

Safety valve, angle type, article 161-V2A diameter G 3/8" up to G 1 1/4"

TÜV/CE angle type safety valve in compact design. Acc. to the version and sealing the valve can be used for a varied range of applications. As an optional extra, these valves are also available with gastight spring bonnet or lifting lever.

Connections:

Inlet: external thread BSP DIN EN ISO 228-1 / ASME B1.20.1

Outlet: female thread BSP DIN EN ISO 228-1 / ASME B1.20.1

For the protection of:

- Pressure-vessels /-systems for neutral / non-neutral fluids
- Stationary silos and bulk transport vehicles for liquid and granular goods¹

The appropriate valve design and sealing must be used acc. to the application.



possible versions of valves heads



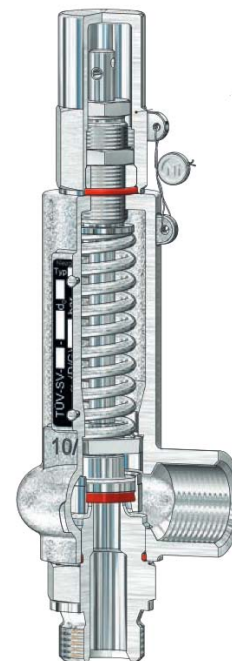
lifting lever
head A



gastight cap
head C



| | |
|--|---|
| | TÜV-approval VdTÜV-data sheet AD 2000 data sheet A2 TÜV-type approval: BG I : TÜV eSVeXX-847e do eD/G/Fe_αWep BG II: TÜV eSVeXX-878e do eD/G/Fe_αWep |
| | pressure equipment directive: 97/23/EG declaration of conformity |
| | ambient -10°C ... +80°C |
| | medium -10°C ... +280°C |



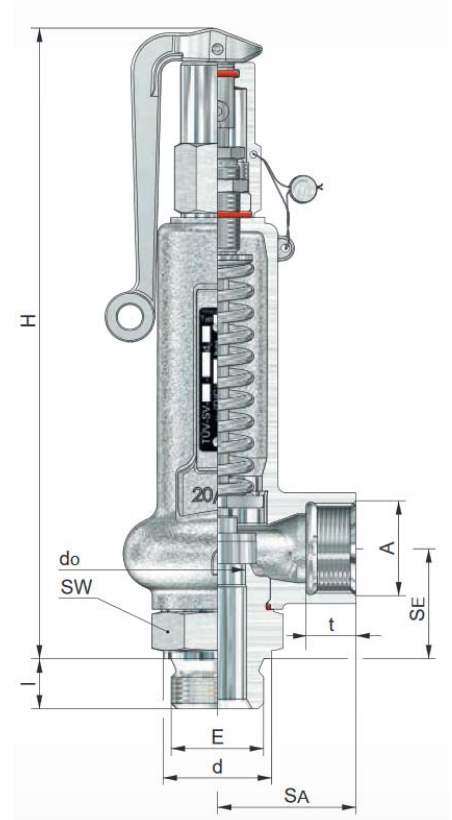
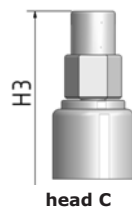
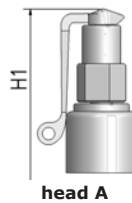
Safety valve, angle type, article 161-V2A

diameter G 3/8" up to G 1 1/4"

| description | material |
|----------------------|-------------------------------------|
| inlet body | stainless steel 1.4310 |
| outlet body / bonnet | annealed nodular casting EN-JS 1025 |
| spring | stainless steel 1.4310 |
| disc | stainless steel 1.4571 |

| diameter | article number (size I) | |
|----------|-------------------------|----------------|
| | head A lifting lever | head C cap |
| G 3/8" | 33.1627.5.62-I | 33.1628.5.62-I |
| G 1/2" | 33.1627.5.63-I | 33.1628.5.63-I |
| G 3/4" | 33.1627.5.65-I | 33.1628.5.65-I |

| diameter | article number (size II) | |
|----------|--------------------------|-----------------|
| | head A lifting lever | head C cap |
| G 1/2" | 33.1627.5.63-II | 33.1628.5.63-II |
| G 3/4" | 33.1627.5.65-II | 33.1628.5.65-II |
| G 1" | 33.1627.5.67-II | 33.1628.5.67-II |
| G 1 1/4" | 33.1627.5.68-II | 33.1628.5.68-II |

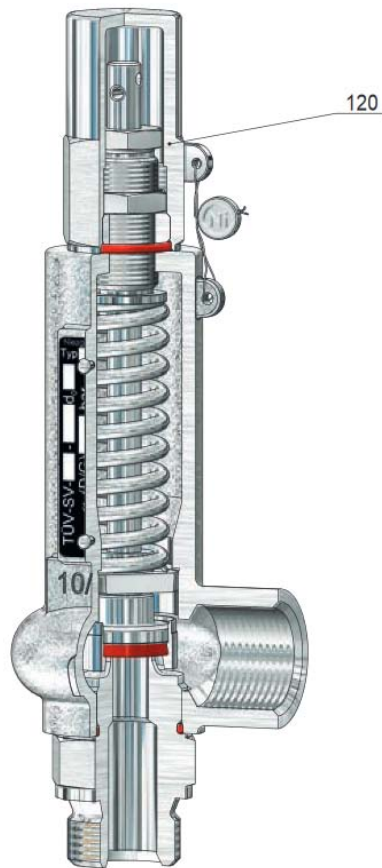


| Size | inlet | | | outlet | | | dimensions | | | | coefficient | | set pressure | | weight (kg) | |
|----------|-------|---------|--------|--------|--------------|---------|------------|---------|---------|---------|-------------|-------------|--------------|-----------------|-------------|-----------------|
| | E G | SE (mm) | d (mm) | l (mm) | A G | SA (mm) | t (mm) | H1 (mm) | H3 (mm) | SW (mm) | do (mm) | D/G αw max. | F αw | p min. [bar(g)] | | p max. [bar(g)] |
| I | 3/8" | 34 | 22 | 12 | 1/2" or 3/4" | 40 | 14 or 17 | 200 | 185 | 32 | 10 | 0,38 | 0,30 | 0,10 | 140 | 1,0 |
| | | | | | | | | | | | 8 | 0,42 | 0,30 | 3,00 | 250 | |
| | 1/2" | 34 | 26 | 14 | 1/2" or 3/4" | 40 | 14 or 17 | 200 | 185 | 32 | 12,5 | 0,27 | 0,20 | 0,10 | 70 | 1,0 |
| | | | | | | | | | | | 10 | 0,38 | 0,30 | 0,10 | 140 | |
| | 3/4" | 34 | 32 | 16 | 1/2" or 3/4" | 40 | 14 or 17 | 200 | 185 | 32 | 16 | 0,13 | 0,11 | 0,05 | 40 | 1,0 |
| | | | | | | | | | | | 12,5 | 0,27 | 0,20 | 0,10 | 70 | |
| | | | | | | | | | | | 10 | 0,38 | 0,30 | 0,10 | 140 | |
| | | | | | | | | | | | 8 | 0,42 | 0,30 | 3,00 | 200 | |

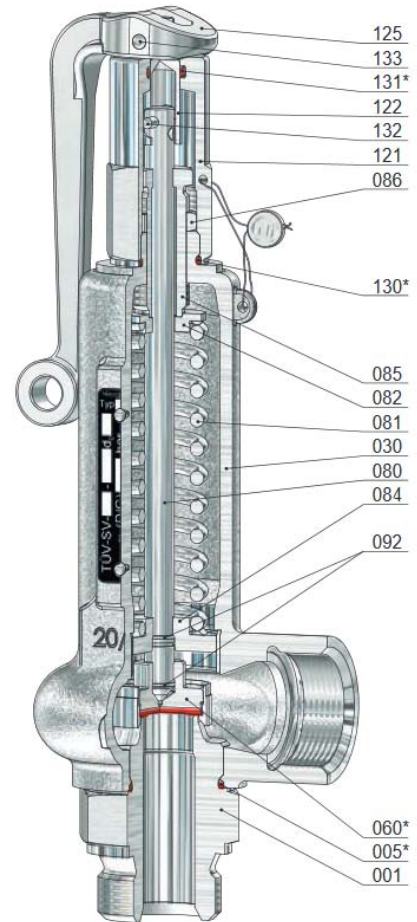
| Size | inlet | | | outlet | | | dimensions | | | | coefficient | | set pressure | | weight (kg) | |
|-----------|-------|---------|--------|--------|-----|---------|------------|---------|---------|---------|-------------|-------------|--------------|-----------------|-------------|-----------------|
| | E G | SE (mm) | d (mm) | l (mm) | A G | SA (mm) | t (mm) | H1 (mm) | H3 (mm) | SW (mm) | do (mm) | D/G αw max. | F αw | p min. [bar(g)] | | p max. [bar(g)] |
| II | 1/2" | 40 | 26 | 14 | 1" | 50 | 18 | 230 | 215 | 41 | 12,5 | 0,37 | 0,29 | 0,10 | 70 | 1,6 |
| | | | | | | | | | | | 16 | 0,29 | 0,23 | 0,10 | 32 | |
| | 3/4" | 40 | 32 | 16 | 1" | 50 | 18 | 230 | 215 | 41 | 12,5 | 0,37 | 0,29 | 0,10 | 70 | 1,6 |
| | | | | | | | | | | | 20 | 0,11 | 0,08 | 0,10 | 20 | |
| | 1" | 40 | 39 | 18 | 1" | 50 | 18 | 230 | 215 | 41 | 16 | 0,29 | 0,23 | 0,10 | 32 | 1,6 |
| | | | | | | | | | | | 12,5 | 0,37 | 0,29 | 0,10 | 70 | |
| 1 1/4" | 40 | 49 | 20 | 1" | 50 | 18 | 230 | 215 | 50 | 20 | 0,11 | 0,08 | 0,10 | 20 | 1,8 | |
| | | | | | | | | | | 16 | 0,29 | 0,23 | 0,10 | 32 | | |

161-V2A_ENG_2021_Rev. 0

Safety valve, angle type, article 161-V2A
diameter G 3/8" up to G 1 1/4"



Size I, head C



Size II, head A

| Pos. | piece | description | Pos. | piece | description |
|------|-------|--------------------|------|-------|---------------|
| 001 | 1 | inlet body | 120 | 1 | cap |
| 005* | 1 | o-ring | 121 | 1 | lifting cap |
| 030 | 1 | spring bonnet | 122 | 1 | coupling |
| 060* | 1 | disc, complete | 125 | 1 | lifting lever |
| 560 | 1 | disc | 130* | 1 | o-ring |
| 062 | 1 | soft sealing | 131* | 1 | o-ring |
| 080 | 1 | spindle | 132 | 1 | groove pin |
| 081 | 1 | spring | 133 | 1 | groove pin |
| 082 | 1 | springplate, upper | | | |
| 084 | 1 | springplate, lower | | | |
| 085 | 1 | adjusting screw | | | |
| 086 | 1 | lock nut | | | |
| 092 | 2 | lock ring | | | |

* expendable parts

161-V2A_ENG_2021_Rev. 0

Safety valve, angle type, article 161-V2A

diameter G 3/8“ up to G 1 1/4“

| Discharge capacities | | | | | | | | | | | | | | | | |
|----------------------|----------------------------|---------------------|------------------------|----------------------------|---------------------|------------------------|----------------------------|---------------------|------------------------|----------------------------|---------------------|------------------------|----------------------------|----------------------------|-----------------|--|
| Size I | | | | | | | | | | | | | | | | |
| d _o [mm] | 6 | | 8 | | | 10 | | | 12,5 | | | 12,5 o-ring-disc | | | 16 | |
| medium coefficient | air 0°C [m³n/h] | water 20°C [kg/h] | saturated steam [kg/h] | air 0°C [m³n/h] | water 20°C [kg/h] | saturated steam [kg/h] | air 0°C [m³n/h] | water 20°C [kg/h] | saturated steam [kg/h] | air 0°C [m³n/h] | water 20°C [kg/h] | saturated steam [kg/h] | air 0°C [m³n/h] | saturated steam [kg/h] | air 0°C [m³n/h] | |
| | α _w , max. 0,61 | α _w 0,30 | | α _w , max. 0,42 | α _w 0,30 | | α _w , max. 0,38 | α _w 0,20 | | α _w , max. 0,27 | α _w 0,20 | | α _w , max. 0,24 | α _w , max. 0,13 | | |
| pe [bar(g)] | | | | | | | | | | | | | | | | |
| 0,05 | | | | | | | | | | | | | | 8,9 | 11,0 | |
| 0,1 | | | | | 536,0 | 11,8 | 14,8 | 558,3 | 12,2 | 15,4 | 558,3 | 12,2 | 15,4 | 11,0 | 13,9 | |
| 0,2 | | | | | 656,4 | 14,0 | 18,4 | 683,8 | 14,7 | 19,3 | 683,8 | 14,3 | 18,8 | 13,1 | 17,3 | |
| 0,3 | | | | | 758,0 | 15,7 | 21,5 | 789,5 | 16,6 | 22,8 | 789,5 | 16,2 | 22,2 | 14,7 | 20,1 | |
| 0,4 | | | | | 847,4 | 17,3 | 24,5 | 882,7 | 18,3 | 26,0 | 882,7 | 17,9 | 25,4 | 15,9 | 22,6 | |
| 0,5 | | | | | 928,3 | 18,7 | 27,4 | 967,0 | 19,8 | 29,0 | 967,0 | 19,2 | 28,2 | 16,9 | 24,8 | |
| 1,0 | | | | | 1256,9 | 32,7 | 39,6 | 1309,3 | 36,5 | 44,2 | 1309,3 | 33,6 | 40,6 | 29,7 | 35,9 | |
| 1,5 | | | | | 1539,4 | 38,8 | 52,7 | 1603,6 | 41,8 | 56,8 | 1603,6 | 39,4 | 53,4 | 34,1 | 46,3 | |
| 2,0 | | | | | 1777,6 | 50,9 | 64,5 | 1851,6 | 55,1 | 69,8 | 1851,6 | 50,9 | 64,5 | 44,5 | 56,3 | |
| 2,5 | | | | | 1987,4 | 60,1 | 76,1 | 2070,2 | 65,8 | 83,4 | 2070,2 | 59,6 | 75,5 | 52,5 | 66,5 | |
| 3,0 | | | | | 2177,1 | 68,5 | 87,7 | 2267,8 | 76,0 | 97,4 | 2267,8 | 67,6 | 86,6 | 60,0 | 76,8 | |
| 3,5 | | | | | 2351,5 | 77,2 | 98,9 | 2449,5 | 85,7 | 109,8 | 2449,5 | | 97,6 | 67,6 | 86,6 | |
| 4,0 | | | | | 2513,9 | 85,5 | 110,1 | 2618,6 | 94,9 | 122,3 | 2618,6 | | 108,7 | 74,9 | 96,5 | |
| 4,5 | | | | | 2666,4 | 94,2 | 121,4 | 2777,4 | 104,5 | 134,7 | 2777,4 | | 119,8 | 82,5 | 106,3 | |
| 5 | | | | | 2810,6 | 102,3 | 132,6 | 2927,7 | 113,6 | 147,2 | 2927,7 | | 130,6 | 89,6 | 116,1 | |
| 6 | | | | | 3078,8 | 119,0 | 155,0 | 3207,1 | 132,1 | 172,1 | 3207,1 | | 153,0 | 104,2 | 135,8 | |
| 7 | | | | | 3325,5 | 135,8 | 177,5 | 3464,1 | 150,4 | 197,0 | 3464,1 | | 175,1 | 118,9 | 155,4 | |
| 8 | | | | | 3555,5 | 152,5 | 199,9 | 3703,3 | 187,8 | 222,0 | 3703,3 | | 197,3 | 133,6 | 175,1 | |
| 9 | | | | | 3770,8 | 169,2 | 222,4 | 3927,9 | 206,5 | 246,9 | 3927,9 | | 219,5 | 148,2 | 194,8 | |
| 10 | | | | | 3974,8 | 186,0 | 244,9 | 4140,4 | 243,5 | 271,9 | 4140,4 | | 241,7 | 162,9 | 214,5 | |
| 12 | | | | | 4354,1 | 219,3 | 289,9 | 4535,6 | 280,3 | 321,9 | 4535,6 | | 286,1 | 192,1 | 253,9 | |
| 14 | | | | | 4703,0 | 252,5 | 335,0 | 4899,0 | 298,6 | 372,0 | 4899,0 | | 330,6 | 221,1 | 293,4 | |
| 15 | | | | | 4868,0 | 269,0 | 357,6 | 5070,9 | 316,9 | 397,0 | 5070,9 | | 352,9 | 235,5 | 313,2 | |
| 16 | | | | | 5027,7 | 285,5 | 380,2 | 5237,2 | 353,3 | 422,1 | 5237,2 | | 375,2 | 250,0 | 333,0 | |
| 18 | | | | | 5332,7 | 318,2 | 425,4 | 5554,9 | 389,9 | 472,3 | 5554,9 | | 419,8 | 278,7 | 372,6 | |
| 20 | | 3597,5 | 248,5 | 333,0 | 5621,2 | 351,2 | 470,7 | 5855,4 | 482,5 | 522,6 | 5855,4 | | 464,5 | 307,6 | 412,2 | |
| 25 | | 4022,2 | 307,4 | 413,2 | 6284,7 | 434,6 | 584,2 | 6546,5 | 574,7 | 648,5 | 6546,5 | | 576,5 | 380,6 | 511,6 | |
| 30 | | 4406,1 | 366,2 | 493,7 | 6884,5 | 517,7 | 698,0 | 7171,3 | 667,0 | 774,9 | 7171,3 | | 688,8 | 453,4 | 611,3 | |
| 35 | | 4759,1 | 425,0 | 574,5 | 7436,1 | 600,8 | 812,2 | 7745,9 | 759,0 | 901,7 | 7745,9 | | 801,5 | 526,1 | 711,3 | |
| 40 | | 5087,7 | 483,6 | 655,6 | 7949,5 | 683,7 | 926,8 | 8280,8 | 851,8 | 1028,9 | 8280,8 | | 914,6 | 598,8 | 811,7 | |
| 45 | | 5396,3 | 542,7 | 736,9 | 8431,7 | 767,2 | 1041,8 | 8783,1 | 945,0 | 1156,6 | 8783,1 | | 1028,1 | | | |
| 50 | | 5688,2 | 602,1 | 818,5 | 8887,8 | 851,2 | 1157,1 | 9258,2 | 1133,4 | 1284,6 | 9258,2 | | 1141,9 | | | |
| 60 | | 6231,1 | 722,2 | 982,6 | 9736,1 | 1020,9 | 1389,0 | 10141,8 | 1323,5 | 1542,1 | 10141,8 | | 1370,8 | | | |
| 70 | | 6730,4 | 843,3 | 1147,0 | 10516,2 | 1192,2 | 1622,5 | 10954,4 | | 1801,3 | | | | | | |
| 80 | | 7195,1 | 967,8 | 1314,0 | 11242,3 | 1368,1 | 1857,6 | | | | | | | | | |
| 90 | | 7631,5 | 1095,7 | 1481,5 | 11924,3 | 1549,0 | 2094,4 | | | | | | | | | |
| 100 | | 8044,4 | 1224,5 | 1650,1 | 12569,3 | 1731,0 | 2332,8 | | | | | | | | | |
| 110 | | 8437,0 | 1354,3 | 1820,0 | 13182,8 | 1914,6 | 2572,9 | | | | | | | | | |
| 120 | 1626,6 | 8812,1 | 1485,8 | 1991,0 | 13769,0 | 2100,4 | 2814,7 | | | | | | | | | |
| 130 | 1767,3 | 9172,0 | 1618,9 | 2163,3 | 14331,2 | 2288,7 | 3058,2 | | | | | | | | | |
| 140 | 1909,1 | 9518,2 | 1753,8 | 2336,8 | 14872,2 | 2479,3 | 3303,6 | | | | | | | | | |
| 150 | 2051,9 | 9852,3 | 1896,5 | 2511,6 | | | | | | | | | | | | |
| 175 | 2413,6 | 10641,7 | | 2954,4 | | | | | | | | | | | | |
| 200 | 2782,2 | 11373,4 | | 3405,5 | | | | | | | | | | | | |

161-V2A_ENG_2021_Rev. 0

Safety valve, angle type, article 161-V2A

diameter G 3/8“ up to G 1 1/4“

| Discharge capacities | | | | | | | | | |
|----------------------|---------------------|----------------------------|-----------------|---------------------|----------------------------|-----------------|---------------------|----------------------------|-----------------|
| Size II | | | | | | | | | |
| d ₀ [mm] | 12,5 | | | 16 | | | 20 | | |
| medium coefficient | water 20°C [kg/h] | saturated steam [kg/h] | air 0°C [m³n/h] | water 20°C [kg/h] | saturated steam [kg/h] | air 0°C [m³n/h] | water 20°C [kg/h] | saturated steam [kg/h] | air 0°C [m³n/h] |
| | α _w 0,29 | α _w , max. 0,37 | | α _w 0,23 | α _w , max. 0,29 | | α _w 0,08 | α _w , max. 0,11 | |
| pe [bar(g)] | | | | | | | | | |
| 0,1 | 809,5 | 17,7 | 22,4 | 1051,9 | 23,1 | 29,1 | 571,7 | 12,5 | 15,8 |
| 0,2 | 991,5 | 21,8 | 28,6 | 1288,3 | 28,0 | 36,9 | 700,2 | 15,8 | 20,7 |
| 0,4 | 1280,0 | 27,8 | 39,5 | 1663,2 | 35,3 | 50,0 | 903,9 | 20,5 | 29,1 |
| 0,5 | 1402,1 | 30,2 | 44,3 | 1822,0 | 38,1 | 55,9 | 990,2 | 22,3 | 32,7 |
| 1,0 | 1898,5 | 52,4 | 63,4 | 2466,9 | 66,8 | 80,7 | 1340,7 | 40,4 | 48,8 |
| 1,5 | 2325,2 | 60,0 | 81,5 | 3021,4 | 76,8 | 104,3 | 1642,0 | 45,8 | 62,1 |
| 2 | 2684,9 | 78,0 | 98,9 | 3488,8 | 100,0 | 26,8 | 1896,1 | 59,7 | 75,7 |
| 3 | 3288,3 | 104,2 | 133,5 | 4272,9 | 133,8 | 171,4 | 2322,2 | 79,3 | 101,6 |
| 4 | 3797,0 | 130,0 | 167,6 | 4933,9 | 167,0 | 215,2 | 2681,5 | 99,0 | 127,5 |
| 6 | 4650,3 | 181,0 | 235,8 | 6042,7 | 232,4 | 302,8 | 3284,1 | 137,7 | 179,5 |
| 8 | 5369,7 | 232,1 | 304,2 | 6977,5 | 298,0 | 390,6 | 3792,1 | 176,6 | 231,5 |
| 10 | 6003,5 | 282,9 | 372,6 | 7801,1 | 363,3 | 478,5 | 4239,7 | 215,3 | 283,6 |
| 15 | 7352,8 | 409,2 | 544,0 | 9554,4 | 525,5 | 698,6 | 5192,6 | 311,4 | 414,0 |
| 20 | 8490,3 | 534,4 | 716,1 | 11032,5 | 686,2 | 919,6 | 5995,9 | 406,7 | 545,0 |
| 25 | 9492,4 | 661,2 | 888,7 | 12334,5 | 849,1 | 1141,2 | | | |
| 30 | 10398,5 | 787,6 | 1061,9 | 13512,0 | 1011,3 | 1363,6 | | | |
| 35 | 11231,6 | 914,0 | 1235,7 | 14595,0 | 1174,0 | 1587,0 | | | |
| 40 | 12007,4 | 1040,1 | 1410,0 | | | | | | |
| 45 | 12735,4 | 1167,2 | 1584,9 | | | | | | |
| 50 | 13424,3 | 1295,0 | 1760,4 | | | | | | |
| 60 | 14705,6 | 1553,2 | 2113,3 | | | | | | |
| 70 | 15883,9 | 1813,8 | 2468,5 | | | | | | |

Safety valve, angle type, article 161-V2A diameter G 3/8“ up to G 1 1/4“

Table of soft sealing

| BSA - short sign | ISO - short sign | ASTM - short sign | material - type | Range of pressure boundary | | Range of application |
|----------------------|---------------------|----------------------|---|---------------------------------|--------------------------------|--|
| | | | | flat sealing | o-ring | |
| Elastomeres | | | | | | |
| EPDM ¹⁾ | EPDM | EPDM | APTK® Ethylene-Propylene- Diene-Kautschuk | ≤ 16 bar -40°C to +120°C | < 120 bar -40°C to +140°C | Good resistance against a lot of chemicals, hot water, steam, alkaline solution, acids, alcohol. Average mechanical characteristics. Ozone resistant, not oil resistant. |
| FPM ¹⁾ | FPM | FKM | Viton® Fluor- Kautschuk | ≤ 25 bar -20°C to +200°C | < 200 bar -20° C to +200° C | Good resistance against a lot of chemicals, mineral oil, hot air, acid. Average to good mechanical characteristics. |
| NBR ¹⁾ | NBR | NBR | Acrylnitrile- Butadiene-Kautschuk | - | -20° C to +120° C | Good mechanical properties and higher abrasion resistance compared to other elastomeres. |
| Thermoplastes | | | | | | |
| PTFE ¹⁾ | PTFE | PTFE | Teflon® Polytetraflourethylene | ≤ 15/25 bar -200°C to +260°C | | Good resistance against chemicals, acid, alkaline solution, solvent, oil. Good thermal and average mechanical characteristics. |

¹⁾ standard soft sealing