

Merkel Guide Strip KF

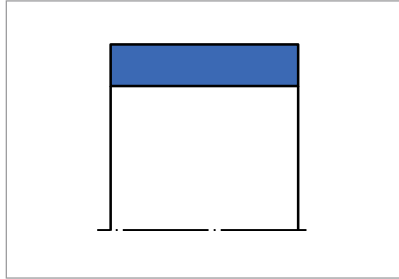


Fig. 1 Merkel Guide Strip KF

Product description

Non-metallic Merkel Guide Strip KF, available ready to fit cut to size or by the metre.

Product advantages

Non-metallic guide element for pistons, also for standardised housings as per ISO 10766

- Low friction, free of stick-slip.

Application

Injection moulding machines, control and regulation equipment, handling equipment.

Material

| Material | Code |
|----------------------|-----------|
| PTFE bronze compound | PTFE B500 |

Operating conditions

| Material | PTFE B500 |
|-------------------------|-------------------------|
| | Temperature range in °C |
| Hydraulic oils HL, HLP | -40 ... +200 |
| HFA fluids | - |
| HFB fluids | - |
| HFC fluids | - |
| HFD fluids | -40 ... +200 |
| Water | - |
| HETG (rapeseed oil) | -40 ... +80 |
| HEES (synthetic esters) | -40 ... +100 |
| HEPG (glycol) | -40 ... +80 |
| Mineral greases | -40 ... +200 |

Surface quality

| Surface roughness | R _a | R _{max} |
|-------------------|-----------------|------------------|
| Sliding surface | 0,05 ... 0,3 µm | ≤2,5 µm |
| Groove base | ≤2 µm | ≤10,0 µm |
| Groove flanks | ≤3 µm | ≤15,0 µm |

Percentage contact area M_v >50% 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.

Calculating straight length L2

| L2 | Production tolerances |
|----------------|-----------------------|
| >20 ... 80 | ... 0,5 |
| >80 ... 250 | ... 1,0 |
| >250 ... 500 | ... 1,5 |
| >500 ... 1000 | ... 2,0 |
| >1000 ... 2000 | ... 3,0 |
| >2000 ... 4000 | ... 4,0 |

Tolerance recommendation

| |
|-------|
| d_1 |
| h8 |

The tolerance definition for the dimensions D and d_F must be viewed in connection with the seal used. The diameter D_1 specified in the table of dimensions is to be viewed exclusively in relation to the guide ring. The corresponding diameter of an adjoining seal housing should be tailored to the sealing component.

Manufacturing tolerance

| |
|---|
| Production tolerance profile thickness S |
| -0,05 |

Surface load

| |
|--------------------------------------|
| $p < 15 \text{ N/mm}^2$ up to 20 °C |
| $p < 7,5 \text{ N/mm}^2$ up to 80 °C |
| $p < 5 \text{ N/mm}^2$ up to 120 °C |

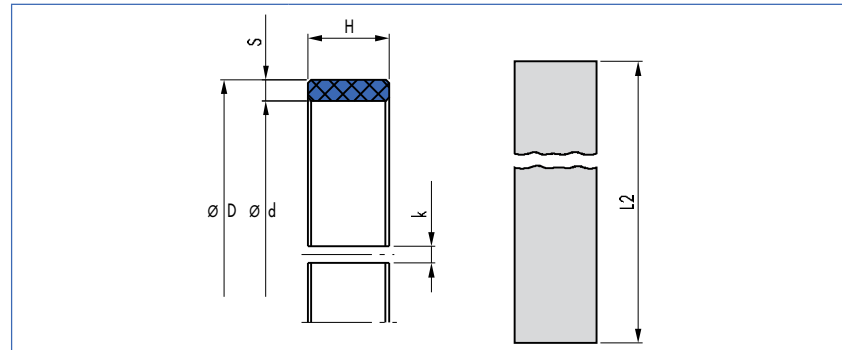
For running speed, see sealing system.

Cutting rolls to size

The following dimensions are available from stock by the metre. The straight length L2 of blanks is to be determined using the formula. The gap k produced after fitting is necessary due to thermal expansion. We recommend a straight cut on the strips. On impact at an angle the tips may be damaged and break-off. Our cutter (Article No. 507228) facilitates time-saving and accurate cutting to size.

Calculating stretched length L2 for rods:

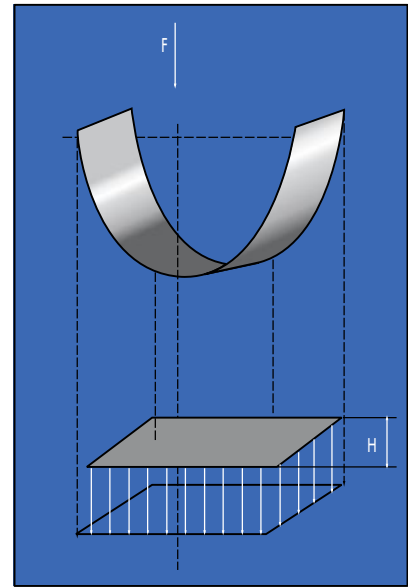
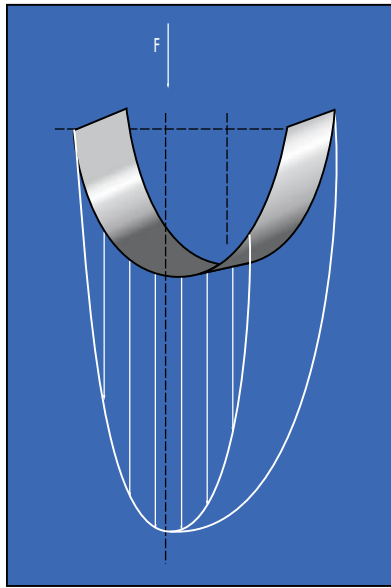
$$L2 = (D - S) \times 3,11 - 0,5$$



| Groove length L | Profile thickness S | Article No. |
|-----------------|---------------------|-------------|
| 8 | 2,5 | 24226174 |
| 9,7 | 2,5 | 24102775 |
| 10 | 2,5 | 24102563 |
| 12 | 2,5 | 24099191 |
| 15 | 2,5 | 24102564 |
| 20 | 2,5 | 24076217 |
| 25 | 2,5 | 24107955 |
| 15 | 4,0 | 24160019 |
| 20 | 4,0 | 24238052 |
| 25 | 4,0 | 24148093 |

Surface force

The pressure distribution on the guide rings is non-linear. The non-linear pressure curve over the contact range was taken into account when calculating the permissible specific surface pressure. The permissible load on the guide strip is calculated by multiplying the projected area with the permissible specific surface pressure. However, the figure for the permissible specific surface pressure takes into account the possible angular offset of the piston when the recommended guide elements are used.



$$F = P \times A$$

$$H = F / (d \times P)$$

H = guide strip width [mm]

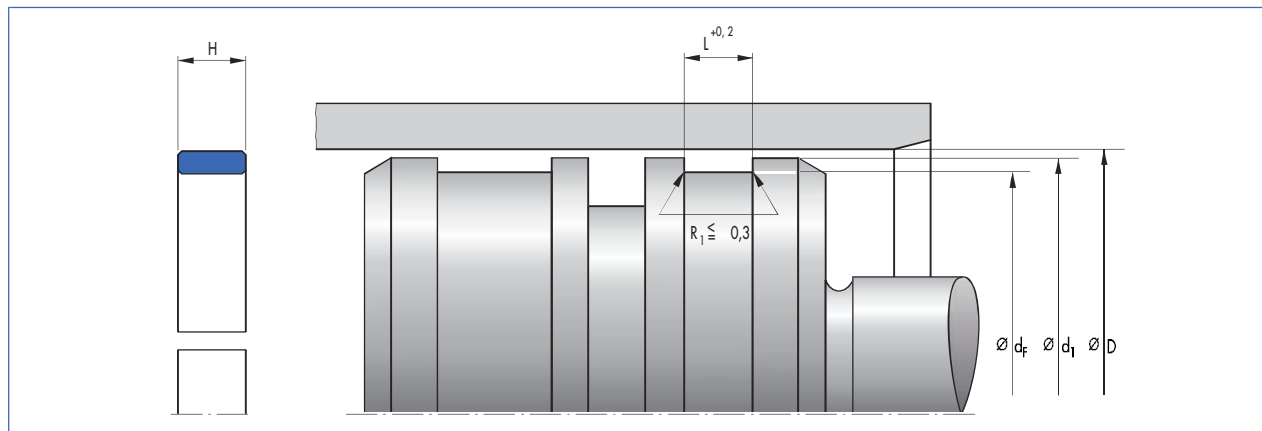
F = radial loading [N]

A = projected area [mm²]

P = perm. compression per unit area [N/mm²]

d = rod diameter with rod guidance;
piston diameter with
piston guidance [mm].

Article list

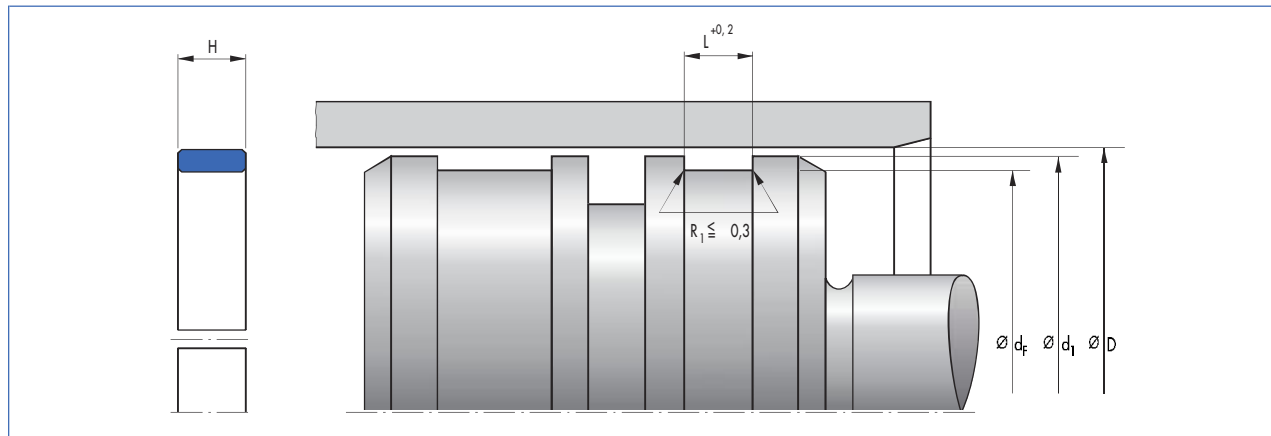


| D | d _F | d ₁ | L | H | Profile | Material | Article No. | |
|-----|----------------|----------------|-----|------|---------|-----------|-------------|---|
| 20 | 17 | 19,2 | 5,6 | 5,5 | 1,5 | PTFE B500 | 24300179 | ○ |
| 22 | 19 | 21,2 | 5,6 | 5,5 | 1,5 | PTFE B500 | 24300180 | ○ |
| 25 | 22 | 24,2 | 5,6 | 5,5 | 1,5 | PTFE B500 | 24300182 | ○ |
| 28 | 25 | 27,2 | 5,6 | 5,5 | 1,5 | PTFE B500 | 24300183 | ○ |
| 30 | 27 | 29,2 | 5,6 | 5,5 | 1,5 | PTFE B500 | 24300184 | ○ |
| 32 | 29 | 31,2 | 5,6 | 5,5 | 1,5 | PTFE B500 | 24300185 | ○ |
| 35 | 32 | 34,2 | 5,6 | 5,5 | 1,5 | PTFE B500 | 24300186 | ○ |
| 36 | 33 | 35,2 | 5,6 | 5,5 | 1,5 | PTFE B500 | 24300187 | ○ |
| 40 | 35 | 38,8 | 5,6 | 5,5 | 2,5 | PTFE B500 | 24168850 | ○ |
| 40 | 37 | 39,2 | 5,6 | 5,5 | 1,5 | PTFE B500 | 24300188 | ○ |
| 42 | 37 | 40,8 | 5,6 | 5,5 | 2,5 | PTFE B500 | 24300189 | ○ |
| 45 | 40 | 43,8 | 5,6 | 5,5 | 2,5 | PTFE B500 | 24108647 | ● |
| 45 | 42 | 44,2 | 5,6 | 5,5 | 1,5 | PTFE B500 | 24312965 | ○ |
| 50 | 45 | 48,8 | 5,6 | 5,5 | 2,5 | PTFE B500 | 24162171 | ● |
| 50 | 45 | 48,8 | 9,7 | 9,6 | 2,5 | PTFE B500 | 24340072 | ○ |
| 55 | 50 | 53,8 | 5,6 | 5,5 | 2,5 | PTFE B500 | 24300190 | ● |
| 56 | 51 | 54,8 | 5,6 | 5,5 | 2,5 | PTFE B500 | 24260615 | ○ |
| 60 | 55 | 58,8 | 5,6 | 5,5 | 2,5 | PTFE B500 | 24210205 | ○ |
| 60 | 55 | 58,8 | 9,7 | 9,6 | 2,5 | PTFE B500 | 24163238 | ○ |
| 63 | 58 | 61,8 | 9,7 | 9,6 | 2,5 | PTFE B500 | 24169847 | ● |
| 65 | 60 | 63,8 | 9,7 | 9,6 | 2,5 | PTFE B500 | 24300192 | ○ |
| 70 | 65 | 68,8 | 9,7 | 9,6 | 2,5 | PTFE B500 | 24165146 | ○ |
| 70 | 65 | 68,8 | 15 | 14,8 | 2,5 | PTFE B500 | 24338058 | ○ |
| 75 | 70 | 73,8 | 9,7 | 9,6 | 2,5 | PTFE B500 | 24300193 | ○ |
| 76 | 71 | 74,8 | 9,7 | 9,6 | 2,5 | PTFE B500 | 24264453 | ○ |
| 80 | 75 | 78,8 | 9,7 | 9,6 | 2,5 | PTFE B500 | 24217207 | ● |
| 85 | 80 | 83,8 | 9,7 | 9,6 | 2,5 | PTFE B500 | 24169641 | ○ |
| 85 | 80 | 83,8 | 15 | 14,8 | 2,5 | PTFE B500 | 24258738 | ○ |
| 90 | 85 | 88,8 | 9,7 | 9,6 | 2,5 | PTFE B500 | 24165145 | ● |
| 90 | 85 | 88,8 | 15 | 14,8 | 2,5 | PTFE B500 | 24164295 | ○ |
| 90 | 85 | 88,8 | 20 | 19,5 | 2,5 | PTFE B500 | 24229424 | ○ |
| 95 | 90 | 93,8 | 9,7 | 9,6 | 2,5 | PTFE B500 | 24300197 | ○ |
| 95 | 90 | 93,8 | 15 | 14,8 | 2,5 | PTFE B500 | 24343224 | ○ |
| 100 | 95 | 98,8 | 9,7 | 9,6 | 2,5 | PTFE B500 | 24153611 | ● |
| 100 | 95 | 98,8 | 15 | 14,8 | 2,5 | PTFE B500 | 24165294 | ○ |
| 100 | 95 | 98,8 | 25 | 24,5 | 2,5 | PTFE B500 | 24311931 | ○ |

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

| D | d _F | d ₁ | L | H | Profile | Material | Article No. | |
|-----|----------------|----------------|-----|------|---------|-----------|-------------|---|
| 105 | 100 | 103,8 | 9,7 | 9,6 | 2,5 | PTFE B500 | 24216699 | ● |
| 105 | 100 | 103,8 | 25 | 24,5 | 2,5 | PTFE B500 | 24333282 | ○ |
| 110 | 105 | 108,8 | 9,7 | 9,6 | 2,5 | PTFE B500 | 24165147 | ○ |
| 110 | 105 | 108,8 | 15 | 14,8 | 2,5 | PTFE B500 | 24291125 | ○ |
| 110 | 105 | 108,8 | 20 | 19,5 | 2,5 | PTFE B500 | 24243431 | ○ |
| 115 | 110 | 113,8 | 9,7 | 9,6 | 2,5 | PTFE B500 | 24153613 | ○ |
| 120 | 115 | 118,4 | 15 | 14,8 | 2,5 | PTFE B500 | 24300203 | ○ |
| 120 | 115 | 118,8 | 9,7 | 9,6 | 2,5 | PTFE B500 | 24166736 | ● |
| 125 | 120 | 123,4 | 9,7 | 9,6 | 2,5 | PTFE B500 | 24204056 | ● |
| 125 | 120 | 123,8 | 15 | 14,8 | 2,5 | PTFE B500 | 24165043 | ○ |
| 130 | 125 | 128,4 | 15 | 14,8 | 2,5 | PTFE B500 | 24300206 | ○ |
| 130 | 125 | 128,8 | 9,7 | 9,6 | 2,5 | PTFE B500 | 24153612 | ● |
| 130 | 125 | 128,8 | 20 | 19,5 | 2,5 | PTFE B500 | 24166634 | ○ |
| 135 | 130 | 133,8 | 9,7 | 9,6 | 2,5 | PTFE B500 | 24203611 | ○ |
| 135 | 130 | 133,8 | 15 | 14,8 | 2,5 | PTFE B500 | 24340099 | ○ |
| 140 | 135 | 138,8 | 9,7 | 9,6 | 2,5 | PTFE B500 | 24102436 | ● |
| 140 | 135 | 138,8 | 15 | 14,8 | 2,5 | PTFE B500 | 24236467 | ○ |
| 140 | 135 | 138,8 | 20 | 19,5 | 2,5 | PTFE B500 | 24339882 | ○ |
| 140 | 135 | 138,8 | 25 | 24,5 | 2,5 | PTFE B500 | 24338745 | ○ |
| 150 | 145 | 148,8 | 9,7 | 9,6 | 2,5 | PTFE B500 | 24300208 | ● |
| 150 | 145 | 148,8 | 15 | 14,8 | 2,5 | PTFE B500 | 24169689 | ○ |
| 150 | 145 | 148,8 | 20 | 19,5 | 2,5 | PTFE B500 | 24336312 | ○ |
| 150 | 145 | 148,8 | 25 | 24,5 | 2,5 | PTFE B500 | 24243485 | ○ |
| 155 | 150 | 153,8 | 9,7 | 9,6 | 2,5 | PTFE B500 | 24169405 | ○ |
| 160 | 155 | 158,8 | 9,7 | 9,6 | 2,5 | PTFE B500 | 24168887 | ● |
| 160 | 155 | 158,8 | 15 | 14,8 | 2,5 | PTFE B500 | 24300209 | ● |
| 160 | 155 | 158,8 | 20 | 19,5 | 2,5 | PTFE B500 | 24217554 | ○ |
| 170 | 165 | 168,4 | 15 | 14,8 | 2,5 | PTFE B500 | 24300211 | ○ |
| 170 | 165 | 168,8 | 9,7 | 9,6 | 2,5 | PTFE B500 | 24300210 | ○ |
| 170 | 165 | 168,8 | 20 | 19,5 | 2,5 | PTFE B500 | 24336310 | ○ |
| 180 | 175 | 178,4 | 15 | 14,8 | 2,5 | PTFE B500 | 24219351 | ● |
| 180 | 175 | 178,8 | 9,7 | 9,6 | 2,5 | PTFE B500 | 24203474 | ● |
| 180 | 175 | 178,8 | 25 | 24,5 | 2,5 | PTFE B500 | 24258396 | ○ |
| 190 | 185 | 188,4 | 15 | 14,8 | 2,5 | PTFE B500 | 24300213 | ● |
| 190 | 185 | 188,8 | 9,7 | 9,6 | 2,5 | PTFE B500 | 24300212 | ○ |
| 200 | 195 | 198,4 | 9,7 | 9,6 | 2,5 | PTFE B500 | 24300214 | ○ |
| 200 | 195 | 198,8 | 15 | 14,8 | 2,5 | PTFE B500 | 24300215 | ● |
| 200 | 195 | 198,8 | 20 | 19,5 | 2,5 | PTFE B500 | 24227497 | ○ |
| 200 | 195 | 198,8 | 25 | 24,5 | 2,5 | PTFE B500 | 24306765 | ○ |
| 210 | 205 | 208,4 | 15 | 14,8 | 2,5 | PTFE B500 | 24236228 | ○ |
| 210 | 205 | 208,8 | 9,7 | 9,6 | 2,5 | PTFE B500 | 24301068 | ○ |
| 220 | 215 | 218,4 | 15 | 14,8 | 2,5 | PTFE B500 | 24203911 | ● |
| 220 | 215 | 218,4 | 20 | 19,5 | 2,5 | PTFE B500 | 24340941 | ○ |
| 220 | 215 | 218,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24290417 | ○ |
| 220 | 215 | 218,8 | 9,7 | 9,6 | 2,5 | PTFE B500 | 24300216 | ○ |
| 225 | 220 | 223,4 | 9,7 | 9,6 | 2,5 | PTFE B500 | 24259939 | ○ |
| 225 | 220 | 223,4 | 15 | 14,8 | 2,5 | PTFE B500 | 24169846 | ○ |
| 225 | 220 | 223,4 | 20 | 19,5 | 2,5 | PTFE B500 | 24260604 | ○ |
| 225 | 220 | 223,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24298509 | ○ |
| 230 | 225 | 228,4 | 15 | 14,8 | 2,5 | PTFE B500 | 24338432 | ○ |

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

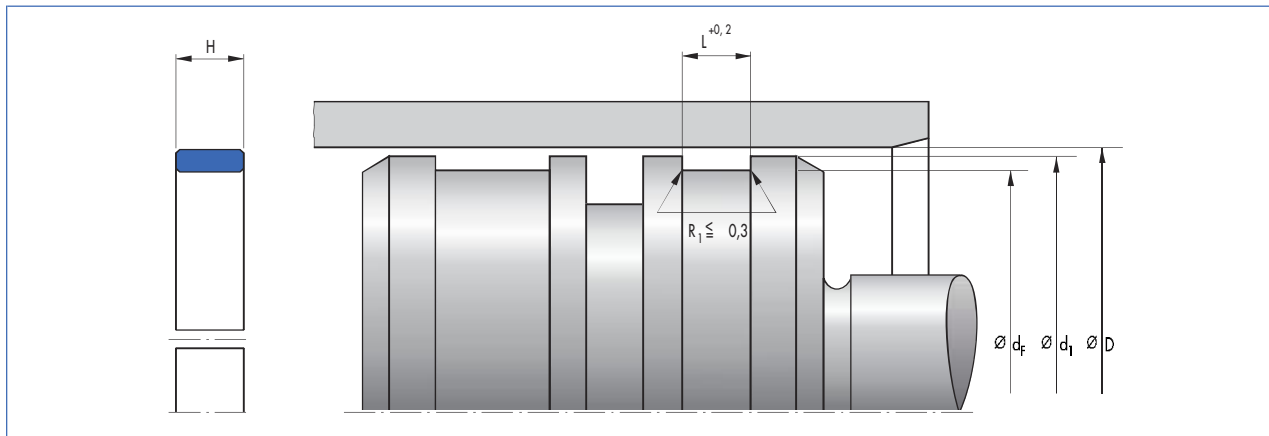


| D | d _F | d ₁ | L | H | Profile | Material | Article No. | |
|-----|----------------|----------------|-----|------|---------|-----------|-------------|---|
| 230 | 225 | 228,4 | 20 | 19,5 | 2,5 | PTFE B500 | 24233567 | ○ |
| 240 | 235 | 238,4 | 15 | 14,8 | 2,5 | PTFE B500 | 24167876 | ○ |
| 250 | 245 | 248,4 | 9,7 | 9,6 | 2,5 | PTFE B500 | 24344263 | ○ |
| 250 | 245 | 248,4 | 15 | 14,8 | 2,5 | PTFE B500 | 24300217 | ● |
| 250 | 245 | 248,4 | 20 | 19,5 | 2,5 | PTFE B500 | 24338719 | ○ |
| 260 | 255 | 258,4 | 15 | 14,8 | 2,5 | PTFE B500 | 24300218 | ○ |
| 260 | 255 | 258,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24293567 | ○ |
| 270 | 265 | 268,4 | 15 | 14,8 | 2,5 | PTFE B500 | 24238840 | ○ |
| 270 | 265 | 268,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24332002 | ○ |
| 280 | 275 | 278,4 | 15 | 14,8 | 2,5 | PTFE B500 | 24300219 | ● |
| 280 | 275 | 278,4 | 20 | 19,5 | 2,5 | PTFE B500 | 24153362 | ○ |
| 280 | 275 | 278,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24203990 | ○ |
| 300 | 295 | 298,4 | 15 | 14,8 | 2,5 | PTFE B500 | 24137238 | ○ |
| 300 | 295 | 298,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24134951 | ○ |
| 305 | 300 | 303,4 | 15 | 14,8 | 2,5 | PTFE B500 | 24350592 | ○ |
| 310 | 305 | 308,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24237194 | ○ |
| 320 | 312 | 317,5 | 20 | 19,5 | 4 | PTFE B500 | 24245663 | ○ |
| 320 | 315 | 318,4 | 15 | 14,8 | 2,5 | PTFE B500 | 24300220 | ○ |
| 320 | 315 | 318,4 | 20 | 19,5 | 2,5 | PTFE B500 | 24231223 | ○ |
| 320 | 315 | 318,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24300221 | ○ |
| 330 | 325 | 328,4 | 15 | 14,8 | 2,5 | PTFE B500 | 24296714 | ○ |
| 330 | 325 | 328,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24314011 | ○ |
| 340 | 335 | 338,4 | 15 | 14,8 | 2,5 | PTFE B500 | 24300222 | ○ |
| 340 | 335 | 338,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24300223 | ○ |
| 350 | 345 | 348,4 | 9,7 | 9,6 | 2,5 | PTFE B500 | 24316713 | ○ |
| 350 | 345 | 348,4 | 15 | 14,8 | 2,5 | PTFE B500 | 24234725 | ○ |
| 355 | 350 | 353,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24336608 | ○ |
| 360 | 352 | 357,5 | 15 | 14,8 | 4 | PTFE B500 | 24266168 | ○ |
| 360 | 352 | 357,5 | 25 | 24,5 | 4 | PTFE B500 | 24298511 | ○ |
| 360 | 355 | 358,4 | 15 | 14,8 | 2,5 | PTFE B500 | 24300224 | ○ |
| 360 | 355 | 358,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24164558 | ○ |
| 380 | 375 | 378,4 | 20 | 19,5 | 2,5 | PTFE B500 | 24257157 | ○ |
| 380 | 375 | 378,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24299555 | ○ |
| 390 | 382 | 387,5 | 25 | 24,5 | 4 | PTFE B500 | 24344184 | ○ |
| 390 | 385 | 388,4 | 20 | 19,5 | 2,5 | PTFE B500 | 24248042 | ○ |
| 390 | 385 | 388,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24215936 | ○ |
| 400 | 392 | 397,5 | 25 | 24,5 | 4 | PTFE B500 | 24353170 | ○ |

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

| D | d _F | d ₁ | L | H | Profile | Material | Article No. | |
|-------|----------------|----------------|----|------|---------|-----------|-------------|---|
| 400 | 395 | 398,4 | 15 | 14,8 | 2,5 | PTFE B500 | 24300225 | ○ |
| 400 | 395 | 398,4 | 20 | 19,5 | 2,5 | PTFE B500 | 24241924 | ○ |
| 400 | 395 | 398,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24237477 | ○ |
| 410 | 405 | 408,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24292267 | ○ |
| 420 | 415 | 418,4 | 20 | 19,5 | 2,5 | PTFE B500 | 24246829 | ○ |
| 420 | 415 | 418,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24298563 | ○ |
| 430 | 425 | 428,4 | 15 | 14,8 | 2,5 | PTFE B500 | 24274579 | ○ |
| 430 | 425 | 428,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24356343 | ○ |
| 440 | 435 | 438,4 | 15 | 14,8 | 2,5 | PTFE B500 | 24362293 | ○ |
| 440 | 435 | 438,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24238056 | ○ |
| 445 | 440 | 443,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24169312 | ○ |
| 450 | 442 | 447,5 | 25 | 24,5 | 4 | PTFE B500 | 24336064 | ○ |
| 450 | 445 | 448,4 | 15 | 14,8 | 2,5 | PTFE B500 | 24295904 | ○ |
| 450 | 445 | 448,4 | 20 | 19,5 | 2,5 | PTFE B500 | 24218386 | ○ |
| 450 | 445 | 448,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24339916 | ○ |
| 457,2 | 449,2 | 454,7 | 25 | 24,5 | 4 | PTFE B500 | 24361018 | ○ |
| 460 | 455 | 458,4 | 15 | 14,8 | 2,5 | PTFE B500 | 24237495 | ○ |
| 460 | 455 | 458,4 | 20 | 19,5 | 2,5 | PTFE B500 | 24216297 | ○ |
| 460 | 455 | 458,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24258000 | ○ |
| 480 | 472 | 477,5 | 25 | 24,5 | 4 | PTFE B500 | 24298510 | ○ |
| 480 | 475 | 478,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24250182 | ○ |
| 500 | 492 | 497,5 | 15 | 14,8 | 4 | PTFE B500 | 24344266 | ○ |
| 500 | 492 | 497,5 | 25 | 24,5 | 4 | PTFE B500 | 24261230 | ○ |
| 500 | 495 | 498,4 | 15 | 14,8 | 2,5 | PTFE B500 | 24274580 | ○ |
| 500 | 495 | 498,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24263977 | ○ |
| 510 | 505 | 508,4 | 15 | 14,8 | 2,5 | PTFE B500 | 24291161 | ○ |
| 510 | 505 | 508,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24360396 | ○ |
| 510,2 | 502,2 | 507,7 | 25 | 24,5 | 4 | PTFE B500 | 24355928 | ○ |
| 520 | 515 | 518,4 | 20 | 19,5 | 2,5 | PTFE B500 | 24230163 | ○ |
| 520,7 | 515,7 | 519,1 | 15 | 14,8 | 2,5 | PTFE B500 | 24224011 | ○ |
| 530 | 525 | 528,4 | 15 | 14,8 | 2,5 | PTFE B500 | 24258834 | ○ |
| 540 | 535 | 538,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24339008 | ○ |
| 545 | 540 | 543,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24250579 | ○ |
| 550 | 545 | 548,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24257339 | ○ |
| 560 | 552 | 557,5 | 25 | 24,5 | 4 | PTFE B500 | 24359710 | ○ |
| 560 | 555 | 558,4 | 15 | 14,8 | 2,5 | PTFE B500 | 24351466 | ○ |
| 560 | 555 | 558,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24269185 | ○ |
| 570 | 562 | 567,5 | 15 | 14,8 | 4 | PTFE B500 | 24352095 | ○ |
| 570 | 562 | 567,5 | 25 | 24,5 | 4 | PTFE B500 | 24351060 | ○ |
| 580 | 572 | 577,5 | 15 | 14,8 | 4 | PTFE B500 | 24344267 | ○ |
| 580 | 575 | 578,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24339500 | ○ |
| 584,2 | 576,2 | 581,7 | 25 | 24,5 | 4 | PTFE B500 | 24362368 | ○ |
| 600 | 592 | 597,5 | 25 | 24,5 | 4 | PTFE B500 | 24275000 | ○ |
| 600 | 595 | 598,4 | 15 | 14,8 | 2,5 | PTFE B500 | 24234910 | ○ |
| 600 | 595 | 598,4 | 20 | 19,5 | 2,5 | PTFE B500 | 24329803 | ○ |
| 600 | 595 | 598,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24234912 | ○ |
| 625 | 620 | 623,4 | 15 | 14,8 | 2,5 | PTFE B500 | 24352637 | ○ |
| 630 | 625 | 628,4 | 15 | 14,8 | 2,5 | PTFE B500 | 24161640 | ○ |
| 630 | 625 | 628,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24263466 | ○ |
| 640 | 632 | 637,5 | 25 | 24,5 | 4 | PTFE B500 | 24275167 | ○ |

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



| D | d _F | d ₁ | L | H | Profile | Material | Article No. | |
|-------|----------------|----------------|----|------|---------|-----------|-------------|---|
| 650 | 642 | 647,5 | 25 | 24,5 | 4 | PTFE B500 | 24358984 | ○ |
| 650 | 645 | 648,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24239182 | ○ |
| 655 | 650 | 653,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24231930 | ○ |
| 660,4 | 652,4 | 657,9 | 25 | 24,5 | 4 | PTFE B500 | 24361508 | ○ |
| 665 | 660 | 663,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24336379 | ○ |
| 680 | 672 | 677,5 | 15 | 14,8 | 4 | PTFE B500 | 24344269 | ○ |
| 680 | 672 | 677,5 | 25 | 24,5 | 4 | PTFE B500 | 24298430 | ○ |
| 680 | 675 | 678,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24357190 | ○ |
| 690 | 682 | 687,5 | 25 | 24,5 | 4 | PTFE B500 | 24361405 | ○ |
| 700 | 692 | 697,5 | 25 | 24,5 | 4 | PTFE B500 | 24349705 | ○ |
| 700 | 695 | 698,4 | 15 | 14,8 | 2,5 | PTFE B500 | 24275183 | ○ |
| 700 | 695 | 698,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24338859 | ○ |
| 710 | 705 | 708,4 | 20 | 19,5 | 2,5 | PTFE B500 | 24162128 | ○ |
| 720 | 712 | 717,5 | 20 | 19,5 | 4 | PTFE B500 | 24226253 | ○ |
| 720 | 712 | 717,5 | 25 | 24,5 | 4 | PTFE B500 | 24355876 | ○ |
| 720 | 715 | 718,4 | 15 | 14,8 | 2,5 | PTFE B500 | 24348252 | ○ |
| 720 | 715 | 718,4 | 20 | 19,5 | 2,5 | PTFE B500 | 24291417 | ○ |
| 720 | 715 | 718,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24240256 | ○ |
| 725 | 720 | 723,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24340198 | ○ |
| 750 | 742 | 747,5 | 25 | 24,5 | 4 | PTFE B500 | 24293964 | ○ |
| 760 | 752 | 757,5 | 15 | 14,8 | 4 | PTFE B500 | 24216171 | ○ |
| 760 | 752 | 757,5 | 20 | 19,5 | 4 | PTFE B500 | 24216170 | ○ |
| 760 | 755 | 758,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24162992 | ○ |
| 770 | 762 | 767,5 | 15 | 14,8 | 4 | PTFE B500 | 24344270 | ○ |
| 775 | 770 | 773,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24245794 | ○ |
| 780 | 775 | 778,4 | 15 | 14,8 | 2,5 | PTFE B500 | 24358668 | ○ |
| 800 | 792 | 797,5 | 15 | 14,8 | 4 | PTFE B500 | 24348279 | ○ |
| 800 | 792 | 797,5 | 25 | 24,5 | 4 | PTFE B500 | 24243176 | ○ |
| 812,8 | 804,8 | 810,3 | 25 | 24,5 | 4 | PTFE B500 | 24249318 | ○ |
| 820 | 812 | 817,5 | 25 | 24,5 | 4 | PTFE B500 | 24341042 | ○ |
| 830 | 822 | 827,5 | 25 | 24,5 | 4 | PTFE B500 | 24354856 | ○ |
| 830 | 825 | 828,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24353637 | ○ |
| 850 | 842 | 847,5 | 25 | 24,5 | 4 | PTFE B500 | 24300402 | ○ |
| 850 | 845 | 848,4 | 20 | 19,5 | 2,5 | PTFE B500 | 24265124 | ○ |
| 850 | 845 | 848,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24163721 | ○ |
| 900 | 892 | 897,5 | 20 | 19,5 | 4 | PTFE B500 | 24238053 | ○ |
| 900 | 892 | 897,5 | 25 | 24,5 | 4 | PTFE B500 | 24344380 | ○ |

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

| D | d _F | d ₁ | L | H | Profile | Material | Article No. | |
|-------|----------------|----------------|----|------|---------|-----------|-------------|-----------------------|
| 900 | 895 | 898,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24162990 | <input type="radio"/> |
| 914,5 | 906,5 | 912 | 25 | 24,5 | 4 | PTFE B500 | 24354414 | <input type="radio"/> |
| 920 | 915 | 918,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24258318 | <input type="radio"/> |
| 940 | 932 | 937,5 | 25 | 24,5 | 4 | PTFE B500 | 24352164 | <input type="radio"/> |
| 940 | 935 | 938,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24163720 | <input type="radio"/> |
| 965 | 957 | 962,5 | 15 | 14,8 | 4 | PTFE B500 | 24263608 | <input type="radio"/> |
| 965 | 957 | 962,5 | 25 | 24,5 | 4 | PTFE B500 | 24295215 | <input type="radio"/> |
| 965,2 | 957,2 | 962,7 | 25 | 24,5 | 4 | PTFE B500 | 24331520 | <input type="radio"/> |
| 1000 | 995 | 998,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24162989 | <input type="radio"/> |
| 1050 | 1042 | 1047,5 | 25 | 24,5 | 4 | PTFE B500 | 24257242 | <input type="radio"/> |
| 1050 | 1045 | 1048,4 | 25 | 24,5 | 2,5 | PTFE B500 | 24227975 | <input type="radio"/> |
| 1100 | 1092 | 1097,5 | 25 | 24,5 | 4 | PTFE B500 | 24269869 | <input type="radio"/> |
| 1140 | 1132 | 1137,5 | 20 | 19,5 | 4 | PTFE B500 | 24167297 | <input type="radio"/> |
| 1180 | 1172 | 1177,5 | 25 | 24,5 | 4 | PTFE B500 | 24361406 | <input type="radio"/> |
| 1200 | 1192 | 1197,5 | 15 | 14,8 | 4 | PTFE B500 | 24359446 | <input type="radio"/> |
| 1300 | 1292 | 1297,5 | 25 | 24,5 | 4 | PTFE B500 | 24357283 | <input type="radio"/> |

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

Merkel Guide Ring EKF

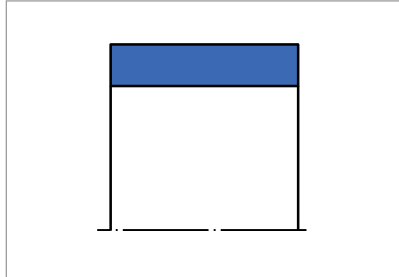


Fig. 1 Merkel Guide Ring EKF

Product description

Slit, non-metallic Merkel Guide Ring EKF.

Product advantages

Non-metallic guide element for pistons.

Application

Standard cylinders, mobile hydraulics, injection moulding machines.

Material

| Material | Code |
|-----------|---------|
| Polyamide | PA 4201 |

Operating conditions

| Material | PA 4201 |
|---|---|
| | Temperature range in °C |
| Hydraulic oils HL, HLP | -30 ... +100 |
| HFA fluids | +5 ... +50 |
| HFB fluids | +5 ... +50 |
| HFC fluids | -30 ... +50 |
| HFD fluids | - |
| Water | +5 ... +50 |
| HETG (rapeseed oil) | -30 ... +60 |
| HEES (synthetic ester) | -30 ... +80 |
| HEPG (glycol) | -30 ... +50 |
| Mineral greases | -30 ... +100 |
| Running speed v in m/s | 1 |
| Loading (permitted specific surface pressure*) | $\leq 25 \text{ N/mm}^2$ at $20 \text{ }^\circ\text{C}$ $\leq 15 \text{ N/mm}^2$ at $100 \text{ }^\circ\text{C}$ |

* For the simple determination of the loading, a constant surface pressure is calculated using the projected area ($D \times H$). The actual surface pressure is clearly greater in the centre of the surface than the calculated surface pressure. This is taken into account in the value for the permissible specific surface pressure.

Surface quality

| Surface roughness | R_a | R_{max} |
|-------------------|----------------------------|-------------------------|
| Sliding surface | 0,05 ... 0,3 μm | $\leq 2,5 \mu\text{m}$ |
| Groove base | $\leq 2 \mu\text{m}$ | $\leq 10,0 \mu\text{m}$ |
| Groove flanks | $\leq 3 \mu\text{m}$ | $\leq 15,0 \mu\text{m}$ |

Percentage contact area $M_v > 50\%$ 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.

Tolerance recommendation

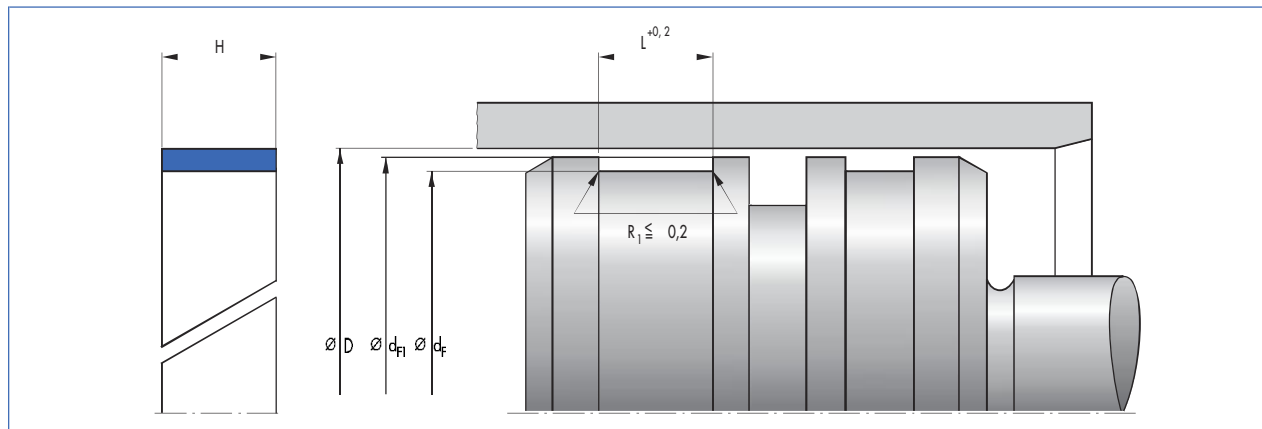
| D_1 | d_F | d_{F1} |
|-------|-------|----------|
| H8 | h8 | h9 |

The tolerances given are recommended values. The usage of the guide and tolerance definition are to be considered in connection with the seal employed. The diameter d_{F1} given in the table of dimensions is to be considered exclusively in relation to the guide ring. The corresponding diameter for the adjacent seal housing is to be matched to the sealing component. → Technical Manual.

Fitting & installation

Merkel Guide Ring EKF can be easily snapped into the housing groove. Careful fitting is a prerequisite for correct function. → Technical Manual.

Article list



| D | d _F | L | H | d _{F1} | Material | Article No. | |
|-----|----------------|------|----|-----------------|----------|-------------|---|
| 20 | 16 | 8,2 | 8 | 19,4 | PA 4201 | 94215 | ● |
| 25 | 21 | 8,2 | 8 | 24,4 | PA 4201 | 99664 | ● |
| 30 | 26 | 8,2 | 8 | 29,4 | PA 4201 | 99665 | ● |
| 32 | 28 | 8,2 | 8 | 31,4 | PA 4201 | 94044 | ● |
| 35 | 31 | 8,2 | 8 | 34,4 | PA 4201 | 1264 | ● |
| 40 | 36 | 8,2 | 8 | 39,4 | PA 4201 | 99422 | ● |
| 45 | 41 | 10,2 | 10 | 44,4 | PA 4201 | 94191 | ● |
| 50 | 46 | 10,2 | 10 | 49,4 | PA 4201 | 99423 | ● |
| 55 | 51 | 10,2 | 10 | 54,4 | PA 4201 | 99424 | ● |
| 58 | 54 | 10,2 | 10 | 57,4 | PA 4201 | 95290 | ○ |
| 60 | 56 | 10,2 | 10 | 59,4 | PA 4201 | 99375 | ● |
| 63 | 59 | 10,2 | 10 | 62,4 | PA 4201 | 99861 | ● |
| 65 | 61 | 10,2 | 10 | 64,4 | PA 4201 | 99368 | ● |
| 70 | 66 | 10,2 | 10 | 69,4 | PA 4201 | 99739 | ● |
| 75 | 71 | 15,2 | 15 | 74,4 | PA 4201 | 94192 | ● |
| 80 | 76 | 15,2 | 15 | 79,4 | PA 4201 | 34024 | ● |
| 85 | 81 | 15,2 | 15 | 84,4 | PA 4201 | 99331 | ○ |
| 90 | 86 | 15,2 | 15 | 89,4 | PA 4201 | 99426 | ● |
| 95 | 91 | 15,2 | 15 | 94,4 | PA 4201 | 94193 | ○ |
| 100 | 96 | 15,2 | 15 | 99,4 | PA 4201 | 99376 | ● |
| 105 | 101 | 20,3 | 20 | 104,4 | PA 4201 | 27257 | ○ |
| 110 | 106 | 20,3 | 20 | 109,4 | PA 4201 | 99864 | ● |
| 115 | 111 | 20,3 | 20 | 114,4 | PA 4201 | 94194 | ○ |
| 120 | 116 | 20,3 | 20 | 119,4 | PA 4201 | 99740 | ● |
| 125 | 121 | 20,3 | 20 | 124,4 | PA 4201 | 99172 | ● |
| 130 | 126 | 20,3 | 20 | 129,4 | PA 4201 | 99863 | ● |
| 135 | 131 | 20,3 | 20 | 134,4 | PA 4201 | 34301 | ○ |
| 140 | 136 | 20,3 | 20 | 139,4 | PA 4201 | 99425 | ● |
| 150 | 146 | 25,4 | 25 | 149,4 | PA 4201 | 94201 | ● |
| 160 | 156 | 25,4 | 25 | 159,4 | PA 4201 | 99862 | ● |
| 180 | 176 | 25,4 | 25 | 179,4 | PA 4201 | 94204 | ● |
| 200 | 196 | 25,4 | 25 | 199,4 | PA 4201 | 99963 | ● |
| 220 | 216 | 30,5 | 30 | 219,4 | PA 4201 | 95594 | ○ |
| 250 | 246 | 30,5 | 30 | 249,4 | PA 4201 | 94323 | ● |

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

Merkel Guide Strip SF

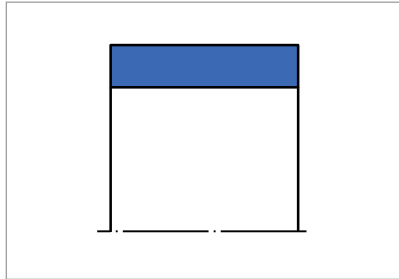


Fig. 1 Merkel Guide Strip SF

Product description

Non-metallic Merkel Guide Strip SF, available ready to fit cut to size or by the metre.

Product advantages

As a non-metallic guide element for rods, also for standardised housings according to ISO 10766

- Low friction, free of stick-slip.

Application

Control and regulation equipment, handling equipment, injection moulding machines.

Material

| Material | Code |
|----------------------|-----------|
| PTFE bronze compound | PTFE B500 |

Operating conditions

| Material | PTFE B500 |
|-------------------------|-------------------------|
| | Temperature range in °C |
| Hydraulic oils HL, HLP | -40 ... +200 |
| HFA fluids | - |
| HFB fluids | - |
| HFC fluids | - |
| HFD fluids | -40 ... +200 |
| Water | - |
| HETG (rapeseed oil) | -40 ... +80 |
| HEES (synthetic esters) | -40 ... +100 |
| HEPG (glycol) | -40 ... +80 |
| Mineral greases | -40 ... +200 |

Surface quality

| Surface roughness | R _a | R _{max} |
|-------------------|-----------------|------------------|
| Sliding surface | 0,05 ... 0,3 µm | ≤2,5 µm |
| Groove base | ≤2 µm | ≤10,0 µm |
| Side of groove | ≤3 µm | ≤15,0 µm |

Percentage contact area M_v >50% 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.

Calculating straight length L2

| L2 | Production tolerances |
|----------------|-----------------------|
| >20 ... 80 | ... 0,5 |
| >80 ... 250 | ... 1,0 |
| >250 ... 500 | ... 1,5 |
| >500 ... 1000 | ... 2,0 |
| >1000 ... 2000 | ... 3,0 |
| >2000 ... 4000 | ... 4,0 |

Tolerance recommendation

| |
|----------------------|
| D₁ |
| H8 |

The tolerance definition for the dimensions D and d_F must be viewed in connection with the seal used. The diameter d₁ specified in the table of dimensions is to be viewed exclusively in relation to the guide ring. The corresponding diameter of an adjacent seal housing should be tailored to the sealing component.

Manufacturing tolerance

| |
|---|
| Production tolerance profile thickness S |
| -0,05 |

Surface load

| |
|--------------------------------------|
| p <15 N/mm ² up to 20 °C |
| p <7,5 N/mm ² up to 80 °C |
| p <5 N/mm ² up to 120 °C |

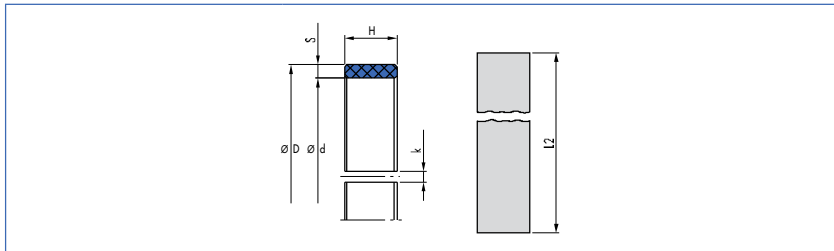
For running speed, see sealing system.

Cutting rolls to size

The following dimensions are available from stock by the metre. The straight length L2 of blanks is to be determined using the formula. The gap k produced after fitting is necessary due to thermal expansion. We recommend a straight cut on the strips. In the event of butt joints the tips may be damaged and break-off. Our cutter (Article No. 507228) facilitates time-saving and accurate cutting to size.

Calculation of the straight length L2 for rods:

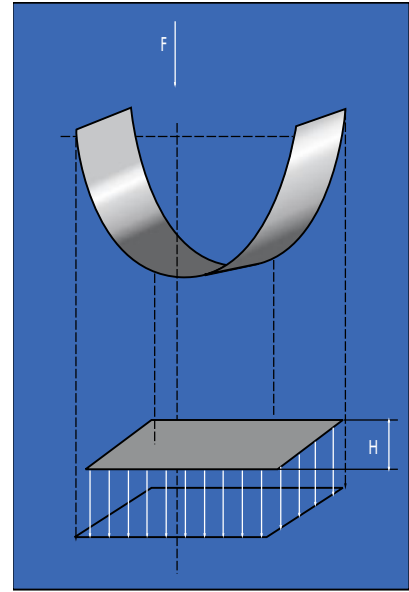
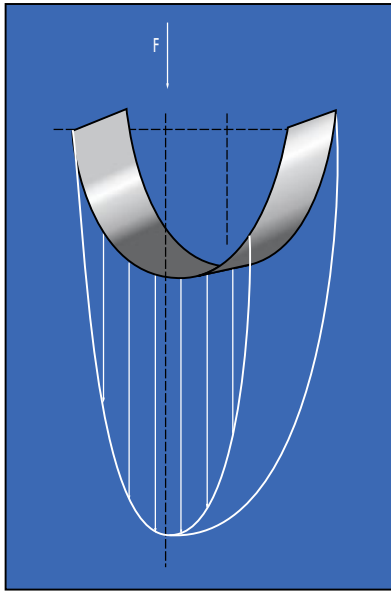
$$L2 = (d + S) \times 3,11 - 0,5$$



| Groove length L | Profile thickness S | Article No. |
|-----------------|---------------------|-------------|
| 8 | 2,5 | 24226174 |
| 9,7 | 2,5 | 24102775 |
| 10 | 2,5 | 24102563 |
| 12 | 2,5 | 24099191 |
| 15 | 2,5 | 24102564 |
| 20 | 2,5 | 24076217 |
| 25 | 2,5 | 24107955 |
| 15 | 4,0 | 24160019 |
| 20 | 4,0 | 24238052 |
| 25 | 4,0 | 24148093 |

Surface force

The pressure distribution on the guide rings is non-linear. The non-linear pressure curve over the contact range was taken into account when calculating the permissible specific surface pressure. The permissible load on the guide strip is calculated by multiplying the projected surface with the permissible specific surface pressure. However, the figure for the permissible specific surface pressure takes into account the possible angular offset of the rods when the recommended guide elements are used.



$$F = P \times A$$

$$H = F / (d \times P)$$

H = guide strip width [mm]

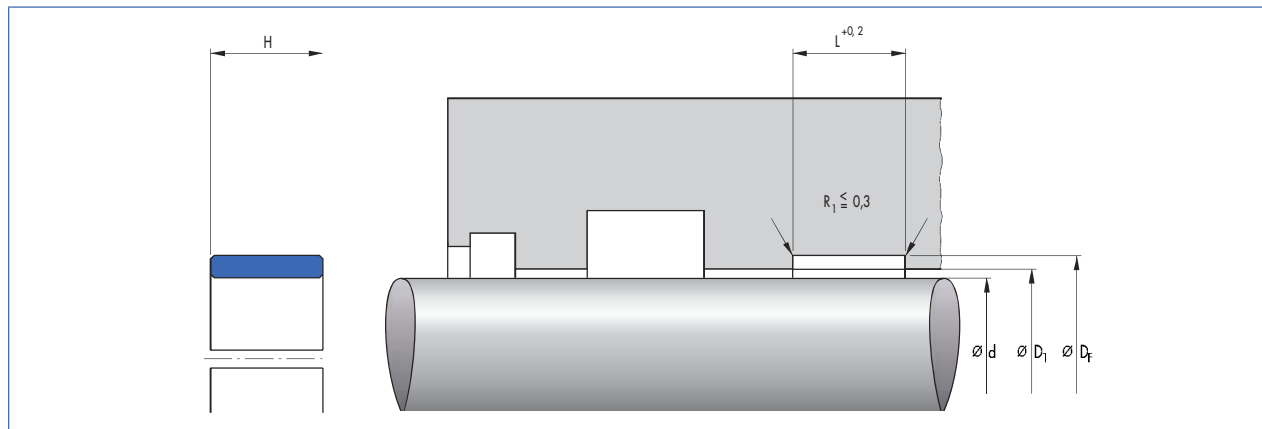
F = radial loading [N]

A = projected area [mm²]

P = perm. compression per unit area
[N/mm²]

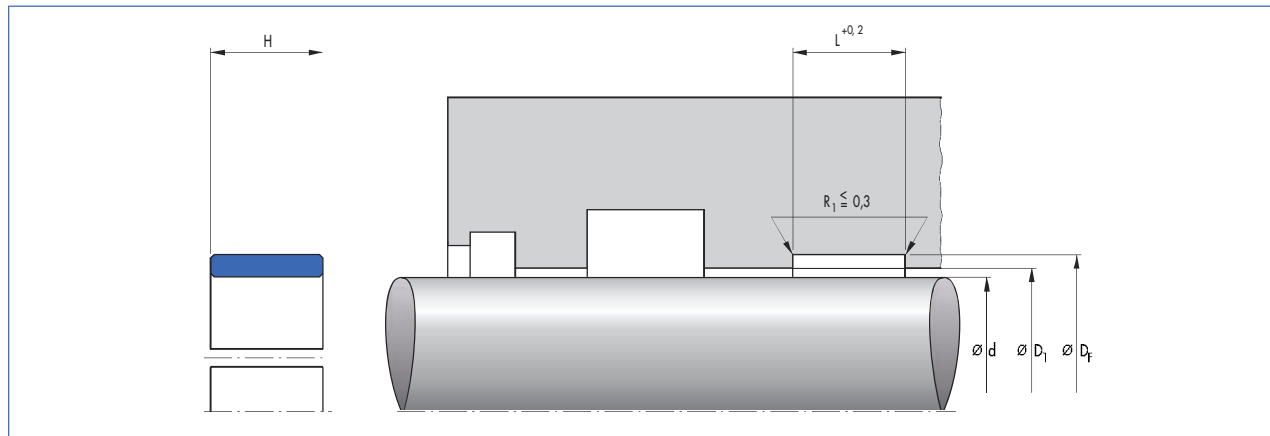
d = rod diameter with rod guidance;
piston diameter with
piston guidance [mm].

Article list



| d | D _F | D ₁ | H | L | Profile | Material | Article No. | |
|----|----------------|----------------|------|-----|---------|-----------|-------------|---|
| 25 | 28 | 25,8 | 5,5 | 5,6 | 1,5 | PTFE B500 | 24300101 | ● |
| 28 | 31 | 28,8 | 5,5 | 5,6 | 1,5 | PTFE B500 | 24300102 | ○ |
| 32 | 37 | 32,8 | 9,6 | 9,7 | 2,5 | PTFE B500 | 24294062 | ○ |
| 35 | 38 | 35,8 | 5,5 | 5,6 | 1,5 | PTFE B500 | 24300105 | ○ |
| 36 | 41 | 36,8 | 5,5 | 5,6 | 2,5 | PTFE B500 | 24165260 | ○ |
| 40 | 45 | 40,8 | 9,6 | 9,7 | 2,5 | PTFE B500 | 24216883 | ○ |
| 42 | 47 | 43,2 | 5,5 | 5,6 | 2,5 | PTFE B500 | 24300109 | ○ |
| 44 | 49 | 45,2 | 9,6 | 9,7 | 2,5 | PTFE B500 | 24333828 | ○ |
| 45 | 50 | 46,2 | 5,5 | 5,6 | 2,5 | PTFE B500 | 24300110 | ● |
| 45 | 50 | 46,2 | 9,6 | 9,7 | 2,5 | PTFE B500 | 24266350 | ○ |
| 45 | 50 | 46,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24311361 | ○ |
| 50 | 55 | 51,2 | 5,5 | 5,6 | 2,5 | PTFE B500 | 24110082 | ● |
| 50 | 55 | 51,2 | 9,6 | 9,7 | 2,5 | PTFE B500 | 24169558 | ● |
| 50 | 55 | 51,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24203345 | ○ |
| 55 | 60 | 56,2 | 9,6 | 9,7 | 2,5 | PTFE B500 | 24160646 | ● |
| 55 | 60 | 56,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24275190 | ○ |
| 56 | 61 | 57,2 | 5,5 | 5,6 | 2,5 | PTFE B500 | 24300111 | ○ |
| 56 | 61 | 57,2 | 9,6 | 9,7 | 2,5 | PTFE B500 | 24245671 | ● |
| 56 | 61 | 57,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24316593 | ○ |
| 58 | 63 | 59,2 | 9,6 | 9,7 | 2,5 | PTFE B500 | 24333829 | ○ |
| 60 | 65 | 61,2 | 9,6 | 9,7 | 2,5 | PTFE B500 | 24165598 | ● |
| 60 | 65 | 61,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24203612 | ○ |
| 63 | 68 | 64,2 | 9,6 | 9,7 | 2,5 | PTFE B500 | 24300114 | ● |
| 63 | 68 | 64,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24275191 | ○ |
| 65 | 70 | 66,2 | 9,6 | 9,7 | 2,5 | PTFE B500 | 24300116 | ● |
| 68 | 73 | 69,2 | 9,6 | 9,7 | 2,5 | PTFE B500 | 24332153 | ○ |
| 70 | 75 | 71,2 | 9,6 | 9,7 | 2,5 | PTFE B500 | 24300118 | ● |
| 75 | 80 | 76,2 | 9,6 | 9,7 | 2,5 | PTFE B500 | 24300120 | ● |
| 75 | 80 | 76,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24244742 | ○ |
| 80 | 85 | 81,2 | 9,6 | 9,7 | 2,5 | PTFE B500 | 24300122 | ● |
| 80 | 85 | 81,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24266958 | ○ |
| 80 | 85 | 81,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24265250 | ○ |
| 85 | 90 | 86,2 | 9,6 | 9,7 | 2,5 | PTFE B500 | 24167352 | ● |
| 85 | 90 | 86,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24244741 | ○ |
| 90 | 95 | 91,2 | 9,6 | 9,7 | 2,5 | PTFE B500 | 24300125 | ● |
| 90 | 95 | 91,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24291194 | ○ |

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

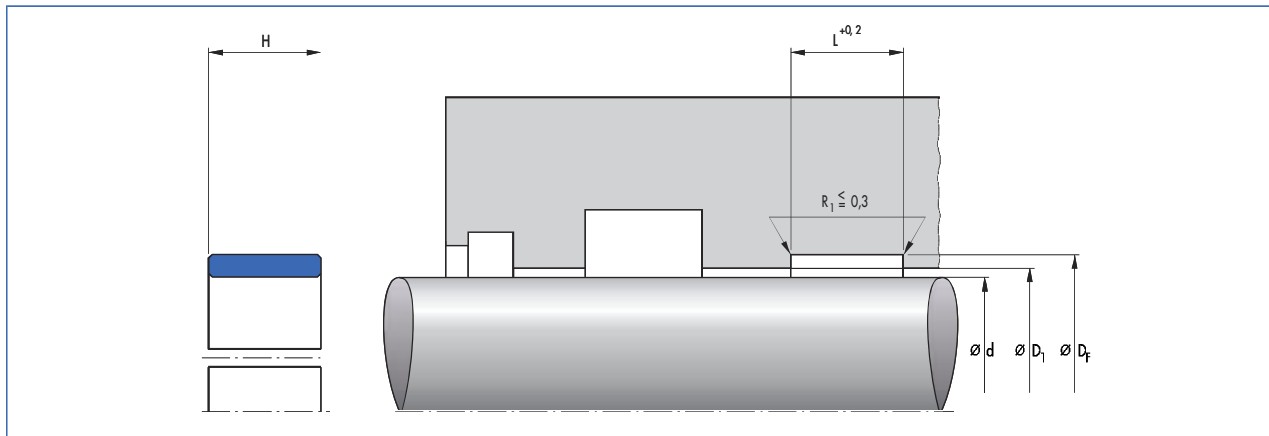


| d | DF | D1 | H | L | Profile | Material | Article No. | |
|-----|-----|-------|------|-----|---------|-----------|-------------|---|
| 95 | 100 | 96,2 | 9,6 | 9,7 | 2,5 | PTFE B500 | 24300127 | ○ |
| 100 | 105 | 101,2 | 9,6 | 9,7 | 2,5 | PTFE B500 | 24300129 | ● |
| 100 | 105 | 101,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24250627 | ● |
| 100 | 105 | 101,6 | 19,5 | 20 | 2,5 | PTFE B500 | 24260605 | ○ |
| 100 | 105 | 101,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24342265 | ○ |
| 100 | 108 | 102,5 | 14,8 | 15 | 4 | PTFE B500 | 24327233 | ○ |
| 105 | 110 | 106,2 | 9,6 | 9,7 | 2,5 | PTFE B500 | 24300131 | ○ |
| 110 | 115 | 111,2 | 9,6 | 9,7 | 2,5 | PTFE B500 | 24300133 | ● |
| 110 | 115 | 111,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24293684 | ○ |
| 110 | 115 | 111,6 | 19,5 | 20 | 2,5 | PTFE B500 | 24166931 | ○ |
| 110 | 115 | 111,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24292915 | ○ |
| 110 | 118 | 112,5 | 14,8 | 15 | 4 | PTFE B500 | 24327234 | ○ |
| 115 | 120 | 116,2 | 9,6 | 9,7 | 2,5 | PTFE B500 | 24300135 | ○ |
| 115 | 120 | 116,6 | 19,5 | 20 | 2,5 | PTFE B500 | 24242172 | ○ |
| 120 | 125 | 121,2 | 9,6 | 9,7 | 2,5 | PTFE B500 | 24300137 | ○ |
| 120 | 125 | 121,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24300138 | ○ |
| 125 | 130 | 126,2 | 9,6 | 9,7 | 2,5 | PTFE B500 | 24300140 | ● |
| 125 | 130 | 126,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24300141 | ● |
| 125 | 130 | 126,6 | 19,5 | 20 | 2,5 | PTFE B500 | 24230162 | ○ |
| 130 | 135 | 131,2 | 9,6 | 9,7 | 2,5 | PTFE B500 | 24300143 | ○ |
| 130 | 135 | 131,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24300144 | ○ |
| 130 | 135 | 131,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24262562 | ○ |
| 135 | 140 | 136,2 | 9,6 | 9,7 | 2,5 | PTFE B500 | 24300146 | ○ |
| 140 | 145 | 141,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24300149 | ○ |
| 140 | 145 | 141,6 | 19,5 | 20 | 2,5 | PTFE B500 | 24328413 | ○ |
| 140 | 145 | 141,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24256885 | ○ |
| 140 | 148 | 142,5 | 14,8 | 15 | 4 | PTFE B500 | 24327236 | ○ |
| 145 | 150 | 146,2 | 9,6 | 9,7 | 2,5 | PTFE B500 | 24248043 | ○ |
| 150 | 155 | 151,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24300151 | ● |
| 150 | 155 | 151,6 | 19,5 | 20 | 2,5 | PTFE B500 | 24203276 | ○ |
| 150 | 155 | 151,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24168884 | ○ |
| 160 | 165 | 161,2 | 9,6 | 9,7 | 2,5 | PTFE B500 | 24204644 | ○ |
| 160 | 165 | 161,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24204055 | ○ |
| 160 | 165 | 161,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24263903 | ○ |
| 170 | 175 | 171,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24300153 | ● |
| 175 | 180 | 176,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24264758 | ○ |
| 180 | 185 | 181,2 | 9,6 | 9,7 | 2,5 | PTFE B500 | 24300154 | ● |

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

| d | D _F | D ₁ | H | L | Profile | Material | Article No. | |
|-----|----------------|----------------|------|-----|---------|-----------|-------------|---|
| 180 | 185 | 181,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24300155 | ● |
| 185 | 190 | 186,2 | 9,6 | 9,7 | 2,5 | PTFE B500 | 24291724 | ○ |
| 190 | 195 | 191,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24300157 | ○ |
| 195 | 200 | 196,2 | 9,6 | 9,7 | 2,5 | PTFE B500 | 24242182 | ○ |
| 200 | 205 | 201,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24154721 | ○ |
| 200 | 205 | 201,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24266925 | ○ |
| 200 | 208 | 202,5 | 24,5 | 25 | 4 | PTFE B500 | 24299021 | ○ |
| 210 | 215 | 211,2 | 9,6 | 9,7 | 2,5 | PTFE B500 | 24300159 | ○ |
| 210 | 215 | 211,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24300160 | ● |
| 210 | 215 | 211,6 | 19,5 | 20 | 2,5 | PTFE B500 | 24239042 | ○ |
| 220 | 225 | 221,2 | 9,6 | 9,7 | 2,5 | PTFE B500 | 24300161 | ○ |
| 220 | 225 | 221,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24300162 | ○ |
| 220 | 225 | 221,6 | 19,5 | 20 | 2,5 | PTFE B500 | 24157304 | ○ |
| 230 | 235 | 231,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24154716 | ○ |
| 230 | 235 | 231,6 | 19,5 | 20 | 2,5 | PTFE B500 | 24342108 | ○ |
| 240 | 245 | 241,2 | 9,6 | 9,7 | 2,5 | PTFE B500 | 24258216 | ○ |
| 240 | 245 | 241,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24223045 | ○ |
| 240 | 245 | 241,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24314554 | ○ |
| 245 | 250 | 246,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24311377 | ○ |
| 250 | 255 | 251,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24300163 | ○ |
| 260 | 265 | 261,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24300164 | ○ |
| 270 | 275 | 271,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24262561 | ○ |
| 280 | 285 | 281,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24300166 | ○ |
| 290 | 295 | 291,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24300167 | ○ |
| 300 | 305 | 301,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24300168 | ○ |
| 300 | 305 | 301,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24348072 | ○ |
| 310 | 315 | 311,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24300169 | ○ |
| 325 | 330 | 326,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24293821 | ○ |
| 330 | 335 | 331,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24300172 | ○ |
| 330 | 335 | 331,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24300173 | ○ |
| 340 | 345 | 341,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24300174 | ○ |
| 340 | 345 | 341,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24162997 | ○ |
| 343 | 348 | 344,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24301095 | ○ |
| 350 | 355 | 351,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24300175 | ○ |
| 350 | 355 | 351,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24300176 | ○ |
| 350 | 358 | 352,5 | 24,5 | 25 | 4 | PTFE B500 | 24337998 | ○ |
| 360 | 365 | 361,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24300177 | ○ |
| 360 | 368 | 362,5 | 24,5 | 25 | 4 | PTFE B500 | 24342011 | ○ |
| 390 | 395 | 391,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24350238 | ○ |
| 390 | 395 | 391,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24336658 | ○ |
| 390 | 398 | 392,5 | 24,5 | 25 | 4 | PTFE B500 | 24355839 | ○ |
| 400 | 405 | 401,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24274959 | ○ |
| 400 | 408 | 402,5 | 24,5 | 25 | 4 | PTFE B500 | 24269425 | ○ |
| 410 | 415 | 411,6 | 14,8 | 15 | 2,5 | PTFE B500 | 49045103 | ○ |
| 410 | 415 | 411,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24296901 | ○ |
| 420 | 425 | 421,6 | 19,5 | 20 | 2,5 | PTFE B500 | 24230161 | ○ |
| 420 | 425 | 421,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24233817 | ○ |
| 420 | 428 | 422,5 | 24,5 | 25 | 4 | PTFE B500 | 24269684 | ○ |
| 425 | 430 | 426,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24261535 | ○ |
| 430 | 435 | 431,6 | 19,5 | 20 | 2,5 | PTFE B500 | 24203171 | ○ |

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



| d | DF | D1 | H | L | Profile | Material | Article No. | |
|-------|-------|-------|------|----|---------|-----------|-------------|---|
| 430 | 435 | 431,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24348071 | ○ |
| 431,8 | 439,8 | 434,3 | 24,5 | 25 | 4 | PTFE B500 | 24362369 | ○ |
| 435 | 440 | 436,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24162988 | ○ |
| 440 | 445 | 441,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24344261 | ○ |
| 450 | 455 | 451,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24265878 | ○ |
| 450 | 455 | 451,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24257338 | ○ |
| 450 | 458 | 452,5 | 24,5 | 25 | 4 | PTFE B500 | 24294991 | ○ |
| 460 | 465 | 461,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24308715 | ○ |
| 460 | 468 | 462,5 | 24,5 | 25 | 4 | PTFE B500 | 24269409 | ○ |
| 463,6 | 471,6 | 466,1 | 24,5 | 25 | 4 | PTFE B500 | 24361808 | ○ |
| 470 | 475 | 471,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24347036 | ○ |
| 470 | 478 | 472,5 | 24,5 | 25 | 4 | PTFE B500 | 24274936 | ○ |
| 475 | 480 | 476,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24261562 | ○ |
| 480 | 485 | 481,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24261536 | ○ |
| 480 | 488 | 482,5 | 24,5 | 25 | 4 | PTFE B500 | 24337938 | ○ |
| 490 | 495 | 491,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24366903 | ○ |
| 500 | 505 | 501,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24264832 | ○ |
| 500 | 505 | 501,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24263467 | ○ |
| 500 | 508 | 502,5 | 19,5 | 20 | 4 | PTFE B500 | 24360925 | ○ |
| 500 | 508 | 502,5 | 24,5 | 25 | 4 | PTFE B500 | 24269420 | ○ |
| 510 | 515 | 511,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24269186 | ○ |
| 520 | 525 | 521,6 | 19,5 | 20 | 2,5 | PTFE B500 | 24242786 | ○ |
| 540 | 545 | 541,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24358194 | ○ |
| 540 | 548 | 542,5 | 24,5 | 25 | 4 | PTFE B500 | 24332687 | ○ |
| 550 | 555 | 551,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24344262 | ○ |
| 560 | 568 | 562,5 | 24,5 | 25 | 4 | PTFE B500 | 24274998 | ○ |
| 570 | 575 | 571,5 | 24,5 | 25 | 2,5 | PTFE B500 | 24263227 | ○ |
| 580 | 588 | 582,5 | 24,5 | 25 | 4 | PTFE B500 | 24307426 | ○ |
| 590 | 595 | 591,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24290939 | ○ |
| 596,9 | 604,9 | 599,4 | 29,5 | 30 | 4 | PTFE B500 | 24236371 | ○ |
| 600 | 605 | 601,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24316132 | ○ |
| 600 | 605 | 601,6 | 19,5 | 20 | 2,5 | PTFE B500 | 24300403 | ○ |
| 600 | 608 | 602,5 | 24,5 | 25 | 4 | PTFE B500 | 24354936 | ○ |
| 620 | 625 | 621,6 | 19,5 | 20 | 2,5 | PTFE B500 | 24291416 | ○ |
| 620 | 625 | 621,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24354129 | ○ |
| 630 | 635 | 631,6 | 19,5 | 20 | 2,5 | PTFE B500 | 24361332 | ○ |
| 630 | 635 | 631,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24263904 | ○ |

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

| d | D _F | D ₁ | H | L | Profile | Material | Article No. | |
|---------|----------------|----------------|------|----|---------|-----------|-------------|---|
| 640 | 648 | 642,5 | 24,5 | 25 | 4 | PTFE B500 | 24298429 | ○ |
| 650 | 658 | 652,5 | 24,5 | 25 | 4 | PTFE B500 | 24293967 | ○ |
| 670 | 675 | 671,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24162996 | ○ |
| 670 | 678 | 672,5 | 24,5 | 25 | 4 | PTFE B500 | 24361116 | ○ |
| 675 | 680 | 676,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24261537 | ○ |
| 700 | 705 | 701,6 | 14,8 | 15 | 2,5 | PTFE B500 | 24234909 | ○ |
| 700 | 705 | 701,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24223046 | ○ |
| 700 | 708 | 702,5 | 29,5 | 30 | 4 | PTFE B500 | 24262945 | ○ |
| 710 | 718 | 712,5 | 14,8 | 15 | 4 | PTFE B500 | 24216172 | ○ |
| 720 | 728 | 722,5 | 24,5 | 25 | 4 | PTFE B500 | 24359660 | ○ |
| 723,9 | 731,9 | 726,4 | 19,5 | 20 | 4 | PTFE B500 | 24249366 | ○ |
| 730 | 738 | 732,5 | 24,5 | 25 | 4 | PTFE B500 | 24263632 | ○ |
| 735 | 740 | 736,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24163718 | ○ |
| 740 | 748 | 742,5 | 19,5 | 20 | 4 | PTFE B500 | 24344397 | ○ |
| 740 | 748 | 742,5 | 24,5 | 25 | 4 | PTFE B500 | 24243175 | ○ |
| 750 | 755 | 751,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24227972 | ○ |
| 787,4 | 795,4 | 789,9 | 24,5 | 25 | 4 | PTFE B500 | 24331521 | ○ |
| 790 | 798 | 792,5 | 24,5 | 25 | 4 | PTFE B500 | 24351827 | ○ |
| 800 | 805 | 801,6 | 24,5 | 25 | 2,5 | PTFE B500 | 24162994 | ○ |
| 800 | 808 | 802,5 | 24,5 | 25 | 4 | PTFE B500 | 24295216 | ○ |
| 820 | 828 | 822,5 | 19,5 | 20 | 4 | PTFE B500 | 24238051 | ○ |
| 830 | 838 | 832,5 | 24,5 | 25 | 4 | PTFE B500 | 24344381 | ○ |
| 850 | 858 | 852,5 | 24,5 | 25 | 4 | PTFE B500 | 24314615 | ○ |
| 890 | 898 | 892,5 | 14,8 | 15 | 4 | PTFE B500 | 24263607 | ○ |
| 890 | 898 | 892,5 | 24,5 | 25 | 4 | PTFE B500 | 24263885 | ○ |
| 900 | 908 | 902,5 | 24,5 | 25 | 4 | PTFE B500 | 24257241 | ○ |
| 950 | 958 | 952,5 | 24,5 | 25 | 4 | PTFE B500 | 24233242 | ○ |
| 975 | 983 | 977,5 | 24,5 | 25 | 4 | PTFE B500 | 24361413 | ○ |
| 1050,00 | 1058,00 | 1052,50 | 24,5 | 25 | 4 | PTFE B500 | 24296554 | ○ |
| 1150,00 | 1158,00 | 1152,50 | 24,5 | 25 | 4 | PTFE B500 | 24357284 | ○ |

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