

Merkel Double Wiper PU 11

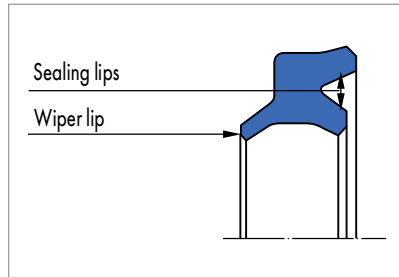


Fig. 1 Merkel Double Wiper PU 11

Product description

U-ring with wiper lip (double-lip wiper); sealing edge of wiper lip lightly rounded.

Product advantages

Double wiper for improvement of total tightness; dimensions also for standardised housing according to ISO 6195 Type C

- Sealing lips pointing inwards fulfil the function of a U-ring
- Wiper lip with lightly rounded sealing edge reliably wipes away dirt and leaves a residual oil film on the retracting rod
- Tightness, service life and friction behaviour of the entire system are improved.

Merkel Double Wiper PU 11 is preferably fitted in combination with our rod seals Merkel Omegat OMS-MR. The double-lip wiper can take pressures up to 1,6 MPa. If higher pressures can build, up we recommend a pressure relieving bore between seal and wiper.

Application

Industrial vehicles, injection moulding machines, standard cylinders.

Material

Material	Code	Hardness
Polyurethane	95 AU V142	95 Shore A

Operating conditions

Material	95 AU V142
	Temperature range in °C
Hydraulic oils HL, HLP	-30 ... +110
HFA fluids	+5 ... +50
HFB fluids	+5 ... +50
HFC fluids	-30 ... +40
HFD fluids	-
Water	+5 ... +50
HETG (rapeseed oil)	-30 ... +60
HEES (synthetic esters)	-30 ... +80
HEPG (glycol)	-30 ... +50
Mineral greases	-30 ... +110
Running speed v in m/s	1

Surface quality

Surface roughness	R _a	R _{max}
Sliding surface	*	*
Groove base	≤1,6 μm	≤6,3 μm
Groove flanks	≤3,0 μm	≤15,0 μm

* Surface roughness of the sliding surface to suit the sealing component used.

Design notes

Please observe our general design notes in → Technical Manual.

Tolerance recommendation

Nominal Ø d	D	D ₁
12 ... 200	H11	H11

The tolerance for the Ø d is defined by the buffer seal.

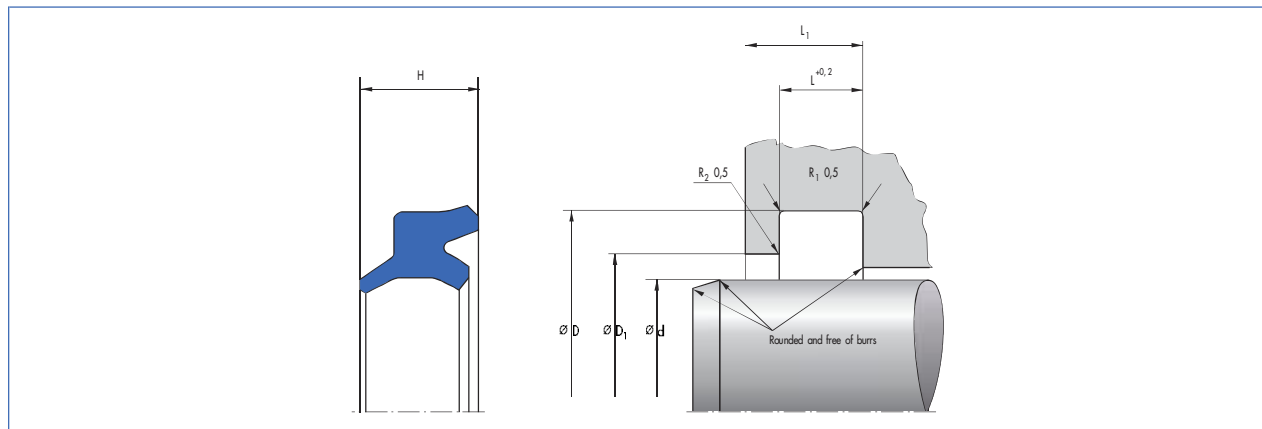
Lead-in chamfers

Length and angle are to be designed to suit the rod seal used.

Fitting & installation

Careful fitting is a prerequisite for the correct function of the Merkel Double Wiper PU 11. Generally, wipers can be quickly and easily fitted by deforming into a kidney shape.
→ Technical Manual.

Article list



d	D	L	L ₁	H	D ₁	Profile	Material	Article No.	
12	18	4	6	6	14,5	3	95 AU V142	24348683	●
14	20	4	6	6	16,5	3	95 AU V142	24348684	●
16	22	4	6	6	18,5	3	95 AU V142	24338682	○
18	24	4	6	6	20,5	3	95 AU V142	24338683	●
22	28	4	6	6	24,5	3	95 AU V142	24314567	●
25	31	4	6	6	27,5	3	95 AU V142	49003027	○
28	36	5	7	7,5	31	4	95 AU V142	24294432	●
30	38	5	7	7,5	33	4	95 AU V142	49003028	○
36	44	5	7	7,5	39	4	95 AU V142	24311422	●
40	48	5	7	7,5	43	4	95 AU V142	24360973	○
45	53	5	7	7,5	48	4	95 AU V142	24338684	●
50	58	5	7	7,5	53	4	95 AU V142	49003029	○
55	65	6	8	8,5	58	5	95 AU V142	49000803	○
56	66	6	8	8,5	59	5	95 AU V142	24314566	●
60	70	6	8	8,5	63	5	95 AU V142	49003030	○
65	75	6	8	8,5	68	5	95 AU V142	49000804	○
70	80	6	8	8,5	73	5	95 AU V142	24338685	●
75	85	6	8	8,5	78	5	95 AU V142	49000806	○
80	90	6	8	8,5	83	5	95 AU V142	24369056	○
90	100	6	8	8,5	93	5	95 AU V142	24338686	●
110	125	8,5	10,5	12	114	7,5	95 AU V142	24338687	●
140	155	8,5	10,5	12	144	7,5	95 AU V142	24348685	●
150	165	8,5	10,5	12	154	7,5	95 AU V142	529428	○
170	185	8,5	10,5	12	174	7,5	95 AU V142	24349427	○

● Available from stock ○ On request: Tool is available, delivery at short notice

Merkel Double Wiper PT 2

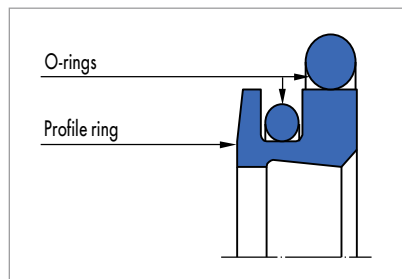


Fig. 1 Merkel Double Wiper PT 2

Product description

Merkel Double Wiper PT 2 consisting of one profile ring made from PTFE with a sealing edge and a wiper edge, as well as two O-rings as sealing and pre-load components.

Product advantages

Double wiper for improvement of total tightness. The Merkel Double Wiper PT 2 is mainly fitted in combination with our rod seals Merkel Omegat OMS-S. A pressure relieving bore is to be provided between seal and wiper

- Excellent regulation and positioning in operation
- Low friction, free of stick-slip
- Material variants for short stroke and high frequency; available on enquiry
- Especially suitable for large diameters.

Application

Injection moulding machines, presses, mills, steel hydraulics engineering.

Material

Profile ring

Material	Code
PTFE bronze compound	PTFE B602

O-ring

Material	Code	Hardness
Nitrile rubber NBR	NBR	70 Shore A
Fluoro rubber	FKM	70 Shore A

Operating conditions

Material	85 NBR B247	85 FKM K664
	Temperature range in °C	
Hydraulic oils HL, HLP	-30 ... +100	-10 ... +200
HFA fluids	-	-
HFB fluids	-	-
HFC fluids	-	-
HFD fluids	-	-10 ... +200
Water	-	-
HETG (rapeseed oil)	-30 ... +80	-10 ... +80
HEES (synthetic esters)	-30 ... +80	-10 ... +100
HEPG (glycol)	-30 ... +60	-10 ... +80
Mineral greases	-30 ... +100	-10 ... +200
Running speed v in m/s	5	

Surface quality

Surface roughness	R _a	R _{max}
Sliding surface	*	*
Groove base	≤1,6 μm	≤6,3 μm
Side of groove	≤3,0 μm	≤15,0 μm

* Surface roughness of the sliding surface to suit the sealing component used.

Design notes

Please observe our general design notes in → Technical Manual.

Tolerance recommendation

Nominal \varnothing d	D	D ₁
100 ... 1200	H8	H8

The tolerance for the \varnothing d is defined by the buffer seal.

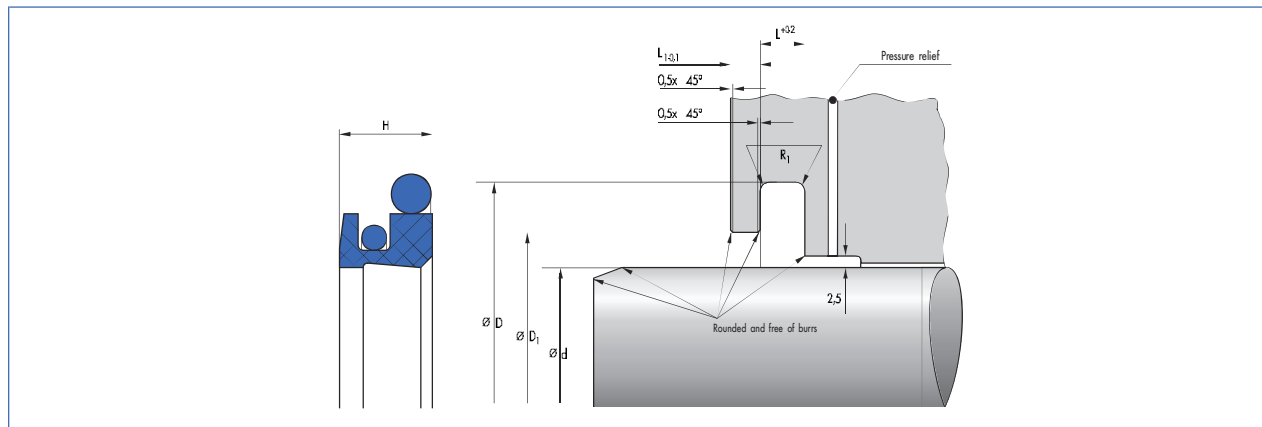
Lead-in chamfers

Length and angle are to be designed to suit the rod seal used.

Fitting & installation

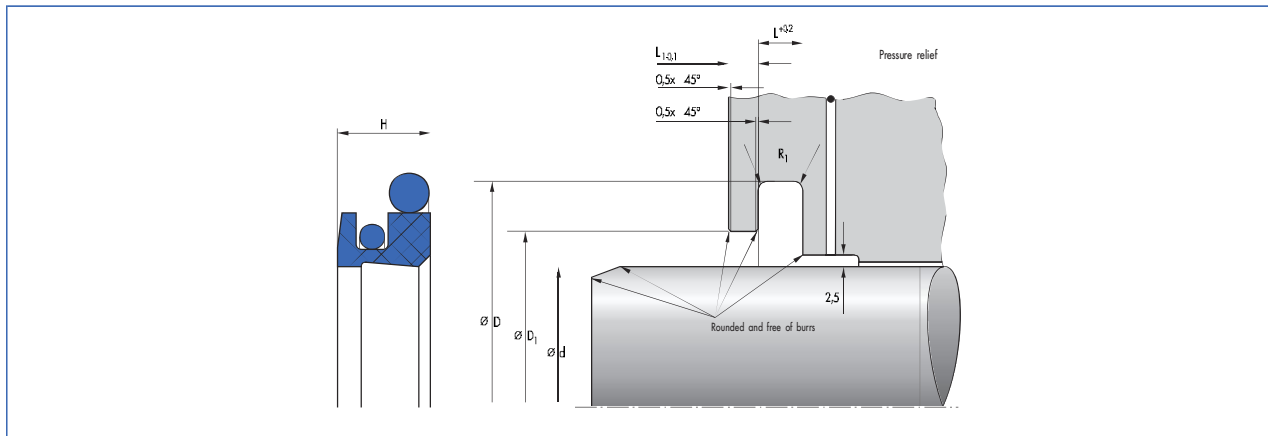
Careful fitting is a prerequisite for the correct function of the Merkel Double Wiper PT 2. Generally, wipers can be quickly and easily fitted by deforming into a kidney shape. → Technical Manual. For diameters from >100 mm to 150 mm, a fitting tool is required. Under 100 mm, no fitting in plunge-cut groove is possible.

Article list



d	D	H	L	L ₁	D ₁	Profile	R ₁	Material	Article No.	
100	122,2	13,5	6,3	4,2	110,7	11,1	1,2	PTFE B602 / NBR	24359838	●
100	122,2	13,5	6,3	4,2	110,7	11,1	1,2	PTFE B602 / FKM	49025565	○
101,6	123,8	13,5	6,3	4,2	112,3	11,1	1,2	PTFE B602 / FKM	24367430	○
110	132,2	13,5	6,3	4,2	120,7	11,1	1,2	PTFE B602 / FKM	24360999	○
110	132,2	13,5	6,3	4,2	120,7	11,1	1,2	PTFE B602 / NBR	24361474	●
120	142,2	13,5	6,3	4,2	130,7	11,1	1,2	PTFE B602 / NBR	24357224	●
125	147,2	13,5	6,3	4,2	135,7	11,1	1,2	PTFE B602 / NBR	24373115	○
125	147,2	13,5	6,3	4,2	135,7	11,1	1,2	PTFE B602 / FKM	49024812	○
130	152,2	13,5	6,3	4,2	140,7	11,1	1,2	PTFE B602 / FKM	24358280	○
130	152,2	13,5	6,3	4,2	140,7	11,1	1,2	PTFE B602 / NBR	24361475	○
139,7	161,9	13,5	6,3	4,2	150,4	11,1	1,2	PTFE B602 / NBR	24361457	○
140	162,2	13,5	6,3	4,2	150,7	11,1	1,2	PTFE B602 / FKM	529583	○
140	162,2	13,5	6,3	4,2	150,7	11,1	1,2	PTFE B602 / NBR	24344542	●
150	172,2	13,5	6,3	4,2	160,7	11,1	1,2	PTFE B602 / FKM	24357793	○
150	172,2	13,5	6,3	4,2	160,7	11,1	1,2	PTFE B602 / NBR	24360778	●
160	182,2	13,5	6,3	4,2	170,7	11,1	1,2	PTFE B602 / NBR	24347042	●
160	182,2	13,5	6,3	4,2	170,7	11,1	1,2	PTFE B602 / FKM	24348020	○
170	192,2	13,5	6,3	4,2	180,7	11,1	1,2	PTFE B602 / NBR	24344540	○
170	192,2	13,5	6,3	4,2	180,7	11,1	1,2	PTFE B602 / FKM	24357223	○
180	202,2	13,5	6,3	4,2	190,7	11,1	1,2	PTFE B602 / NBR	24350643	○
180	202,2	13,5	6,3	4,2	190,7	11,1	1,2	PTFE B602 / FKM	24357393	○
190	212,2	13,5	6,3	4,2	200,7	11,1	1,2	PTFE B602 / NBR	24368087	○
200	222,2	13,5	6,3	4,2	210,7	11,1	1,2	PTFE B602 / NBR	24353154	●
210	232,2	13,5	6,3	4,2	220,7	11,1	1,2	PTFE B602 / NBR	24375895	○
220	242,2	13,5	6,3	4,2	230,7	11,1	1,2	PTFE B602 / NBR	24353169	○
228,6	250,8	13,5	6,3	4,2	239,3	11,1	1,2	PTFE B602 / NBR	24360117	○
230	254,2	13,5	6,3	4,2	240,7	12,1	1,2	PTFE B602 / NBR	24355054	○
240	264,2	13,5	6,3	4,2	250,7	12,1	1,2	PTFE B602 / NBR	24356322	○
250	274,2	13,5	6,3	4,2	260,7	12,1	1,2	PTFE B602 / NBR	24371138	○
260	284,2	13,5	6,3	4,2	270,7	12,1	1,2	PTFE B602 / NBR	24352166	○
275	299,2	13,5	6,3	4,2	285,7	12,1	1,2	PTFE B602 / NBR	24351463	○
280	304,2	13,5	6,3	4,2	290,7	12,1	1,2	PTFE B602 / NBR	24360995	○
290	314,2	13,5	6,3	4,2	300,7	12,1	1,2	PTFE B602 / NBR	49026457	○
295	319,2	13,5	6,3	4,2	305,7	12,1	1,2	PTFE B602 / NBR	24359585	○
300	333	18,4	8,1	6,3	310,7	16,5	1,2	PTFE B602 / NBR	24348115	○

● Available from stock ○ On request: Tool is available, delivery at short notice



d	D	H	L	L ₁	D ₁	Profile	R ₁	Material	Article No.	
300	333	18,4	8,1	6,3	315,1	16,5	1,2	PTFE B602 / FKM	24356968	○
320	353	18,4	8,1	6,3	335,1	16,5	1,2	PTFE B602 / NBR	524609	○
330,2	363,2	18,4	8,1	6,3	345,3	16,5	1,2	PTFE B602 / NBR	24358312	○
340	373	18,4	8,1	6,3	355,1	16,5	1,2	PTFE B602 / NBR	526102	○
340	373	18,4	8,1	6,3	355,1	16,5	1,2	PTFE B602 / FKM	24358735	○
350	383	18,4	8,1	6,3	365,1	16,5	1,2	PTFE B602 / NBR	24337999	○
350	383	18,4	8,1	6,3	365,1	16,5	1,2	PTFE B602 / FKM	49027323	○
360	393	18,4	8,1	6,3	375,1	16,5	1,2	PTFE B602 / NBR	24331443	●
370	403	18,4	8,1	6,3	385,1	16,5	1,2	PTFE B602 / NBR	24344424	○
380	413	18,4	8,1	6,3	395,1	16,5	1,2	PTFE B602 / NBR	24346896	●
380	413	18,4	8,1	6,3	395,1	16,5	1,2	PTFE B602 / FKM	49035995	○
385	418	18,4	8,1	6,3	400,1	16,5	1,2	PTFE B602 / NBR	24353627	○
400	433	18,4	8,1	6,3	415,1	16,5	1,2	PTFE B602 / NBR	24353007	○
400	433	18,4	8,1	6,3	415,1	16,5	1,2	PTFE B602 / FKM	49016772	○
420	453	18,4	8,1	6,3	435,1	16,5	1,2	PTFE B602 / NBR	24331444	○
430	463	18,4	8,1	6,3	445,1	16,5	1,2	PTFE B602 / NBR	24354755	○
431,8	464,8	18,4	8,1	6,3	446,9	16,5	1,2	PTFE B602 / NBR	24342995	○
440	473	18,4	8,1	6,3	455,1	16,5	1,2	PTFE B602 / NBR	24363240	○
450	483	18,4	8,1	6,3	465,1	16,5	1,2	PTFE B602 / NBR	24358970	○
470	503	18,4	8,1	6,3	485,1	16,5	1,2	PTFE B602 / FKM	24327546	○
470	503	18,4	8,1	6,3	485,1	16,5	1,2	PTFE B602 / NBR	49033427	○
480	513	18,4	8,1	6,3	495,1	16,5	1,2	PTFE B602 / NBR	24338000	●
500	533	18,4	8,1	6,3	515,1	16,5	1,2	PTFE B602 / FKM	24347054	○
500	533	18,4	8,1	6,3	515,1	16,5	1,2	PTFE B602 / NBR	24360955	●
510	543	18,4	8,1	6,3	525,1	16,5	1,2	PTFE B602 / NBR	24372692	○
520	553	18,4	8,1	6,3	535,1	16,5	1,2	PTFE B602 / FKM	24370787	○
530	563	18,4	8,1	6,3	545,1	16,5	1,2	PTFE B602 / NBR	24363241	○
540	573	18,4	8,1	6,3	555,1	16,5	1,2	PTFE B602 / FKM	24371034	○
550	583	18,4	8,1	6,3	555,1	16,5	1,2	PTFE B602 / NBR	24362840	○
550	583	18,4	8,1	6,3	555,1	16,5	1,2	PTFE B602 / FKM	49044471	○
560	593	18,4	8,1	6,3	575,1	16,5	1,2	PTFE B602 / FKM	533488	○
560	593	18,4	8,1	6,3	575,1	16,5	1,2	PTFE B602 / NBR	24339610	○
600	633	18,4	8,1	6,3	615,1	16,5	1,2	PTFE B602 / NBR	24331445	○
620	656,5	19,8	9,5	6,3	635,1	18,25	2	PTFE B602 / NBR	49014759	○
630	666,5	19,8	9,5	6,3	645,1	18,25	2	PTFE B602 / NBR	24349708	○
640	676,5	19,8	9,5	6,3	655,1	18,25	2	PTFE B602 / NBR	24348256	●
640	676,5	19,8	9,5	6,3	655,1	18,25	2	PTFE B602 / FKM	24357491	○

● Available from stock ○ On request: Tool is available, delivery at short notice

d	D	H	L	L ₁	D ₁	Profile	R ₁	Material	Article No.	
670	706,5	19,8	9,5	6,3	685,1	18,25	2	PTFE B602 / NBR	24346164	●
680	716,5	19,8	9,5	6,3	695,1	18,25	2	PTFE B602 / NBR	24341038	○
700	736,5	19,8	9,5	6,3	715,1	18,25	2	PTFE B602 / NBR	49035756	○
730	766,5	19,8	9,5	6,3	745,1	18,25	2	PTFE B602 / NBR	531292	○
740	776,5	19,8	9,5	6,3	755,1	18,25	2	PTFE B602 / FKM	529324	○
740	776,5	19,8	9,5	6,3	755,1	18,25	2	PTFE B602 / NBR	24344400	○
748	784,5	19,8	9,5	6,3	763,1	18,25	2	PTFE B602 / NBR	49035130	○
749	785,5	19,8	9,5	6,3	764,1	18,25	2	PTFE B602 / NBR	49009337	○
750	786,5	19,8	9,5	6,3	765,1	18,25	2	PTFE B602 / NBR	24367379	○
770	806,5	19,8	9,5	6,3	785,1	18,25	2	PTFE B602 / FKM	24353425	○
790	826,5	19,8	9,5	6,3	805,1	18,25	2	PTFE B602 / NBR	24368078	○
795	831,5	19,8	9,5	6,3	810,1	18,25	2	PTFE B602 / NBR	24344331	○
800	836,5	19,8	9,5	6,3	815,1	18,25	2	PTFE B602 / NBR	24341037	○
800	836,5	19,8	9,5	6,3	815,1	18,25	2	PTFE B602 / FKM	24358811	○
820	856,5	19,8	9,5	6,3	835,1	18,25	2	PTFE B602 / NBR	24349213	○
820	856,5	19,8	9,5	6,3	835,1	18,25	2	PTFE B602 / FKM	24357495	○
830	866,5	19,8	9,5	6,3	845,1	18,25	2	PTFE B602 / NBR	24344384	○
850	886,5	19,8	9,5	6,3	865,1	18,25	2	PTFE B602 / NBR	24314623	●
860	896,5	19,8	9,5	6,3	875,1	18,25	2	PTFE B602 / NBR	24374444	○
900	936,5	19,8	9,5	6,3	915,1	18,25	2	PTFE B602 / NBR	24374392	○
950	986,5	19,8	9,5	6,3	965,1	18,25	2	PTFE B602 / NBR	24356339	○
950	986,5	19,8	9,5	6,3	965,1	18,25	2	PTFE B602 / FKM	24357110	○
970	1006,5	19,8	9,5	6,3	985,1	18,25	2	PTFE B602 / NBR	24359661	○
1130	1166,5	19,8	9,5	6,3	1145,1	18,25	2	PTFE B602 / NBR	530018	○
1160	1196,5	19,8	9,5	6,3	1175,1	18,25	2	PTFE B602 / NBR	24371028	○
1320	1356,5	19,8	9,5	6,3	1335,1	18,25	2	PTFE B602 / NBR	527134	○
1375	1411,5	19,8	9,5	6,3	1390,1	18,25	2	PTFE B604 / NBR	49004721	○
1500	1536,5	19,8	9,5	6,3	1515,1	18,25	2	PTFE B604 / NBR	49006761	○

● Available from stock ○ On request: Tool is available, delivery at short notice

Merkel Double Wiper PT 1

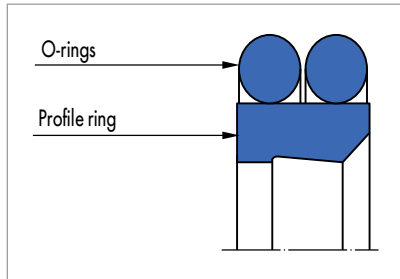


Fig. 1 Merkel Double Wiper PT 1

Product description

Merkel Double Wiper PT 1 consisting of one profile ring made of PTFE with a sealing edge and a wiper edge, as well as two O-rings as sealing and pre-load components.

Product advantages

Double wiper for improvement of total tightness. Merkel Double Wiper PT 1 is preferably fitted in combination with our rod seals Merkel Omegat OMS-MR, Merkel Compact Seal T 20 or Merkel U-Ring LF 300

- Low friction, free of stick-slip
- Excellent regulation and positioning in operation
- Material variants for short stroke and high frequency; available on enquiry
- High reliability, can accept the full operating pressure for short periods.

We recommend a pressure relieving bore. With buffer seals with good deformation value, pressure relief is not necessary. In any case, on the combination of seals without sufficient deformation value, e.g. Merkel Compact Seal NI 300, KI 310 and KI 320, a pressure relieving bore is required.

Application

Industrial vehicles, injection moulding machines, handling equipment, presses, agricultural machinery, mills, control and regulation equipment, large cylinders.

Material

Profile ring

Material	Code
PTFE bronze compound	PTFE B602
PTFE glass/MoS2 compound	PTFE GM201

O-ring

Material	Code	Hardness
Nitrile rubber NBR	NBR	70 Shore A
Fluoro rubber	FKM	70 Shore A

Operating conditions

Material	PTFE B602/ NBR	PTFE B602/ FKM	PTFE GM201/ NBR	PTFE GM201/ FKM
	Temperature range in °C			
Hydraulic oils HL, HLP	-30 ... +100	-10 ... +200	-30 ... +100	-10 ... +150
HFA fluids	-	-	+5 ... +60	+5 ... +60
HFB fluids	-	-	+5 ... +60	+5 ... +60
HFC fluids	-	-	-30 ... +60	-10 ... +40
HFD fluids	-	-10 ... +20	-	-10 ... +150
Water	-	-	+5 ... +100	+5 ... +100
HETG (rapeseed oil)	-30 ... +80	-10 ... +80	-30 ... +80	-10 ... +80
HEES (synthetic esters)	-30 ... +80	-10 ... +100	-30 ... +60	-10 ... +100
HEPG (glycol)	-30 ... +60	-10 ... +80	-30 ... +60	-10 ... +80
Mineral greases	-30 ... +100	-10 ... +200	-30 ... +100	-10 ... +150
Running speed v in m/s	5			

Surface quality

Surface roughness	R _a	R _{max}
Sliding surface	*	*
Groove base	≤1,6 µm	≤6,3 µm
Side of groove	≤3,0 µm	≤15,0 µm

* Surface roughness of the sliding surface to suit the sealing component used.

Design notes

Please observe our general design notes in → Technical Manual.

Tolerance recommendation

Nominal \varnothing d	D	D ₁
20 ... 800	H9	H10

The tolerance for the \varnothing d is defined by the buffer seal.

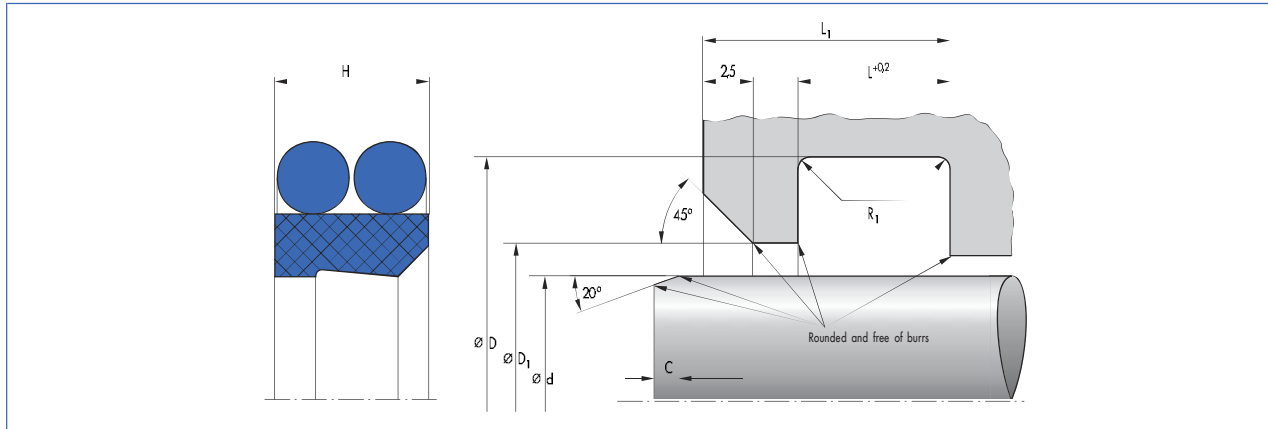
Lead-in chamfers

Length and angle are to be designed to suit the rod seal used.

Fitting & installation

Careful fitting is a prerequisite for the correct function of the Merkel Double Wiper PT 1. Generally, wipers can be quickly and easily fitted by deforming into a kidney shape.
→ Technical Manual.

Article list

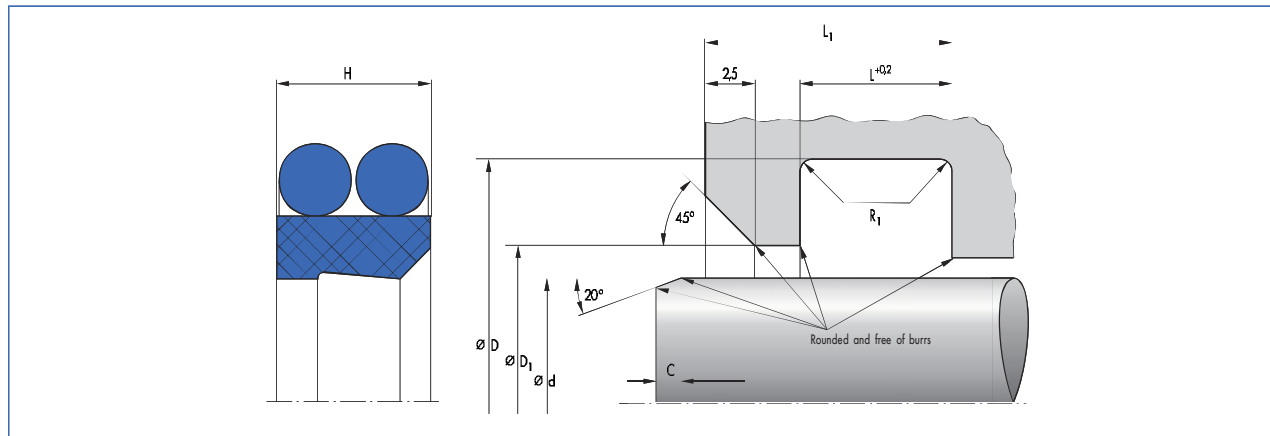


d	D	H	L	L ₁	D ₁	Profile	C	R ₁	Material	Article No.	
20	27,6	4	4,2	8,2	21	3,8	3	0,4	PTFE B602 / NBR	24269429	●
20	27,6	4	4,2	8,2	21	3,8	3	0,4	PTFE GM201 / NBR	24339980	○
25	32,6	4	4,2	8,2	26	3,8	3	0,4	PTFE B602 / NBR	24275331	●
25	32,6	4	4,2	8,2	26	3,8	3	0,4	PTFE B602 / FKM	24275423	●
28	35,6	4	4,2	8,2	29	3,8	3	0,4	PTFE B602 / NBR	24275334	●
28	35,6	4	4,2	8,2	29	3,8	3	0,4	PTFE B602 / FKM	24275426	●
30	37,6	4	4,2	8,2	31	3,8	3	0,4	PTFE B602 / NBR	24275338	●
30	37,6	4	4,2	8,2	31	3,8	3	0,4	PTFE B602 / FKM	24275430	○
32	39,6	4	4,2	8,2	33	3,8	3	0,4	PTFE B602 / NBR	24269656	●
32	39,6	4	4,2	8,2	33	3,8	3	0,4	PTFE B602 / FKM	24275434	○
35	42,6	4	4,2	8,2	36	3,8	3	0,4	PTFE B602 / NBR	24275347	●
35	42,6	4	4,2	8,2	36	3,8	3	0,4	PTFE B602 / FKM	24275439	○
36	43,6	4	4,2	8,2	37	3,8	3	0,4	PTFE B602 / NBR	24275352	●
36	43,6	4	4,2	8,2	37	3,8	3	0,4	PTFE B602 / FKM	24275444	○
40	48,8	6	6,3	10,3	41,5	4,4	3	1,2	PTFE B602 / NBR	24261061	●
40	48,8	6	6,3	10,3	41,5	4,4	3	1,2	PTFE B602 / FKM	24275427	○
42	50,8	6	6,3	10,3	43,5	4,4	3	1,2	PTFE B602 / NBR	24275339	●
42	50,8	6	6,3	10,3	43,5	4,4	3	1,2	PTFE B602 / FKM	24275431	○
45	53,8	6	6,3	10,3	46,5	4,4	3	1,2	PTFE B602 / NBR	24275341	●
45	53,8	6	6,3	10,3	46,5	4,4	3	1,2	PTFE B602 / FKM	24275433	●
50	58,8	6	6,3	10,3	51,5	4,4	3	1,2	PTFE B602 / NBR	24275345	●
50	58,8	6	6,3	10,3	51,5	4,4	3	1,2	PTFE B602 / FKM	24275437	○
50	58,8	6	6,3	10,3	51,5	4,4	3	1,2	PTFE GM201 / FKM	24351716	○
50	58,8	6	6,3	10,3	51,5	4,4	3	1,2	PTFE GM201 / NBR	49004617	○
55	63,8	6	6,3	10,3	56,5	4,4	3	1,2	PTFE B602 / NBR	24300395	●
56	64,8	6	6,3	10,3	57,5	4,4	4	1,2	PTFE B602 / NBR	24275351	●
56	64,8	6	6,3	10,3	57,5	4,4	4	1,2	PTFE B602 / FKM	24275443	○
60	68,8	6	6,3	10,3	61,5	4,4	4	1,2	PTFE GM201 / NBR	531996	○
60	68,8	6	6,3	10,3	61,5	4,4	4	1,2	PTFE B602 / NBR	24269451	●
60	68,8	6	6,3	10,3	61,5	4,4	4	1,2	PTFE B602 / FKM	24275425	●
60	68,8	6	6,3	10,3	61,5	4,4	4	1,2	PTFE GM201 / FKM	24351722	○
63	71,8	6	6,3	10,3	64,5	4,4	4	1,2	PTFE B602 / NBR	24275336	●
63	71,8	6	6,3	10,3	64,5	4,4	4	1,2	PTFE B602 / FKM	24275428	○
65	73,8	6	6,3	10,3	66,5	4,4	4	1,2	PTFE B602 / NBR	24275348	●
65	73,8	6	6,3	10,3	66,5	4,4	4	1,2	PTFE B602 / FKM	24275440	○

● Available from stock ○ On request: Tool is available, delivery at short notice

d	D	H	L	L ₁	D ₁	Profile	C	R ₁	Material	Article No.	
65	73,8	6	6,3	10,3	66,5	4,4	4	1,2	PTFE GM201 / NBR	24380154	○
70	82,2	7,7	8,1	12,1	72	6,1	4	2	PTFE B602 / NBR	24275343	●
70	82,2	7,7	8,1	12,1	72	6,1	4	2	PTFE B602 / FKM	24275435	●
70	82,2	7,7	8,1	12,1	72	6,1	4	2	PTFE GM201 / FKM	24351734	○
70	82,2	7,7	8,1	12,1	72	6,1	4	2	PTFE GM201 / NBR	24371776	○
75	87,2	7,7	8,1	12,1	77	6,1	4	2	PTFE B602 / NBR	24275346	●
75	87,2	7,7	8,1	12,1	77	6,1	4	2	PTFE B602 / FKM	24275438	○
80	92,2	7,7	8,1	12,1	82	6,1	4	2	PTFE B602 / NBR	24275350	●
80	92,2	7,7	8,1	12,1	82	6,1	4	2	PTFE B602 / FKM	24275442	●
80	92,2	7,7	8,1	12,1	82	6,1	4	2	PTFE GM201 / FKM	24351705	○
85	97,2	7,7	8,1	12,1	87	6,1	4	2	PTFE B602 / NBR	24275337	●
85	97,2	7,7	8,1	12,1	87	6,1	4	2	PTFE B602 / FKM	24275429	○
85	97,2	7,7	8,1	12,1	87	6,1	4	2	PTFE GM201 / NBR	24380155	○
90	102,2	7,7	8,1	12,1	92	6,1	4	2	PTFE B602 / NBR	24275340	●
90	102,2	7,7	8,1	12,1	92	6,1	4	2	PTFE B602 / FKM	24275432	●
90	102,2	7,7	8,1	12,1	92	6,1	4	2	PTFE GM201 / FKM	24351735	○
100	112,2	7,7	8,1	12,1	102	6,1	4	2	PTFE B602 / NBR	24275349	●
100	112,2	7,7	8,1	12,1	102	6,1	4	2	PTFE B602 / FKM	24275441	●
100	112,2	7,7	8,1	12,1	102	6,1	4	2	PTFE GM201 / FKM	24354911	○
100	112,2	7,7	8,1	12,1	102	6,1	4	2	PTFE GM201 / NBR	24380032	○
105	117,2	7,7	8,1	12,1	107	6,1	6	2	PTFE GM201 / FKM	24350943	○
105	117,2	7,7	8,1	12,1	107	6,1	6	2	PTFE GM201 / NBR	24380095	○
110	122,2	7,7	8,1	12,1	112	6,1	4	2	PTFE B602 / NBR	24275356	●
110	122,2	7,7	8,1	12,1	112	6,1	4	2	PTFE B602 / FKM	24275448	○
110	122,2	7,7	8,1	12,1	112	6,1	4	2	PTFE GM201 / FKM	24351715	○
110	122,2	7,7	8,1	12,1	112	6,1	4	2	PTFE GM201 / NBR	24380092	○
115	127,2	7,7	8,1	12,1	117	6,1	4	2	PTFE B602 / NBR	24275360	●
115	127,2	7,7	8,1	12,1	117	6,1	4	2	PTFE B602 / FKM	24275452	○
115	127,2	7,7	8,1	12,1	117	6,1	4	2	PTFE GM201 / FKM	24359810	○
120	132,2	7,7	8,1	12,1	122	6,1	4	2	PTFE B602 / NBR	24275364	●
120	132,2	7,7	8,1	12,1	122	6,1	4	2	PTFE B602 / FKM	24275456	○
120	132,2	7,7	8,1	12,1	122	6,1	4	2	PTFE GM201 / FKM	24351736	○
125	137,2	7,7	8,1	12,1	127	6,1	6	2	PTFE B602 / NBR	24275365	●
125	137,2	7,7	8,1	12,1	127	6,1	6	2	PTFE B602 / FKM	24275461	○
125	137,2	7,7	8,1	12,1	127	6,1	6	2	PTFE GM201 / FKM	24352301	○
125	137,2	7,7	8,1	12,1	127	6,1	6	2	PTFE GM201 / NBR	24380156	○
130	142,2	7,7	8,1	12,1	132	6,1	6	2	PTFE B602 / NBR	24275374	●
130	142,2	7,7	8,1	12,1	132	6,1	6	2	PTFE B602 / FKM	24275466	○
130	142,2	7,7	8,1	12,1	132	6,1	6	2	PTFE GM201 / FKM	24341216	○
135	147,2	7,7	8,1	12,1	137	6,1	6	2	PTFE GM201 / FKM	24380767	○
140	156	11	11,5	15,5	142	8	6	2	PTFE B602 / NBR	24268086	●
140	156	11	11,5	15,5	142	8	6	2	PTFE B602 / FKM	24275449	○
140	156	11	11,5	15,5	142	8	6	2	PTFE GM201 / FKM	24350944	○
140	156	11	11,5	15,5	142	8	6	2	PTFE GM201 / NBR	49004558	○
145	161	11	11,5	15,5	147	8	6	2	PTFE GM201 / NBR	24380702	○
150	166	11	11,5	15,5	152	8	6	2	PTFE B602 / NBR	24275361	●
150	166	11	11,5	15,5	152	8	6	2	PTFE B602 / FKM	24275453	○
150	166	11	11,5	15,5	152	8	6	2	PTFE GM201 / FKM	24339307	○
150	166	11	11,5	15,5	152	8	6	2	PTFE GM201 / NBR	49005139	○
155	171	11	11,5	15,5	157	8	6	2	PTFE GM201 / NBR	24380703	○

● Available from stock ○ On request: Tool is available, delivery at short notice

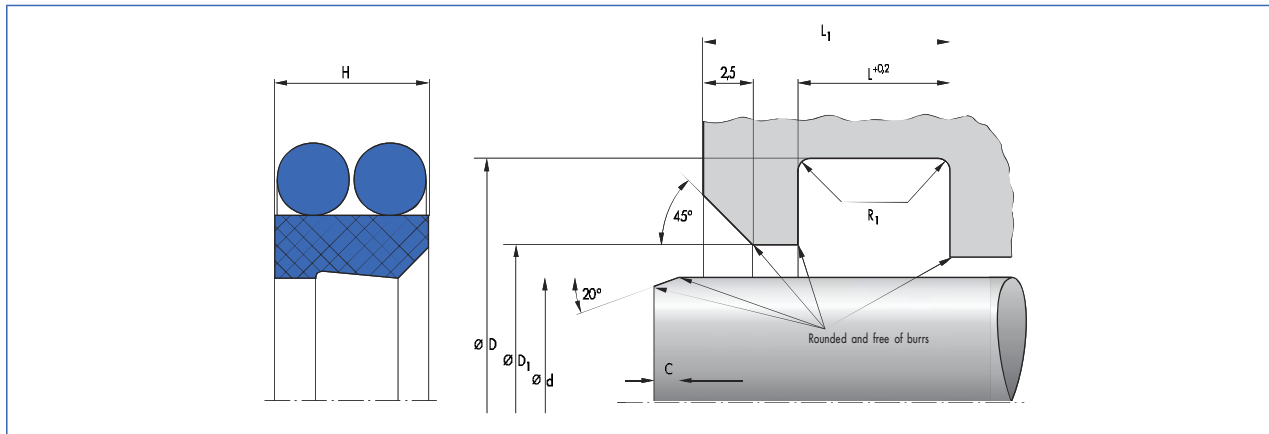


d	D	H	L	L ₁	D ₁	Profile	C	R ₁	Material	Article No.	
160	176	11	11,5	15,5	162	8	6	2	PTFE B602 / FKM	24275455	●
160	176	11	11,5	15,5	162	8	6	2	PTFE GM201 / FKM	24350945	○
160	176	11,5	11,5	15,5	162	8	6	2	PTFE B602 / NBR	24275363	●
170	186	11	11,5	15,5	172	8	6	2	PTFE B602 / NBR	24275367	●
170	186	11	11,5	15,5	172	8	6	2	PTFE B602 / FKM	24275459	○
170	186	11	11,5	15,5	172	8	6	2	PTFE GM201 / FKM	24351743	○
170	186	11	11,5	15,5	172	8	6	2	PTFE GM201 / NBR	24380704	○
180	196	11	11,5	15,5	182	8	6	2	PTFE B602 / NBR	24275373	●
180	196	11	11,5	15,5	182	8	6	2	PTFE GM201 / FKM	24350946	○
180	196	11,5	11,5	15,5	182	8	6	2	PTFE B602 / FKM	24275465	○
190	206	11	11,5	15,5	192	8	6	2	PTFE GM201 / FKM	24352303	○
200	216	11	11,5	15,5	202	8	6	2	PTFE B602 / NBR	24275358	●
200	216	11	11,5	15,5	202	8	6	2	PTFE B602 / FKM	24275450	○
200	216	11	11,5	15,5	202	8	6	2	PTFE GM201 / FKM	24351701	○
210	226	11	11,5	15,5	212	8	6	2	PTFE GM201 / NBR	24380705	○
220	236	11	11,5	15,5	222	8	8	2	PTFE B602 / NBR	24274581	●
220	236	11	11,5	15,5	222	8	8	2	PTFE B602 / FKM	24275457	○
220	236	11	11,5	15,5	222	8	8	2	PTFE GM201 / FKM	24351714	○
220	236	11	11,5	15,5	222	8	8	2	PTFE GM201 / NBR	49002400	○
230	246	11	11,5	15,5	232	8	8	2	PTFE B602 / NBR	24275368	●
230	246	11	11,5	15,5	232	8	8	2	PTFE B602 / FKM	24275460	○
230	246	11	11,5	15,5	232	8	8	2	PTFE GM201 / FKM	24351787	○
230	246	11	11,5	15,5	232	8	8	2	PTFE GM201 / NBR	49004618	○
240	256	11	11,5	15,5	242	8	8	2	PTFE GM201 / NBR	533355	○
240	256	11	11,5	15,5	242	8	8	2	PTFE B602 / NBR	24275372	●
240	256	11	11,5	15,5	242	8	8	2	PTFE B602 / FKM	24275464	○
245	261	11	11,5	15,5	247	8	8	2	PTFE B602 / NBR	24377708	○
250	266	11	11,5	15,5	252	8	8	2	PTFE B602 / NBR	24275359	●
250	266	11	11,5	15,5	252	8	8	2	PTFE B602 / FKM	24275451	○
250	266	11	11,5	15,5	252	8	8	2	PTFE GM201 / NBR	49009052	○
260	276	9	9,5	13,5	262	8	8	2	PTFE GM201 / NBR	24375451	○
260	276	11	11,5	15,5	262	8	8	2	PTFE B602 / NBR	24275362	●
260	276	11	11,5	15,5	262	8	8	2	PTFE B602 / FKM	24275454	○
265	281	11	11,5	15,5	267	8	8	2	PTFE GM201 / FKM	24351788	○
280	296	11	11,5	15,5	282	8	8	2	PTFE B602 / NBR	24275371	●
280	296	11	11,5	15,5	282	8	8	2	PTFE B602 / FKM	24275463	○
280	296	11	11,5	15,5	282	8	8	2	PTFE GM201 / FKM	24351702	○

● Available from stock ○ On request: Tool is available, delivery at short notice

d	D	H	L	L ₁	D ₁	Profile	C	R ₁	Material	Article No.	
280	296	11	11,5	15,5	282	8	8	2	PTFE GM201 / NBR	49004005	○
290	306	11	11,5	15,5	292	8	8	2	PTFE B602 / FKM	24275467	○
300	316	11	11,5	15,5	302	8	8	2	PTFE B602 / NBR	24275376	●
300	316	11	11,5	15,5	302	8	8	2	PTFE B602 / FKM	24275468	○
300	316	11	11,5	15,5	302	8	8	2	PTFE GM201 / FKM	24374010	○
310	326	11	11,5	15,5	312	8	8	2	PTFE B602 / FKM	24348310	○
310	326	11	11,5	15,5	312	8	8	2	PTFE GM201 / NBR	49009461	○
320	336	11	11,5	15,5	322	8	8	2	PTFE B602 / NBR	24296543	○
320	336	11	11,5	15,5	322	8	8	2	PTFE B602 / FKM	24342120	○
320	336	11	11,5	15,5	322	8	8	2	PTFE GM201 / FKM	24351378	○
320	336	11	11,5	15,5	322	8	8	2	PTFE GM201 / NBR	49010398	○
330	346	11	11,5	15,5	332	8	8	2	PTFE GM201 / NBR	49004619	○
335	351	11	11,5	15,5	337	8	8	2	PTFE GM201 / NBR	49008975	○
340	356	11	11,5	15,5	342	8	8	2	PTFE B602 / NBR	24338668	●
340	356	11	11,5	15,5	342	8	8	2	PTFE B602 / FKM	24345965	○
340	356	11	11,5	15,5	342	8	8	2	PTFE GM201 / FKM	24351898	○
350	366	11	11,5	15,5	352	8	8	2	PTFE B602 / FKM	24342121	○
350	366	11	11,5	15,5	352	8	8	2	PTFE GM201 / FKM	24351703	○
355	371	11	11,5	15,5	357	8	8	2	PTFE B602 / NBR	24377706	○
360	376	11	11,5	15,5	362	8	8	2	PTFE B602 / NBR	24289854	●
360	376	11	11,5	15,5	362	8	8	2	PTFE GM201 / NBR	49009462	○
370	386	11	11,5	15,5	372	8	8	2	PTFE B602 / NBR	24342976	○
375	391	11	11,5	15,5	377	8	8	2	PTFE B602 / NBR	24346725	○
380	396	11	11,5	15,5	382	8	8	2	PTFE B602 / NBR	24343755	○
390	406	11	11,5	15,5	392	8	8	2	PTFE B602 / NBR	24351468	○
400	416	11	11,5	15,5	402	8	8	2	PTFE B602 / FKM	24338879	○
400	416	11	11,5	15,5	402,5	8	8	2	PTFE GM201 / FKM	24351704	○
400	424	14,8	15,5	19,5	402,5	12	8	2	PTFE B602 / NBR	24345418	○
400	424	14,8	15,5	19,5	402,5	12	8	2	PTFE GM201 / NBR	49012517	○
410	434	14,8	15,5	19,5	412,5	12	8	2	PTFE B602 / NBR	532389	○
420	444	14,8	15,5	19,5	422,5	12	8	2	PTFE B602 / NBR	24353639	○
420	444	14,8	15,5	19,5	422,5	12	8	2	PTFE GM201 / NBR	49008822	○
430	454	14,8	15,5	19,5	432,5	12	8	2	PTFE B602 / NBR	24348077	○
440	464	14,8	15,5	19,5	442,5	12	8	2	PTFE GM201 / FKM	526025	○
440	464	14,8	15,5	19,5	442,5	12	8	2	PTFE B602 / NBR	24378393	○
445	469	14,8	15,5	19,5	447,5	12	8	2	PTFE GM201 / NBR	49004004	○
450	474	14,8	15,5	19,5	452,5	12	8	2	PTFE B602 / NBR	24345800	○
460	484	14,8	15,5	19,5	462,5	12	8	2	PTFE B602 / NBR	24344532	○
465	489	14,8	15,5	19,5	467,5	12	8	2	PTFE GM201 / NBR	49009443	○
470	494	14,8	15,5	19,5	472,5	12	8	2	PTFE B602 / NBR	24370827	○
475	499	14,8	15,5	19,5	477,5	12	8	2	PTFE GM201 / NBR	49012518	○
495	519	14,8	15,5	19,5	497,5	12	8	2	PTFE GM201 / NBR	49010394	○
510	534	14,8	15,5	19,5	512,5	12	8	2	PTFE B602 / NBR	24372882	○
510	534	14,8	15,5	19,5	512,5	12	8	2	PTFE GM201 / FKM	49006826	○
520	544	14,8	15,5	19,5	522,5	12	8	2	PTFE B602 / NBR	24345673	○
520	544	14,8	15,5	19,5	522,5	12	8	2	PTFE GM201 / NBR	49008973	○
525	549	14,8	15,5	19,5	527,5	12	8	2	PTFE GM201 / NBR	49012519	○
530	554	14,8	15,5	19,5	532,5	12	8	2	PTFE B602 / FKM	24370401	○
540	564	14,8	15,5	19,5	542,5	12	8	2	PTFE B602 / NBR	24369294	○
570	594	14,8	15,5	19,5	572,5	12	8	2	PTFE GM201 / NBR	49009444	○

● Available from stock ○ On request: Tool is available, delivery at short notice



d	D	H	L	L ₁	D ₁	Profile	C	R ₁	Material	Article No.	
585	609	14,8	15,5	19,5	587,5	12	8	2	PTFE GM201 / NBR	49012520	○
590	614	14,8	15,5	19,5	592,5	12	8	2	PTFE B602 / FKM	24328251	○
590	614	14,8	15,5	19,5	592,5	12	8	2	PTFE B602 / NBR	24377862	○
600	624	14,8	15,5	19,5	602,5	12	8	2	PTFE B602 / NBR	24374052	○
620	644	14,8	15,5	19,5	622,5	12	8	2	PTFE B602 / NBR	24370196	○
635	659	14,8	15,5	19,5	637,5	12	8	2	PTFE GM201 / NBR	49012435	○
675	702,3	17,2	18	22	677,5	13,7	11	2	PTFE GM201 / NBR	49012436	○
690	717,3	17,2	18	22	692,5	13,7	11	2	PTFE B602 / NBR	528033	○
745	772,3	17,2	18	22	747,5	13,7	11	2	PTFE GM201 / NBR	49012437	○
800	827,3	17,2	18	22	802,5	13,7	11	2	PTFE B602 / NBR	24348235	○
815	842,3	17,2	18	22	817,5	13,7	11	2	PTFE GM201 / NBR	49012438	○
900	927,3	17,2	18	22	902,5	13,7	11	2	PTFE B602 / NBR	526605	○
910	937,3	17,2	18	22	912,5	13,7	11	2	PTFE GM201 / NBR	49012439	○

● Available from stock ○ On request: Tool is available, delivery at short notice

Merkel Double Wiper PRW 1 with Integrated Pressure Relief

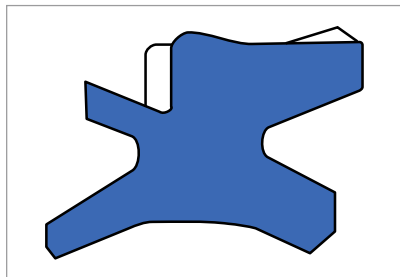


Fig. 1 Merkel Double Wiper PRW 1

Product description

Merkel Double Wiper PRW 1 with integrated pressure-relief function and special sealing and wiping edge geometry.

Product advantages

Double wiper for housings based on ISO 6195 Type A

- No pressure build-up between wiper and rod seal due to integrated pressure relief (patented).
- Improved sealing of overall system due to dynamic sealing lip with punched sealing edge.
- Wiping lip has outstanding wiping action against dirt
- Static sealing lip for additional protection against ingress of dirt and water.

Application

Earth moving equipment, industrial vehicles, loading platforms, agricultural machinery, cranes, support cylinders.

Material

Material	Code	Hardness
Polyurethane	94 AU 925	94 Shore A
Polyurethane	92 AU 21100	92 Shore A

Operating conditions

Material	94 AU 925	92 AU 21100
	Temperature range in °C	
Hydraulic oils HL, HLP	-30 ... +110	-40 ... +100
HFA fluids	+5 ... +50	+5 ... +50
HFB fluids	+5 ... +50	+5 ... +50
HFC fluids	-30 ... +40	-40 ... +40
HFD fluids	-	-
Water	+5 ... +40	+5 ... +40
HETG (rapeseed oil)	-30 ... +60	-40 ... +60
HEES (synthetic esters)	-30 ... +60	-40 ... +80
HEPG (glycol)	-30 ... +40	-40 ... +40
Mineral greases	-30 ... +110	-40 ... +100
Running speed v in m/s	0,6	0,6

Surface quality

Surface roughness	R _a	R _{max}
Sliding surface	0,05 ... 0,3 μm	≤2,5 μm
Groove base	≤1,6 μm	≤6,3 μm
Side of groove	≤3,0 μm	≤15,0 μm

Percentage contact area M_r >50% up to max. 90% at cutting depth c = Rz/2 and reference line C ref = 0%.

Design notes

Please observe our general design notes in → Technical Manual.

Gap dimension

The largest gap dimension occurring on the non-pressurised side of the seal in operation is of vital importance for the function of the seal. → Technical Manual.

Profile dimension	Max. permissible gap dimension		
	16 MPa	26 MPa	32 MPa
4,0 ... 5,0	0,50	0,40	0,35
>5,0 ... 7,5	0,55	0,45	0,40

Tolerance recommendation and dimension D2

During the design of D2, the admissible gap width, tolerances, guide play and deflection of the guide under load are to be taken into consideration.

→ Technical Manual.

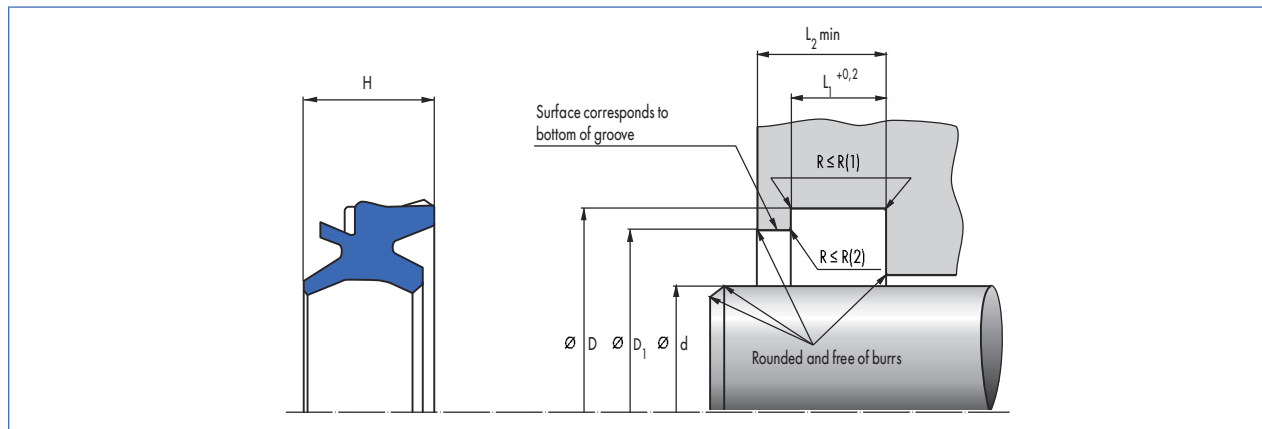
Nominal Ø d	d	D
≤180	f8	H11

Fitting & installation

Careful fitting is a prerequisite for the correct function of the Merkel Double Wiper PRW 1. Generally, wipers can be quickly and easily fitted by deforming into a kidney shape.

→ Technical Manual.

Article list



d	D	D ₁	L ₁	L ₂	R (1)	R (2)	H	Profile	Material	Article No.	
22	30	28	4	6	0,3	0,2	7	4	94 AU 925	49012374	●
25	33	31	4	6	0,3	0,2	7	4	94 AU 925	49012375	●
28	36	34	4	6	0,3	0,2	7	4	94 AU 925	528538	●
30	38	36	4	6	0,3	0,2	7	4	94 AU 925	530000	●
30	38	36	5	6	0,3	0,2	7	5	92 AU 21100	49032529	●
32	40	38	4	6	0,3	0,2	7	4	94 AU 925	531403	●
35	43	41	4	6	0,3	0,2	7	4	94 AU 925	531022	●
36	44	42	4	6	0,3	0,2	7	4	94 AU 925	531411	●
37	45	43	4	6	0,3	0,2	7	4	94 AU 925	49012106	○
38	46	44	4	6	0,3	0,2	7	4	94 AU 925	49005191	●
40	48	46	4	6	0,3	0,2	7	4	94 AU 925	531116	●
45	53	51	4	6	0,3	0,2	7	4	94 AU 925	531412	●
45	53	51	4	7,5	0,3	0,2	7,8	4	94 AU 925	49031586	●
48	58	55	6,3	8,3	0,3	0,3	9	5	94 AU 925	526679	●
50	58	56	4	6	0,3	0,2	7	4	94 AU 925	528607	●
50	60	57	6,3	8,3	0,3	0,3	9	5	94 AU 925	49040950	●
55	63	61	4	6	0,3	0,2	7	4	94 AU 925	528815	●
60	70	67	6,3	8,3	0,3	0,3	9	5	94 AU 925	49024554	●
70	80	77	6,3	8,3	0,3	0,3	9	5	94 AU 925	49022349	●
75	85	82	6,3	8,3	0,3	0,3	9	5	94 AU 925	49040948	○
80	90	87	6,3	8,3	0,3	0,3	9	5	94 AU 925	49005193	○
85	95	92	6,3	8,3	0,3	0,3	9	5	94 AU 925	49005391	●
90	100	97	6,3	8,3	0,3	0,3	9	5	94 AU 925	49040949	○
92	102	99	6,3	8,3	0,3	0,3	9	5	94 AU 925	49005192	●
125	140	135	9,5	12	0,5	0,3	13	7,5	94 AU 925	49042860	○

● Available from stock ○ On request: Tool is available, delivery at short notice

Merkel Double Wiper P 9

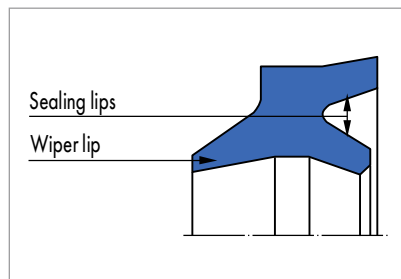


Fig. 1 Merkel Double Wiper PT 9

Product description

Elastomer double wiper especially for large diameters.

Product advantages

The Merkel Double Wiper P 9 exerts inwards the wiping function of a U-ring, and a wiping action outwards against soiling

- Intermediate sizes without mould/tool possible
- Strong wiping action against dirt
- Very good sealing effect against residual film of oil on the extending rod
- Wear-resistant.

Application

Injection moulding machines, presses, large standard cylinders.

The Merkel Double Wiper P 9 is preferably fitted in combination with our rod sealing systems. We recommend in any case the provision of a pressure relieving bore in front of the double wiper in order to avoid a pressure build-up between seal and wiper.

Material

Material	Code	Hardness
Nitrile rubber NBR	85 NBR B247	85 Shore A

Operating conditions

Material	85 NBR B247
	Temperature range in °C
Hydraulic oils HL, HLP	-30 ... +100
HFA fluids	+5 ... +60
HFB fluids	+5 ... +60
HFC fluids	-30 ... +60
HFD fluids	-
Water	+5 ... +100
HETG (rapeseed oil)	-30 ... +80
HEES (synthetic esters)	-30 ... +80
HEPG (glycol)	-30 ... +60
Mineral greases	-30 ... +100
Running speed v in m/s	1

Surface quality

Surface roughness	R _a	R _{max}
Sliding surface	*	*
Groove base	≤1,6 μm	≤6,3 μm
Side of groove	≤3,0 μm	≤15,0 μm

* Surface roughness of the sliding surface to suit the sealing component used.

Design notes

Please observe our general design notes in → Technical Manual.

Tolerance recommendation

Nominal Ø d	D	D ₁
16 ... 2000	H10	+0,2

The tolerance for the Ø d is defined by the buffer seal.

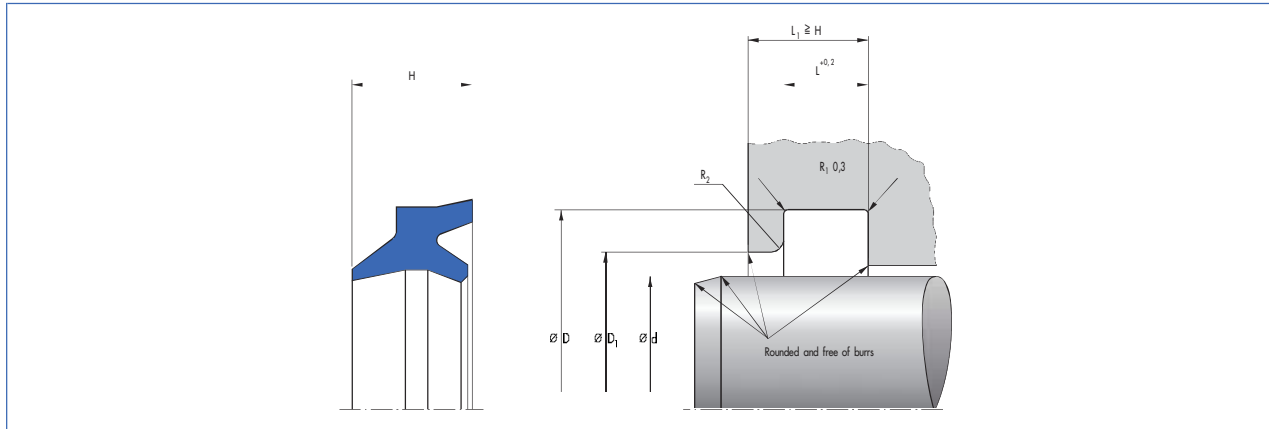
Lead-in chamfers

Length and angle are to be designed to suit the rod seal used.

Fitting & installation

Careful fitting is a prerequisite for the correct function of the Merkel Double Wiper P 9. Generally, wipers can be quickly and easily fitted by deforming into a kidney shape. → Technical Manual.

Article list

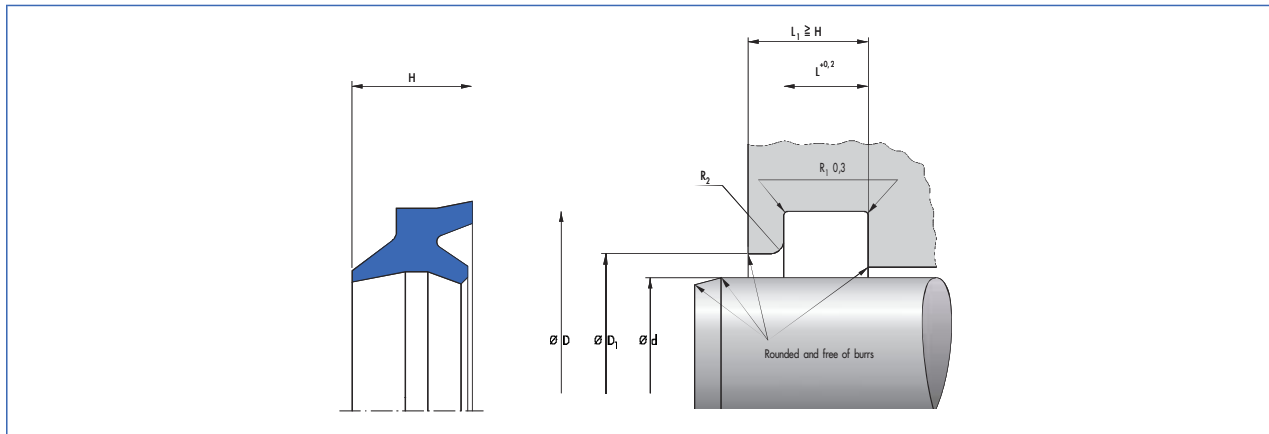


d	D	H	L	D ₁	Profile	R ₂	Material	Article No.	
200	220	18	10,2	210	10	1,5	85 NBR B247	24212749	●
210	230	18	10,2	220	10	1,5	85 NBR B247	24224920	●
220	240	18	10,2	230	10	1,5	85 NBR B247	24224959	●
230	250	18	10,2	240	10	1,5	85 NBR B247	24224931	●
240	260	18	10,2	250	10	1,5	85 NBR B247	24193882	●
250	275	22,5	16	262,6	12,5	2	85 NBR B247	24175461	●
260	285	22,5	16	272,6	12,5	2	85 NBR B247	24224921	●
270	295	22,5	16	282,6	12,5	2	85 NBR B247	24213404	●
280	305	22,5	16	292,6	12,5	2	85 NBR B247	24183892	●
290	315	22,5	16	302,6	12,5	2	85 NBR B247	24224938	○
300	325	22,5	16	312,6	12,5	2	85 NBR B247	24173146	●
310	340	27	18	325	15	3	85 NBR B247	24224922	○
320	350	27	18	335	15	3	85 NBR B247	24224937	●
330	360	27	18	345	15	3	85 NBR B247	24146278	●
340	370	27	18	355	15	3	85 NBR B247	24224930	○
350	380	27	18	365	15	3	85 NBR B247	24147758	●
360	390	27	18	375	15	3	85 NBR B247	24224923	●
370	400	27	18	385	15	3	85 NBR B247	24224929	○
380	410	27	18	395	15	3	85 NBR B247	24149422	●
390	420	27	18	405	15	3	85 NBR B247	24224940	○
400	430	27	18	415	15	3	85 NBR B247	24170712	●
410	440	27	18	425	15	3	85 NBR B247	24224936	○
420	450	27	18	435	15	3	85 NBR B247	24170651	●
430	460	27	18	445	15	3	85 NBR B247	24178040	○
440	470	27	18	455	15	3	85 NBR B247	24224924	●
450	480	27	18	465	15	3	85 NBR B247	24224958	○
460	490	27	18	475	15	3	85 NBR B247	24224942	●
470	500	27	18	485	15	3	85 NBR B247	24224960	○
480	510	27	18	495	15	3	85 NBR B247	24224941	●
490	520	27	18	505	15	3	85 NBR B247	24224957	○
500	530	27	18	515	15	3	85 NBR B247	24224925	●
510	540	27	18	525	15	3	85 NBR B247	24224943	○
520	550	27	18	535	15	3	85 NBR B247	24224956	●
530	560	27	18	545	15	3	85 NBR B247	24224932	○
540	570	27	18	555	15	3	85 NBR B247	24224955	●

● Available from stock ○ On request: Tool is available, delivery at short notice

d	D	H	L	D ₁	Profile	R ₂	Material	Article No.	
550	580	27	18	565	15	3	85 NBR B247	24224964	○
560	590	27	18	575	15	3	85 NBR B247	24224954	○
570	600	27	18	585	15	3	85 NBR B247	24224944	○
580	610	27	18	595	15	3	85 NBR B247	24224933	○
590	620	27	18	605	15	3	85 NBR B247	24224945	○
600	630	27	18	615	15	3	85 NBR B247	24224926	○
610	640	27	18	625	15	3	85 NBR B247	24262532	○
620	650	27	18	635	15	3	85 NBR B247	24224953	○
630	660	27	18	645	15	3	85 NBR B247	24222458	●
650	680	27	18	665	15	3	85 NBR B247	24224946	○
660	690	27	18	675	15	3	85 NBR B247	24287716	○
670	700	27	18	685	15	3	85 NBR B247	24224934	○
680	710	27	18	695	15	3	85 NBR B247	24238455	○
690	720	27	18	705	15	3	85 NBR B247	24221251	○
695	725	27	18	610	15	3	85 NBR B247	24296288	○
700	730	27	18	715	15	3	85 NBR B247	24224952	○
710	740	27	18	725	15	3	85 NBR B247	24216448	○
720	750	27	18	735	15	3	85 NBR B247	24224947	○
730	760	27	18	745	15	3	85 NBR B247	49018767	○
740	770	27	18	755	15	3	85 NBR B247	24224951	○
750	780	27	18	765	15	3	85 NBR B247	24233258	○
760	790	27	18	775	15	3	85 NBR B247	24224948	○
770	800	27	18	785	15	3	85 NBR B247	24353518	○
775	805	27	18	790	15	3	85 NBR B247	24295917	○
780	810	27	18	795	15	3	85 NBR B247	24217401	●
790	820	27	18	805	15	3	85 NBR B247	24302433	○
800	830	27	18	815	15	3	85 NBR B247	24215532	●
810	840	27	18	825	15	3	85 NBR B247	24264154	○
820	850	27	18	835	15	3	85 NBR B247	24224935	○
830	860	27	18	845	15	3	85 NBR B247	49003545	○
840	870	27	18	855	15	3	85 NBR B247	24224961	○
850	880	27	18	865	15	3	85 NBR B247	24215590	○
860	890	27	18	875	15	3	85 NBR B247	24224963	○
870	900	27	18	885	15	3	85 NBR B247	24295918	○
880	910	27	18	895	15	3	85 NBR B247	24224962	○
890	920	27	18	905	15	3	85 NBR B247	24297999	○
900	930	27	18	915	15	3	85 NBR B247	24224950	○
920	950	27	18	935	15	3	85 NBR B247	24345992	○
950	980	27	18	965	15	3	85 NBR B247	24233241	○
960	990	27	18	975	15	3	85 NBR B247	24224928	●
970	1000	27	28	985	15	3	85 NBR B247	24361394	○
980	1010	27	18	995	15	3	85 NBR B247	24293775	○
990	1020	27	18	1005	15	3	85 NBR B247	49007878	○
1000	1030	27	18	1015	15	3	85 NBR B247	24215533	●
1020	1050	27	18	1035	15	3	85 NBR B247	24353379	○
1040	1070	27	18	1055	15	3	85 NBR B247	24331194	○
1050	1080	27	18	1065	15	3	85 NBR B247	24306433	○
1060	1090	27	18	1075	15	3	85 NBR B247	24350174	○
1070	1100	27	18	1085	15	3	85 NBR B247	24228839	○
1100	1130	27	18	1115	15	3	85 NBR B247	24250720	○

● Available from stock ○ On request: Tool is available, delivery at short notice



d	D	H	L	D ₁	Profile	R ₂	Material	Article No.	
1110	1140	27	18	1125	15	3	85 NBR B247	24237246	○
1120	1150	27	18	1135	15	3	85 NBR B247	49017722	○
1130	1160	27	18	1145	15	3	85 NBR B247	24378267	○
1170	1200	27	18	1185	15	3	85 NBR B247	24341374	○
1210	1240	27	18	1225	15	3	85 NBR B247	24362171	○
1220	1250	27	18	1235	15	3	85 NBR B247	24259753	○
1250	1280	27	18	1265	15	3	85 NBR B247	24302041	○
1260	1290	27	18	1275	15	3	85 NBR B247	24342022	○
1300	1330	27	18	1315	15	3	85 NBR B247	24292824	○
1350	1380	27	18	1365	15	3	85 NBR B247	24290793	○
1370	1400	27	18	1385	15	3	85 NBR B247	24332613	○
1380	1410	27	18	1395	15	3	85 NBR B247	24378270	○
1420	1450	27	18	1435	15	3	85 NBR B247	24362130	○
1450	1480	27	18	1465	15	3	85 NBR B247	24302595	○
1560	1590	27	18	1565	15	3	85 NBR B247	532782	○
1580	1610	27	18	1595	15	3	85 NBR B247	24336748	○
1660	1690	27	18	1675	15	3	85 NBR B247	24357172	○
1700	1730	27	18	1715	15	3	85 NBR B247	49019211	○
1750	1780	27	18	1765	15	3	85 NBR B247	24262918	○
1800	1830	27	18	1815	15	3	85 NBR B247	49012005	○
1960	1990	27	18	1975	15	3	85 NBR B247	24259169	○
2000	2030	27	18	2015	15	3	85 NBR B247	24294574	○
2450	2480	27	18	2495	15	3	85 NBR B247	24378197	○

● Available from stock ○ On request: Tool is available, delivery at short notice

Merkel Double Wiper P 8

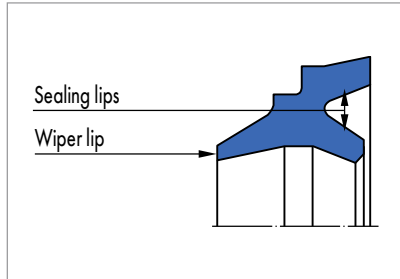


Fig. 1 Merkel Double Wiper PT 8

Product description

Elastomer double wiper.

Product advantages

The Merkel Double Wiper P 8 exerts inwards the wiping function of a U-ring, and a wiping action outwards against soiling

- Strong wiping action against dirt
- Very good sealing effect against residual film of oil on the extending rod
- Wear-resistant.

Application

Industrial vehicles, injection moulding machines, presses.

Merkel Double Wipers P 8 are preferably fitted in combination with our rod sealing systems Merkel Omegat OMS-MR and Merkel Omegat OMS-S. We recommend in any case the provision of a pressure relieving bore in front of the double wiper in order to avoid a pressure build-up between seal and wiper.

Material

D <200 mm

Material	Code	Hardness
Nitrile rubber NBR	90 NBR 109	90 Shore A

D >200 mm

Material	Code	Hardness
Fluoro rubber FKM	85 NBR B247	85 Shore A

Operating conditions

Material	90 NBR B283/85 NBR B247/90 NBR 109
Temperature range in °C	
Hydraulic oils HL, HLP	-30 ... +100
HFA fluids	+5 ... +60
HFB fluids	+5 ... +60
HFC fluids	-30 ... +60
HFD fluids	-
Water	+5 ... +100
HETG (rapeseed oil)	-30 ... +80
HEES (synthetic esters)	-30 ... +80
HEPG (glycol)	-30 ... +60
Mineral greases	-30 ... +100
Running speed v in m/s	1

Surface quality

Surface roughness	R _a	R _{max}
Sliding surface	*	*
Groove base	≤1,6 μm	≤6,3 μm
Side of groove	≤3,0 μm	≤15,0 μm

* Surface roughness of the sliding surface to suit the sealing component used.

Design notes

Please observe our general design notes in → Technical Manual.

Tolerance recommendation

Nominal Ø d	D	D ₁	D ₂
16 ... 1000	H10	JS11	H10

The tolerance for the Ø d is defined by the buffer seal.

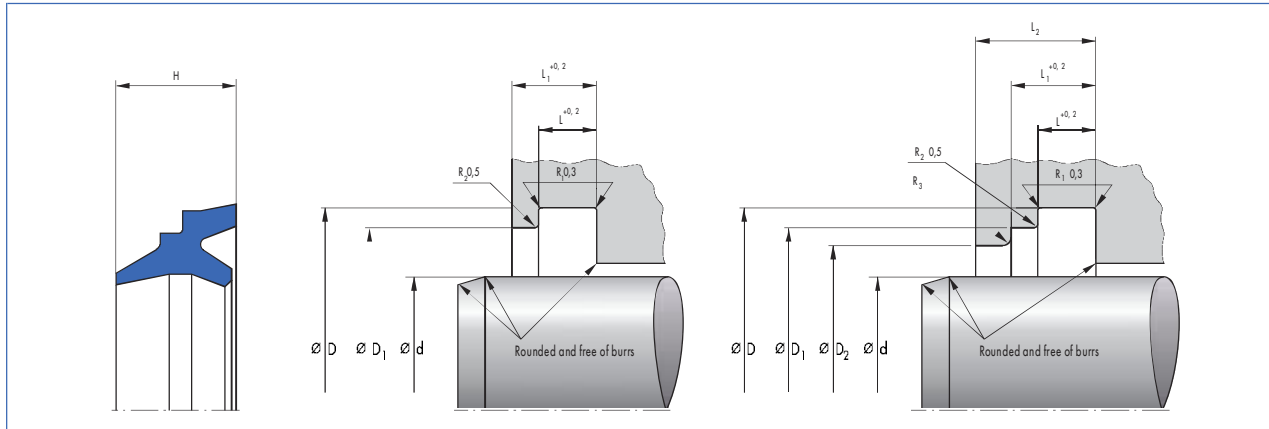
Lead-in chamfers

Length and angle are to be designed to suit the rod seal used.

Fitting & installation

Careful fitting is a prerequisite for the correct function of the Merkel Double Wiper P 8. Generally, wipers can be quickly and easily fitted by deforming into a kidney shape.
→ Technical Manual.

Article list

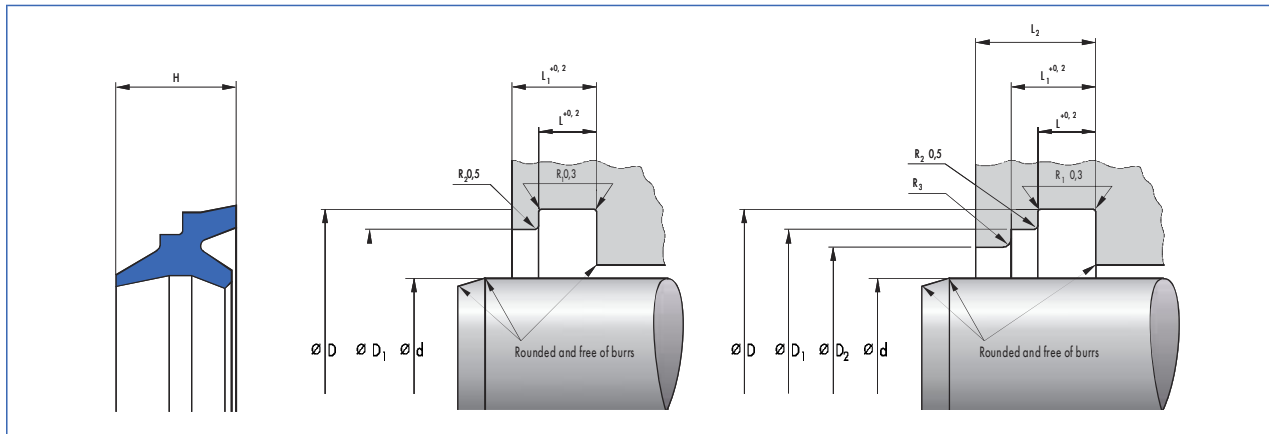


d	D	H	D ₁	D ₂	L	L ₁	L ₂	Profile	R ₃	Material	Article No.	
10	18	8	16	13,5	4	6	8	4	0,5	90 NBR 109	24224393	○
12	20	8	18	15,5	4	6	8	4	0,5	90 NBR 109	24224434	○
14	22	8	20	17,5	4	6	8	4	0,5	90 NBR 109	24224394	○
15	23	8	21	18,5	4	6	8	4	0,5	90 NBR 109	24224433	○
16	24	8	22	19,5	4	6	8	4	0,5	90 NBR 109	24224395	●
18	26	8	24	21,5	4	6	8	4	0,5	90 NBR 109	24224432	●
20	28	8	26	23,5	4	6	8	4	0,5	90 NBR 109	24224396	●
22	30	8	28	25,5	4	6	8	4	0,5	90 NBR 109	24224431	●
25	33	8	31	28,5	4	6	8	4	0,5	90 NBR 109	24224397	●
28	36	8	34	31,5	4	6	8	4	0,5	90 NBR 109	24224430	●
30	38	8	36	33,5	4	6	8	4	0,5	90 NBR 109	24224398	●
32	40	8	38	35,5	4	6	8	4	0,5	90 NBR 109	24224429	●
35	43	8	41	38,5	4	6	8	4	0,5	90 NBR 109	24224399	●
36	44	8	42	39,5	4	6	8	4	0,5	90 NBR 109	24224428	●
40	48	8	46	43,5	4	6	8	4	0,5	90 NBR 109	24224400	●
42	50	8	48	45,5	4	6	8	4	0,5	90 NBR 109	24224427	●
45	53	8	51	48,5	4	6	8	4	0,5	90 NBR 109	24217239	●
50	58	8	56	53,5	4	6	8	4	0,5	90 NBR 109	24197635	●
55	63	8	61	58,5	4	6	8	4	0,5	90 NBR 109	24224402	●
56	64	8	62	59,5	4	6	8	4	0,5	90 NBR 109	24224425	●
60	68	8	66	63,5	4	6	8	4	0,5	90 NBR 109	24224403	●
63	71	8	69	66,5	4	6	8	4	0,5	90 NBR 109	24224424	●
65	73	8	71	68,5	4	6	8	4	0,5	90 NBR 109	24224404	●
70	78	8	76	73,5	4	6	8	4	0,5	90 NBR 109	24224423	●
75	83	8	81	78,5	4	6	8	4	0,5	90 NBR 109	24224405	●
80	88	8	86	83,5	4	6	8	4	0,5	90 NBR 109	24224422	●
85	93	8	91	88,5	4	6	8	4	0,5	90 NBR 109	24224406	●
90	98	8	96	93,5	4	6	8	4	0,5	90 NBR 109	24224032	●
100	108	8	106	103,5	4	6	8	4	0,5	90 NBR 109	24224407	●
105	117	11	114	110	5,5	8,2	11,2	6	1	90 NBR 109	24224420	●
110	122	11	119	115	5,5	8,2	11,2	6	1	90 NBR B283	24224408	●
115	127	11	124	120	5,5	8,2	11,2	6	1	90 NBR B283	24224419	●
120	132	11	129	125	5,5	8,2	11,2	6	1	90 NBR 109	24224409	●
125	137	11	134	130	5,5	8,2	11,2	6	1	90 NBR B283	24224031	●
130	142	11	139	135	5,5	8,2	11,2	6	1	90 NBR 109	24224410	●

● Available from stock ○ On request: Tool is available, delivery at short notice

d	D	H	D ₁	D ₂	L	L ₁	L ₂	Profile	R ₃	Material	Article No.	
135	147	11	144	140	5,5	8,2	11,2	6	1	90 NBR 109	24224417	○
140	152	11	149	145	5,5	8,2	11,2	6	1	90 NBR 109	24224411	●
150	162	11	159	155	5,5	8,2	11,2	6	1	90 NBR 109	24224416	●
160	172	11	169	165	5,5	8,2	11,2	6	1	90 NBR 109	24224412	●
170	182	11	179	175	5,5	8,2	11,2	6	1	90 NBR 109	24224415	●
180	192	11	189	185	5,5	8,2	11,2	6	1	90 NBR B283	24224413	●
200	212	11	209	205	5,5	8,2	11,2	6	1	90 NBR 109	24224414	●
210	225	13	222	217	6,5	9,5	12,5	7,5	1,5	85 NBR B247	49017591	○
220	235	13	232	227	6,5	9,5	12,5	7,5	1,5	85 NBR B247	24354797	●
235	250	13	247	243	6,5	9,5	12,5	7,5	1,5	85 NBR B247	49017612	○
240	255	13	252	247	6,5	9,5	12,5	7,5	1,5	85 NBR B247	24354798	●
260	275	13	272	267	6,5	9,5	12,5	7,5	1,5	85 NBR B247	24354799	○
260	275	13	272	268	6,5	9,5	12,5	7,5	1,5	90 NBR 109	49036054	○
280	295	13	292	287	6,5	9,5	12,5	7,5	1,5	85 NBR B247	24354800	●
295	310	13	307	303	6,5	9,5	12,5	7,5	1,5	85 NBR B247	24355389	○
300	315	13	312	307	6,5	9,5	12,5	7,5	1,5	85 NBR B247	24354801	○
310	325	13	322	317	6,5	9,5	12,5	7,5	1,5	85 NBR B247	24357280	○
315	330	13	327	323	6,5	9,5	12,5	7,5	1,5	85 NBR B247	527673	○
320	335	13	332	327	6,5	9,5	12,5	7,5	1,5	85 NBR B247	24355390	○
335	350	13	347	343	6,5	9,5	12,5	7,5	1,5	85 NBR B247	49017614	○
340	355	13	352	347	6,5	9,5	12,5	7,5	1,5	85 NBR B247	24354802	○
350	365	13	362	357	6,5	9,5	12,5	7,5	1,5	85 NBR B247	24367045	○
355	370	13	367	363	6,5	9,5	12,5	7,5	1,5	85 NBR B247	49017597	○
360	375	13	372	367	6,5	9,5	12,5	7,5	1,5	85 NBR B247	24354803	●
380	395	13	392	387	6,5	9,5	12,5	7,5	1,5	85 NBR B247	24354804	○
390	405	13	402	398	6,5	9,5	12,5	7,5	1,5	85 NBR B247	49035280	○
400	415	13	412	407	6,5	9,5	12,5	7,5	1,5	85 NBR B247	24354805	○
420	435	13	432	427	6,5	9,5	12,5	7,5	1,5	85 NBR B247	24354806	○
425	440	13	437	433	6,5	9,5	12,5	7,5	1,5	85 NBR B247	24355391	○
440	455	13	452	447	6,5	9,5	12,5	7,5	1,5	85 NBR B247	24355392	○
445	460	13	457	453	6,5	9,5	12,5	7,5	1,5	85 NBR B247	49017720	○
450	465	13	462	457	6,5	9,5	12,5	7,5	1,5	85 NBR B247	24355393	○
460	475	13	472	467	6,5	9,5	12,5	7,5	1,5	85 NBR B247	24354807	●
470	485	13	482	477	6,5	9,5	12,5	7,5	1,5	85 NBR B247	49017615	○
480	495	13	492	487	6,5	9,5	12,5	7,5	1,5	85 NBR B247	24355394	○
485	500	13	497	493	9,5	9,5	12,5	7,5	1,5	85 NBR B247	530782	○
490	505	13	502	497	6,5	9,5	12,5	7,5	1,5	85 NBR B247	24379846	○
500	515	13	512	507	6,5	9,5	12,5	7,5	1,5	85 NBR B247	24354808	○
540	555	13	552	547	6,5	9,5	12,5	7,5	1,5	85 NBR B247	24355395	○
550	565	13	562	557	6,5	9,5	12,5	7,5	1,5	85 NBR B247	24355396	○
560	575	13	572	567	6,5	9,5	12,5	7,5	1,5	85 NBR B247	24354809	○
570	585	13	582	478	6,5	9,5	12,5	7,5	1,5	85 NBR B247	49023111	○
580	595	13	592	587	6,5	9,5	12,5	7,5	1,5	85 NBR B247	24357108	○
590	605	13	602	597	6,5	9,5	12,5	7,5	1,5	85 NBR B247	24355397	○
600	615	13	612	607	6,5	9,5	12,5	7,5	1,5	85 NBR B247	24354810	○
630	645	13	642	637	6,5	9,5	12,5	7,5	1,5	85 NBR B247	24354811	○
650	665	13	662	657	6,5	9,5	12,5	7,5	1,5	85 NBR B247	24355398	○
670	685	13	682	677	6,5	9,5	12,5	7,5	1,5	85 NBR B247	24359048	○
680	695	13	692	687	6,5	9,5	12,5	7,5	1,5	85 NBR B247	24354812	○
710	725	13	722	717	6,5	9,5	12,5	7,5	1,5	85 NBR B247	24355399	○

● Available from stock ○ On request: Tool is available, delivery at short notice



d	D	H	D ₁	D ₂	L	L ₁	L ₂	Profile	R ₃	Material	Article No.	
750	765	13	762	757	6,5	9,5	12,5	7,5	1,5	85 NBR B247	24355400	○
800	815	13	812	807	6,5	9,5	12,5	7,5	1,5	85 NBR B247	24355401	○
824	839	13	836	832	6,5	9,5	12,5	7,5	1,5	85 NBR B247	24373706	○
840	855	13	852	847	6,5	9,5	12,5	7,5	1,5	85 NBR B247	527160	○
900	915	13	912	907	6,5	9,5	12,5	7,5	1,5	85 NBR B247	24355402	○
905	920	13	917	913	6,5	9,5	12,5	7,5	1,5	85 NBR B247	24368328	○
950	965	13	962	957	6,5	9,5	12,5	7,5	1,5	85 NBR B247	527757	○
1000	1015	13	1012	1007	6,5	9,5	12,5	7,5	1,5	85 NBR B247	24357109	○

● Available from stock ○ On request: Tool is available, delivery at short notice

Merkel Wiper PU 7

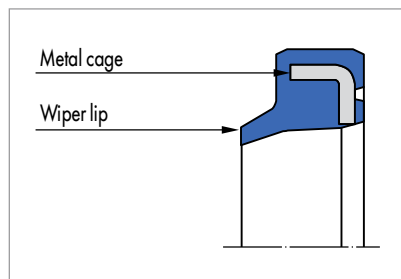


Fig. 1 Merkel Wiper PU 7

Product description

Single-acting dirt wiper made of polyurethane with integrated metal cage.

Product advantages

PUR wiper for axially accessible housings, amongst others, for standardised housings according to ISO 6195 Type B.

- Secure seating in housing (press fitting)
- Made of highly wear-resistant polyurethane
- No open ring gap to the outside (dirt pocket) between rod and housing
- Easy to manufacture housing
- No corrosion between housing and wiper cage.

Application

Earth moving equipment, industrial vehicles, presses, mining, injection moulding machines, support cylinders, agricultural machinery, cranes, loading platforms, telescopic cylinders.

Material

Material	Code	Hardness
Polyurethane	95 AU V149	95 Shore A

Operating conditions

Material	95 AU V149
	Temperature range in °C
Hydraulic oils HL, HLP	-30 ... +110
HFA fluids	+5 ... +50
HFB fluids	+5 ... +50
HFC fluids	-30 ... +40
HFD fluids	-
Water	+5 ... +50
HETG (rapeseed oil)	-30 ... +60
HEES (synthetic esters)	-30 ... +80
HEPG (glycol)	-30 ... +50
Mineral greases	-30 ... +110
Running speed v in m/s	2

Surface quality

Surface roughness	R _a	R _{max}
Sliding surface	*	*
Groove base	≤1,6 μm	≤6,3 μm
Side of groove	≤3,0 μm	≤15,0 μm

* Surface roughness of the sliding surface to suit the sealing component used.

Design notes

Please observe our general design notes in → Technical Manual.

Tolerance recommendation

Nominal Ø d	D
10 ... 150	H8

The tolerance for the Ø d is defined by the buffer seal.

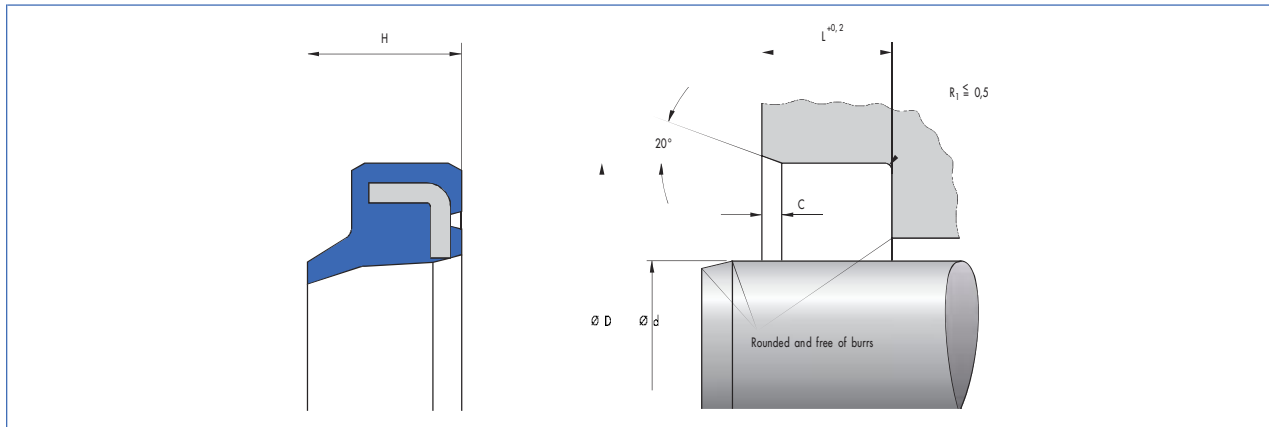
Lead-in chamfers

Length and angle are to be designed to suit the rod seal used.

Fitting & installation

Careful fitting is a prerequisite for the correct function of the Merkel Wiper PU 7. Generally, wipers can be quickly and easily fitted by deforming into a kidney shape. → Technical Manual.

Article list



d	D	L	H	Profile	C	Material	Article No.	
10	20	5	8	5	1	95 AU V149	24245001	○
12	20	4	6	4	0,8	95 AU V149	24234908	●
12	22	5	8	5	1	95 AU V149	24245152	○
14	20	4	5	3	0,8	95 AU V149	24245101	●
14	24	7	10	5	1,2	95 AU V149	24245151	○
15	25	5	8	5	1	95 AU V149	24245103	○
16	22	3,5	5	3	0,8	95 AU V149	24245003	●
18	28	7	10	5	1,2	95 AU V149	24245150	●
20	28	3,5	5	4	0,8	95 AU V149	24245102	●
20	30	7	10	5	1,2	95 AU V149	24245002	●
22	32	5,5	7	5	1	95 AU V149	24244936	●
22	32	7	10	5	1,2	95 AU V149	24244937	○
25	32	5	7	3,5	1	95 AU V149	24237353	●
25	35	7	10	5	1,2	95 AU V149	24182670	●
28	38	7	10	5	1,2	95 AU V149	24182671	●
28	40	7	10	6	1,2	95 AU V149	24187185	●
30	40	5	8	5	1	95 AU V149	24244938	●
30	40	7	10	5	1,2	95 AU V149	24182672	●
32	42	7	10	5	1,2	95 AU V149	24244939	●
35	45	7	10	5	1,2	95 AU V149	24182674	●
36	46	7	10	5	1,2	95 AU V149	24182675	●
40	50	7	10	5	1,2	95 AU V149	24182676	●
42	52	7	10	5	1,2	95 AU V149	24182677	○
45	55	7	10	5	1,2	95 AU V149	24182678	●
50	60	7	10	5	1,2	95 AU V149	24182679	●
55	65	7	10	5	1,2	95 AU V149	24182680	●
56	66	7	10	5	1,2	95 AU V149	24182681	●
60	70	7	10	5	1,2	95 AU V149	24182682	●
63	75	7	10	6	1,2	95 AU V149	24182683	●
65	75	7	10	5	1,2	95 AU V149	24182684	●
70	80	7	10	5	1,2	95 AU V149	24182685	●
75	85	7	10	5	1,2	95 AU V149	24182686	●
80	90	7	10	5	1,2	95 AU V149	24182687	●
85	95	7	10	5	1,2	95 AU V149	24182688	●
90	100	7	10	5	1,2	95 AU V149	24182689	●

● Available from stock ○ On request: Tool is available, delivery at short notice

d	D	L	H	Profile	C	Material	Article No.	
95	105	7	10	5	1,2	95 AU V149	24182690	●
100	110	7	10	5	1,2	95 AU V149	24182691	●
105	115	7	10	5	1,2	95 AU V149	24182692	●
110	120	7	10	5	1,2	95 AU V149	24182693	●
115	125	7	10	5	1,2	95 AU V149	24182694	●
120	130	7	10	5	1,2	95 AU V149	24182695	●
125	140	9	12	7,5	1,5	95 AU V149	24182696	●
140	155	9	12	7,5	1,5	95 AU V149	24182697	●
145	160	9	12	7,5	1,5	95 AU V149	24182698	○
150	165	9	12	7,5	1,5	95 AU V149	24182699	●

● Available from stock ○ On request: Tool is available, delivery at short notice

Merkel Wiper PU 6

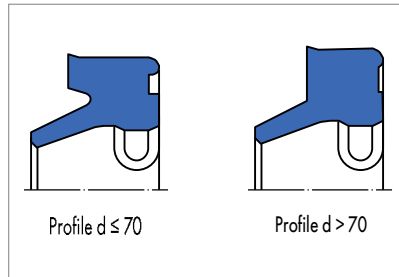


Fig. 1 Merkel Wiper PU 6

Product description

Single-acting PUR wiper with static sealing edge on the outside diameter.

Product advantages

Dirt wiper with bearing segments on the heel of the wiper and lightly rounded wiper lip

- No ingress of dirt and water spray via outside diameter
- Reliably wipes away dirt
- Leaves a residual film of oil on retracting rod
- No twisting and pressure build-up between seal and wiper
- Highly wear-resistant.

Application

Earth moving equipment, presses, mining, injection moulding machines, support cylinders.

Material

Material	Code	Hardness
Polyurethane	95 AU V149	95 Shore A

Operating conditions

Material	95 AU V149
	Temperature range in °C
Hydraulic oils HL, HLP	-30 ... +110
HFA fluids	+5 ... +50
HFB fluids	+5 ... +50
HFC fluids	-30 ... +40
HFD fluids	-
Water	+5 ... +50
HETG (rapeseed oil)	-30 ... +60
HEES (synthetic esters)	-30 ... +80
HEPG (glycol)	-30 ... +50
Mineral greases	-30 ... +110
Running speed v in m/s	2

Surface quality

Surface roughness	R _a	R _{max}
Sliding surface	*	*
Groove base	≤1,6 μm	≤6,3 μm
Side of groove	≤3,0 μm	≤15,0 μm

* Surface roughness of the sliding surface to suit the sealing component used.

Design notes

Please observe our general design notes in → Technical Manual.

Tolerance recommendation

Nominal Ø d	D	D ₁
12 ... 200	H10	H11

The tolerance for the Ø d is defined by the buffer seal.

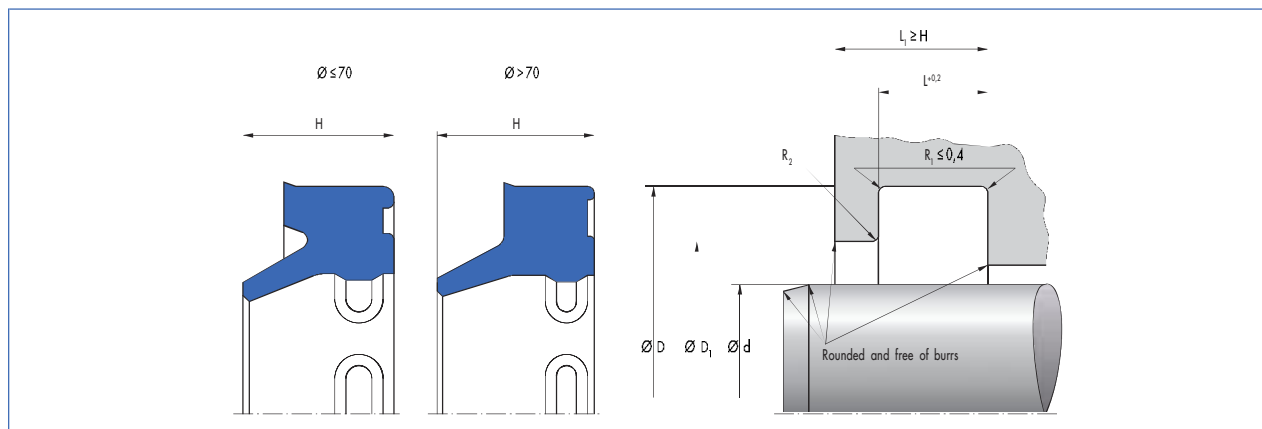
Lead-in chamfers

Length and angle are to be designed to suit the rod seal used.

Fitting & installation

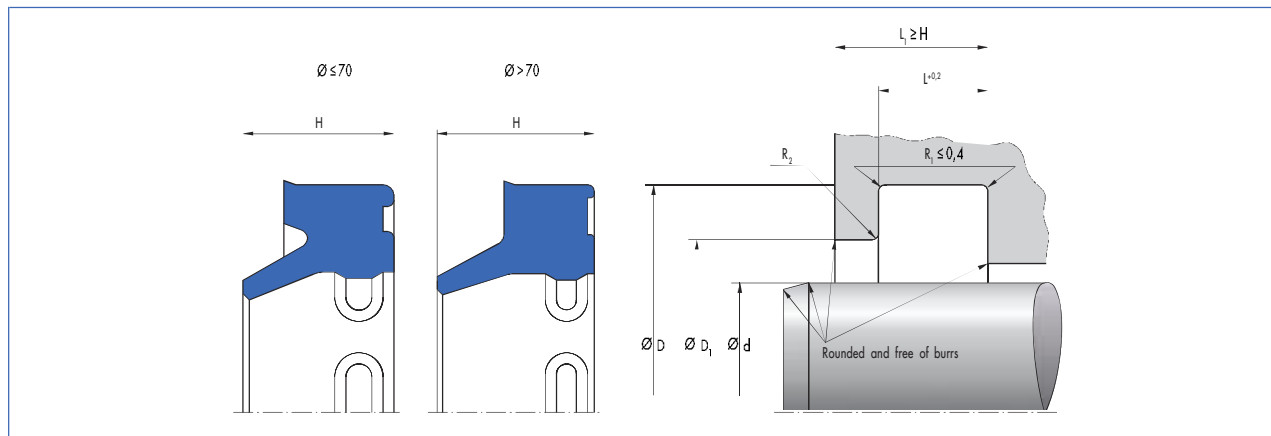
Careful fitting is a prerequisite for the correct function of the Merkel Wiper PU 6. Generally, wipers can be quickly and easily fitted by deforming into a kidney shape. → Technical Manual.

Article list



d	D	L	H	D ₁	Profile	R ₂	Material	Article No.	
12	18,6	3,8	5,3	15	3,3	1	95 AU V149	24375925	○
14	20,6	3,8	5,3	17	3,3	1	95 AU V149	24375926	○
16	22,6	3,8	5,3	19	3,3	1	95 AU V149	24375927	○
18	24,6	3,8	5,3	21	3,3	1	95 AU V149	24375928	○
20	28,6	5,3	6,5	23	4,3	1	95 AU V149	24004784	●
22	30,6	5,3	6,5	25	4,3	1	95 AU V149	24004788	●
25	33,6	5,3	6,5	28	4,3	1	95 AU V149	24004792	●
28	36,6	5,3	6,5	31	4,3	1	95 AU V149	24004798	●
30	38,6	5,3	6,5	33	4,3	1	95 AU V149	24004799	●
32	40,6	5,3	6,5	35	4,3	1	95 AU V149	24004805	●
35	43,6	5,3	6,5	38	4,3	1	95 AU V149	24004808	●
36	44,6	5,3	6,5	39	4,3	1	95 AU V149	24004811	●
40	48,6	5,3	6,5	43	4,3	1	95 AU V149	24004816	●
42	50,6	5,3	6,5	45	4,3	1	95 AU V149	24004820	●
45	53,6	5,3	6,5	48	4,3	1	95 AU V149	24375906	●
45	55,6	5,3	6,5	48	5,3	1	95 AU V149	24004827	●
50	58,6	5,3	6,5	53	4,3	1	95 AU V149	24375907	●
50	60,6	5,3	6,5	53	5,3	1	95 AU V149	24004835	●
55	65,6	5,3	7	58	5,3	1	95 AU V149	24004846	●
56	64,6	5,3	6,5	59	4,3	1	95 AU V149	24375908	○
56	66,6	5,3	7	59	5,3	1	95 AU V149	24004849	●
60	68,6	5,3	6,5	63	4,3	1	95 AU V149	24375909	○
60	70,6	5,3	7	63	5,3	1	95 AU V149	24004853	●
63	73,6	5,3	7	66	5,3	1	95 AU V149	24004859	●
65	75,6	5,3	7	68	5,3	1	95 AU V149	24004869	●
70	78,6	5,3	6,5	73	4,3	1	95 AU V149	24375910	○
70	80,6	5,3	7	73	5,3	1	95 AU V149	24004881	●
75	87,2	7,2	12	81	6,1	1	95 AU V149	24004892	●
80	92,2	7,2	12	86	6,1	1	95 AU V149	24004909	●
85	97,2	7,2	12	91	6,1	1	95 AU V149	24004917	●
90	102,2	7,2	12	96	6,1	1	95 AU V149	24004928	●
100	112,2	7,2	12	106	6,1	1	95 AU V149	24004944	●
105	117,2	7,2	12	111	6,1	1	95 AU V142	24004956	○
110	122,2	7,2	12	116	6,1	1	95 AU V149	24004961	●
115	127,2	7,2	12	121	6,1	1	95 AU V149	24004968	●

● Available from stock ○ On request: Tool is available, delivery at short notice



d	D	L	H	D ₁	Profile	R ₂	Material	Article No.	
120	132,2	7,2	12	126	6,1	1	95 AU V149	24004975	●
125	140	10,2	16	132,6	7,5	1,5	95 AU V149	24004981	●
140	155	10,2	16	147,6	7,5	1,5	95 AU V149	24005002	●
150	162,2	7,2	12	156	6,1	1	95 AU V142	24368329	○
150	165	10,2	16	157,6	7,5	1,5	95 AU V149	24005013	●
160	175	10,2	16	167,6	7,5	1,5	95 AU V149	24005025	●
180	200	10,2	18	190	10	3	95 AU V149	24005039	●
190	210	10,2	18	200	10	3	95 AU V149	24005044	●
200	220	10,2	18	210	10	3	95 AU V149	24005050	●

● Available from stock ○ On request: Tool is available, delivery at short notice

Merkel Wiper PU 5

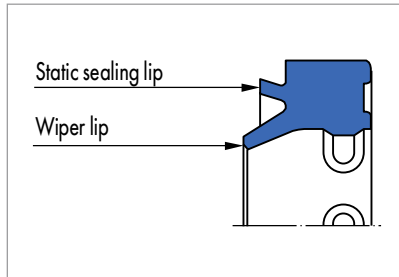


Fig. 1 Merkel Wiper PU 5

Product description

Dirt wiper with additional static sealing lip and bearing segments; sealing edge of wiper lip slightly rounded.

Product advantages

Single-acting wiper, use also in standardised housings according to ISO 6195 Type A

- Additional static sealing lip prevents ingress of dirt and water spray
- Wiper lip with slightly rounded sealing edge reliably wipes dirt away and leaves a residual oil film on the retracting rod; friction behaviour and service life are improved
- The support on the wiper heel prevents twisting in the groove as well as pressure build-up between wiper and seal.

Application

Earth moving equipment, agricultural machinery, injection moulding machines, telescopic cylinders, presses, industrial vehicles, cranes, mining, loading platforms, support cylinders.

Material

Material	Code	Hardness
Polyurethane	95 AU V149	95 Shore A

Operating conditions

Material	95 AU V149
	Temperature range in °C
Hydraulic oils HL, HLP	-30 ... +110
HFA fluids	+5 ... +50
HFB fluids	+5 ... +50
HFC fluids	-30 ... +40
HFD fluids	-
Water	+5 ... +50
HETG (rapeseed oil)	-30 ... +60
HEES (synthetic esters)	-30 ... +80
HEPG (glycol)	-30 ... +50
Mineral greases	-30 ... +110
Running speed v in m/s	2

Surface quality

Surface roughness	R _a	R _{max}
Sliding surface	*	*
Groove base	≤1,6 μm	≤6,3 μm
Side of groove	≤3,0 μm	≤15,0 μm

* Surface roughness of the sliding surface to suit the sealing component used.

Design notes

Please observe our general design notes in → Technical Manual.

Tolerance recommendation

Nominal Ø d	D	D ₁
16 ... 200	H11	H11

The tolerance for the Ø d is defined by the buffer seal.

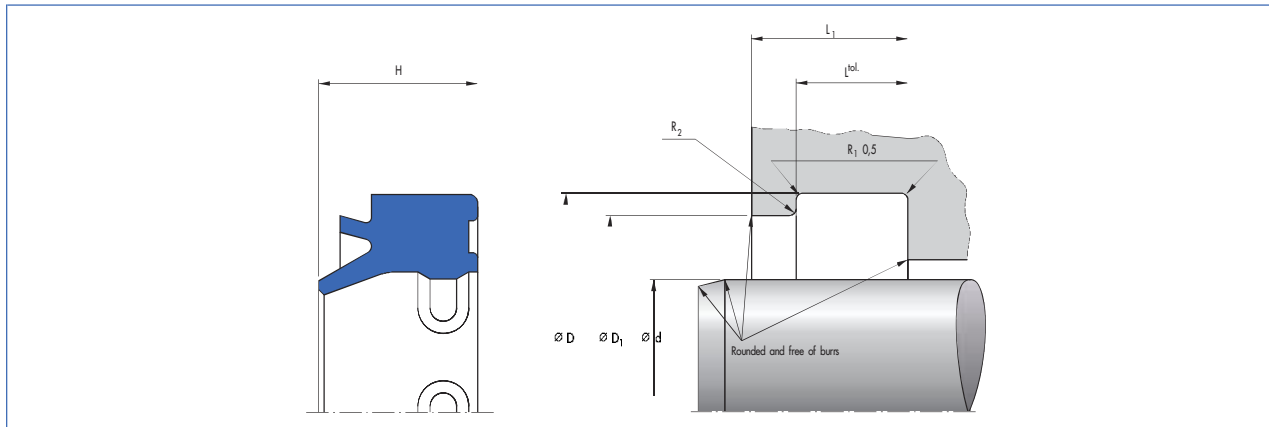
Lead-in chamfers

Length and angle are to be designed to suit the rod seal used.

Fitting & installation

Careful fitting is a prerequisite for the correct function of the Merkel Wiper PU 5. Generally, wipers can be quickly and easily fitted by deforming into a kidney shape. → Technical Manual.

Article list



d	D	D ₁	L	Tolerance for L	L ₁	R _{1 max.}	H	Profile	Housing	Material	Article No.	
16	24	21,5	5	0,2	7	0,3	7,8	4	ISO	95 AU V149	24314500	●
16	24	22	4	0,2	5	0,3	7	4		95 AU V149	24314499	●
18	26	23,5	5	0,2	7	0,3	7,8	4	ISO	95 AU V149	24314502	○
18	26	24	4	0,2	5	0,3	7	4		95 AU V149	24314501	●
20	28	25,5	5	0,2	7	0,3	7,8	4	ISO	95 AU V149	24312946	●
20	28	26	4	0,2	5	0,3	7	4		95 AU V149	24314503	●
22	30	27,5	5	0,2	7	0,3	7,8	4	ISO	95 AU V149	24314506	○
22	30	28	4	0,2	5	0,3	7	4		95 AU V149	24314505	●
25	33	30,5	5	0,2	7	0,3	7,8	4	ISO	95 AU V149	24297872	●
25	33	31	4	0,2	5	0,3	7	4		95 AU V149	24314507	●
28	36	33,5	5	0,2	7	0,3	7,8	4	ISO	95 AU V149	24294374	○
28	36	34	4	0,2	5	0,3	7	4		95 AU V149	24314509	●
30	38	36	4	0,2	5	0,3	7	4		95 AU V149	24314511	●
32	40	37,5	5	0,2	7	0,3	7,8	4	ISO	95 AU V149	24288780	●
32	40	38	4	0,2	5	0,3	7	4		95 AU V149	24314512	●
35	43	41	4	0,2	5	0,3	7	4		95 AU V149	24314513	●
36	44	41,5	5	0,2	7	0,3	7,8	4	ISO	95 AU V149	24294375	●
36	44	42	4	0,2	5	0,3	7	4		95 AU V149	24314514	●
40	48	45,5	5	0,2	7	0,3	7,8	4	ISO	95 AU V149	24291068	●
40	48	46	4	0,2	5	0,3	7	4		95 AU V149	24311206	●
45	53	50,5	5	0,2	7	0,3	7,8	4	ISO	95 AU V149	24288781	●
45	53	51	4	0,2	5	0,3	7	4		95 AU V149	24310500	●
50	58	55,5	5	0,2	7	0,3	7,8	4	ISO	95 AU V149	24275192	●
50	58	55,5	5	0,2	7	0,3	7,8	4	ISO	92 AU 21100	49045956	●
50	58	56	4	0,2	5	0,3	7	4		95 AU V149	24311362	●
55	63	61	4	0,2	5	0,3	7	4		95 AU V149	24311363	●
56	64	62	4	0,2	5	0,3	7	4		95 AU V149	24314518	●
56	66	63	6,3	0,2	8,3	0,4	9	5	ISO	95 AU V149	24289916	●
60	68	66	4	0,2	5	0,3	7	4		95 AU V149	24311364	●
60	70	67	6,3	0,2	8,3	0,4	6,3	5		95 AU V149	24275194	○
60	72	69	5,5	0,2	7	0,3	10	6		95 AU V149	24368032	○
63	71	69	4	0,2	5	0,3	7	4		95 AU V149	24311365	●
63	73	70	6,3	0,2	8,3	0,4	9	5	ISO	95 AU V149	24275195	●
65	73	71	4	0,2	5	0,3	7	4		95 AU V149	24314521	●
70	78	76	4	0,2	5	0,3	7	4		95 AU V149	24314522	●

● Available from stock ○ On request: Tool is available, delivery at short notice

d	D	D ₁	L	Tolerance for L	L ₁	R _{1 max.}	H	Profile	Housing	Material	Article No.	
70	80	77	6,3	0,2	8,3	0,4	9	5	ISO	95 AU V149	24288253	●
70	82	79	5,5	0,2	7	0,3	10	6		95 AU V149	24368033	○
75	83	81	4	0,2	5	0,3	7	4		95 AU V149	24314523	●
80	88	86	4	0,2	5	0,3	7	4		95 AU V149	24314524	●
80	90	87	6,3	0,2	8,3	0,4	9	5	ISO	95 AU V149	24288782	●
80	92	89	5,5	0,2	7	0,3	10	6		95 AU V149	24368034	○
85	93	91	4	0,2	5	0,3	7	4		95 AU V149	24314525	●
85	95	92	6,3	0,2	8,3	0,4	9	5		95 AU V149	49005211	●
90	98	96	4	0,2	5	0,3	7	4		95 AU V149	24314526	●
90	100	97	6,3	0,2	8,3	0,4	9	5	ISO	95 AU V149	24275179	●
90	102	99	5,5	0,2	7	0,3	10	6		95 AU V149	24368035	○
100	108	106	4	0,2	5	0,3	7	4		95 AU V149	24314527	●
100	115	110	9,5	0,3	12	0,6	13	7,5	ISO	95 AU V149	24275180	●
110	122	119	5,5	0,2	7	0,3	10	6		95 AU V149	24314528	●
110	125	120	9,5	0,3	12	0,6	13	7,5	ISO	95 AU V149	24265869	●
115	127	124	5,5	0,2	7	0,3	10	6		95 AU V149	24314529	○
120	132	129	5,5	0,2	7	0,3	10	6		95 AU V149	24314530	●
125	137	134	5,5	0,2	7	0,3	10	6		95 AU V149	24314531	●
125	140	135	9,5	0,3	12	0,6	13	7,5	ISO	95 AU V149	24289918	●
130	142	139	5,5	0,2	7	0,3	10	6		95 AU V149	24314532	○
140	152	149	5,5	0,2	7	0,3	10	6		95 AU V149	24314534	●
140	155	150	9,5	0,3	12	0,6	13	7,5	ISO	95 AU V149	24289919	●
150	162	159	5,5	0,2	7	0,3	10	6		95 AU V149	24314535	●
160	172	169	5,5	0,2	7	0,3	10	6		95 AU V149	24314536	●
160	175	170	9,5	0,3	12	0,6	13	7,5	ISO	95 AU V149	24289920	●
170	182	179	5,5	0,2	7	0,3	10	6		95 AU V149	24314538	○
180	192	189	5,5	0,2	7	0,3	10	6		95 AU V149	24314539	●
180	195	190	9,5	0,3	12	0,6	13	7,5	ISO	95 AU V149	24294376	○
200	212	209	5,5	0,2	7	0,3	10	6		95 AU V149	24314541	●
200	215	210	9,5	0,3	12	0,6	13	7,5	ISO	95 AU V149	24294377	●

● Available from stock ○ On request: Tool is available, delivery at short notice

Merkel Wiper P 6

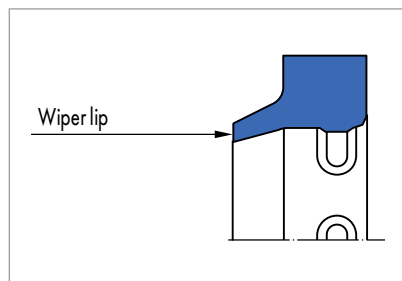


Fig. 1 Merkel Wiper P 6

Product description

Single-acting elastomeric dirt wiper with bearing segments.

Product advantages

NBR dirt wiper that is primarily used for large diameters

- Good seating at the outside diameter
- Very good wiping action
- Wiper can be used for a wide temperature range
- No twisting in the housing and no pressure build-up between seal and wiper.

Application

Steel hydraulics engineering, mills, presses.

Material

Material	Code	Hardness
Nitrile rubber NBR	85 NBR B247	85 Shore A
Fluoro rubber FKM	85 FKM K664	85 Shore A

Operating conditions

Material	85 NBR B247	85 FKM K664
	Temperature range in °C	
Hydraulic oils HL, HLP	-30 ... +100	-10 ... +200
HFA fluids	+5 ... +60	+5 ... +60
HFB fluids	+5 ... +60	+5 ... +60
HFC fluids	-30 ... +60	-
HFD fluids	-	-10 ... +200
Water	+5 ... +100	+5 ... +80
HETG (rapeseed oil)	-30 ... +80	-10 ... +80
HEES (synthetic esters)	-30 ... +80	-10 ... +100
HEPG (glycol)	-30 ... +60	-10 ... +80
Mineral greases	-30 ... +100	-10 ... +200
Running speed v in m/s	2	

Surface quality

Surface roughness	R _a	R _{max}
Sliding surface	*	*
Groove base	≤1,6 μm	≤6,3 μm
Side of groove	≤3,0 μm	≤15,0 μm

* Surface roughness of the sliding surface to suit the sealing component used.

Design notes

Please observe our general design notes in → Technical Manual.

Tolerance recommendation

Nominal Ø d	D	D ₁
20 ... 2900	H10	H11

The tolerance for the Ø d is defined by the buffer seal.

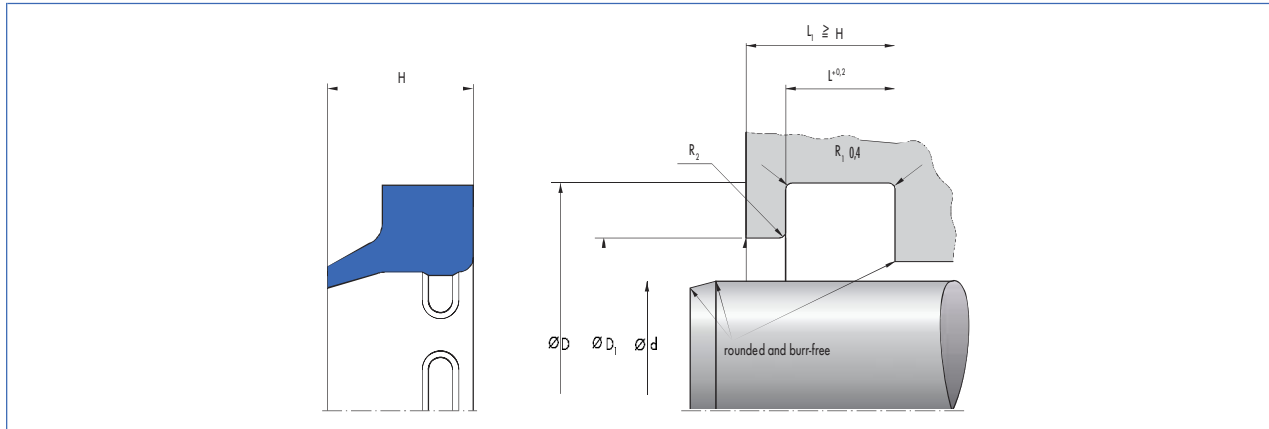
Lead-in chamfers

Length and angle are to be designed to suit the rod seal used.

Fitting & installation

Careful fitting is a prerequisite for the correct function of the Merkel Wiper P 6. Generally, wipers can be quickly and easily fitted by deforming into a kidney shape. → Technical Manual.

Article list

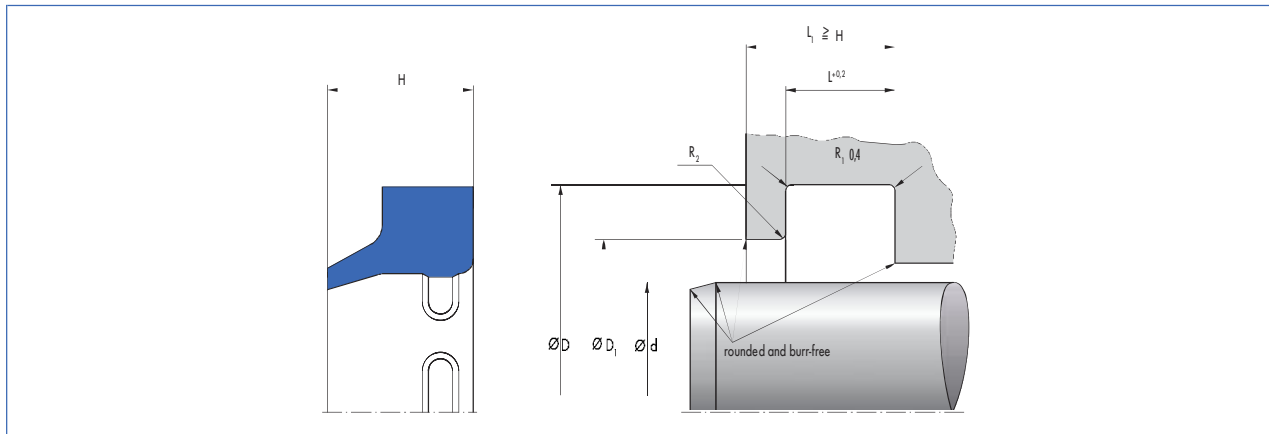


d	D	L	H	D ₁	Profile	R ₂	Material	Article No.	
16	24,6	5,3	7	19	4,3	1	85 FKM K664	24045457	○
20	28,6	5,3	7	23	4,3	1	85 FKM K664	24038859	●
24	32,6	5,3	7	27	4,3	1	85 FKM K664	24138825	○
25	33,6	5,3	7	28	4,3	1	85 FKM K664	24041104	●
28	36,6	5,3	7	31	4,3	1	85 FKM K664	24032459	●
30	38,6	5,3	7	33	4,3	1	85 FKM K664	24040159	●
32	40,6	5,3	7	35	4,3	1	85 FKM K664	24050857	●
35	43,6	5,3	7	38	4,3	1	85 FKM K664	24033859	●
42	50,6	5,3	7	45	4,3	1	85 FKM K664	24044057	○
45	53,6	5,3	7	48	4,3	1	85 FKM K664	24040959	○
45	55,6	5,3	7	48	5,3	1	85 FKM K664	24056947	●
50	58,6	5,3	7	53	4,3	1	85 FKM K664	24036259	●
55	65,6	5,3	7	58	5,3	1	85 FKM K664	24049905	●
56	66,6	5,3	7	59	5,3	1	85 FKM K664	24049005	●
60	70,6	5,3	7	63	5,3	1	85 FKM K664	24038207	●
60	75	8,2	13	67,6	7,5	1,5	85 NBR B247	24004856	○
63	73,6	5,3	7	66	5,3	1	85 FKM K664	24040605	●
65	75,6	5,3	7	70	5,3	1	85 FKM K664	24040105	●
70	78,6	5,3	7	73	4,3	1	85 FKM K664	24147620	○
70	80,6	5,3	7	73	5,3	1	85 FKM K664	24046105	●
75	87,2	7,2	12	81	6,1	1	85 FKM K664	24043206	●
80	88,6	5,3	7	83	4,3	1	85 FKM K664	24044959	○
80	92,2	7,2	12	86	6,1	1	85 FKM K664	24032405	●
85	97,2	7,2	12	91	6,1	1	85 FKM K664	24031805	●
90	102,2	7,2	12	96	6,1	1	85 FKM K664	24033905	●
100	108,6	5,3	7,1	103	4,3	1	85 FKM K664	24051358	○
100	112,2	7,2	12	106	6,1	1	85 FKM K664	24031905	●
105	117,2	7,2	12	111	6,1	1	85 FKM K664	24046106	○
110	122,2	7,2	12	116	6,1	1	85 FKM K664	24042306	●
115	127,2	7,2	12	121	6,1	1	85 FKM K664	24041405	●
120	130,6	5,3	7	123	5,3	1	85 FKM K664	24050006	○
120	132,2	7,2	12	126	6,1	1	85 FKM K664	24047507	○
140	155	10,2	16	147,6	7,5	1,5	85 FKM K664	24043305	●
150	165	10,2	16	157,6	7,5	1,5	85 FKM K664	24048705	●
160	175	10,2	16	167,6	7,5	1,5	85 FKM K664	24030705	●

● Available from stock ○ On request: Tool is available, delivery at short notice

d	D	L	H	D ₁	Profile	R ₂	Material	Article No.	
180	200	10,2	18	190	10	3	85 FKM K664	24072417	●
190	210	10,2	18	200	10	3	85 FKM K664	24059854	○
200	220	10,2	18	210	10	3	85 FKM K664	24031705	●
205	220	7,7	16	212,6	7,5	1,5	85 NBR B247	24231362	○
210	225	10,2	16	217,6	7,5	1,5	85 FKM K664	24293787	○
220	235	10,2	16	227,6	7,5	1,5	85 NBR B203	24005062	●
220	240	10,2	18	230	10	3	85 NBR B247	24005063	●
220	240	10,2	18	230	10	3	85 FKM K664	24066033	●
225	245	10,2	18	235	10	3	85 NBR B247	24005067	●
230	245	10,2	16	237,6	7,5	1,5	85 NBR B247	24005068	●
230	250	10,2	18	240	10	3	85 NBR B247	24005069	●
230	250	10,2	18	240	10	3	85 FKM K664	24089283	●
240	260	10,2	18	250	10	3	85 NBR B247	24005075	●
240	260	10,2	18	250	10	3	85 FKM K664	24143309	●
250	270	10,2	18	260	10	3	85 NBR B247	24005077	●
250	270	10,2	18	260	10	3	85 FKM K664	24064910	●
260	280	10,2	18	270	10	3	85 NBR B247	24005083	●
265	280	10,2	16	272,6	7,5	1,5	85 NBR B247	24005085	●
270	290	10,2	18	280	10	3	85 NBR B247	24005089	●
270	290	10,2	18	280	10	3	85 FKM K664	24339192	○
280	310	15,2	25	295	15	1,5	85 NBR B247	49014353	○
290	305	7,7	13,5	297,6	7,5	1,5	85 FKM K664	24145755	○
290	305	7,7	15	297,6	7,5	1,5	85 NBR B247	24005096	●
300	320	10,2	18	310	10	3	85 NBR B247	24005100	●
300	320	10,2	18	310	10	3	85 FKM K664	24170871	●
320	340	10,2	18	330	10	3	85 FKM K664	24123970	●
350	375	12,7	20	362,6	12,5	3	85 FKM K664	24068245	○
350	380	15,2	25	365	15	3	85 NBR B247	24108805	○
360	380	10,2	18	370	10	3	85 NBR B247	24375894	○
365	390	12,7	20	377,6	12,5	3	85 NBR B247	24374800	○
370	390	10,2	18	380	10	3	85 NBR B247	24327520	○
380	400	10,2	18	390	10	3	85 NBR B247	24114551	○
380	410	15,2	25	395	15	3	85 NBR B247	24005124	●
380	410	15,2	25	395	15	3	85 FKM K664	24067592	●
400	420	10,2	18	410	10	3	85 NBR B247	24005129	●
400	420	10,2	18	410	10	3	85 FKM K664	24149417	●
420	440	10,2	18	430	10	3	85 NBR B247	24090552	○
420	450	15,2	25	434,8	15	3	85 NBR B247	24005133	●
420	450	15,2	25	434,8	15	3	85 FKM K664	24222589	○
430	455	12,7	20	442,6	12,5	3	85 NBR B247	24073523	○
440	460	10,2	18	450	10	3	85 NBR B247	24197297	○
450	470	10,2	18	460	10	3	85 NBR B247	24005139	●
450	470	10,2	18	460	10	3	85 FKM K664	24216086	○
460	480	10,2	18	470	10	3	85 NBR B247	24095767	●
500	520	10,2	18	510	10	3	85 NBR B247	24005145	●
500	520	10,2	18	510	10	3	85 FKM K664	24239807	○
510	540	15,2	25	525	15	3	85 FKM K664	24350197	○
520	550	15,2	25	534,8	15	3	85 NBR B247	24193087	●
530	560	15,2	25	544,8	15	3	85 NBR B247	24005152	●
555	580	12,7	20	567,6	12,5	3	85 NBR B247	24092902	○

● Available from stock ○ On request: Tool is available, delivery at short notice



d	D	L	H	D ₁	Profile	R ₂	Material	Article No.	
560	585	12,7	20	572,6	12,5	3	85 NBR B247	24079694	○
575	600	12,7	20	587,6	12,5	3	85 NBR B247	24085742	○
600	625	12,7	20	612,6	12,5	3	85 NBR B247	24112281	○
610	635	12,7	20	622,6	12,5	3	85 NBR B247	24138641	○
630	655	12,7	20	642,6	12,5	3	85 NBR B247	24073341	○
640	665	12,7	20	652,6	12,5	3	85 NBR B247	24133481	○
670	695	12,7	20	682,6	12,5	3	85 NBR B247	24075321	○
680	705	12,7	20	692,6	12,5	3	85 NBR B247	24170551	○
700	725	12,7	20	712,6	12,5	3	85 NBR B247	24356247	○
710	735	12,7	20	722,6	12,5	3	85 NBR B247	24075142	○
720	745	12,7	20	732,6	12,5	3	85 NBR B247	24181926	○
750	775	12,7	20	762,6	12,5	3	85 NBR B247	24104001	○
770	795	12,7	20	782,6	12,5	3	85 NBR B247	24343859	○
780	805	12,7	20	792,6	12,5	3	85 NBR B247	24100033	○
800	825	12,7	20	812,6	12,5	3	85 NBR B247	24069967	○
800	830	15,2	25	815	15	3	85 FKM K664	24362636	○
850	875	12,7	20	862,6	12,5	3	85 NBR B247	24082304	○
880	905	12,7	20	892,6	12,5	3	85 NBR B247	24182227	○
900	925	12,7	20	912,6	12,5	3	85 NBR B247	24005167	●

● Available from stock ○ On request: Tool is available, delivery at short notice

Merkel Wiper AUASOB

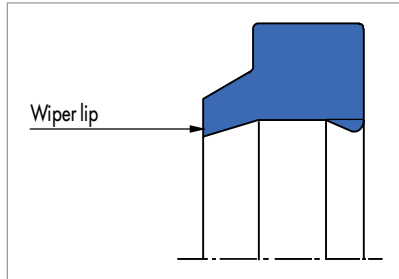


Fig. 1 Merkel Wiper AUASOB

Product description

Dirt wiper without metal reinforcement, protruding wiper lip and base face support.

Product advantages

Single-acting wiper for the protection of cylinders against ingress of dirt, use in standardised housings according to ISO 6195 Type A.

Application

Standard cylinders.

Material

Material	Code	Hardness
Polyurethane	94 AU 925	94 Shore A

Operating conditions

Material	94 AU 925
	Temperature range in °C
Hydraulic oils HL, HLP	-30 ... +110
HFA fluids	+5 ... +50
HFB fluids	+5 ... +50
HFC fluids	-30 ... +40
HFD fluids	-
Water	+5 ... +40
HETG (rapeseed oil)	-30 ... +60
HEES (synthetic esters)	-30 ... +80
HEPG (glycol)	-30 ... +50
Mineral greases	-30 ... +110
Running speed v in m/s	2

Surface quality

Surface roughness	R _a	R _{max}
Sliding surface	*	*
Groove base	≤1,6 μm	≤6,3 μm
Side of groove	≤3,0 μm	≤15,0 μm

* Surface roughness of the sliding surface to suit the sealing component used.

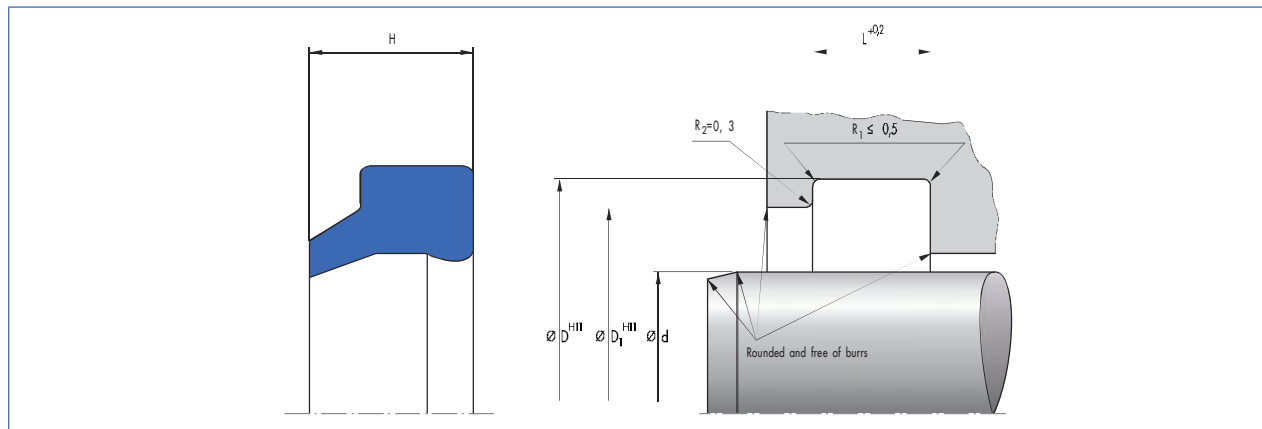
Design notes

Please observe our general design notes in → Technical Manual.

Fitting & installation

Careful fitting is a prerequisite for the correct function of the wiper. Merkel Wiper AUASOB can be quickly and easily fitted by deforming into a kidney shape. → Technical Manual.

Article list



d	D	H	L	D ₁	Material	Article No.	
6	14	4,8	7	11,5	94 AU P00925	401478	○
8	16	4,8	7	13,5	94 AU P00925	401479	○
10	18	4,8	7	15,5	94 AU P00925	401486	●
12	20	4,8	7	17,5	94 AU P00925	351679	●
14	22	4,8	7	19,5	94 AU P00925	351680	●
16	24	4,8	7	21,5	94 AU P00925	336668	●
18	26	4,8	7	23,5	94 AU P00925	351681	●
20	28	4,8	7	25,5	94 AU P00925	336667	●
20	28	4,8	7	25,5	94 AU P00925	49039294	●
22	30	4,8	7	27,5	94 AU P00925	336666	●
25	33	4,8	7	30,5	94 AU P00925	336670	●
28	36	4,8	7	33,5	94 AU P00925	351683	●
32	40	4,8	7	37,5	94 AU P00925	336671	●
36	44	4,8	7	41,5	94 AU P00925	395708	●
40	48	4,8	7	45,5	94 AU P00925	336665	●
45	53	4,8	7	50,5	94 AU P00925	336663	●
50	58	4,8	7	55,5	94 AU P00925	336664	●
56	66	6,1	8,3	63	94 AU P00925	351685	○
63	73	6,1	8,3	70	94 AU P00925	336662	●
70	80	6,1	8,3	77	94 AU P00925	351686	●
80	90	6,1	8,3	87	94 AU P00925	336661	●
100	115	9,3	12,3	110	94 AU P00925	336660	●
110	125	9,3	12,3	120	94 AU P00925	351690	●
125	140	9,3	12,3	135	94 AU P00925	336659	●
140	155	9,3	12,3	150	94 AU P00925	351693	○
155	170	9,3	12,3	165	94 AU P00925	49013135	○
160	175	9,3	12,3	170	94 AU P00925	336658	○
180	195	9,3	12,3	190	94 AU P00925	336657	○
200	215	9,3	12,3	210	94 AU P00925	336672	○

● Available from stock ○ On request: Tool is available, delivery at short notice

Merkel Wiper AUAS R

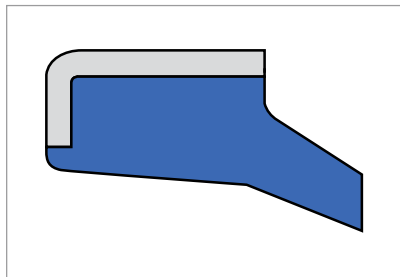


Fig. 1 Merkel Wiper AUAS R ("Radius")

Product description

Dirt wiper with metal housing, wiper lip protruding; AUAS with slightly rounded sealing edge.

Product advantages

Single-acting wiper for the protection of cylinders against ingress of dirt, use in standardised housings, amongst others, according to ISO 6195 Type B

- Secure seating in housing (press fitting)
- No open ring gap to the outside (dirt pocket) between rod and wiper housing
- No pressure build-up between wiper and seal
- Axially open, easy to manufacture housing

As a preference, we recommend the use of the modern type AUAS R. The wiper lip with a radius reliably wipes away dirt and simultaneously leaves a residual film of oil on the retracting rod; friction behaviour, tightness and service life of the whole system are further improved.

Application

Earth moving equipment, agricultural machinery, loading platforms, support cylinders, industrial vehicles, cranes, presses.

Material

Material	Code	Hardness	Metal housing
Polyurethane	94 AU 925	94 Shore A	unalloyed steel DIN 1624

Operating conditions

Material	94 AU 925
	Temperature range in °C
Hydraulic oils HL, HLP	-30 ... +110
HFA fluids	+5 ... +50
HFB fluids	+5 ... +50
HFC fluids	-30 ... +40
HFD fluids	-
Water	+5 ... +40
HETG (rapeseed oil)	-30 ... +60
HEES (synthetic esters)	-30 ... +60
HEPG (glycol)	-30 ... +40
Mineral greases	-30 ... +110
Running speed v in m/s	2

Surface quality

Surface roughness	R_a	R_{max}
Sliding surface	*	*
Groove base	$\leq 1,6 \mu\text{m}$	$\leq 6,3 \mu\text{m}$
Side of groove	$\leq 3,0 \mu\text{m}$	$\leq 15,0 \mu\text{m}$

* Surface roughness of the sliding surface to suit the sealing component used.

Design notes

Please observe our general design notes in → Technical Manual.

Tolerance recommendation

Nominal $\varnothing d$	D
10 ... 260	H8

The tolerance for the $\varnothing d$ is defined by the buffer seal.

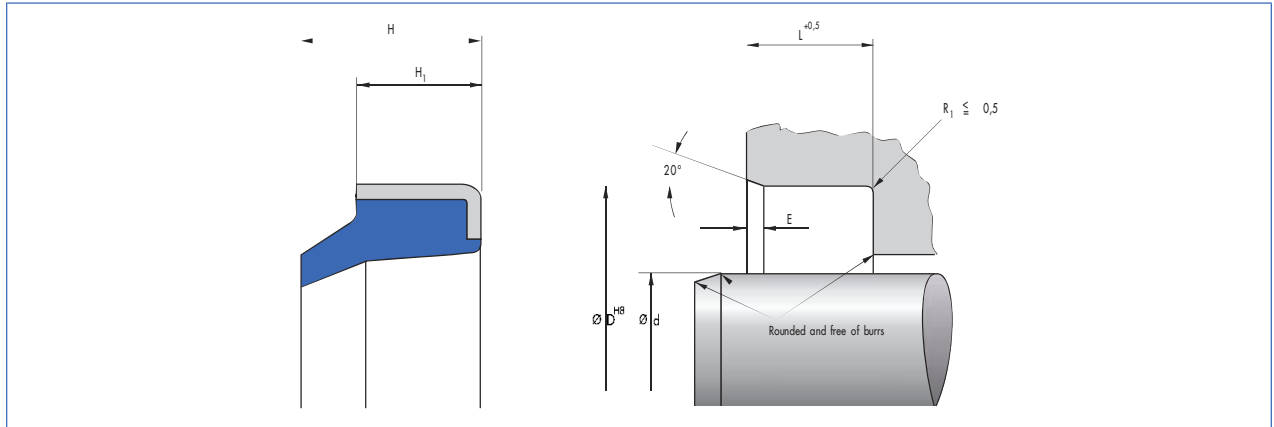
Lead-in chamfers

Length and angle are to be designed to suit the rod seal used.

Fitting & installation

The Merkel Wiper AUAS R is pressed into axially open housings. Careful fitting is a prerequisite for the correct function of the wiper. → Technical Manual.

Article list



d	D	H ₁ / L	H	C	Housing	Material	Article No.	
25	35	7	10	1		94 AU 925	49044060	●
30	40	7	10	1		94 AU P00925	521387	●
35	45	7	10	1		94 AU P00925	521935	●
40	50	7	10	1	ISO	94 AU P00925	521393	●
45	55	7	10	1	ISO	94 AU P00925	521400	●
50	60	7	10	1	ISO	94 AU P00925	521404	●
55	65	7	10	1		94 AU P00925	530779	●
60	70	7	10	1		94 AU P00925	521431	●
65	75	7	10	1		94 AU P00925	530783	●
70	80	7	10	1	ISO	94 AU P00925	521502	●
80	90	7	10	1	ISO	94 AU P00925	521506	●

● Available from stock ○ On request: Tool is available, delivery at short notice

Merkel Wiper AUAS

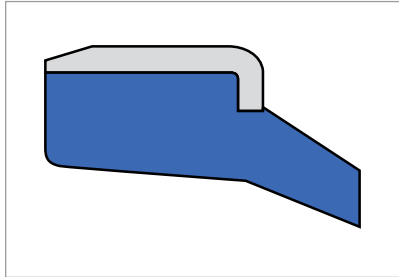


Fig. 1 Merkel Wiper AUAS

Product description

Dirt wiper with metal housing, wiper lip protruding with sharp, punched sealing edge.

Product advantages

Single-acting wiper for the protection of cylinders against ingress of dirt, use in standardised housings, amongst others, according to ISO 6195 Type B

- Secure seating in housing (press fitting)
- No open ring gap to the outside (dirt pocket) between rod and wiper housing
- No pressure build-up between wiper and seal
- Axially open, easy to manufacture housing

As a preference, we recommend the use of the more modern type AUAS R. The wiper lip with a radius reliably wipes away dirt and simultaneously leaves a residual film of oil on the retracting rod; friction behaviour, tightness and service life of the whole system are further improved.

Application

Earth moving equipment, agricultural machinery, loading platforms, support cylinders, industrial vehicles, cranes, presses.

Material

Material	Code	Hardness	Metal housing
Polyurethane	94 AU 925	94 Shore A	unalloyed steel DIN 1624

Operating conditions

Material	94 AU 925
	Temperature range in °C
Hydraulic oils HL, HLP	-30 ... +110
HFA fluids	+5 ... +50
HFB fluids	+5 ... +50
HFC fluids	-30 ... +40
HFD fluids	-
Water	+5 ... +40
HETG (rapeseed oil)	-30 ... +60
HEES (synthetic esters)	-30 ... +60
HEPG (glycol)	-30 ... +40
Mineral greases	-30 ... +110
Running speed v in m/s	2

Surface quality

Surface roughness	R_a	R_{max}
Sliding surface	*	*
Groove base	$\leq 1,6 \mu\text{m}$	$\leq 6,3 \mu\text{m}$
Side of groove	$\leq 3,0 \mu\text{m}$	$\leq 15,0 \mu\text{m}$

* Surface roughness of the sliding surface to suit the sealing component used.

Design notes

Please observe our general design notes in → Technical Manual.

Tolerance recommendation

Nominal $\varnothing d$	D
10 ... 260	H8

The tolerance for the $\varnothing d$ is defined by the buffer seal.

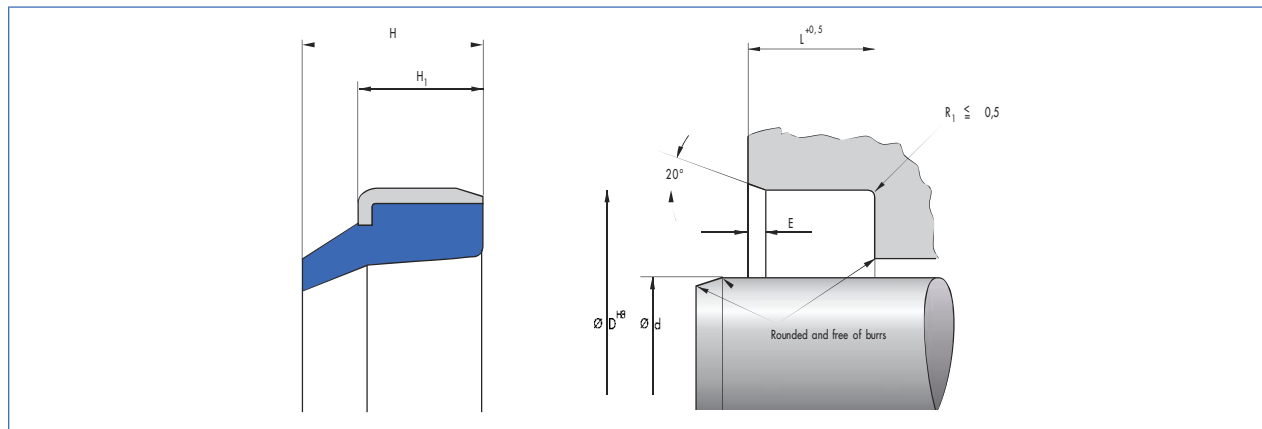
Lead-in chamfers

Length and angle are to be designed to suit the rod seal used.

Fitting & installation

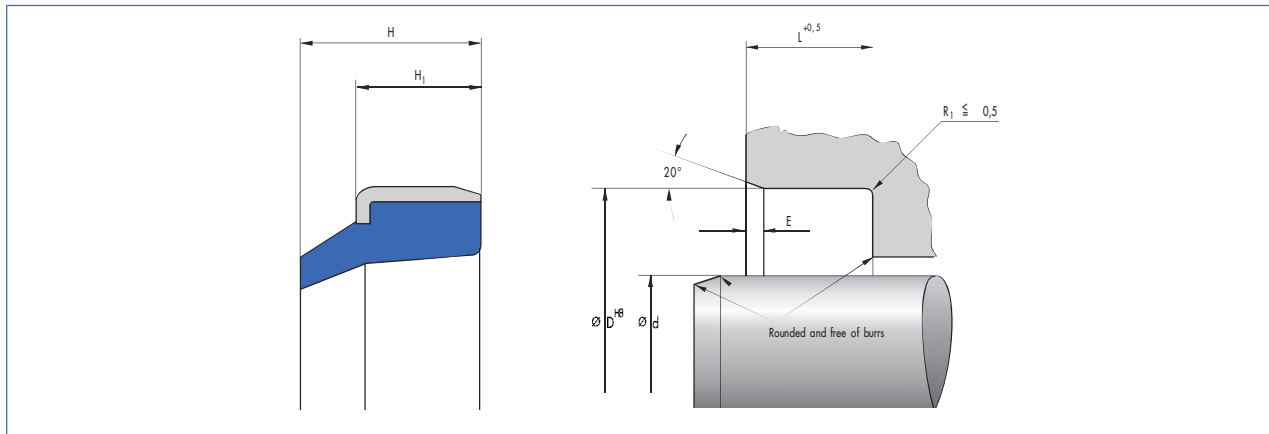
The Merkel Wiper AUAS is pressed into axially open housings. Careful fitting is a prerequisite for the correct function of the wiper. → Technical Manual.

Article list



d	D	H ₁ / L	H	C	Housing	Material	Article No.	
10	20	5	8	0,7		94 AU P00925	12659	●
12	20	4	6	0,4		94 AU P00925	24916	●
12	22	5	8	0,7		94 AU P00925	12660	●
14	25	5	8	0,7		94 AU P00925	35853	●
15	25	5	8	0,7		94 AU P00925	12662	●
16	22	3	4	0,3		94 AU P00925	24910	●
16	26	5	8	0,7		94 AU P00925	12664	●
18	28	7	10	1	ISO	94 AU P00925	12666	●
20	28	4	5	0,4		94 AU P00925	12668	●
20	30	4	6	0,4		94 AU P00925	32064	●
20	30	7	10	1	ISO	94 AU P00925	12670	●
22	32	7	10	1	ISO	94 AU P00925	12672	●
25	35	7	10	1	ISO	94 AU P00925	24905	●
28	40	7	10	1		94 AU P00925	12680	●
30	40	5	8	0,7		94 AU P00925	24925	●
30	40	7	10	1		94 AU P00925	32066	●
30	45	5	8	0,7		94 AU P00925	12683	●
32	45	4	8	0,4		94 AU P00925	24904	●
32	45	7	10	1		94 AU P00925	12685	●
35	45	7	10	1		94 AU P00925	24903	●
36	45	7	10	1		94 AU P00925	24935	●
38	48	7	10	1		94 AU P00925	24912	●
40	50	5	8	0,7		94 AU P00925	24908	●
40	50	7	10	1	ISO	94 AU P00925	12691	●
42	52	7	10	1		94 AU P00925	24922	●
45	55	7	10	1	ISO	94 AU P00925	4104	●
45	60	7	10	1		94 AU P00925	24888	●
48	60	7	10	1		94 AU P00925	12697	●
50	56	5	7	0,7		94 AU P00925	24889	●
50	60	7	10	1	ISO	94 AU P00925	24927	●
52	62	7	10	1		94 AU P00925	12699	●
55	63	7	10	1		94 AU P00925	24923	●
60	70	7	10	1		94 AU P00925	12708	●
60	74	5	8	0,7		94 AU P00925	24890	●
63	75	7	10	1		94 AU P00925	15939	●
65	75	7	10	1		94 AU P00925	24902	●

● Available from stock ○ On request: Tool is available, delivery at short notice



d	D	H ₁ / L	H	C	Housing	Material	Article No.	
70	80	7	10	1	ISO	94 AU P00925	24901	●
75	83	7	10	1		94 AU P00925	33555	○
75	85	7	10	1		94 AU P00925	24909	●
80	90	7	10	1	ISO	94 AU P00925	24907	●
85	95	7	10	1		94 AU P00925	12718	●
90	100	7	10	1	ISO	94 AU P00925	24893	●
95	105	7	10	1		94 AU P00925	24894	●
100	110	7	10	1		94 AU P00925	24895	●
100	115	8	10	1		94 AU P00925	103750	●
105	115	7	10	1		94 AU P00925	12721	●
110	120	7	10	1		94 AU P00925	103752	●
115	125	7	10	1		94 AU P00925	103753	●
120	130	7	10	1		94 AU P00925	103754	●
125	140	9	12	1	ISO	94 AU P00925	103755	●
130	145	9	12	1		94 AU P00925	103756	●
135	150	9	12	1		94 AU P00925	103757	●
140	155	9	12	1	ISO	94 AU P00925	103758	●
150	165	9	12	1		94 AU P00925	103759	●
160	175	9	12	1	ISO	94 AU P00925	103760	●
180	195	10	14	1		94 AU P00925	103761	●
200	220	12	16	1		94 AU P00925	103763	●

● Available from stock ○ On request: Tool is available, delivery at short notice

Merkel Wiper AUPS

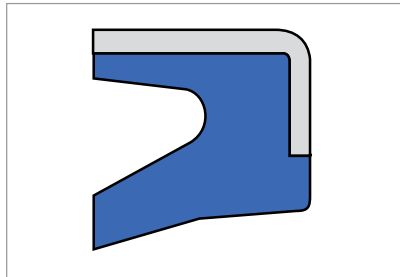


Fig. 1 Merkel Wiper AUPS

Product description

Dirt wiper with metal housing; wiper lip flush with housing.

Product advantages

Single-acting wiper for the protection of cylinders against ingress of dirt; especially also as protective component and sealing component for pivoting bearings, amongst others, in standardised housings according to ISO 6195 Type B

- Secure seating in the housing (press fitting), no rotation with the shaft on pivoting motion
- Re-greasing of pivoting bearings possible without problems; lip opens at low overpressure; old grease can escape
- Low axial housing height, wiper lip not protruding
- Axially open, easy to manufacture housing.

Application

Earth moving equipment, agricultural machinery, loading platforms, pivoting pin seal, industrial vehicle, cranes, support cylinders.

Material

Material	Code	Hardness	Metal housing
Polyurethane	94 AU 925	94 Shore A	unalloyed steel DIN 1624

Operating conditions

Material	94 AU 925
	Temperature range in °C
Hydraulic oils HL, HLP	-30 ... +110
HFA fluids	+5 ... +50
HFB fluids	+5 ... +50
HFC fluids	-30 ... +40
HFD fluids	-
Water	+5 ... +40
HETG (rapeseed oil)	-30 ... +60
HEES (synthetic esters)	-30 ... +80
HEPG (glycol)	-30 ... +40
Mineral greases	-30 ... +110
Running speed v in m/s	2 m/s

Surface quality

Surface roughness	R _a	R _{max}
Sliding surface	0,05 ... 0,3 µm*	≤2,5 µm*
Groove base	≤1,6 µm	≤6,3 µm
Side of groove	≤3,0 µm	≤15,0 µm

percentage contact area Mr>50% up to max 90% at cutting depth c = Rz/2 and reference line C ref = 0%.
 * On usage as a wiper, surface roughness of the sliding surface to suit the sealing component used.

Design notes

Please observe our general design notes in → Technical Manual.

Tolerance recommendation

Nominal Ø d	D
30 ... 100	H8

The tolerance for the Ø d is defined by the buffer seal.

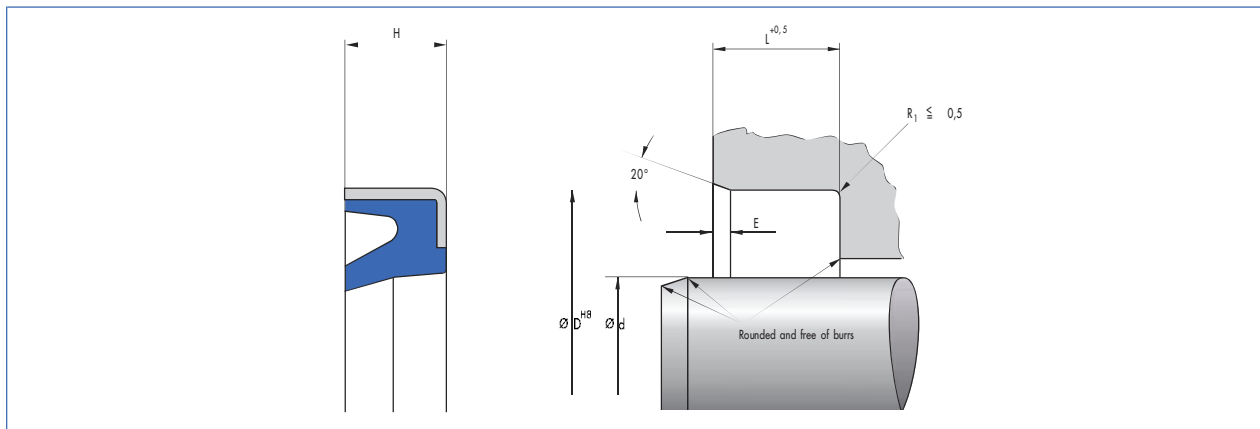
Lead-in chamfers

Length and angle are to be designed to suit the rod seal used.

Fitting & installation

Merkel Wiper AUPS wipers are pressed into axially open housings. Careful fitting is a prerequisite for the correct function of the wiper. → Technical Manual.

Article list



d	D	H / L	C	Housing	Material	Article No.	
35	45	7	0,7		94 AU P00925	522243	●
40	50	7	1	ISO	94 AU P00925	522244	●
45	55	7	0,8	ISO	94 AU P00925	522248	●
50	60	7	0,7	ISO	94 AU P00925	522249	●
70	80	7	1	ISO	94 AU P00925	522250	●
80	90	7	0,7	ISO	94 AU P00925	522251	●
90	100	7	1		94 AU P00925	49003160	●

● Available from stock ○ On request: Tool is available, delivery at short notice

Merkel Wiper ASOB

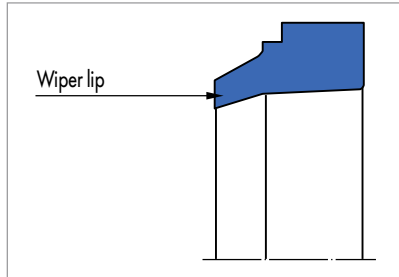


Fig. 1 Merkel Wiper ASOB

Product description

Dirt wiper with protruding wiper lip without metal reinforcement.

Product advantages

Single-acting wiper for the protection of cylinders against ingress of dirt.

Application

Standard cylinders.

Material

Material	Code	Hardness
Nitrile rubber NBR	88 NBR 101	88 Shore A

Operating conditions

Material	88 NBR 101
	Temperature range in °C
Hydraulic oils HL, HLP	-30 ... +100
HFA fluids	+5 ... +60
HFB fluids	+5 ... +60
HFC fluids	-30 ... +60
HFD fluids	-
Water	+5 ... +90
HETG (rapeseed oil)	-30 ... +80
HEES (synthetic esters)	-
HEPG (glycol)	-30 ... +60
Mineral greases	-30 ... +100
Running speed v in m/s	2

Surface quality

Surface roughness	R _a	R _{max}
Sliding surface	*	*
Groove base	≤1,6 μm	≤6,3 μm
Side of groove	≤3,0 μm	≤15,0 μm

* Surface roughness of the sliding surface to suit the sealing component used.

Design notes

Please observe our general design notes in → Technical Manual.

Tolerance recommendation

Nominal Ø d	D	D ₁
8 ... 160	H11	H11

The tolerance for the Ø d is defined by the buffer seal.

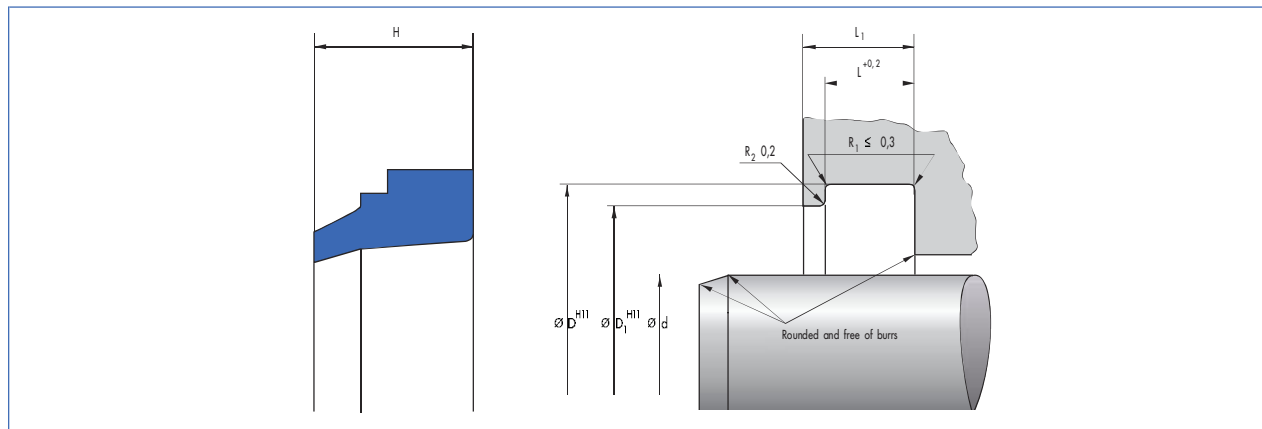
Lead-in chamfers

Length and angle are to be designed to suit the rod seal used.

Fitting & installation

Careful fitting is a prerequisite for the correct function of the wiper. Merkel Wiper ASOB wipers can be quickly and easily fitted by deforming into a kidney shape. → Technical Manual.

Article list



d	D	L	H	D ₁	L ₁	Material	Article No.	
8	16	7	4	14	5	88 NBR M00101	401496	●
10	18	7	4	16	5	88 NBR M00101	401500	●
12	20	7	4	18	5	88 NBR M00101	361275	●
15	23	7	4	21	5	88 NBR M00101	401504	●
20	28	7	4	26	5	88 NBR M00101	86181	●
22	30	7	4	26	5	88 NBR M00101	86182	●
23	31	7	4	29	5	88 NBR M00101	401505	○
24	32	7	4	30	5	88 NBR M00101	407321	●
25	33	7	4	31	5	88 NBR M00101	86183	●
28	36	7	4	34	5	88 NBR M00101	86184	●
32	40	7	4	38	5	88 NBR M00101	86185	●
35	43	7	4	41	5	88 NBR M00101	316832	●
36	44	7	4	42	5	88 NBR M00101	86186	●
40	48	7	4	46	5	88 NBR M00101	86187	●
42	50	7	4	48	5	88 NBR M00101	401512	●
45	53	7	4	51	5	88 NBR M00101	86188	●
48	56	7	4	54	5	88 NBR M00101	401567	○
50	58	7	4	56	5	88 NBR M00101	86189	●
54	62	7	4	60	5	88 NBR M00101	401571	●
55	63	7	4	61	5	88 NBR M00101	407332	●
56	64	7	4	62	5	88 NBR M00101	86190	●
60	68	7	4	66	5	88 NBR M00101	8626	●
63	71	7	4	69	5	88 NBR M00101	86194	●
65	73	7	4	71	5	88 NBR M00101	385492	●
68	76	7	4	74	5	88 NBR M00101	401579	○
70	78	7	4	76	5	88 NBR M00101	86195	●
75	83	7	4	81	5	88 NBR M00101	407323	●
80	88	7	4	86	5	88 NBR M00101	86196	●
85	93	7	4	91	5	88 NBR M00101	401582	○
90	98	7	4	96	5	88 NBR M00101	86197	●
100	108	10	5,5	106	5	88 NBR M00101	86198	●
110	122	10	5,5	119	7	88 NBR M00101	86199	●
115	127	10	5,5	124	7	88 NBR M00101	401585	○
125	137	10	5,5	134	7	88 NBR M00101	86200	●
140	152	10	5,5	149	7	88 NBR M00101	401586	○

● Available from stock ○ On request: Tool is available, delivery at short notice

Merkel Wiper AS

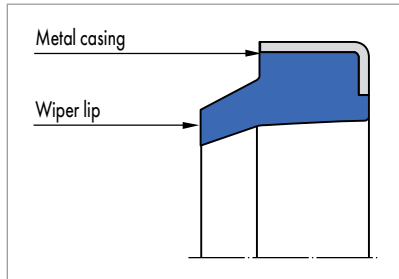


Fig. 1 Merkel Wiper AS

Product description

Dirt wiper with metal housing; wiper lip protruding.

Product advantages

Single-acting wiper for the protection of cylinders against ingress of dirt, use in standardised housings, amongst others, according to ISO 6195 Type B.

Application

Standard cylinders.

Material

Material	Hardness	Metal housing
Nitrile rubber NBR	88 Shore A	unalloyed steel

Operating conditions

Material	88 NBR
	Temperature range in °C
Hydraulic oils HL, HLP	-30 ... +100
HFA fluids	+5 ... +60
HFB fluids	+5 ... +60
HFC fluids	-30 ... +60
HFD fluids	-
Water	+5 ... +90
HETG (rapeseed oil)	-30 ... +80
HEES (synthetic esters)	-
HEPG (glycol)	-30 ... +60
Mineral greases	-30 ... +100
Running speed v in m/s	2

Surface quality

Surface roughness	R _a	R _{max}
Sliding surface	*	*
Groove base	≤1,6 μm	≤6,3 μm
Side of groove	≤3,0 μm	≤15,0 μm

* Surface roughness of the sliding surface to suit the sealing component used.

Design notes

Please observe our general design notes in → Technical Manual.

Tolerance recommendation

Nominal Ø d	D _N
6 ... 400	H8

The tolerance for the Ø d_N is defined by the buffer seal.

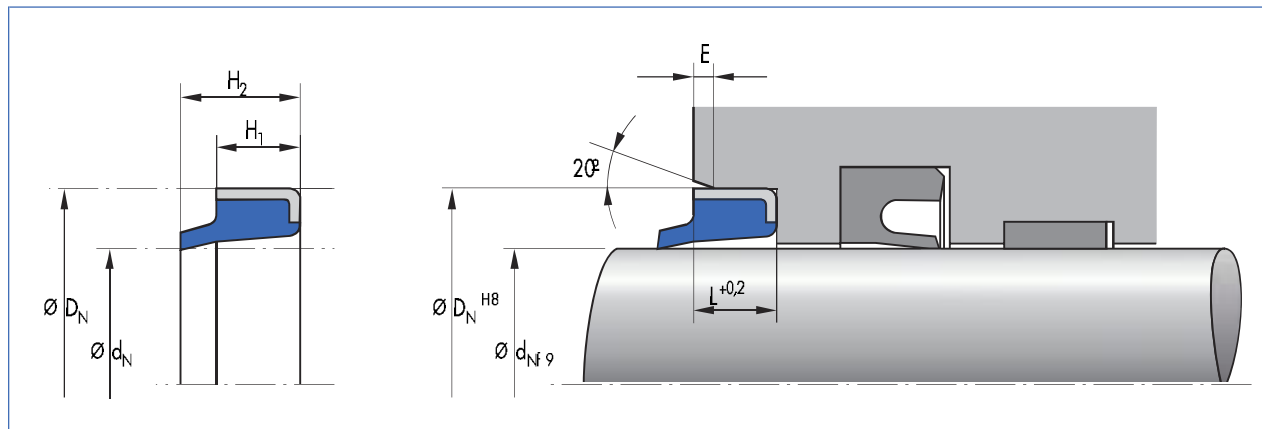
Lead-in chamfers

Length and angle are to be designed to suit the rod seal used.

Fitting & installation

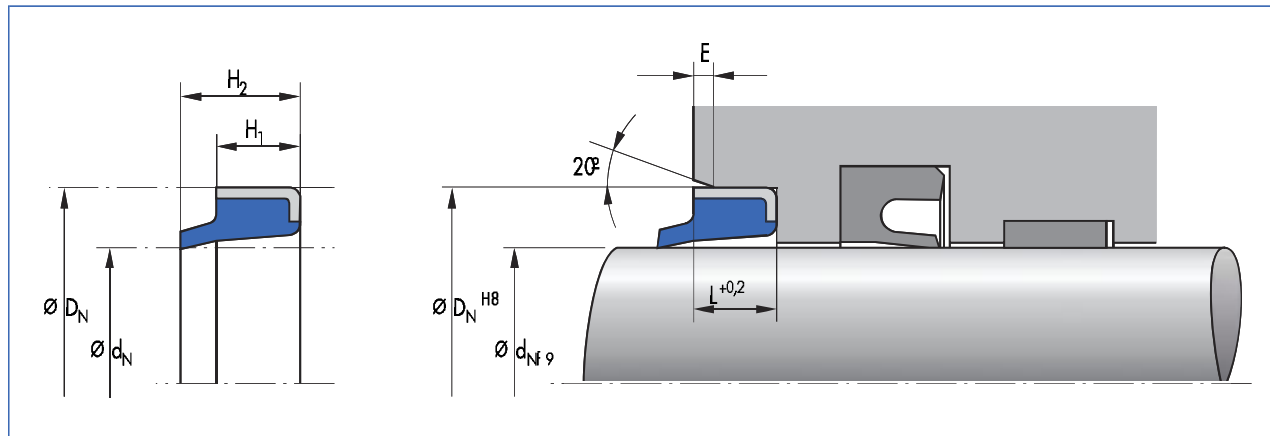
Careful fitting is a prerequisite for the correct function of the Merkel Wiper AS. Generally, wipers can be quickly and easily fitted by deforming into a kidney shape. → Technical Manual.

Article list



d	D	H ₁ / L	H	C	Housing	Material	Article No.	
6	13	3	4,5	0,3		88 NBR M00101	24801	●
8	22	3	4,5	0,3		88 NBR M00101	24802	●
10	16	3	4,5	0,3		88 NBR M99035	454478	●
10	20	5	8	0,7		88 NBR M00101	12654	●
12	18	3,5	5	0,4		88 NBR M99035	457403	●
12	20	4	6	0,4		88 NBR M99035	454486	●
12	22	5	8	0,7		88 NBR M00101	12655	●
14	22	3	4	0,3		88 NBR M00101	36550	●
15	25	5	8	0,7		88 NBR M00101	24805	●
16	22	3	4	0,3		88 NBR M99035	454489	●
16	22	3	4	0,3		88 NBR M99035	49006192	●
16	26	5	8	0,7		88 NBR M99035	454490	●
18	28	5	7	0,7		88 NBR M99035	454491	●
18	28	7	10	1	ISO	88 NBR M00101	12665	●
20	26	4	7	0,4		88 NBR M00101	101411	●
20	28	3,5	5	0,4		88 NBR M99035	454492	●
20	30	4	6	0,4		88 NBR M99035	454493	●
20	30	7	10	1	ISO	88 NBR M99035	454498	●
21	28	3,5	5,5	0,4		88 NBR M00101	24825	●
22	28	5	8	0,7		88 NBR M99035	454499	●
22	32	7	10	1	ISO	88 NBR M99035	454500	●
22	35	5	8	0,7		88 NBR M99035	454520	●
24	35	5	8	0,7		88 NBR M00101	24832	●
25	35	7	10	1	ISO	88 NBR M99035	454521	●
26	34	5	8	0,7		88 NBR M00101	24849	●
26	35	7	10	1		88 NBR M00101	37555	○
28	38	5	8	0,7		88 NBR M99035	454522	●
28	40	7	10	1		88 NBR M00101	33763	●
30	40	5	8	0,7		88 NBR M99035	454525	●
30	40	7	10	1		88 NBR M99035	454526	●
30	45	5	8	0,7		88 NBR M00101	24865	●
32	45	4	8	0,4		88 NBR M00101	24847	●
32	45	7	10	1		88 NBR M00101	12684	●
35	45	7	10	1		88 NBR M99035	454527	●
36	45	7	10	1		88 NBR M99035	454528	●

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d	D	H ₁ / L	H	C	Housing	Material	Article No.	
38	48	7	10	1		88 NBR M99035	464059	●
40	50	5	8	0,7		88 NBR M99035	454529	●
40	50	7	10	1	ISO	88 NBR M99035	454530	●
40	52	5	8	0,7		88 NBR M00101	38927	●
42	52	7	10	1		88 NBR M00101	24874	●
45	53,5	5	8	0,7		88 NBR M99035	454532	○
45	55	7	10	1	ISO	88 NBR M99035	454557	●
45	60	7	10	1		88 NBR M99035	454560	●
48	60	7	10	1		88 NBR M00101	12696	●
50	56	5	7	0,7		88 NBR M99035	454564	●
50	60	7	10	1	ISO	88 NBR M99035	454565	●
50	65	7	10	1		88 NBR M99035	454566	●
50	70	7	10	1		88 NBR M00101	39497	●
52	62	7	10	1		88 NBR M00101	12700	●
55	63	7	10	1		88 NBR M99035	454567	●
55	65	7	10	1		88 NBR M99035	454573	●
56	66	7	10	1	ISO	88 NBR M00101	6259	●
60	70	7	10	1		88 NBR M99035	454574	●
60	74	5	8	0,7		88 NBR M00101	24811	●
60	78	11	15	1		88 NBR M00101	24828	●
60	80	7	10	1		88 NBR M00101	45	●
63	75	7	10	1		88 NBR M00101	36267	●
65	75	7	10	1		88 NBR M99035	454620	●
70	80	7	10	1	ISO	88 NBR M99035	454575	●
75	83	7	10	1		88 NBR M00101	12713	○
75	85	7	10	1		88 NBR M99035	454576	●
80	90	7	10	1	ISO	88 NBR M99035	454577	●
80	100	12	15	1		88 NBR M00101	24845	●
85	95	7	10	1		88 NBR M00101	24813	●
90	100	7	10	1	ISO	88 NBR M99035	454578	●
95	105	7	10	1		88 NBR M99035	454579	●
100	110	7	10	1		88 NBR M99035	454580	●
105	115	7	10	1		88 NBR M00101	24816	●
110	120	7	10	1		88 NBR M99035	454582	●
115	125	7	10	1		88 NBR M00101	24817	●
120	130	7	10	1		90 NBR M00109	24819	●
125	140	9	12	1	ISO	88 NBR M00101	24831	●

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d	D	H ₁ / L	H	C	Housing	Material	Article No.	
130	145	9	12	1		88 NBR M00101	24872	●
135	145	7	10	1		88 NBR M00101	15034	●
140	155	9	12	1	ISO	88 NBR M00101	24855	●
145	160	9	12	1		88 NBR M00101	26971	●
150	165	9	12	1		88 NBR M00101	24862	●
160	175	9	12	1	ISO	88 NBR M00101	24876	●
170	185	10	14	1		88 NBR M00101	24822	●
180	195	10	14	1		88 NBR M00101	24823	●
190	202	9	12	1		88 NBR M00101	12741	○
190	220	9	12	1		88 NBR M00101	12742	○
200	220	12	16	1		88 NBR M00101	36009	●
210	230	12	16	1		88 NBR M00101	5312	○
220	240	12	16	1	ISO	88 NBR M00101	19574	●
240	260	12	16	1		88 NBR M00101	26972	●
260	290	12	16	1		88 NBR M00101	26975	○
270	295	12	16	1		88 NBR M00101	12745	○
320	340	12	16	1	ISO	88 NBR M00101	12747	○
400	420	12	16	1		88 NBR M00101	26976	○

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