	44 0802 1192
120	125	9.7	44 0802 1259
120	125	15.2	44 0802 1255
120	126	12.7	44 0802 0126
120	126	19.2	44 0802 1261
120	126	25	44 0802 0121
120.65	127	9.52	44 0802 0142
120.65	127	15.87	44 0802 1206
124	130	12.7	44 0802 1312
124	130	12.7	44 0802 0124
124	130	19.2	44 0802 1241
124	130	25	44 0802 1242
125	130	7.2	44 0802 1307
125	130	15.2	44 0802 1315
125	130	16	44 0802 0125
125	131	12.7	44 0802 1250
125	131	19.2	44 0802 1251
125	131	25	44 0802 1252
127	130	15	44 0802 0127
129	130	19.2	44 0802 1291
129	135	12.7	44 0802 0129
130	135	15.2	44 0802 1355
130	136	12.7	44 0802 0130
130	136	19.2	44 0802 1301
130	136	25	44 0802 0131
132	136	8	44 0802 0132
133	140	20	44 0802 0098
133.36	139.71	19.05	44 0802 1331
134	140	12.7	44 0802 0134
134	140	12.7	44 0802 0071
134	140	19.2	44 0802 1341
134	140	25	44 0802 1342
135	140	9.7	44 0802 1497
135	140	15.2	44 0802 1415
135	141	12.7	44 0802 1350
135	141	19.2	44 0802 1351
136	140	20	44 0802 0136
138	145	20	44 0802 0123
139	145	12.7	44 0802 0139
139	145	19.2	44 0802 1391
140	144	8	44 0802 0140
140	145	15.2	44 0802 0072
140	145	16	44 0802 1416
140	145	17	44 0802 1417
140	146	12.7	44 0802 1412
140	146	19.2	44 0802 1419
140	146	25	44 0802 1425
140	146	31.7	44 0802 1431
144	150	12.7	44 0802 1512

Ø d	Ø D	L	Part number
144	150	12.7	44 0802 0144
144	150	19.2	44 0802 1519
144	150	19.2	44 0802 1441
145	150	9.7	44 0802 1597
145	150	15	44 0802 0146
145	150	16	44 0802 0145
145	151	12.7	44 0802 1450
145	151	19.2	44 0802 1451
145	151	25	44 0802 1452
145	151	31.7	44 0802 1453
146	150	25	44 0802 0116
146.06	152.4	12.7	44 0802 0117
148	154	25	44 0802 0148
148	154	31.7	44 0802 1483
149	155	12.7	44 0802 0149
149	155	19.2	44 0802 1491
149	155	25	44 0802 1492
149	155	31.7	44 0802 1493
150	156	12.7	44 0802 0150
150	156	19.2	44 0802 1501
150	156	25	44 0802 1502
150	156	31.7	44 0802 1503
152.41	177.81	6.35	44 0802 0151
154	160	12.7	44 0802 0154
154	160	19.2	44 0802 1541
154	160	20	44 0802 0073
154	160	25	44 0802 1542
154	160	31.7	44 0802 1543
155	160	9.7	44 0802 1697
155	160	15.2	44 0802 1615
155	160	16	44 0802 0155
155	160	20	44 0802 0018
155	161	12.7	44 0802 1550
155	161	19.2	44 0802 1551
155	161	25	44 0802 1552
155	161	31.7	44 0802 1553
158	164	13	44 0802 0158
159	165	12.7	44 0802 0159
159	165	19.2	44 0802 1591
159	165	25	44 0802 1592
159	165	31.7	44 0802 1593
160	165	15.2	44 0802 0077
160	165	16	44 0802 0160
160	166	12.7	44 0802 0166
160	166	12.7	44 0802 1600
160	166	19.2	44 0802 1601
160	166	25	44 0802 1602
160	166	31.7	44 0802 1603
164	170	12.7	44 0802 0164
164	170	19.2	44 0802 1641

Ø d	Ø D	L	Part number
164	170	22	44 0802 0118
164	170	25	44 0802 1642
164	170	31.7	44 0802 1643
165	170	15.2	44 0802 1715
165	171	12.7	44 0802 0165
165	171	19.2	44 0802 1651
165	171	25	44 0802 1652
165	171	31.7	44 0802 1653
169	175	12.7	44 0802 0169
169	175	19.2	44 0802 1691
169	175	25	44 0802 1692
169	175	31.7	44 0802 1693
170	175	15.2	44 0802 1751
170	175	16	44 0802 0170
170	176	19.2	44 0802 1700
170	176	25	44 0802 1702
170	176	31.7	44 0802 1703
171.45	177.8	12.7	44 0802 0122
174	180	19.2	44 0802 0174
174	180	20	44 0802 1820
174	180	25	44 0802 1742
174	180	31.7	44 0802 1743
175	180	9.7	44 0802 1897
175	180	15	44 0802 0161
175	180	16	44 0802 0175
179	185	19.2	44 0802 0179
179	185	25	44 0802 1792
180	185	15.2	44 0802 0185
180	185	16	44 0802 0180
180	186	19.2	44 0802 1801
180	186	25	44 0802 0181
180	186	31.7	44 0802 1803
184	190	19.2	44 0802 0184
184	190	25	44 0802 1842
184	190	31.7	44 0802 1843
185	190	15.2	44 0802 1915
190	195	15.2	44 0802 1951
190	195	16	44 0802 0190
190	196	19.2	44 0802 1901
190	196	25	44 0802 1902
190	196	31.7	44 0802 1903
194	200	19.2	44 0802 0194
194	200	20	44 0802 2001
194	200	25	44 0802 1942
194	200	31.7	44 0802 1943
194	200	44.5	44 0802 1944
195	200	16	44 0802 0195
195	200	20	44 0802 2015
196	200	25	44 0802 0196
200	206	19.2	44 0802 0200

Ø d	Ø D	L	Part number
200	206	25	44 0802 2002
200	206	31.7	44 0802 2003
202	210	30	44 0802 0202
203.21	209.56	25.4	44 0802 0203
204	210	19.2	44 0802 0204
204	210	25	44 0802 2042
204	210	31.7	44 0802 2043
205	210	9.9	44 0802 0078
205	210	30	44 0802 0205
210	216	19.2	44 0802 0210
210	216	25.4	44 0802 2102
210	216	31.7	44 0802 2103
214	220	19.2	44 0802 0214
214	220	20	44 0802 2220
214	220	25	44 0802 2142
214	220	31.7	44 0802 2143
220	226	19.2	44 0802 0220
220	226	25	44 0802 2202
220	226	31.7	44 0802 2203
224	230	19.2	44 0802 0224
224	230	25	44 0802 2242
224	230	31.7	44 0802 2243
227	233	19.2	44 0802 0227
227	233	25	44 0802 2272
227	233	31.7	44 0802 2273
230	236	19.2	44 0802 0230
234	240	19.2	44 0802 0234
240	246	19.2	44 0802 0240
244	250	19.2	44 0802 0244
244	250	20	44 0802 2520
250	256	19.2	44 0802 0250
254	260	19.2	44 0802 0254
260	266	19.2	44 0802 0260
260.36	266.71	12.7	44 0802 2603
264	270	19.2	44 0802 0264
270	276	19.2	44 0802 0270
274	280	19.2	44 0802 0274
280	286	19.2	44 0802 0280
284	290	19.2	44 0802 0284
290	296	19.2	44 0802 0290
294	300	19.2	44 0802 0294
300	306	19.2	44 0802 0300

WRIP

44.0810 | FIC

Dimensional list coming soon

WRIR

44.0811 | FIC

Dimensional list coming soon

Ø d	Ø D	L	Part number
55	60	5.6	44 0811 5560
67	72	9.7	44 0811 6772
75	80	9.7	44 0811 7580
85	90	9.7	44 0811 8590

Selection guide

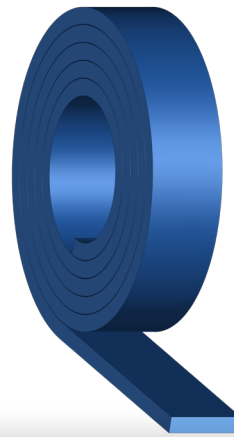
Application priority	Recommended material	Rating
Maximum static radial load	WEARTEC T3	★ ★ ★
Maximum dynamic radial load	WEARTEC T3	★ ★ ★
High speed (> 1 m/s)	WEARTEC T3	★ ★ ★
Low friction / energy efficiency	WEARTEC T3	★ ★ ★
Elimination of stick-slip	WEARTEC T3	★ ★ ★
Robustness for construction equipment, mobile hydraulics and shocks	WEARTEC T1	★ ★ ★
Vibration resistance	WEARTEC T1	★ ★
Chrome-plated rod longevity	WEARTEC T3	★ ★ ★
High temperature (between 120°C and 130°C)	WEARTEC T1	★ ★
Reduced cost / light-duty applications	POM + Glass fibers	★ ★ ★
Synthetic fluids / phosphate esters	WEARTEC T3	★ ★

TECBZ

46.0101 | FIC*

TECKOT

46.0144 | FIC*



Techné also offers guide rings made from coiled guide strip. These guide rings are commonly used for repair applications.

TECBZ

The TECBZ guide strip is composed of bronze-filled PTFE. It offers excellent temperature resistance and broad chemical compatibility. It also features a low friction coefficient.

TECKOT

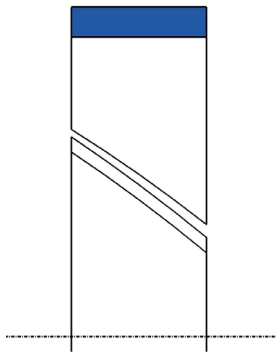
The TECKOT guide strip is composed of a polyester resin base reinforced with synthetic fibres and PTFE. It offers the same properties as the WEARTEC T3 guide ring.

TECBZ

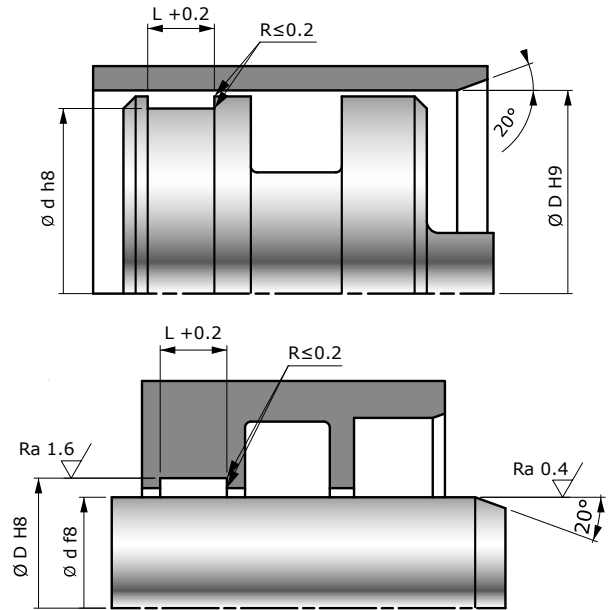
Material	40% Bronze PTFE
Color	Brown
Speed	≤ 15 m/s
Temperature	-200 / +200 °C
Application	Dry running possible Excellent temperature resistance High chemical compatibility

TECKOT

Material	Polyester resin Synthetic fibers PTFE
Color	Light blue
Speed	≤ 2.5 m/s
Temperature	-40 / +120 °C
Application	High chemical compatibility High permissible loads



TECBZ / TECKOT composition



TECBZ / TECKOT assembly recommendation

Technical comparison

	TECBZ	TECKOT
Material	PTFE 40% Bronze	Polyester resin + Synthetic fibers + PTFE
Max. static load (MPa)	< 140	< 330
Max. dynamic load (MPa)	< 35	< 70
Maximum permissible speed (m/s)	< 15	< 2.5
Density (g/cm³)	3.15 – 3.25	1.21 – 1.25
Hardness	57-67 Shore D	HRM 90-100
Impact/vibration resistance	Medium	Good
Creep resistance	Good	Good
Particle absorption	Limited	Very good
Max. service temperature (°C)	-60/+150	-40/+120

Advantages & limitations

	TECBZ	TECKOT
Radial load capacity	Medium static resistance Medium dynamic resistance	Excellent static resistance Good dynamic resistance
Dynamic speed	High permissible speed	Medium permissible speed Suitable for high-frequency cycles and oscillating movements
Impact and vibration resistance	Good Sensitive to sudden impacts	Good Flexible and slightly damping
Thermal behaviour	Good performance up to 150°C	Good performance up to 120°C Low heat generation due to friction
Chemical resistance	Excellent general compatibility Risk of corrosion with acids	Excellent compatibility with oils, phosphate esters and synthetic fluids
Particle absorption	Medium	Very good
Typical applications	Standard cylinders Light-duty hydraulics	Standard cylinders Servo cylinders Precision equipment Mining machinery Tunnel boring machines

TECBZ

46.0101 | FIC*

Dimensional list

L	H	E	Part number	L	H	E	Part number	L	H	E	Part number
3.2	[3]	1.5	46 0101 3215	9.7	[9.5]	4	46 0101 0974	19.7	[19.5]	2	46 0101 1952
4	[3.8]	1.5	46 0101 4155	9.8	[9.6]	1.5	46 0101 9815	19.7	[19.5]	2.5	46 0101 1972
4.2	[4]	1.5	46 0101 4156	10	[9.8]	1	46 0101 0042	20	[19.8]	1.5	46 0101 2015
4.2	[4]	2.5	46 0101 4225	10	[9.8]	1.5	46 0101 1015	20	[19.8]	2	46 0101 0202
4.5	[4.3]	3.2	46 0101 4532	10	[9.8]	2	46 0101 1020	20	[19.8]	2.5	46 0101 2025
5.4	[5.2]	2	46 0101 0542	10	[9.7]	2	46 0101 0046	20	[19.8]	2.5	46 0101 2026
5.6	[5.4]	1.5	46 0101 5615	10	[9.8]	2.5	46 0101 1025	20	[19.8]	3	46 0101 0203
5.6	[5.4]	2	46 0101 5620	10	[9.8]	3	46 0101 1030	24.5	[24.3]	2.5	46 0101 2425
5.6	[5.4]	2	46 0101 0056	10	[9.8]	4	46 0101 0104	25	[24.8]	2	46 0101 0252
5.6	[5.4]	2.5	46 0101 5625	10.2	[10]	1.5	46 0101 0043	25	[24.8]	2.5	46 0101 2525
6.3	[6.1]	1.5	46 0101 6315	12	[11.8]	2	46 0101 1220	25	[24.8]	3	46 0101 0253
6.3	[6.1]	2	46 0101 6320	12.7	[12.5]	1.5	46 0101 1271	25	[24.8]	4	46 0101 0254
6.3	[6.1]	2.5	46 0101 6325	12.7	[12.5]	2	46 0101 1272	30	[29.8]	2	46 0101 0302
6.3	[6.1]	3.2	46 0101 0633	12.7	[12.5]	2.5	46 0101 1270	30	[29.8]	2.5	46 0101 2952
6.5	[6.3]	4	46 0101 0044	12.7	[12.5]	3	46 0101 1283	30	[29.8]	3	46 0101 0303
8	[7.8]	2	46 0101 0082	15	[14.8]	1.5	46 0101 1515	31.7	[31.5]	3	46 0101 3175
8	[7.8]	2.5	46 0101 7925	15	[14.8]	2	46 0101 0152	35	[34.8]	2.5	46 0101 3525
8.1	[7.9]	1.5	46 0101 8115	15	[14.8]	2.5	46 0101 1525	35	[34.8]	3	46 0101 3530
8.1	[7.9]	2	46 0101 0820	15	[14.8]	2.5	46 0101 0045	35	[34.8]	4	46 0101 3540
8.1	[7.9]	2.5	46 0101 8125	15	[14.8]	3	46 0101 1531	35	[34.8]	5	46 0101 3556
8.1	[7.9]	4	46 0101 0084	15	[14.8]	4	46 0101 0154	40	[39.8]	1.5	46 0101 4015
9.7	[9.5]	1.5	46 0101 9715	15.5	[15.3]	2	46 0101 0155	40	[39.8]	2	46 0101 0402
9.7	[9.5]	2	46 0101 0972	16	[15.8]	2	46 0101 1620	40	[39.8]	2.5	46 0101 4025
9.7	[9.5]	2.5	46 0101 9725	16	[15.8]	2.5	46 0101 1625	45	[44.8]	2	46 0101 0452
9.7	[9.5]	2.5	46 0101 0002	16	[15.8]	3.2	46 0101 1632	50	[49.8]	2	46 0101 0502
9.7	[9.5]	3	46 0101 0973	19.2	[19]	3	46 0101 1923	50	[49.8]	2.5	46 0101 5025
9.7	[9.5]	3.2	46 0101 9732	19.3	[19.1]	3.2	46 0101 0193	50	[49.8]	4	46 0101 5004

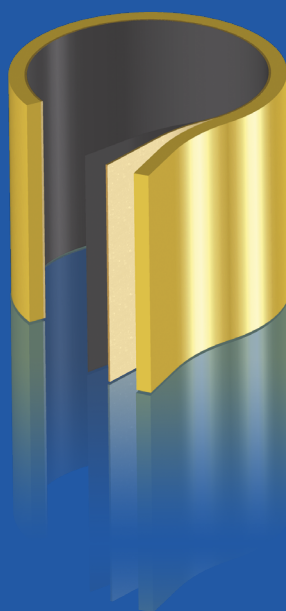
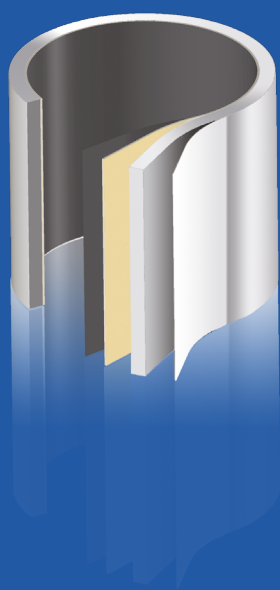
TECKOT

46.0144 | FIC*

Dimensional list

L	H	E	Part number	L	H	E	Part number	L	H	E	Part number
5.6	[5.4]	2.5	46 0144 5625	15	[14.8]	2	46 0144 1502	20	[19.8]	2.5	46 0144 2025
6.3	[6.1]	2.5	46 0144 6325	15	[14.8]	2.5	46 0144 1525	20	19.8	3	46 0144 0203
9.7	[9.5]	2.5	46 0144 9725	15	[14.8]	3	46 0144 1503	20	[19.8]	4	46 0144 0204
9.7	[9.5]	3	46 0144 9703	15	[14.8]	4	46 0144 1504	25	[24.8]	2	46 0144 0252
10	[9.8]	2	46 0144 1002	16	[15.8]	2.5	46 0144 1625	25	[24.8]	2.5	46 0144 2525
12.7	[12.5]	2.5	46 0144 1225	19.2	[19]	3	46 0144 1923	30	[29.8]	2.5	46 0144 3025
12.7	[12.5]	3	46 0144 1273	20	[19.8]	2	46 0144 0202	40	[39.8]	1.5	46 0144 0001

Bushings

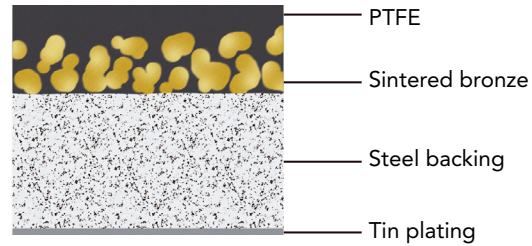


Bushings

69.0003 & 69.0010

TU and TU-B bushings are self-lubricating rolled bearings, composed of multiple layers.

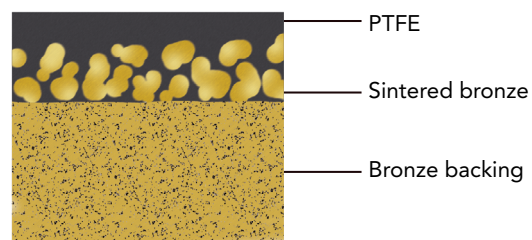
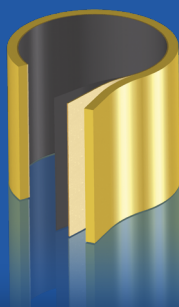
TU bushings



TU bushings are composed of 3 layers: a solid lubricant layer based on PTFE, providing excellent wear resistance and low friction properties.

A porous sintered bronze sliding layer, contributing to thermal conductivity, dimensional stability and adhesion of the solid lubricant; a steel structural layer, improving mechanical strength; and finally, a tin-plated layer protecting the steel layer.

TU-B bushings



TU-B bushings are composed of 3 layers: a solid lubricant layer based on PTFE, providing excellent wear resistance and low friction properties.

A porous sintered bronze sliding layer, contributing to thermal conductivity, dimensional stability and adhesion of the solid lubricant; and finally, a bronze structural layer, improving mechanical strength. Bronze provides high corrosion resistance and excellent thermal conductivity; therefore, tin plating protection is not required.

Mechanical properties

Propriétés	Applications	TU	TU-B
Load (MPa)	Static	250	
	Dynamic	140	
	Oscillation	60	
Speed (m/s)	Dry running	2,5	
	Lubrication	> 3	
PV facto (N/mm ²)(m/s)	Dry running, peak	3.6	
	Dry running, continuous	1,8	
	Oil lubrication	> 10	
Friction coefficient	Dry running	0.08 - 0.2	
	Oil lubrication	0.02 - 0.07	
Shaft hardness (HB)		> 120	
Shaft surface finish (Ra, µm)	Dry	0.4 – 1.25	
	Oil lubrication	0.05 – 0.2	
Operating temperature range (°C)		-200/+280	
Thermal conductivity W(m.K) ⁻¹		40	60
Thermal expansion coefficient (K ⁻¹)		11.10 ⁻⁶	18.10 ⁻⁶

Advantages and limitations

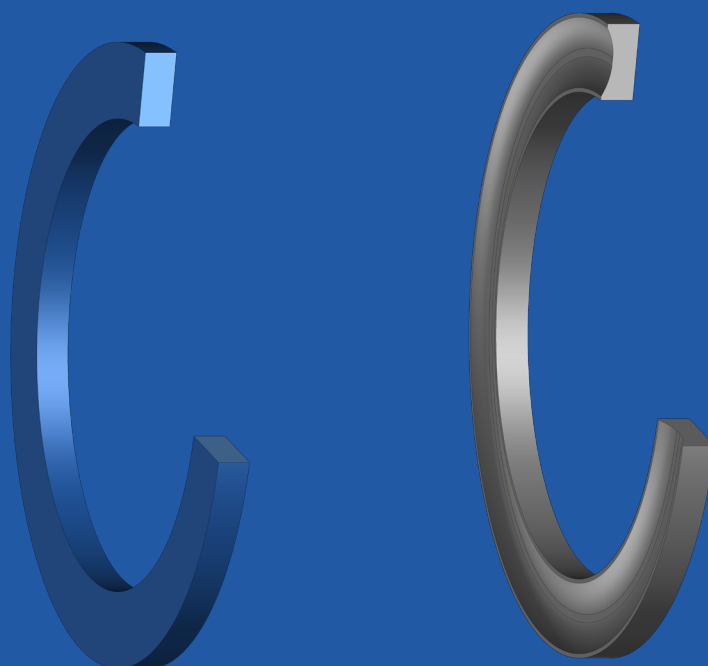
Advantages	Limitations
Good mechanical strength High permissible PV factor Excellent friction coefficient Dry running capability Wide temperature range	Sensitive to contamination Assembly tool required

Applications

TU and TU-B bushings are generally used in hydraulic cylinder mounting joints, where access to lubrication is difficult. They are also used as guides in high-load applications.



Back-up rings



Back-up rings

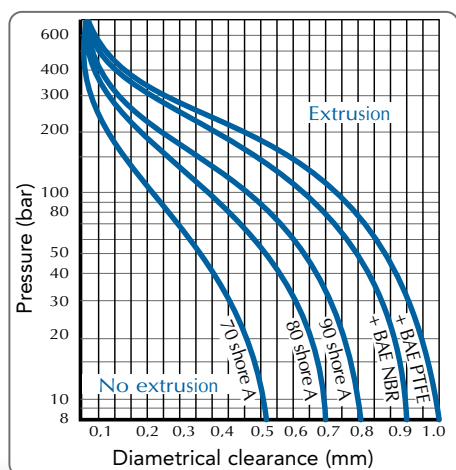
80.0104 | ST8

80.0101 | ST9

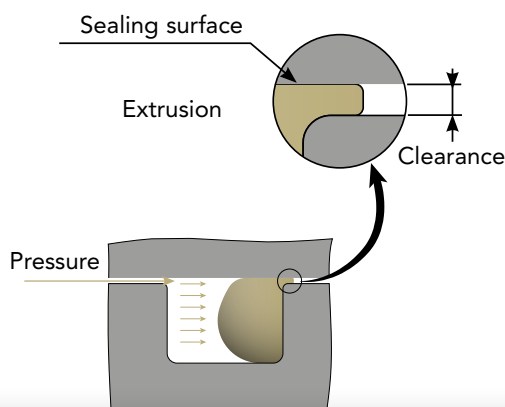


Back-up rings are used in systems with severe pressures where extrusion risks are high. The type of anti-extrusion ring must be selected according to the applied pressure and the type of movement.

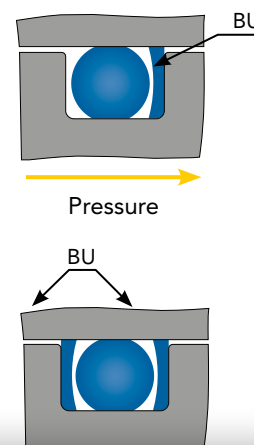
How to choose chart



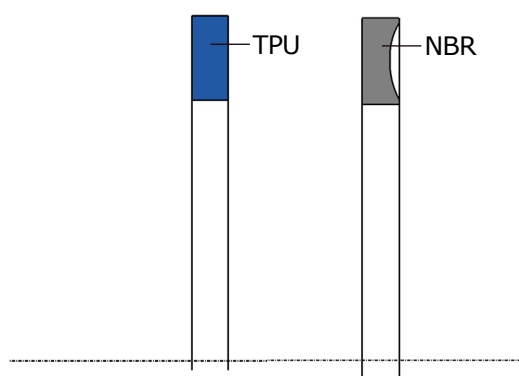
Principle of extrusion



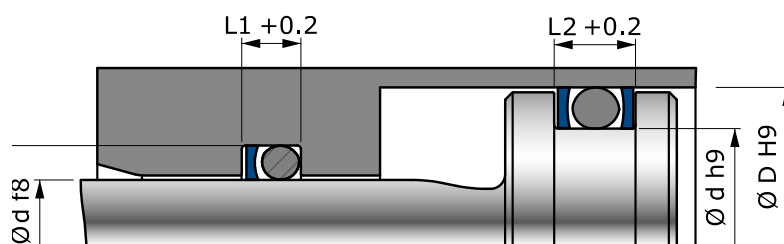
Setting of BU according to pressure



	ST8	ST9
Material	TPU	NBR
Color	Yellow	Black
Hardness	95 Sh A	90 Sh A
Speed	≤ 0.5 m/s	≤ 0.5 m/s
Temperature	-20 / +120 °C	-25 / +100 °C
Application	Static and dynamic, reciprocating linear and rotary movement	Static recommended; dynamic possible only with reciprocating linear movement



Back-up ring composition



Back-up ring assembly recommendation

Advantages

- Extended O-ring service life
- Cost-effective solution
- Resistance to higher pressures than an O-ring alone assembly

Assembly

- Closed groove
- Installation with a suitable tool

BU		Ø s				
		1.78	2.62	3.53	5.33	6.99
ST8	b5	1.4	1.4	1.4	1.7	2.5
	t	1.35	2.18	3	4.65	5.99
ST9	b5	1.4	1.4	1.4	1.8	2.6
	b7	1.7	1.8	2.0	2.8	4.1
	t	1.35	2.18	3	4.65	5.99

To determine L1 and L2, please refer to our elastomer sealing documentation.

The coding of anti-extrusion rings is as follows:

80.0101.XXXX for ST9 anti-extrusion rings
 80.0104.XXXX for ST8 anti-extrusion rings
 XXXX = associated O-ring number (O-ring size)

Example: 80.0101.0050 / 80.0104.0050 for O-ring
 Ø133.1 x 1.78

Back-up rings

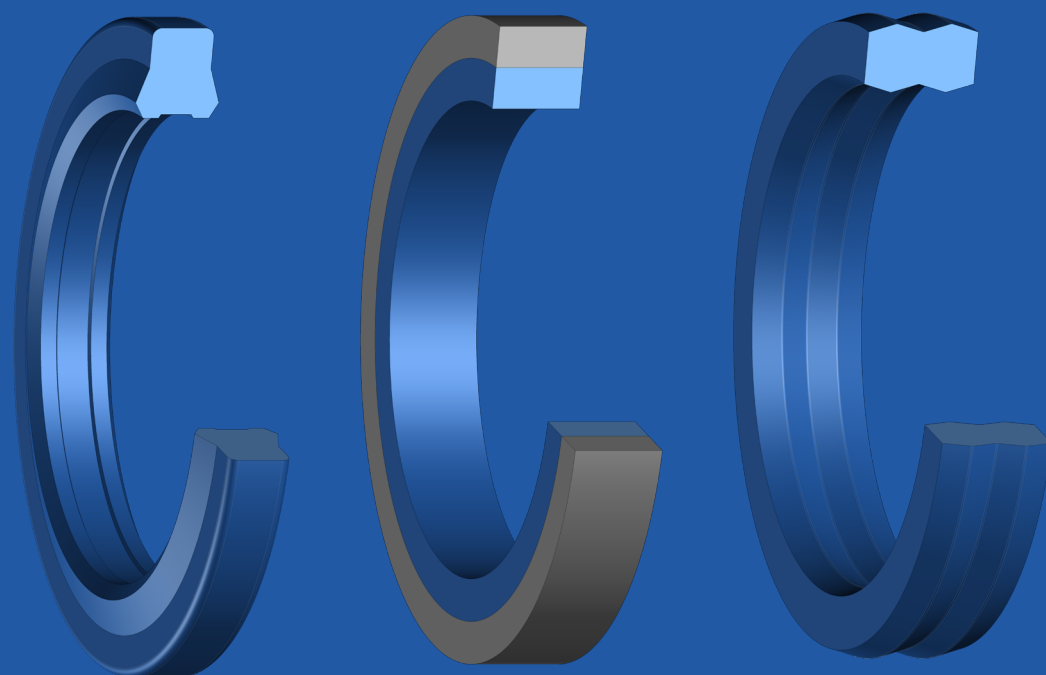
80.0101 | ST9
80.0104 | ST8

OR size				OR size				OR size			
Ø ID		Ø CS	N° OR	Ø ID		Ø CS	N° OR	Ø ID		Ø CS	N° OR
0.74	x	1.78	1	85.34	x	1.78	534	39.35	x	2.62	129
1.07	x	1.78	2	91.7	x	1.78	536	40.95	x	2.62	130
1.42	x	1.78	3	98.05	x	1.78	538	42.52	x	2.62	131
1.78	x	1.78	4	104.4	x	1.78	540	44.12	x	2.62	132
2.57	x	1.78	5	110.74	x	1.78	542	45.7	x	2.62	133
3.69	x	1.78	7	117.1	x	1.78	544	47.3	x	2.62	134
5.28	x	1.78	9	123.44	x	1.78	546	48.9	x	2.62	135
6.07	x	1.78	10	129.4	x	1.78	548	50.47	x	2.62	136
7.66	x	1.78	11	135.76	x	1.78	550	52.07	x	2.62	137
9.25	x	1.78	12	138.94	x	1.78	551	53.65	x	2.62	138
10.82	x	1.78	13	142.11	x	1.78	552	55.25	x	2.62	139
12.42	x	1.78	14	145.29	x	1.78	553	56.82	x	2.62	140
14	x	1.78	15	148.46	x	1.78	554	58.42	x	2.62	141
15.6	x	1.78	16	151.64	x	1.78	555	60	x	2.62	142
17.16	x	1.78	17	154.81	x	1.78	556	61.6	x	2.62	143
18.77	x	1.78	18	158	x	1.78	557	63.17	x	2.62	144
21.95	x	1.78	20	161.16	x	1.78	558	64.77	x	2.62	145
23.52	x	1.78	21	164.34	x	1.78	559	66.35	x	2.62	146
25.12	x	1.78	22	167.51	x	1.78	560	67.95	x	2.62	147
26.7	x	1.78	23	170.69	x	1.78	561	69.52	x	2.62	148
28.3	x	1.78	24	173.87	x	1.78	562	71.12	x	2.62	149
29.87	x	1.78	25	178	x	1.78	606	72.7	x	2.62	150
31.47	x	1.78	26	254	x	1.78	607	75.88	x	2.62	151
33.05	x	1.78	27	6.75	x	1.78	610	82.22	x	2.62	152
34.65	x	1.78	28	8.73	x	1.78	611	88.58	x	2.62	153
37.82	x	1.78	29	1.24	x	2.62	102	94.93	x	2.62	154
41	x	1.78	30	2.06	x	2.62	103	101.28	x	2.62	155
44.17	x	1.78	31	2.84	x	2.62	104	107.63	x	2.62	156
47.37	x	1.78	32	3.63	x	2.62	105	113.98	x	2.62	157
50.52	x	1.78	33	4.42	x	2.62	106	120.33	x	2.62	158
53.67	x	1.78	34	5.23	x	2.62	107	126.67	x	2.62	159
56.87	x	1.78	35	6.02	x	2.62	108	133	x	2.62	160
60.04	x	1.78	36	7.6	x	2.62	109	139.38	x	2.62	161
63.22	x	1.78	37	9.19	x	2.62	110	145.73	x	2.62	162
66.4	x	1.78	38	10.78	x	2.62	111	152.07	x	2.62	163
69.57	x	1.78	39	13.95	x	2.62	113	158.43	x	2.62	164
72.76	x	1.78	40	15.54	x	2.62	114	164.78	x	2.62	165
75.94	x	1.78	41	17.13	x	2.62	115	171.13	x	2.62	166
82.28	x	1.78	42	18.72	x	2.62	116	177.48	x	2.62	167
88.64	x	1.78	43	20.29	x	2.62	117	183.83	x	2.62	168
95	x	1.78	44	21.9	x	2.62	118	190.18	x	2.62	169
101.34	x	1.78	45	23.47	x	2.62	119	196.53	x	2.62	170
107.7	x	1.78	46	25.07	x	2.62	120	202.88	x	2.62	171
114	x	1.78	47	26.65	x	2.62	121	209.23	x	2.62	172
120.4	x	1.78	48	28.25	x	2.62	122	215.58	x	2.62	173
126.76	x	1.78	49	29.83	x	2.62	123	221.93	x	2.62	174
133.1	x	1.78	50	31.42	x	2.62	124	228.28	x	2.62	175
36.27	x	1.78	517	33	x	2.62	125	234.63	x	2.62	176
39.45	x	1.78	519	34.6	x	2.62	126	240.98	x	2.62	177
79	x	1.78	532	36.17	x	2.62	127	247.33	x	2.62	178

OR size				OR size				OR size			
Ø ID		Ø CS	N° OR	Ø ID		Ø CS	N° OR	Ø ID		Ø CS	N° OR
9.92	x	2.62	613	110.72	x	3.53	245	31.12	x	5.33	322
11.91	x	2.62	614	113.9	x	3.53	246	32.69	x	5.33	323
13.1	x	2.62	615	117.07	x	3.53	247	34.29	x	5.33	324
15.08	x	2.62	616	120.24	x	3.53	248	37.47	x	5.33	325
17.86	x	2.62	617	123.42	x	3.53	249	40.65	x	5.33	326
74.3	x	2.62	640	126.6	x	3.53	250	43.82	x	5.33	327
77.5	x	2.62	641	129.77	x	3.53	251	47	x	5.33	328
80.6	x	2.62	642	132.94	x	3.53	252	50.16	x	5.33	329
83.8	x	2.62	643	136.12	x	3.53	253	53.34	x	5.33	330
4.34	x	3.53	201	139.3	x	3.53	254	56.52	x	5.33	331
5.94	x	3.53	202	142.47	x	3.53	255	59.7	x	5.33	332
7.52	x	3.53	203	145.65	x	3.53	256	62.87	x	5.33	333
9.12	x	3.53	204	158.35	x	3.53	259	66.04	x	5.33	334
10.69	x	3.53	205	164.7	x	3.53	260	69.22	x	5.33	335
12.29	x	3.53	206	171.05	x	3.53	261	72.4	x	5.33	336
13.87	x	3.53	207	177.4	x	3.53	262	75.57	x	5.33	337
15.47	x	3.53	208	183.75	x	3.53	263	78.74	x	5.33	338
17.04	x	3.53	209	190.1	x	3.53	264	81.92	x	5.33	339
18.64	x	3.53	210	196.45	x	3.53	265	85.1	x	5.33	340
20.22	x	3.53	211	202.8	x	3.53	266	88.27	x	5.33	341
21.82	x	3.53	212	209.15	x	3.53	267	91.44	x	5.33	342
25	x	3.53	214	215.5	x	3.53	268	94.62	x	5.33	343
26.57	x	3.53	215	221.85	x	3.53	269	97.8	x	5.33	344
28.17	x	3.53	216	228.2	x	3.53	270	100.97	x	5.33	345
29.75	x	3.53	217	234.55	x	3.53	271	104.14	x	5.33	346
31.34	x	3.53	218	240.9	x	3.53	272	107.32	x	5.33	347
32.93	x	3.53	219	247.25	x	3.53	273	110.5	x	5.33	348
34.52	x	3.53	220	266.3	x	3.53	275	113.67	x	5.33	349
36.1	x	3.53	221	279	x	3.53	276	116.84	x	5.33	350
37.7	x	3.53	222	291.7	x	3.53	277	120.02	x	5.33	351
40.87	x	3.53	223	9.92	x	2.62	613	123.2	x	5.33	352
44.05	x	3.53	224	329.8	x	3.53	279	126.37	x	5.33	353
47.23	x	3.53	225	355.2	x	3.53	280	129.54	x	5.33	354
50.4	x	3.53	226	380.6	x	3.53	281	135.9	x	5.33	356
53.57	x	3.53	227	405.26	x	3.53	282	139.07	x	5.33	357
56.75	x	3.53	228	430.66	x	3.53	283	142.24	x	5.33	358
59.92	x	3.53	229	456.06	x	3.53	284	145.42	x	5.33	359
63.1	x	3.53	230	25.8	x	3.53	618	148.6	x	5.33	360
66.27	x	3.53	231	10.46	x	5.33	309	151.77	x	5.33	361
69.44	x	3.53	232	12.07	x	5.33	310	158.12	x	5.33	362
72.62	x	3.53	233	13.64	x	5.33	311	164.47	x	5.33	363
75.8	x	3.53	234	15.24	x	5.33	312	170.82	x	5.33	364
78.97	x	3.53	235	16.81	x	5.33	313	177.17	x	5.33	365
82.14	x	3.53	236	18.42	x	5.33	314	183.52	x	5.33	366
85.32	x	3.53	237	19.99	x	5.33	315	189.87	x	5.33	367
88.5	x	3.53	238	21.59	x	5.33	316	196.22	x	5.33	368
91.67	x	3.53	239	23.16	x	5.33	317	208.92	x	5.33	370
94.84	x	3.53	240	24.77	x	5.33	318	215.27	x	5.33	371
98.02	x	3.53	241	26.34	x	5.33	319	221.62	x	5.33	372
101.2	x	3.53	242	27.94	x	5.33	320	227.97	x	5.33	373
104.37	x	3.53	243	29.51	x	5.33	321	234.32	x	5.33	374

OR size				OR size			
Ø ID		Ø CS	N° OR	Ø ID		Ø CS	N° OR
247.02	x	5.33	376	202.57	x	6.99	445
253.37	x	5.33	377	215.27	x	6.99	446
266.07	x	5.33	378	227.97	x	6.99	447
278.77	x	5.33	379	240.67	x	6.99	448
291.47	x	5.33	380	253.57	x	6.99	449
304.17	x	5.33	381	266.07	x	6.99	450
354.97	x	5.33	383	278.77	x	6.99	451
380.37	x	5.33	384	291.47	x	6.99	452
405.26	x	5.33	385	304.17	x	6.99	453
430.66	x	5.33	386	316.87	x	6.99	454
456.06	x	5.33	387	329.57	x	6.99	455
481.46	x	5.33	388	342.27	x	6.99	456
506.86	x	5.33	389	354.97	x	6.99	457
532.26	x	5.33	390	367.67	x	6.99	458
557.66	x	5.33	391	380.37	x	6.99	459
582.68	x	5.33	392	393.07	x	6.99	460
608.08	x	5.33	393	405.26	x	6.99	461
533.48	x	5.33	394	417.96	x	6.99	462
658.88	x	5.33	395	430.66	x	6.99	463
74.63	x	5.33	619	443.36	x	6.99	464
79.77	x	5.33	620	456.06	x	6.99	465
89.69	x	5.33	621	468.76	x	6.99	466
100	x	5.33	622	481.46	x	6.99	467
109.54	x	5.33	623	494.16	x	6.99	468
155	x	5.33	644	506.86	x	6.99	469
161.3	x	5.33	645	532.26	x	6.99	470
167.7	x	5.33	646	557.66	x	6.99	471
174	x	5.33	647	582.68	x	6.99	472
113.67	x	6.99	425	608.08	x	6.99	473
116.84	x	6.99	426	633.48	x	6.99	474
120.02	x	6.99	427	658.88	x	6.99	475
123.2	x	6.99	428	114.7	x	6.99	624
126.37	x	6.99	429	124.6	x	6.99	625
129.54	x	6.99	430	134.5	x	6.99	626
132.72	x	6.99	431	159.5	x	6.99	627
135.9	x	6.99	432	166.7	x	6.99	628
139.07	x	6.99	433	310.5	x	6.99	648
142.24	x	6.99	434	323.2	x	6.99	649
145.42	x	6.99	435	335.9	x	6.99	650
148.6	x	6.99	436	208.92	x	6.99	674
151.77	x	6.99	437	221.62	x	6.99	676
158.12	x	6.99	438	234.32	x	6.99	678
164.47	x	6.99	439	247	x	6.99	680
170.82	x	6.99	440	259.7	x	6.99	682
177.17	x	6.99	441	272.4	x	6.99	684
183.52	x	6.99	442	285.1	x	6.99	686
196.22	x	6.99	444	297.8	x	6.99	688

Static hydraulic seals



OPPU

05.0310| XS

TPU seal for static applications. This profile is an excellent alternative to the combination of an O-ring and an anti-extrusion ring. Its one-piece design eliminates the risk of O-ring twisting or incorrect installation of the anti-extrusion ring. This profile is particularly suitable for very high-pressure and pressure pulsation applications. It also offers excellent protection against external contamination.

Applications

- Standard cylinders
- Industrial presses
- Agricultural equipment
- Construction equipment

Advantages

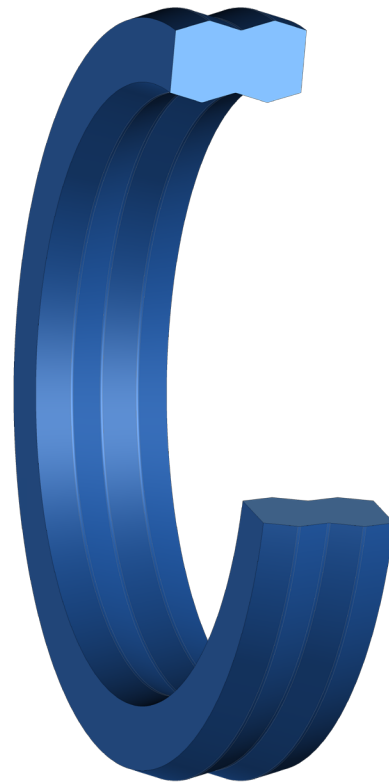
- No twisting
- Excellent abrasion resistance
- Excellent stability
- Excellent contamination barrier

Assembly

- Closed groove

Recommendations

- Rod surface finish:
 $R_a \leq 1.6 \mu\text{m}$
- Housing surface finish:
 - Groove flanks: $R_a < 3.2 \mu\text{m}$
 - Groove bottom: $R_a < 3.2 \mu\text{m}$



Material

TPU

Color

Blue

Hardness

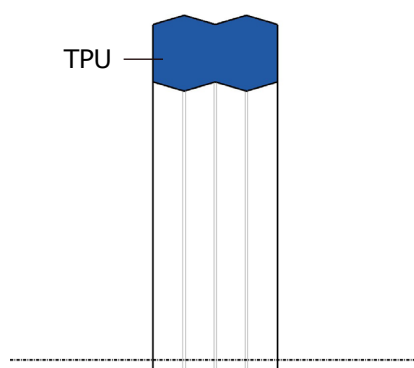
93 Sh A

Pressure

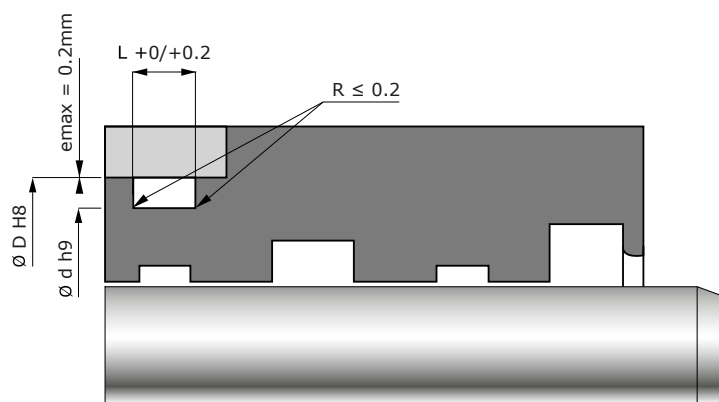
$\leq 500 \text{ bar}$

Temperature

$-30 / +100 \text{ }^{\circ}\text{C}$



OPPU composition



OPPU assembly recommendation

Dimensional list

Ø D	Ø d	L	Part number
30	25.4	5.4	05 0310 3025
32	27.4	5.4	05 0310 3227
40	35.4	5.4	05 0310 4035
45	40	5.4	05 0310 4540
50	44.6	6.2	05 0310 5044
50	45.4	5.4	05 0310 5045
55	49.6	6.2	05 0310 5549
55	51	3.6	05 0310 5551
60	54.4	5.8	05 0310 6054
60	54.6	6.2	05 0310 6062
63	57.4	4.8	05 0310 6357
63	57.6	6.2	05 0310 6362
65	59.4	5	05 0310 6559
65	59.6	6.2	05 0310 6562
65	60	5	05 0310 6560
70	65	5	05 0310 7065
75	69.4	5.3	05 0310 7569
75	69.6	6.2	05 0310 7562
80	74.4	5.3	05 0310 8074
85	79.4	5.3	05 0310 8579
90	84.4	4.8	05 0310 9084
100	91.4	9	05 0310 0100
105	96.4	9	05 0310 0105
110	101.4	9	05 0310 0110
125	115.8	9.7	05 0310 1259
125	116.4	9	05 0310 0125
140	131.4	9	05 0310 0140

BHS

05.0110

Dual-hardness TPU flange seal for SAE J 518C hydraulic connections.

Applications

- Construction equipment
- Industrial presses
- Agricultural equipment
- Material handling equipment

Advantages

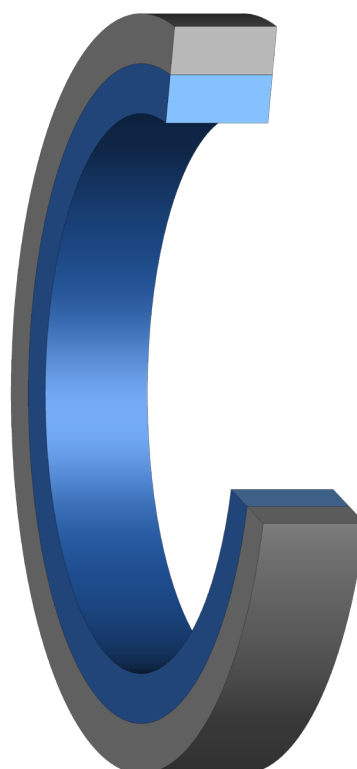
- Extrusion resistance on the outer side
- Sealing on the inner side
- Replacement of O-rings

Assembly

- Closed groove

Recommendations

- Connections according to SAE J 518C standard



Material

TPU

Pressure

≤ 400 bar

Colors

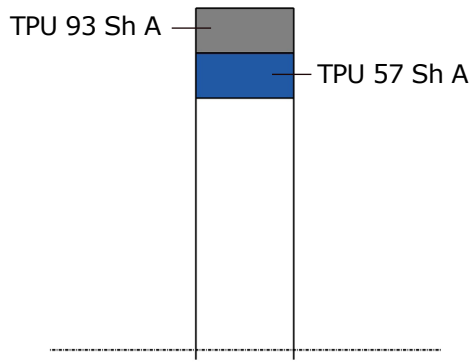
OD: black
ID: yellow

Temperature

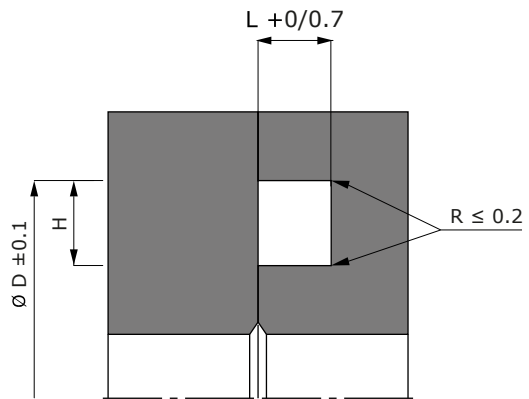
-30 / +100 °C

Hardness

OD: 93 Sh A
ID: 57 Sh A



BHS composition



BHS assembly recommendation

Dimensional list

DN	N°	Part number
1"	N°16	05 0110 0016
1"1/2	N°24	05 0110 0024
1"1/4	N°20	05 0110 0020
1/2"	N°08	05 0110 0008
2"	N°32	05 0110 0032
2"1/2	N°40	05 0110 0040
3"	N°48	05 0110 0048
3"1/2	N°56	05 0110 0056
3/4"	N°12	05 0110 0012
4"	N°64	05 0110 0064
5"	N°80	05 0110 0080

SAE

05.0100 | S8

TPU flange seal for SAE J 518 hydraulic connections.

Applications

- Construction equipment
- Industrial presses
- Agricultural equipment
- Material handling equipment

Advantages

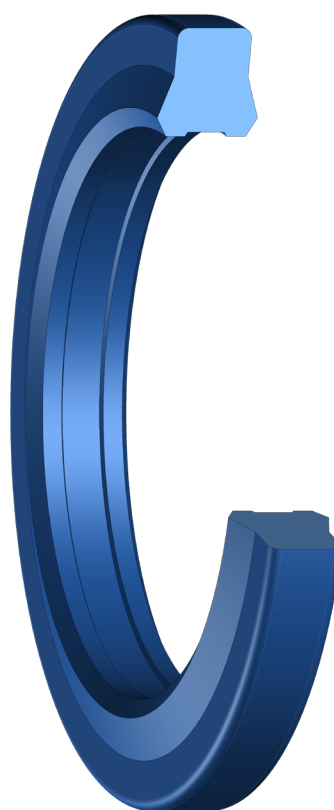
- Excellent extrusion resistance

Assembly

- Closed groove

Recommendations

- Connections according to SAE J 518 standard



Material

TPU

Pressure

≤ 400 bar

Color

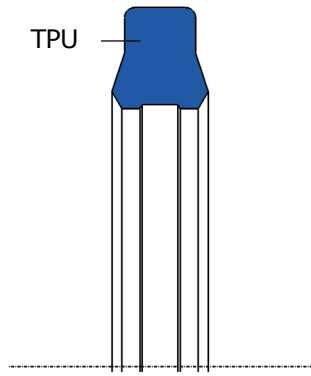
Blue

Temperature

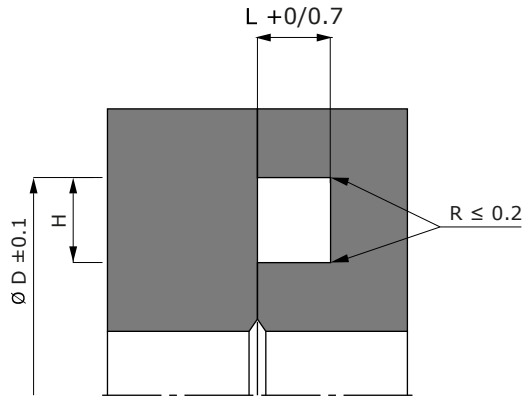
-30 / +100 °C

Hardness

93 Sh A



SAE composition



SAE assembly recommendation

Dimensional list

DN	Part number
1"	05 0100 0100
1"1/2	05 0100 0112
1"1/4	05 0100 0114
1/2"	05 0100 0012
2"	05 0100 0200
2"1/2	05 0100 0212
3"	05 0100 0013
3/4"	05 0100 0034

Machined Hydraulic Seals

INTRODUCTION

Techné's climate-controlled material stock, with full traceability, enables short lead times for the production of machined parts.

From single parts to series production, from standard seals to custom solutions, Techné machines parts made from elastomers, thermoplastic elastomers, and thermoplastics.

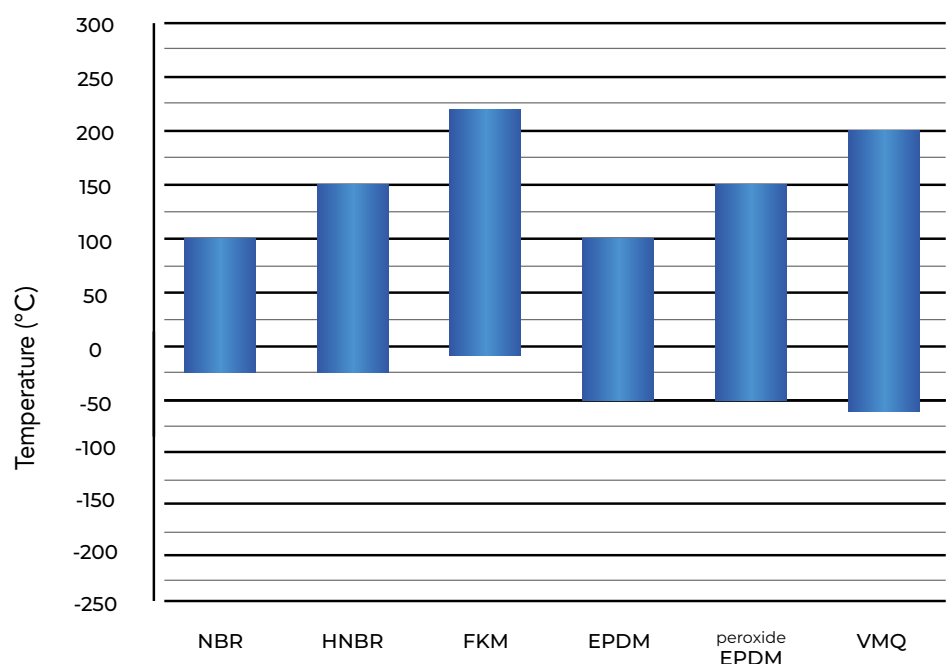
Elastomers

Depending on the part geometry, Techné machines the following elastomers from 73 Shore A hardness:

- FKM
- NBR
- HNBR
- EPDM
- PEROXIDE EPDM
- MVQ

Operating Temperatures

These temperature ranges are provided for information purposes only. Actual performance also depends on operating conditions (load, environment, for example).



Thermoplastic Elastomers and Thermoplastics

Depending on the part geometry, Techné machines:

- TPU
- Virgin PTFE & Filled PTFE (bronze, carbon, graphite, glass fiber, MoS2)
- Natural POM & Filled POM (glass fibers, glass beads)
- PEEK
- PI

This list of materials is not exhaustive.

The properties below are provided for information purposes only and are intended to help select the most suitable material for the application.

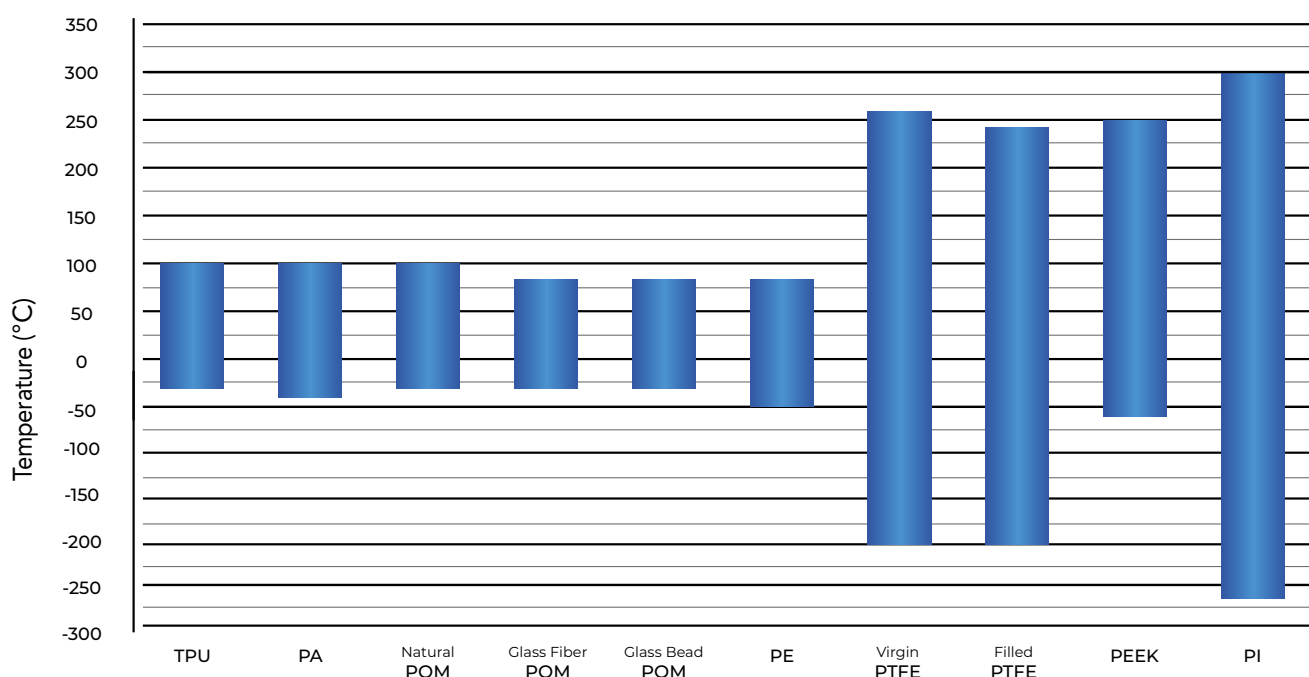
Variations may occur depending on the fillers and material grades (e.g. PA6, PA6/6, PA6/12).

DESIGNATION	PA	POM	PE	PTFE	PEEK	TPU	PI
Stiffness	Good	Good	Medium	Medium	Very good	High	High
Tensile strength	Excellent	Medium	Excellent	Very good	Good	Good	Very good
Creep resistance	Very good	Medium	Very good	Excellent	Very good	Very good	Excellent
Resistance to high loads	Avoid	Good	Avoid	Avoid	Excellent	Excellent	Excellent
Impact resistance	Medium	Medium	Very good	Excellent	Very good	Very good	Good

Operating Temperatures

These temperature ranges are provided for information purposes only. Actual performance also depends on operating conditions (load, environment, for example).

This list of materials is not exhaustive.



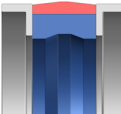
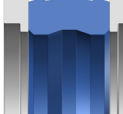
PROFILE DEFINITION

Piston or Rod Seals

Piston or rod seals are used in reciprocating linear motion applications.

	PU	FKM	NBR	EPDM	VMQ	PTFE	Filled PTFE
Profiles	All except					S19, S19S, K19, K19S	
Speed	< 0.5 m/s					< 4 m/s	
Pressure	< 400 bar		< 160 bar			< 400 bar	

Piston seals

K1	K2	K3	K4	K5*	K6	K7	K22
							
Asymmetrical	Asymmetrical + Back-up Ring	Asymmetrical + O-Ring	Asymmetrical + Back-up Ring and O-ring	Asymmetrical	Symmetrical	Symmetrical + O-Ring	Symmetrical + Limiter
K19	K19S	K30	K30S	K16*	K9	K17	K8*
							
Stainless Steel Leaf Spring	Stainless Steel Leaf Spring + Silicone Filled	Stainless Steel Coil Spring	Stainless Steel Helical Spring + Silicone Filling	Cup Seal	JP4	JP3	Double Acting O-ring Expander
K8E*	K80*	K80E*	K20*	K24*	K25*	K82	K82E
							
Double Acting Square Expander	Single Acting O-ring Expander	Single Acting Square Expander	T-Seal + Back-up Ring	Double Acting + JT4 O-ring Expander	Double Acting + JT4 2 O-ring Expanders	Single Acting Double Lip O-ring Expander	Single Acting Double Lip Square Expander

Piston seals marked with an asterisk (*) can also be used in pneumatic applications. Other profiles available upon request.

Rod seals

S1	S2	S3	S4	S6	S7	S8	S16
							
Asymmetrical	Asymmetrical + Back-up Ring	Asymmetrical + O-Ring	Asymmetrical + Back-up Ring and O-ring	Symmetrical	Symmetrical + O-Ring	Compact	Cap
S17	S18	S19	S19S	S9*	S9E*	S9X*	S90X*
							
Double Lip	Symmetrical + O-ring	Stainless Steel Spring	Stainless Steel Spring + Silicone Filling	Single Acting O-ring Expander	Single Acting Square Expander	Single Acting JT4 Expander	Double Acting JT4 Expander
S90*	S90E*	S92*	S92E*	S20*	S20S*	S44*	S45*
							
Double Acting O-Ring Expander	Double Acting Square Expander	Single Acting O-Ring Expander Double Lip	Single Acting Square Expander Double Lip	T-Seal + Back-up Ring	T-Seal	Double Acting + JT4 O-ring Expanders	Double Acting + JT4 2 O-ring Expanders

Rod seals marked with an asterisk (*) can also be used in pneumatic applications. Other profiles available upon request.

Wipers

Wipers are used in reciprocating linear motion applications.

Wipers	PU	FKM	NBR	EPDM	VMQ	POM	PA	PTFE	Filled PTFE
A1 to A15, except A13	X	X	X	X	X				
Speed	< 4 m/s								
A13, A16 and A17						X	X	X	X
Max. speed						< 1 m/s		< 4 m/s	

A1	A2	A3	A7	A8	A9	A10	A11
							
Unreinforced	Unreinforced	Reinforced Ø > 20mm	Unreinforced	Unreinforced	For stepped grooves	Unreinforced US standard	Unreinforced Double Lip

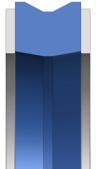
A13	A14	A15	A16	A17
				
Scraper Ring	Reinforced Ø > 20mm	Reinforced Ø > 20mm	Double Lip	Single Lip & O-ring

All these profiles can also be used in pneumatic applications.
Other profiles available upon request.

Rotary seals

	R1	R1P	R1JT	R2	R2P	R2JT	R3	R4	R5	R6	R7	RST	RT	RSP	RP	VR5/7	VAR5/7	
PU	< 5 m/s < 0.5 bar						< 0.2 m/s < 400 bar			< 1.5 m/s < 0.5 bar								
FKM	< 15 m/s < 0.5 bar						< 0.2 m/s < 250 bar	< 0.2 m/s < 160 bar										
NBR	< 10 m/s < 0.5 bar																	
HNBR																		
EPDM																		
MVQ												< 5 m/s < 0.5 bar						
PTFE	< 9 m/s < 1 bar							< 0.5 m/s < 160 bar			< 2 m/s < 300 bar				< 0.5 m/s < 150 bar			
Filled PTFE								< 0.5 m/s < 250 bar										

ROH	ROV	R1	R1P	R1JT	R2*	R2P	R2JT
							
Symmetrical	Symmetrical	Single Lip Reinforcement	Single Lip	Single Lip O-ring	Double Lip Reinforcement	Double Lip	Double Lip O-ring

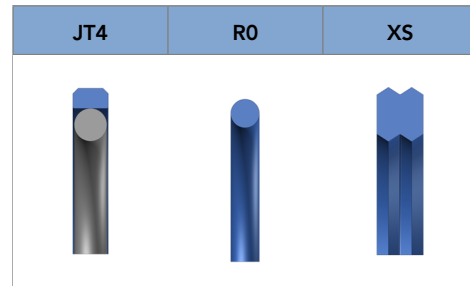
R3	R4*	R5	R6	R7	RP	RSP	RST
							
Symmetrical	Rod Sealing	Piston Sealing	V-Ring Type A	V-Ring Type S	Piston Sealing Double Acting	Piston Sealing Double Acting	Rod Sealing Double Acting

RT	VAR5	VAR7	VR5	VR7
				
Rod Sealing Double Acting	Rod Sealing Leaf Spring	Piston Sealing Leaf Spring	Rod Sealing Leaf Spring Silicone Filled	Piston Sealing Leaf Spring Silicone Filled

MACHINED HYDRAULIC SEALS

Static seals

	R0	JT4
PU	600 bar	
FKM	< 100 bar < 400 bar with back-up ring	
NBR		
HNBR		
EPDM		
VMQ		



Chevron seals

	PU	FKM	NBR	HNBR	EPDM	VMQ	PTFE	Filled PTFE	PA / POM / PEEK
Head & Cap	X						X	X	X
Chevron	X	X	X	X	X	X	X	X	Upon request
Speed	< 0.5 m/s						< 4 m/s		
Pressure	< 400 bar				< 160 bar			< 400 bar	

CH5	CHEN	CHENC	CHENN	CHNN	CHRN	CHVN
90° Chevron seals	90° Chevron seals	Split 90° Chevron seals	90° Chevron seals	60° Chevron seals	60° Chevron seals	80° Chevron seals

Guiding rings

F1	F1C	F3	F3C	F4	F4C	F5	F5C
							
Segment	Split segment	Segment	Split segment	Segment	Split segment	Segment	Split segment

F6	F6C	F7	F7C	F8	F8C
					
Segment	Split segment	Segment	Split segment	Segment	Split segment

Back-up rings

ST8	ST8C	ST9	ST9C	ST10	ST11	ST12	ST13
							
	Split		Concave Split				

Installation Recommendations

MOUNTING SELECTION

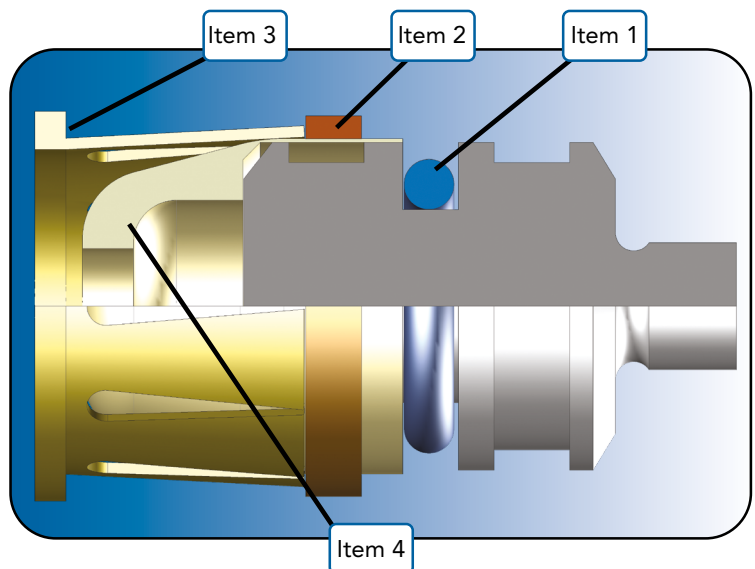
PISTON Installation

The O-ring (Item 1) is installed first in the piston groove. Although it is elastic, care should be taken not to overstretch or twist it during installation.

To facilitate and secure installation, the PTFE sealing element of the composite seal (Item 2) should be immersed in hot water or oil (80–100°C max.).

The PTFE seal is then installed using a two-piece installation tool.

Techné designs and manufactures thermoplastic installation tools (Items 3 & 4) to simplify the installation of composite piston seals. These tools protect the PTFE sealing element throughout the entire assembly process.



After installation, once the PTFE seal has returned to room temperature, a tube chamfered at both ends is used to restore the seal to its original shape before final assembly.

ROD Installation

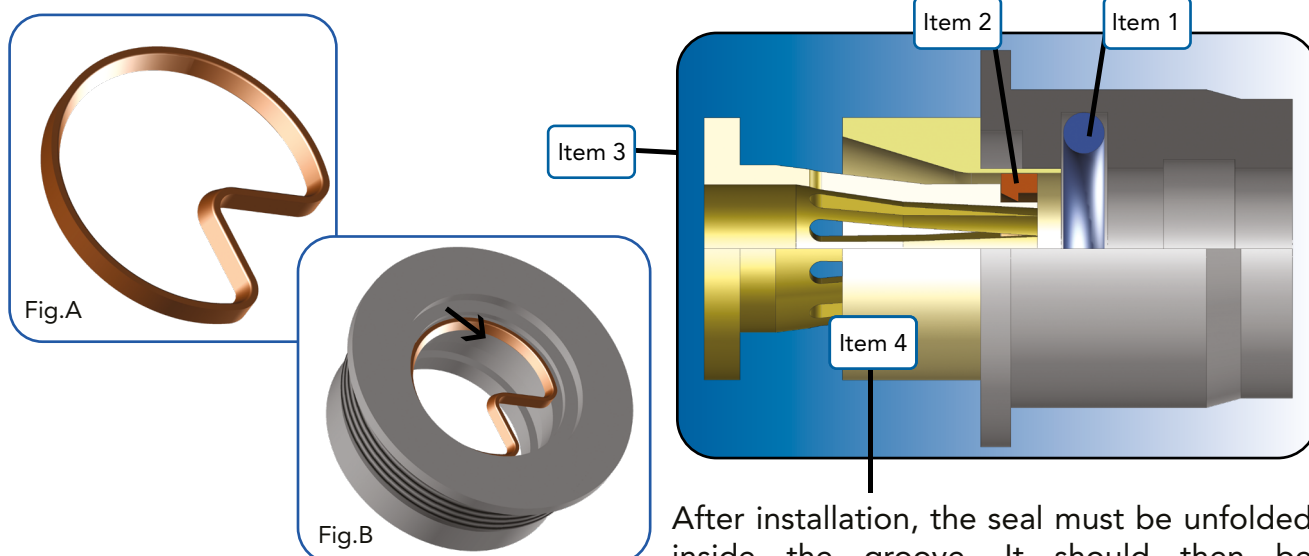
The O-ring (Item 1) is installed first in the internal groove.

To facilitate and secure installation, the PTFE sealing element of the composite seal (Item 2) should be immersed in hot water or oil (80–100°C max.).

The PTFE seal must be folded inward to form a heart shape, without creating any sharp edges (Fig. A).

When the groove is easily accessible, the seal can be installed manually (Fig. B). For less accessible internal grooves, the PTFE seal is installed using a dedicated installation tool.

Techné designs and manufactures thermoplastic installation tools (Items 3 & 4) to facilitate the installation of rod composite seals. These tools protect the PTFE sealing element throughout the entire assembly process.

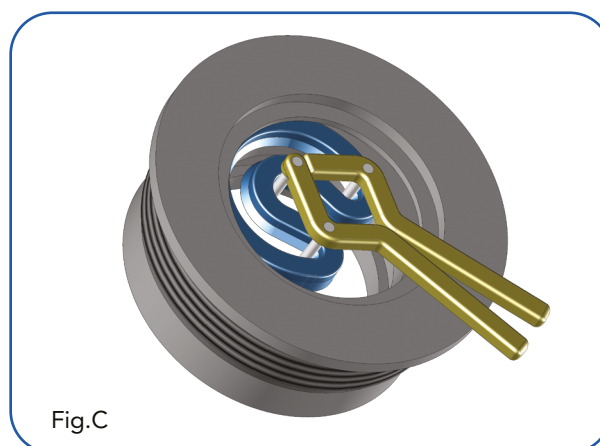


After installation, the seal must be unfolded inside the groove. It should then be reshaped using a chamfered and radiused mandrel to restore its original shape before final assembly.

TPU U-cup seals

The seal is installed using an installation plier that folds the seal into a heart shape to facilitate assembly (Fig. C).

Techné provides a set of installation pliers suitable for a wide range of diameters.



Machined Seals

MACHINED PROFILES

Piston seals

K1	K2	K3	K4	K5	K6	K6-1	K7	K7-JT4	K8	K8E
K8X	K9	K10	K11	K12	K13	K14	K15	K16	K17	K18
K19	K19-S	K20	K21	K22	K23	K24	K25	K30	K30S	K30V
K30V-1	K70	K70E	K70X	K80	K80E	K80X	K81	K81E	K82	K82E
K83	KSD-P	CPPU	CPPUHP							

Rod seals

S1	S2	S3	S4	S5	S6	S7	S7-JT4	S8	S8-1	S9
S9E	S9X	S10	S11	S11C	S12	S13	S14	S15	S16	S17
S18	S19	S19-S	S20	S20-S	S21	S22	S23	S25	S26	S27
S29	S30	S31	S44	S45	S70	S90	S90E	S90X	S92	S92E

Wipers

A1	A2	A2-1	A2-2	A3	A4	A5	A5-1	A5-2	A6	A7
A8	A9	A9STRI	A10	A11	A13	A14	A15	A16	A17	

Rotary seals

JT4	R0	R0H	R0V	R1	R1JT	R1P	R2	R2JT	R2P	R3
										
R4	R5	R6	R7	R8	RP	RSP	RST	RT	XB	XS
										

Rings

ST8	ST8C	ST9	ST9C	ST10	ST11	ST12	ST13
							

Guiding rings

F1	F1C	F3	F3C	F4	F4C	F5	F5C	F6	F6C	F7
										
F7C	F8	F8C								
										

Energized seals

V19	V19-1	V19-1S	V19S	VAR5	VAR7	VR5	VR7
							

Chevron seals

CH5	CHEN	CHENC	CHENN	CHNN	CHRN	CHVN
						

Aseptic seals

CLAMP A	CLAMP B	CLAMP MICRO	D RING	D RING L	D RING LJ	JAQUETTE A	JAQUETTE B	JAQUETTE MICRO	SMS-L	SMS-R
										

40 allée des Haies
69480 Morancé

Hydromeca

Tel: +33 (0)4 72 47 24 97
Mail: hydromeca@techne.fr

OEM

Tel: +33 (0)4 78 43 12 72
Mail: oem@techne.fr

TechniPôle

Tel: +33 (0)4 72 47 24 98
Mail: technipole@techne.fr

Distribution

Tel: +33 (0)4 78 43 12 70
Mail: distribution@techne.fr

Créat

Tel: +33 (0)4 37 46 20 01
Mail: creat@creat.fr

Chromex

Tel: +33 (0)1 69 92 16 30
Mail: chromex@chromex.info

Techné Shanghai

Tel: +86 21 6473 8417
Mail: techneshanghai@techne.cn

Techné Turkey

Tel: +90 (0) 216 989 10 04
Mail: turkey@techne.fr

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