

| application | profile | description | temperature | max. speed | max. pressure | material |
|-------------|---------|--|--------------------|------------|---------------|----------|
| | | <p>W01 hydraulic, single acting</p> <p>wiper with interference fit on outside diameter, providing a technically accurate closure at the cylinder. wiping edge assures a reliable protection against penetration of dust and dirt whilst allowing backflow of residual oil film. back support area prevents tilting of wiper. for housings according ISO 6195-Type A</p> | -30 °C ... +110 °C | 4,0 m/s | | PU |
| | | | -20 °C ... +110 °C | 4,0 m/s | | HPU |
| | | | -50 °C ... +110 °C | 4,0 m/s | | LTPU |
| | | | -20 °C ... +110 °C | 5,0 m/s | | SPU |
| | | | -30 °C ... +110 °C | 4,0 m/s | | GPU |
| | | | -30 °C ... +100 °C | 4,0 m/s | | NBR |
| | | | -25 °C ... +150 °C | 4,0 m/s | | HNBR |
| | | | -20 °C ... +200 °C | 4,0 m/s | | FKM |
| | | | -50 °C ... +150 °C | 4,0 m/s | | EPDM** |
| | | <p>W01-A hydraulic, single acting</p> <p>wiper with interference fit on outside diameter, providing a technically accurate closure at the cylinder. wiping edge assures a reliable protection against penetration of dust and dirt whilst allowing backflow of residual oil film. back support area prevents tilting of wiper. for housings according ISO 6195-Type A</p> | -30 °C ... +110 °C | 4,0 m/s | | PU |
| | | | -20 °C ... +110 °C | 4,0 m/s | | HPU |
| | | | -50 °C ... +110 °C | 4,0 m/s | | LTPU |
| | | | -20 °C ... +110 °C | 5,0 m/s | | SPU |
| | | | -30 °C ... +110 °C | 4,0 m/s | | GPU |
| | | | -30 °C ... +100 °C | 4,0 m/s | | NBR |
| | | | -25 °C ... +150 °C | 4,0 m/s | | HNBR |
| | | | -20 °C ... +200 °C | 4,0 m/s | | FKM |
| | | | -50 °C ... +150 °C | 4,0 m/s | | EPDM** |
| | | <p>W02 hydraulic, single acting</p> <p>wiper with interference fit on outside diameter. wiping edge assures a reliable protection against penetration of dust and dirt whilst allowing backflow of residual oil film.</p> | -30 °C ... +110 °C | 4,0 m/s | | PU |
| | | | -20 °C ... +110 °C | 4,0 m/s | | HPU |
| | | | -50 °C ... +110 °C | 4,0 m/s | | LTPU |
| | | | -20 °C ... +110 °C | 5,0 m/s | | SPU |
| | | | -30 °C ... +110 °C | 4,0 m/s | | GPU |
| | | | -30 °C ... +100 °C | 4,0 m/s | | NBR |
| | | | -25 °C ... +150 °C | 4,0 m/s | | HNBR |
| | | | -20 °C ... +200 °C | 4,0 m/s | | FKM |
| | | | -50 °C ... +150 °C | 4,0 m/s | | EPDM** |
| | | <p>W02-A hydraulic, single acting</p> <p>wiper with interference fit on outside diameter. wiping edge assures a reliable protection against penetration of dust and dirt whilst allowing backflow of residual oil film. back support area prevents tilting of wiper.</p> | -30 °C ... +110 °C | 4,0 m/s | | PU |
| | | | -20 °C ... +110 °C | 4,0 m/s | | HPU |
| | | | -50 °C ... +110 °C | 4,0 m/s | | LTPU |
| | | | -20 °C ... +110 °C | 5,0 m/s | | SPU |
| | | | -30 °C ... +110 °C | 4,0 m/s | | GPU |
| | | | -30 °C ... +100 °C | 4,0 m/s | | NBR |
| | | | -25 °C ... +150 °C | 4,0 m/s | | HNBR |
| | | | -20 °C ... +200 °C | 4,0 m/s | | FKM |
| | | | -50 °C ... +150 °C | 4,0 m/s | | EPDM** |

| application | profile | description | temperature | max. speed | max. pressure | material | | |
|-------------|---------|--|--------------------|------------|---------------|----------|------------|---------|
| | | W02-B hydraulic, single acting as profile W02-A, but without back support area. special housing design according ISO 6195-Type C | -30 °C ... +110 °C | 4,0 m/s | | PU | | |
| | | | -20 °C ... +110 °C | 4,0 m/s | | HPU | | |
| | | | -50 °C ... +110 °C | 4,0 m/s | | LTPU | | |
| | | | -20 °C ... +110 °C | 5,0 m/s | | SPU | | |
| | | | -30 °C ... +110 °C | 4,0 m/s | | GPU | | |
| | | | -30 °C ... +100 °C | 4,0 m/s | | NBR | | |
| | | | -25 °C ... +150 °C | 4,0 m/s | | HNBR | | |
| | | | -20 °C ... +200 °C | 4,0 m/s | | FKM | | |
| | | | -50 °C ... +150 °C | 4,0 m/s | | EPDM** | | |
| | | W03 hydraulic, single acting wiper with mounting cage for press-fit installation into axially open housings. wiping edge assures a reliable protection against penetration of dust and dirt, the use of plastic mounting cages avoids corrosion in the press-fit. for housings according ISO 6195-Type B | -30 °C ... +110 °C | 4,0 m/s | | PU | wiper part | housing |
| | | | -20 °C ... +110 °C | 4,0 m/s | | HPU | POM / PA* | |
| | | | -50 °C ... +110 °C | 4,0 m/s | | LTPU | POM / PA* | |
| | | | -20 °C ... +110 °C | 5,0 m/s | | SPU | POM / PA* | |
| | | | -30 °C ... +110 °C | 4,0 m/s | | GPU | POM / PA* | |
| | | | -30 °C ... +100 °C | 4,0 m/s | | NBR | POM / PA* | |
| | | | -25 °C ... +150 °C | 4,0 m/s | | HNBR | POM / PA* | |
| | | | -20 °C ... +200 °C | 4,0 m/s | | FKM | PAEK | |
| | | | -50 °C ... +150 °C | 4,0 m/s | | EPDM** | PAEK | |
| | | W04 pneumatic, single acting as profile W04-A, but without back support area. for housings according ISO 6195-Type A | -30 °C ... +110 °C | 4,0 m/s | | PU | | |
| | | | -20 °C ... +110 °C | 4,0 m/s | | HPU | | |
| | | | -50 °C ... +110 °C | 4,0 m/s | | LTPU | | |
| | | | -20 °C ... +110 °C | 5,0 m/s | | SPU | | |
| | | | -30 °C ... +110 °C | 4,0 m/s | | GPU | | |
| | | | -30 °C ... +100 °C | 4,0 m/s | | NBR | | |
| | | | -25 °C ... +150 °C | 4,0 m/s | | HNBR | | |
| | | | -20 °C ... +200 °C | 4,0 m/s | | FKM | | |
| | | | -50 °C ... +150 °C | 4,0 m/s | | EPDM** | | |
| | | W04-A pneumatic, single acting wiper with interference fit on outside diameter, providing a technically accurate closure at the cylinder. wiping edge assures a reliable protection against penetration of dust and dirt whilst allowing backflow of residual oil film. back support area prevents tilting of wiper. for housings according ISO 6195-Type A | -30 °C ... +110 °C | 4,0 m/s | | PU | | |
| | | | -20 °C ... +110 °C | 4,0 m/s | | HPU | | |
| | | | -50 °C ... +110 °C | 4,0 m/s | | LTPU | | |
| | | | -20 °C ... +110 °C | 5,0 m/s | | SPU | | |
| | | | -30 °C ... +110 °C | 4,0 m/s | | GPU | | |
| | | | -30 °C ... +100 °C | 4,0 m/s | | NBR | | |
| | | | -25 °C ... +150 °C | 4,0 m/s | | HNBR | | |
| | | | -20 °C ... +200 °C | 4,0 m/s | | FKM | | |
| | | | -50 °C ... +150 °C | 4,0 m/s | | EPDM** | | |

| application | profile | description | temperature | max. speed | max. pressure | material |
|-------------|---------|---|--------------------|------------|---------------|----------|
| | | W05 pneumatic, single acting wiper with interference fit on outside diameter. special design of wiping lip allows retention of initial lubricating film. | -30 °C ... +110 °C | 4,0 m/s | | PU |
| | | | -20 °C ... +110 °C | 4,0 m/s | | HPU |
| | | | -50 °C ... +110 °C | 4,0 m/s | | LTPU |
| | | | -20 °C ... +110 °C | 5,0 m/s | | SPU |
| | | | -30 °C ... +110 °C | 4,0 m/s | | GPU |
| | | | -30 °C ... +100 °C | 4,0 m/s | | NBR |
| | | | -25 °C ... +150 °C | 4,0 m/s | | HNBR |
| | | | -20 °C ... +200 °C | 4,0 m/s | | FKM |
| | | | -50 °C ... +150 °C | 4,0 m/s | | EPDM** |
| | | W05-A pneumatic, single acting wiper with interference fit on outside diameter. special design of wiping lip allows retention of initial lubricating film. back support area prevents tilting of wiper. | -30 °C ... +110 °C | 4,0 m/s | | PU |
| | | | -20 °C ... +110 °C | 4,0 m/s | | HPU |
| | | | -50 °C ... +110 °C | 4,0 m/s | | LTPU |
| | | | -20 °C ... +110 °C | 5,0 m/s | | SPU |
| | | | -30 °C ... +110 °C | 4,0 m/s | | GPU |
| | | | -30 °C ... +100 °C | 4,0 m/s | | NBR |
| | | | -25 °C ... +150 °C | 4,0 m/s | | HNBR |
| | | | -20 °C ... +200 °C | 4,0 m/s | | FKM |
| | | | -50 °C ... +150 °C | 4,0 m/s | | EPDM** |
| | | W05-B pneumatic, single acting as profile W05-A, but without back support area. special housing design according ISO 6195-Type C | -30 °C ... +110 °C | 4,0 m/s | | PU |
| | | | -20 °C ... +110 °C | 4,0 m/s | | HPU |
| | | | -50 °C ... +110 °C | 4,0 m/s | | LTPU |
| | | | -20 °C ... +110 °C | 5,0 m/s | | SPU |
| | | | -30 °C ... +110 °C | 4,0 m/s | | GPU |
| | | | -30 °C ... +100 °C | 4,0 m/s | | NBR |
| | | | -25 °C ... +150 °C | 4,0 m/s | | HNBR |
| | | | -20 °C ... +200 °C | 4,0 m/s | | FKM |
| | | | -50 °C ... +150 °C | 4,0 m/s | | EPDM** |
| | | W07 hydraulic, single acting wiper to fit in angled housings (30°angle). design mainly used in british equipment, in inch as well as metric dimensions. | -30 °C ... +110 °C | 4,0 m/s | | PU |
| | | | -20 °C ... +110 °C | 4,0 m/s | | HPU |
| | | | -50 °C ... +110 °C | 4,0 m/s | | LTPU |
| | | | -20 °C ... +110 °C | 5,0 m/s | | SPU |
| | | | -30 °C ... +110 °C | 4,0 m/s | | GPU |
| | | | -30 °C ... +100 °C | 4,0 m/s | | NBR |
| | | | -25 °C ... +150 °C | 4,0 m/s | | HNBR |
| | | | -20 °C ... +200 °C | 4,0 m/s | | FKM |
| | | | -50 °C ... +150 °C | 4,0 m/s | | EPDM** |

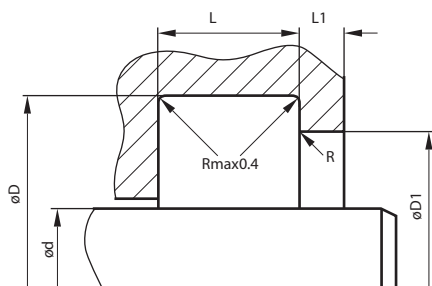
| application | profile | description | temperature | max. speed | max. pressure | material |
|--------------------|---------|---|--------------------|------------|---------------|----------|
| | | <p>W08-A hydraulic/pneumatic, single acting</p> <p>wiper usually fixed in housing with clamp flange. mainly used for replacement in old hydraulic and pneumatic cylinders or for secondary applications.</p> | -30 °C ... +110 °C | 4,0 m/s | | PU |
| | | | -20 °C ... +110 °C | 4,0 m/s | | HPU |
| | | | -50 °C ... +110 °C | 4,0 m/s | | LTPU |
| | | | -20 °C ... +110 °C | 5,0 m/s | | SPU |
| | | | -30 °C ... +110 °C | 4,0 m/s | | GPU |
| | | | -30 °C ... +100 °C | 4,0 m/s | | NBR |
| | | | -25 °C ... +150 °C | 4,0 m/s | | HNBR |
| | | | -20 °C ... +200 °C | 4,0 m/s | | FKM |
| -50 °C ... +150 °C | 4,0 m/s | | EPDM** | | | |
| | | <p>W08-B hydraulic/pneumatic, single acting</p> <p>wiper usually fixed in housing with clamp flange. mainly used for replacement in old hydraulic and pneumatic cylinders or for secondary applications.</p> | -30 °C ... +110 °C | 4,0 m/s | | PU |
| | | | -20 °C ... +110 °C | 4,0 m/s | | HPU |
| | | | -50 °C ... +110 °C | 4,0 m/s | | LTPU |
| | | | -20 °C ... +110 °C | 5,0 m/s | | SPU |
| | | | -30 °C ... +110 °C | 4,0 m/s | | GPU |
| | | | -30 °C ... +100 °C | 4,0 m/s | | NBR |
| | | | -25 °C ... +150 °C | 4,0 m/s | | HNBR |
| | | | -20 °C ... +200 °C | 4,0 m/s | | FKM |
| -50 °C ... +150 °C | 4,0 m/s | | EPDM** | | | |
| | | <p>W09 hydraulic, single acting</p> <p>wiper with dimensioning according to common types used in USA. for housings according AN 6231, ANSI/ B93.35</p> | -30 °C ... +110 °C | 4,0 m/s | | PU |
| | | | -20 °C ... +110 °C | 4,0 m/s | | HPU |
| | | | -50 °C ... +110 °C | 4,0 m/s | | LTPU |
| | | | -20 °C ... +110 °C | 5,0 m/s | | SPU |
| | | | -30 °C ... +110 °C | 4,0 m/s | | GPU |
| | | | -30 °C ... +100 °C | 4,0 m/s | | NBR |
| | | | -25 °C ... +150 °C | 4,0 m/s | | HNBR |
| | | | -20 °C ... +200 °C | 4,0 m/s | | FKM |
| -50 °C ... +150 °C | 4,0 m/s | | EPDM** | | | |
| | | <p>W10 hydraulic, single acting</p> <p>wiper with dimensioning according to common types used in USA. fixed relation between cross-section and height of wiper. for housings according AN 6231, ANSI/ B93.35</p> | -30 °C ... +110 °C | 4,0 m/s | | PU |
| | | | -20 °C ... +110 °C | 4,0 m/s | | HPU |
| | | | -50 °C ... +110 °C | 4,0 m/s | | LTPU |
| | | | -20 °C ... +110 °C | 5,0 m/s | | SPU |
| | | | -30 °C ... +110 °C | 4,0 m/s | | GPU |
| | | | -30 °C ... +100 °C | 4,0 m/s | | NBR |
| | | | -25 °C ... +150 °C | 4,0 m/s | | HNBR |
| | | | -20 °C ... +200 °C | 4,0 m/s | | FKM |
| -50 °C ... +150 °C | 4,0 m/s | | EPDM** | | | |

| application | profile | description | temperature | max. speed | max. pressure | material | |
|--------------------|---------|---|--------------------|------------|------------------|-------------|-----|
| | | W11 hydraulic/pneumatic, double acting wiper including additional sealing lip. used in combination with o-ring activated PTFE seals (tandem) to reduce residual oil film. also used as complete solution for pneumatic applications in small diameter range. max. allowed pressure load: 16 bar (230 psi) | -30 °C ... +110 °C | 4,0 m/s | | PU | |
| | | | -20 °C ... +110 °C | 4,0 m/s | | HPU | |
| | | | -50 °C ... +110 °C | 4,0 m/s | | LTPU | |
| | | | -20 °C ... +110 °C | 5,0 m/s | | SPU | |
| | | | -30 °C ... +110 °C | 4,0 m/s | | GPU | |
| | | | -30 °C ... +100 °C | 4,0 m/s | | NBR | |
| | | | -25 °C ... +150 °C | 4,0 m/s | | HNBR | |
| | | | -20 °C ... +200 °C | 4,0 m/s | | FKM | |
| -50 °C ... +150 °C | 4,0 m/s | | EPDM** | | | | |
| | | W12 hydraulic, single acting wiper with secondary lip, the technically accurate closure at the cylinder is providing reliable protection, even for heavy contamination. | -30 °C ... +110 °C | 4,0 m/s | | PU | |
| | | | -20 °C ... +110 °C | 4,0 m/s | | HPU | |
| | | | -50 °C ... +110 °C | 4,0 m/s | | LTPU | |
| | | | -20 °C ... +110 °C | 5,0 m/s | | SPU | |
| | | | -30 °C ... +110 °C | 4,0 m/s | | GPU | |
| | | W13 hydraulic/pneumatic, single acting scraper ring, mainly used in combination with wiper W02 or W01. firmly clinging dirt and extremely heavy soiling (mud, tar, ice) is wiped off, following elastomeric wiper is protected from damage. recommended materials provide good dry running properties, high stiffness and breaking strenght. | -50 °C ... + 80 °C | 1,0 m/s | | POM | |
| | | | -40 °C ... + 80 °C | 1,0 m/s | | PA* | |
| | | | -50 °C ... +260 °C | 1,0 m/s | | PEEK | |
| | | W25 hydraulic/pneumatic, single acting PTFE or PU 57 shore D with o-ring as preloading element. PTFE part takes over wiping function, o-ring maintains equal contact pressure. good dry running roperties, no "stick-slip". excellent chemical and thermal resistance (depends on o-ring). | -30 °C ... +100 °C | 10,0 m/s | | PTFE glass | NBR |
| | | | -20 °C ... +200 °C | 10,0 m/s | | PTFE glass | FKM |
| | | | -30 °C ... +100 °C | 10,0 m/s | | PTFE bronze | NBR |
| | | | -20 °C ... +200 °C | 10,0 m/s | | PTFE bronze | FKM |
| | | | -30 °C ... +100 °C | 10,0 m/s | | PTFE carbon | NBR |
| | | | -20 °C ... +200 °C | 10,0 m/s | | PTFE carbon | FKM |
| | | W26 hydraulic/pneumatic, single acting PTFE or PU 57 shore D double wiper with two o-rings as preloading elements. wiping edge assures a reliable protection against penetration of dust and dirt. additional sealing lip for reduction of residual oil film if used in combination with o-ring activated PTFE seals type W09 (tandem). excellent chemical and thermal resistance (depends on o-ring). | -30 °C ... +100 °C | 10,0 m/s | 16 bar (230 psi) | PTFE glass | NBR |
| | | | -20 °C ... +200 °C | 10,0 m/s | 16 bar (230 psi) | PTFE glass | FKM |
| | | | -30 °C ... +100 °C | 10,0 m/s | 16 bar (230 psi) | PTFE bronze | NBR |
| | | | -20 °C ... +200 °C | 10,0 m/s | 16 bar (230 psi) | PTFE bronze | FKM |
| | | | -30 °C ... +100 °C | 10,0 m/s | 16 bar (230 psi) | PTFE carbon | NBR |
| | | | -20 °C ... +200 °C | 10,0 m/s | 16 bar (230 psi) | PTFE carbon | FKM |
| | | W27 hydraulic/pneumatic, single acting PTFE or PU 57 shore D wiper with o-ring as preloading element. PTFE part takes over wiping function, o-ring maintains equal contact pressure. good dry running properties, no "stick-slip". excellent chemical and thermal resistance (depends on o-ring). | -30 °C ... +100 °C | 10,0 m/s | 16 bar (230 psi) | PTFE glass | NBR |
| | | | -20 °C ... +200 °C | 10,0 m/s | 16 bar (230 psi) | PTFE glass | FKM |
| | | | -30 °C ... +100 °C | 10,0 m/s | 16 bar (230 psi) | PTFE bronze | NBR |
| | | | -20 °C ... +200 °C | 10,0 m/s | 16 bar (230 psi) | PTFE bronze | FKM |
| | | | -30 °C ... +100 °C | 10,0 m/s | 16 bar (230 psi) | PTFE carbon | NBR |
| | | | -20 °C ... +200 °C | 10,0 m/s | 16 bar (230 psi) | PTFE carbon | FKM |

Wiper housing details and recommendations

indicated dimensions
are required to process an order

$\varnothing D$ outside diameter
 $\varnothing d$ inside diameter
 L groove length
 H total wiper height

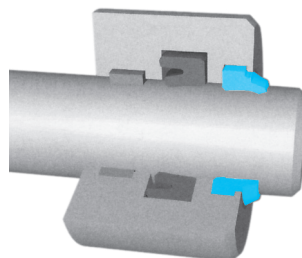
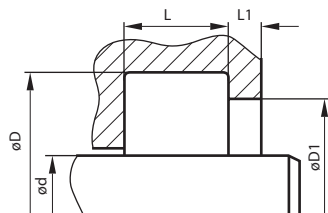


| surface | R tmax | Ra |
|-------------------------------------|-------------------|-------------------|
| roughness | (μm) | (μm) |
| sliding surface for PU/RUBBER seals | $\leq 2,5$ | $\leq 0,1 - 0,5$ |
| sliding surface for PTFE seals | ≤ 2 | $\leq 0,05 - 0,3$ |
| bottom of groove | $\leq 6,3$ | $\leq 1,6$ |
| groove face | ≤ 15 | ≤ 3 |
| bearing area Tp | 50% - 95% | |

| seal housing tolerances | |
|-------------------------|---------------------------|
| $\varnothing D1 H11$ | $L < 10 \text{ mm} + 0,2$ |
| $\varnothing D H11$ | $L > 10 \text{ mm} + 0,3$ |

| easy ordering procedure | W01 | PU | 60 x 68 x 47 |
|-------------------------|---------|----------|----------------------------|
| | profile | material | nominal housing dimensions |

W01
W04

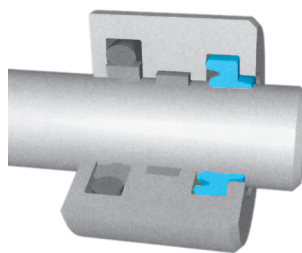
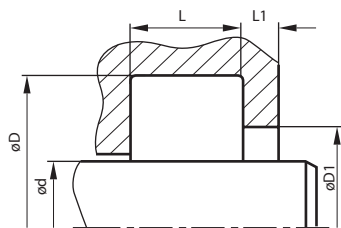


main application:
standard wiper hydraulic applications

advantages:
easy installation (snap-in)
excellent wear resistance
technically accurate closure

standard materials:
PU or NBR, FKM, EPDM, HNBR & MVQ

W11
W02
W05
W12

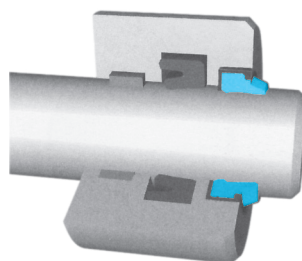
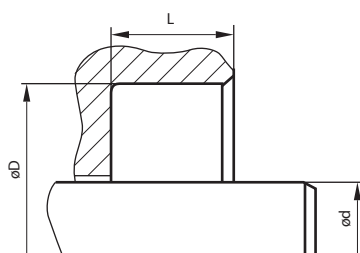


main application:
in combination with o ring activated
PTFE rod seals (R09)

advantages:
excellent wear resistance
double acting function

standard materials:
PU or NBR, FKM, EPDM, HNBR & MVQ

W03
W06



main application:
standard hydraulics applications
press-fit for axially open housings

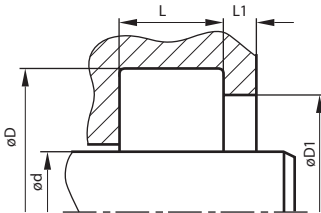
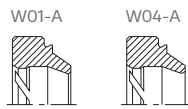
advantages:
excellent wear resistance
plastic retainer ring, no oxidation problem
between retainer and housing

standard materials:
PU + POM or
NBR, FKM, EPDM, HNBR & MVQ

housing recommendations

single acting wiper

the listing below is our suggestion for standard housing dimensions, please note that we are able to produce those profiles to your specific need or any non standard housing.



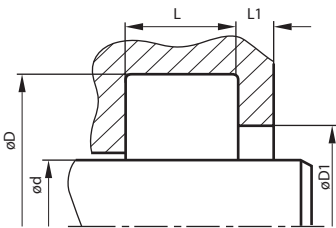
| $\varnothing d$ | $\varnothing D$ | $\varnothing D1$ | L | L1 | H* |
|-----------------|--------------------|--------------------|-----|-----|----|
| 6 - 100 | $\varnothing d+8$ | $\varnothing d+6$ | 4 | 5 | 7 |
| 100,1 - 149,9 | $\varnothing d+12$ | $\varnothing d+9$ | 5,5 | 1,5 | 10 |
| 50 - 149,9 | $\varnothing d+15$ | $\varnothing d+11$ | 6,5 | 2 | 13 |

* H = total wiper height

housing recommendations

single/double acting wiper

the listing below is our suggestion for standard housing dimensions, please note that we are able to produce those profiles to your specific need or any non standard housing.



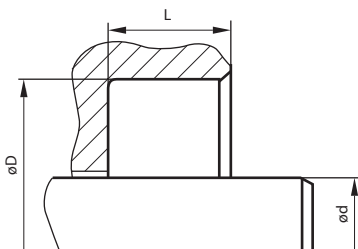
| $\varnothing d$ | $\varnothing D$ | $\varnothing D1$ | L | L1 | H* |
|-----------------|--------------------|--------------------|-----|-----|----|
| 6 - 100 | $\varnothing d+8$ | $\varnothing d+6$ | 4 | 5 | 7 |
| 100,1 - 149,9 | $\varnothing d+12$ | $\varnothing d+9$ | 5,5 | 1,5 | 10 |
| 50 - 149,9 | $\varnothing d+15$ | $\varnothing d+11$ | 6,5 | 2 | 13 |

* H = total wiper height

housing recommendations

double acting wiper

the listing below is our suggestion for standard housing dimensions, please note that we are able to produce those profiles to your specific need or any non standard housing.



| $\varnothing d$ | $\varnothing D$ | L | H* |
|-----------------|--------------------|----|----|
| 6 - 9,9 | $\varnothing d+8$ | 5 | 8 |
| 10 - 99,9 | $\varnothing d+10$ | 7 | 10 |
| 100 - 200 | $\varnothing d+15$ | 9 | 12 |
| > 200 | $\varnothing d+20$ | 12 | 16 |

* H = total wiper height