

FLANSCH-AUSWAHLMÖGLICHKEITEN

Für die Auswahl der Flansche stehen umfassende Kombinationsmöglichkeiten in Bezug auf Anschlussmaße, Materialien und Beschichtungen zur Verfügung.

Auch zwei unterschiedliche Flanschtypen an einem Kompensator sind möglich.

Auf den folgenden Seiten sind die wesentlichen Flanschtypen und Abmessungen aufgeführt.

Sonderausführungen sind auf Anfrage erhältlich.

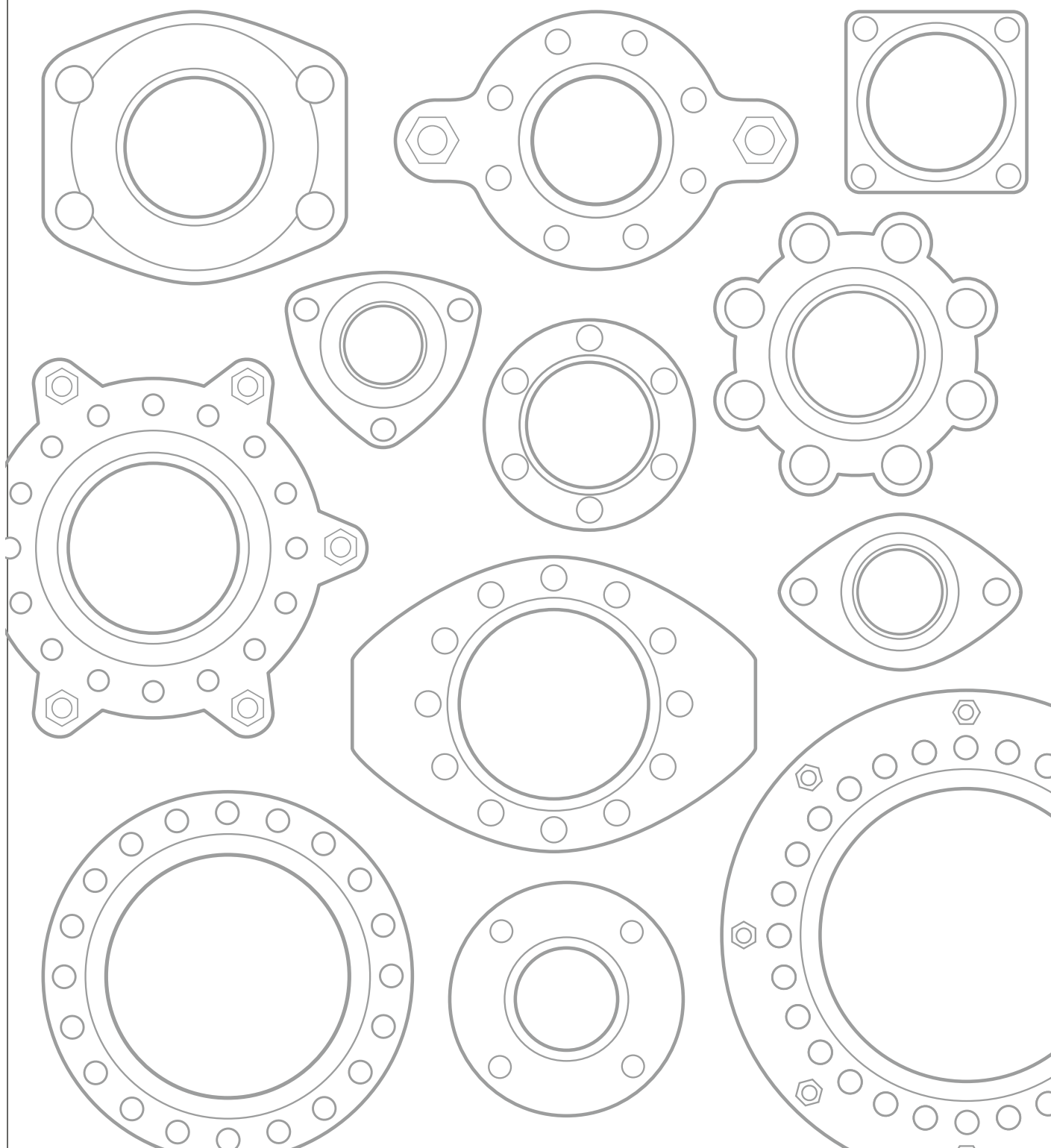
FLANGE CHOICE

For the choice of flanges a great variety of combinations concerning connection dimensions, materials and coatings is available.

Also two different flange types on one compensator are possible.

On the following pages the most common types and dimensions are listed.

Special types are available upon request.



Gebräuchliche Flanschmaße · Commonly used Flange Measurements

| Flanschnorm Flange Standard | | DIN PN 6 | | | | DIN PN 10 | | | | DIN PN 16 | | | | DIN PN 25 | | | | DIN PN 40 | | | |
|--------------------------------|--------|----------|------|----|----|---|------|----|----|-----------|------|----|----|---|------|----|----|-----------|-----|----|----|
| Bestellnummer Part Number | | .6 | | | | .10 | | | | .16 | | | | .25 | | | | .40 | | | |
| DN | | D | k | n | l | D | k | n | l | D | k | n | l | D | k | n | l | D | k | n | l |
| mm | in. | mm | mm | | mm | mm | mm | | mm | mm | mm | | mm | mm | mm | | mm | mm | mm | | mm |
| 25 | 1" | | | | | identisch mit PN 16 identical with PN 16 | | | | 115 | 85 | 4 | 14 | identisch mit PN 40 identical with PN 40 | | | | 115 | 85 | 4 | 14 |
| 32 | 1 1/4" | 120 | 90 | 4 | 14 | | | | | 140 | 100 | 4 | 18 | | | | | 140 | 100 | 4 | 18 |
| 40 | 1 1/2" | 130 | 100 | 4 | 14 | | | | | 150 | 110 | 4 | 18 | | | | | 150 | 110 | 4 | 18 |
| 50 | 2" | 140 | 110 | 4 | 14 | | | | | 165 | 125 | 4 | 18 | | | | | 165 | 125 | 4 | 18 |
| 65 | 2 1/2" | 160 | 130 | 4 | 14 | | | | | 185 | 145 | 4 | 18 | | | | | 185 | 145 | 8 | 18 |
| 80 | 3" | 190 | 150 | 4 | 18 | | | | | 200 | 160 | 8 | 18 | | | | | 200 | 160 | 8 | 18 |
| 100 | 4" | 210 | 170 | 4 | 18 | | | | | 220 | 180 | 8 | 18 | | | | | 235 | 190 | 8 | 22 |
| 125 | 5" | 240 | 200 | 8 | 18 | | | | | 250 | 210 | 8 | 18 | | | | | 270 | 220 | 8 | 26 |
| 150 | 6" | 265 | 225 | 8 | 18 | | | | | 285 | 240 | 8 | 22 | | | | | 300 | 250 | 8 | 26 |
| 200 | 8" | 320 | 280 | 8 | 18 | 340 | 295 | 8 | 22 | 340 | 295 | 12 | 22 | 360 | 310 | 12 | 26 | 375 | 320 | 12 | 30 |
| 250 | 10" | 375 | 335 | 12 | 18 | 395 | 350 | 12 | 22 | 405 | 355 | 12 | 26 | 425 | 370 | 12 | 30 | 450 | 385 | 12 | 33 |
| 300 | 12" | 440 | 395 | 12 | 22 | 445 | 400 | 12 | 22 | 460 | 410 | 12 | 26 | 485 | 430 | 16 | 30 | 515 | 450 | 16 | 33 |
| 350 | 14" | 490 | 445 | 12 | 22 | 505 | 460 | 16 | 22 | 520 | 470 | 16 | 26 | 555 | 490 | 16 | 33 | 580 | 510 | 16 | 36 |
| 400 | 16" | 540 | 495 | 16 | 22 | 565 | 515 | 16 | 26 | 580 | 525 | 16 | 30 | 620 | 550 | 16 | 36 | 660 | 585 | 16 | 39 |
| 450 | 18" | 595 | 550 | 16 | 22 | 615 | 565 | 20 | 26 | 640 | 585 | 20 | 30 | 670 | 600 | 20 | 36 | 685 | 610 | 20 | 39 |
| 500 | 20" | 645 | 600 | 20 | 22 | 670 | 620 | 20 | 26 | 715 | 650 | 20 | 33 | 730 | 660 | 20 | 36 | 755 | 670 | 20 | 42 |
| 600 | 24" | 755 | 705 | 20 | 26 | 780 | 725 | 20 | 30 | 840 | 770 | 20 | 36 | 845 | 770 | 20 | 39 | | | | |
| 700 | 28" | 860 | 810 | 24 | 26 | 895 | 840 | 24 | 30 | 910 | 840 | 24 | 36 | 960 | 875 | 24 | 42 | | | | |
| 800 | 32" | 975 | 920 | 24 | 30 | 1015 | 950 | 24 | 33 | 1025 | 950 | 24 | 39 | 1085 | 990 | 24 | 48 | | | | |
| 900 | 36" | 1075 | 1020 | 24 | 30 | 1115 | 1050 | 28 | 33 | 1125 | 1050 | 28 | 39 | 1185 | 1090 | 28 | 48 | | | | |
| 1000 | 40" | 1175 | 1120 | 28 | 30 | 1230 | 1160 | 28 | 36 | 1255 | 1170 | 28 | 42 | 1320 | 1210 | 28 | 56 | | | | |

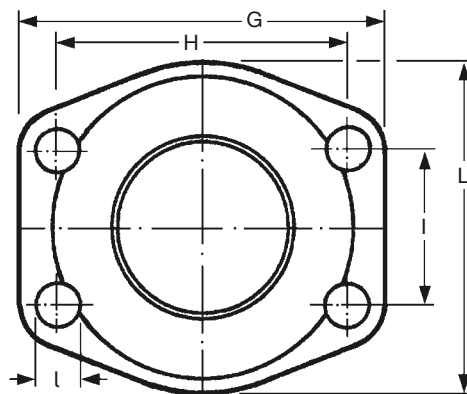
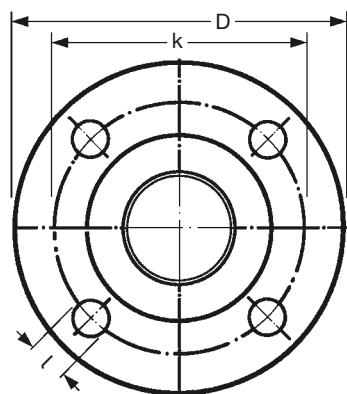
Werkstoffe: verzinkter Stahl (Standard), Edelstahl, Bronze, Aluminium, feuerverzinkter Stahl, RILSAN-beschichteter Stahl etc. - siehe Seite 403
 Materials: zinc plated steel (standard), stainless steel, bronze, aluminium, hot galvanized steel, RILSAN coated steel etc. - see page 403

| Flanschnorm Flange Standard | | ANSI B 16.5 150 lb/sq. in. | | | | | | | ANSI B 16.5 300 lb/sq. in. | | | | | | | SAE J518 c | | | | | |
|--------------------------------|--------|----------------------------|---------|-------|---------|----|------|--------|----------------------------|---------|-------|---------|----|------|--------|------------|-------|------|-----|----|----|
| Bestellnummer Part Number | | .ASA 150 | | | | | | | .ASA 300 | | | | | | | .SAE | | | | | |
| DN | | D | | k | | n | l | | D | | k | | n | l | | G | H | I | L | n | l |
| mm | in. | mm | in. | mm | in. | | mm | in. | mm | in. | mm | in. | | mm | in. | mm | mm | mm | mm | mm | mm |
| 25 | 1" | 108,0 | 4 1/2" | 79,4 | 3 1/8" | 4 | 15,9 | 5/8" | 123,8 | 4 7/8" | 88,9 | 3 1/2" | 4 | 19,0 | 3/4" | | | | | | |
| 32 | 1 1/4" | 117,5 | 4 5/8" | 88,9 | 3 1/2" | 4 | 15,9 | 5/8" | 133,4 | 5 1/4" | 98,4 | 3 7/8" | 4 | 19,0 | 3/4" | 80 | 58,7 | 30,2 | 75 | 4 | 13 |
| 40 | 1 1/2" | 127,0 | 5" | 98,4 | 3 7/8" | 4 | 15,9 | 5/8" | 155,6 | 6 1/8" | 114,3 | 4 3/4" | 4 | 22,2 | 3/4" | 95 | 70,0 | 35,7 | 83 | 4 | 13 |
| 50 | 2" | 152,4 | 6" | 120,7 | 4 3/4" | 4 | 19,0 | 3/4" | 165,1 | 6 1/2" | 127,0 | 5" | 8 | 19,0 | 3/4" | 102 | 78,0 | 43,0 | 95 | 4 | 13 |
| 65 | 2 1/2" | 177,8 | 7" | 139,7 | 5 1/2" | 4 | 19,0 | 3/4" | 190,5 | 7 1/2" | 149,2 | 5 7/8" | 8 | 22,2 | 7/8" | 114 | 89,0 | 51,0 | 115 | 4 | 13 |
| 80 | 3" | 190,5 | 7 1/2" | 152,4 | 6" | 4 | 19,0 | 3/4" | 209,6 | 8 1/4" | 168,3 | 6 5/8" | 8 | 22,2 | 7/8" | 134 | 106,4 | 62,0 | 125 | 4 | 18 |
| 100 | 4" | 228,6 | 9" | 190,5 | 7 1/2" | 8 | 19,0 | 3/4" | 254,0 | 10" | 200,0 | 7 7/8" | 8 | 22,2 | 7/8" | 162 | 130,0 | 78,0 | 147 | 4 | 18 |
| 125 | 5" | 254,0 | 10" | 215,9 | 8 1/2" | 8 | 22,2 | 7/8" | 279,4 | 11" | 235,0 | 9 1/4" | 8 | 22,2 | 7/8" | 190 | 152,4 | 92,1 | 170 | 4 | 18 |
| 150 | 6" | 279,4 | 11" | 241,3 | 9 1/2" | 8 | 22,2 | 7/8" | 317,5 | 12 1/2" | 269,9 | 10 5/8" | 12 | 22,2 | 7/8" | | | | | | |
| 200 | 8" | 342,9 | 13 1/2" | 298,5 | 11 3/4" | 8 | 22,2 | 7/8" | 381,0 | 15" | 330,2 | 13" | 12 | 25,4 | 1" | | | | | | |
| 250 | 10" | 406,4 | 16" | 361,9 | 14 1/4" | 12 | 25,4 | 1" | 444,5 | 17 1/2" | 387,3 | 15 1/4" | 16 | 28,6 | 1 1/8" | | | | | | |
| 300 | 12" | 482,6 | 19" | 431,8 | 17" | 12 | 25,4 | 1" | 520,7 | 20 1/2" | 450,8 | 17 3/4" | 16 | 31,7 | 1 1/4" | | | | | | |
| 350 | 14" | 533,4 | 21" | 476,2 | 18 3/4" | 12 | 28,6 | 1 1/8" | 584,2 | 23" | 514,3 | 20 1/4" | 20 | 31,7 | 1 1/4" | | | | | | |
| 400 | 16" | 596,9 | 23 1/2" | 539,7 | 21 1/4" | 16 | 28,6 | 1 1/8" | 647,7 | 25 1/2" | 571,5 | 22 1/2" | 20 | 34,9 | 1 3/8" | | | | | | |
| 450 | 18" | 635,0 | 25" | 577,9 | 22 3/4" | 16 | 31,7 | 1 1/4" | 711,2 | 28" | 628,7 | 24 3/4" | 24 | 34,9 | 1 3/8" | | | | | | |
| 500 | 20" | 698,5 | 27 1/2" | 635,0 | 25" | 20 | 31,7 | 1 1/4" | 774,7 | 30 1/2" | 685,8 | 27" | 24 | 34,9 | 1 3/8" | | | | | | |
| 600 | 24" | 812,8 | 32" | 749,3 | 29 1/2" | 20 | 34,9 | 1 3/8" | 914,4 | 36" | 812,8 | 32" | 24 | 41,3 | 1 5/8" | | | | | | |

Werkstoffe: verzinkter Stahl (Standard), Edelstahl, Bronze, Aluminium, feuerverzinkter Stahl, RILSAN-beschichteter Stahl etc. - siehe Seite 403
 Materials: zinc plated steel (standard), stainless steel, bronze, aluminium, hot galvanized steel, RILSAN coated steel etc. - see page 403

| Flanschnorm Flange Standard | | BS 10 table D | | | | | | | | BS 10 table E | | | | | | | | BS 10 table F | | | | | | | |
|--------------------------------|--------|---------------|---------|-------|---------|----|------|--------|-------|---------------|-------|---------|----|------|--------|-------|---------|---------------|---------|----|------|--------|--|--|--|
| Bestellnummer Part Number | | .BS 10D | | | | | | | | .BS 10E | | | | | | | | .BS 10F | | | | | | | |
| DN | | D | | k | | n | l | | D | | k | | n | l | | D | | k | | n | l | | | | |
| mm | in. | mm | in. | mm | in. | | mm | in. | mm | in. | mm | in. | | mm | in. | mm | in. | mm | in. | | mm | in. | | | |
| 25 | 1" | 114,3 | 4 1/2" | 82,5 | 3 1/4" | 4 | 14,3 | 9/16" | 114,3 | 4 1/2" | 82,5 | 3 1/4" | 4 | 14,3 | 9/16" | 120,6 | 4 3/4" | 87,3 | 3 7/16" | 4 | 17,5 | 11/16" | | | |
| 32 | 1 1/4" | 120,6 | 4 3/4" | 87,3 | 3 7/16" | 4 | 14,3 | 9/16" | 120,6 | 4 3/4" | 87,3 | 3 7/16" | 4 | 14,3 | 9/16" | 133,3 | 5 1/4" | 98,4 | 3 7/8" | 4 | 17,5 | 11/16" | | | |
| 40 | 1 1/2" | 133,3 | 5 1/4" | 98,4 | 3 7/8" | 4 | 14,3 | 9/16" | 133,3 | 5 1/4" | 98,4 | 3 7/8" | 4 | 14,3 | 9/16" | 139,7 | 5 1/2" | 104,8 | 4 1/8" | 4 | 17,5 | 11/16" | | | |
| 50 | 2" | 152,4 | 6" | 114,3 | 4 1/2" | 4 | 17,5 | 11/16" | 152,4 | 6" | 114,3 | 4 1/2" | 4 | 17,5 | 11/16" | 165,1 | 6 1/2" | 127,0 | 5" | 4 | 17,5 | 11/16" | | | |
| 65 | 2 1/2" | 165,1 | 6 1/2" | 127,0 | 5" | 4 | 17,5 | 11/16" | 165,1 | 6 1/2" | 127,0 | 5" | 4 | 17,5 | 11/16" | 184,1 | 7 1/4" | 146,0 | 5 3/4" | 8 | 17,5 | 11/16" | | | |
| 80 | 3" | 184,1 | 7 1/4" | 146,0 | 5 3/4" | 4 | 17,5 | 11/16" | 184,1 | 7 1/4" | 146,0 | 5 3/4" | 4 | 17,5 | 11/16" | 203,2 | 8" | 165,1 | 6 1/2" | 8 | 17,5 | 11/16" | | | |
| 100 | 4" | 215,9 | 8 1/2" | 177,8 | 7" | 4 | 17,5 | 11/16" | 215,9 | 8 1/2" | 177,8 | 7" | 8 | 17,5 | 11/16" | 228,6 | 9" | 190,5 | 7 1/2" | 8 | 17,5 | 11/16" | | | |
| 125 | 5" | 254,0 | 10" | 209,5 | 8 1/4" | 8 | 17,5 | 11/16" | 254,0 | 10" | 209,5 | 8 1/4" | 8 | 17,5 | 11/16" | 279,4 | 11" | 234,9 | 9 1/4" | 8 | 22,2 | 7/8" | | | |
| 150 | 6" | 279,4 | 11" | 234,9 | 9 1/4" | 8 | 17,5 | 11/16" | 279,4 | 11" | 234,9 | 9 1/4" | 8 | 22,2 | 7/8" | 304,8 | 12" | 260,3 | 10 1/4" | 12 | 22,2 | 7/8" | | | |
| 200 | 8" | 336,5 | 13 1/4" | 292,1 | 11 1/2" | 8 | 17,5 | 11/16" | 336,5 | 13 1/4" | 292,1 | 11 1/2" | 8 | 22,2 | 7/8" | 368,3 | 14 1/2" | 323,9 | 12 3/4" | 12 | 22,2 | 7/8" | | | |
| 250 | 10" | 406,4 | 16" | 355,6 | 14" | 8 | 22,2 | 7/8" | 406,4 | 16" | 355,6 | 14" | 12 | 22,2 | 7/8" | 431,8 | 17" | 381,0 | 15" | 12 | 25,4 | 1" | | | |
| 300 | 12" | 457,2 | 18" | 406,4 | 16" | 12 | 22,2 | 7/8" | 457,2 | 18" | 406,4 | 16" | 12 | 25,4 | 1" | 489,0 | 19 1/4" | 438,1 | 17 1/4" | 16 | 25,4 | 1" | | | |

Werkstoffe: verzinkter Stahl (Standard), Edelstahl, Bronze, Aluminium, feuerverzinkter Stahl, RILSAN-beschichteter Stahl etc. - siehe Seite 403
 Materials: zinc plated steel (standard), stainless steel, bronze, aluminium, hot galvanized steel, RILSAN coated steel etc. - see page 403



DIN
ASA
BS
VG
TW
JIS

SAE

| Flanschnorm Flange Standard | | VG 95959-1 | | | | DIN 28460 'TW' | | | | JIS 5 K | | | | JIS 10 K | | | | JIS 16 K | | | |
|--------------------------------|--------|-------------|-----|----|----|----------------|-----|----|------|----------|-----|----|----|-----------|-----|----|----|-----------|-----|----|----|
| Bestellnummer Part Number | | .VG 95959-1 | | | | .TW | | | | .JIS 5 K | | | | .JIS 10 K | | | | .JIS 16 K | | | |
| DN | | D | k | n | l | D | k | n | l | D | k | n | l | D | k | n | l | D | k | n | l |
| mm | in. | mm | mm | | mm | mm | mm | | mm | mm | mm | | mm | mm | mm | | mm | mm | mm | | mm |
| 25 | 1" | | | | | | | | | | | | | 125 | 90 | 4 | 19 | 125 | 90 | 4 | 19 |
| 32 | 1 1/4" | 100 | 76 | 6 | 11 | | | | | 115 | 90 | 4 | 15 | 135 | 100 | 4 | 19 | 135 | 100 | 4 | 19 |
| 40 | 1 1/2" | 108 | 84 | 6 | 11 | | | | | 120 | 95 | 4 | 15 | 140 | 105 | 4 | 19 | 140 | 105 | 4 | 19 |
| 50 | 2" | 120 | 96 | 6 | 11 | 154 | 130 | 8 | 11,5 | 130 | 105 | 4 | 15 | 155 | 120 | 4 | 19 | 155 | 120 | 8 | 19 |
| 65 | 2 1/2" | 140 | 116 | 8 | 11 | 154 | 130 | 8 | 11,5 | 155 | 130 | 4 | 15 | 175 | 140 | 4 | 19 | 175 | 140 | 8 | 19 |
| 80 | 3" | 150 | 126 | 8 | 11 | 154 | 130 | 8 | 11,5 | 180 | 145 | 4 | 19 | 185 | 150 | 8 | 19 | 200 | 160 | 8 | 23 |
| 100 | 4" | 172 | 148 | 10 | 11 | 174 | 150 | 8 | 14,0 | 200 | 165 | 8 | 19 | 210 | 175 | 8 | 19 | 225 | 185 | 8 | 23 |
| 125 | 5" | 200 | 176 | 10 | 11 | 204 | 176 | 8 | 14,0 | 235 | 200 | 8 | 19 | 250 | 210 | 8 | 23 | 270 | 225 | 8 | 25 |
| 150 | 6" | 226 | 202 | 12 | 11 | 240 | 210 | 12 | 14,0 | 265 | 230 | 8 | 19 | 280 | 240 | 8 | 23 | 305 | 260 | 12 | 25 |
| 200 | 8" | 288 | 264 | 16 | 11 | 308 | 274 | 16 | 16,0 | 320 | 280 | 8 | 23 | 330 | 290 | 12 | 23 | 350 | 305 | 12 | 25 |
| 250 | 10" | | | | | | | | | 385 | 345 | 12 | 23 | 400 | 355 | 12 | 25 | 430 | 380 | 12 | 27 |
| 300 | 12" | | | | | | | | | 430 | 390 | 12 | 23 | 445 | 400 | 16 | 25 | 480 | 430 | 16 | 27 |
| 350 | 14" | | | | | | | | | 480 | 435 | 12 | 25 | 490 | 445 | 16 | 25 | 540 | 480 | 16 | 33 |
| 400 | 16" | | | | | | | | | 540 | 495 | 16 | 25 | 560 | 510 | 16 | 27 | 605 | 540 | 16 | 33 |
| 450 | 18" | | | | | | | | | 605 | 555 | 16 | 25 | 620 | 565 | 20 | 27 | 675 | 605 | 20 | 27 |
| 500 | 20" | | | | | | | | | 655 | 605 | 20 | 25 | 675 | 620 | 20 | 27 | 730 | 660 | 20 | 33 |
| 600 | 24" | | | | | | | | | 770 | 715 | 20 | 27 | 795 | 730 | 24 | 33 | 845 | 770 | 24 | 39 |

Werkstoffe: verzinkter Stahl (Standard), Edelstahl, Bronze, Aluminium, feuerverzinkter Stahl, RILSAN-beschichteter Stahl etc. (bei 'TW' bis DN 150 Aluminium = Standard)-siehe Seite 403
 Materials: zinc plated steel (standard), stainless steel, bronze, aluminium, hot galvanized steel, RILSAN coated steel etc. (by 'TW' up to DN 150 aluminium = standard)-see page 403

Längenbegrenzungsflansche - Type ZS

Aus der nebenstehenden Tabelle ergibt sich, dass die Reaktionskräfte bei den kleinen ERV-Dimensionen bis DN 50 so gering sind, dass Längenbegrenzer normalerweise nicht erforderlich sind. Längenbegrenzer sind nur dann nötig, wenn es nicht möglich ist, das Rohrleitungssystem mit ausreichenden Festpunkten zu sichern oder eine Teilentlastung der Festpunkte gewünscht wird.

Die erforderlichen Zugstangen werden so bemessen, dass sie auch die aus dem Prüfdruck resultierenden Reaktionskräfte aufnehmen können.

Für die hauptsächlich erforderliche Axialbegrenzung haben sich die abgebildeten Ausführungen mit integrierter Verspannung sehr gut bewährt. Die Zugstangen mit hoher Festigkeit (Stahl 8.8) sind axial auf die tatsächlichen Einbaumaße einstellbar. Sie sind elastisch gelagert in geräuschkämmenden Gummibuchsen aus witterungsbeständigem Kunst kautschuk. Ab DN 350 sind die Zugstangen grundsätzlich in Kugelscheiben und Kegelpfannen gelagert.

| Nennweite DN mm | Anzahl der Zugstangen Number tie rods | BESTELL- NUMMER Part Number Type |
|-----------------------|--|--|
| 25 | 2 | ERV 25 ... ZS |
| 32 | 2 | ERV 32 ... ZS |
| 40 | 2 | ERV 40 ... ZS |
| 50 | 2 | ERV 50 ... ZS |
| 65 | 2 | ERV 65 ... ZS |
| 80 | 2 | ERV 80 ... ZS |
| 100 | 2 | ERV 100 ... ZS |
| 125 | 2 | ERV 125 ... ZS |
| 150 | 2 | ERV 150 ... ZS |
| 200 | 2 | ERV 200 ... ZS |
| 250 | 2 | ERV 250 ... ZS |
| 300 | 4 | ERV 300 ... ZS |
| 350 | 4 | ERV 350 ... ZS |
| 400 | 4 | ERV 400 ... ZS |
| 500 | 4 | ERV 500 ... ZS |
| 600 | 4 | ERV 600 ... ZS |

Angaben für Flansche DIN PN 10, Änderungen der Zugstangenanzahl bei anderen Flanschnormen vorbehalten.

Values for flanges DIN PN 10, number of tie rods may change with different flange standards.

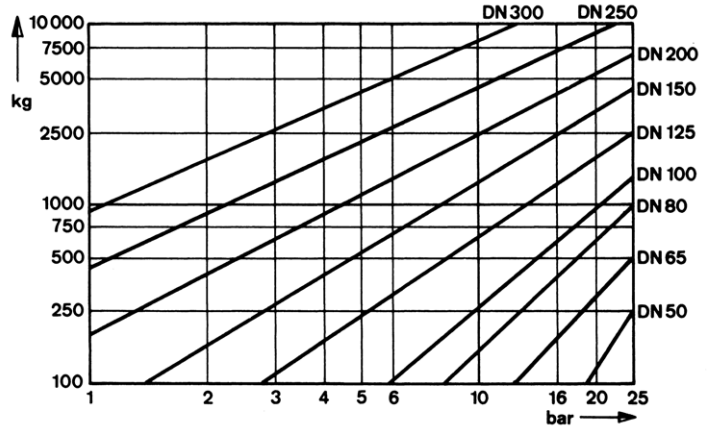
Tied Flanges – Type ZS

The table shows that the pressure thrust forces in small ERV dimensions up to DN 50 are this low that limiters normally are not necessary. Limiters are recommended when it is not possible to secure the pipe system with sufficient fixed points or when a part relief of the fixed points is desired.

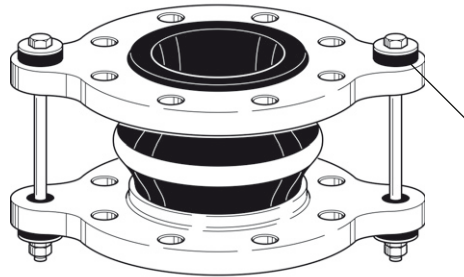
The required limiters are measured to absorb also the reaction forces resulting from the test pressure.

For the mainly required axial limitation the shown types with integrated tie bars have proved well. The tie bars with high stability (steel 8.8) can be adjusted to the actual installation measurements. The tie bars lie elastically in noise reducing rubber bushes of weatherproof rubber. From DN 350 the tie rods lie in principal in conical seats and spherical washers.

Reaktionskräfte von ERV-Gummikompensatoren
(Einbaulänge = 130 mm)

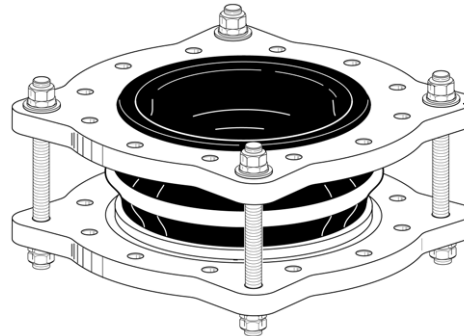


Pressure thrust forces of ERV Expansion Joints
(installation length = 130 mm)



Außenverspannung
mit Gummibuchse
Type ... ZS
(bis/up to DN 300)

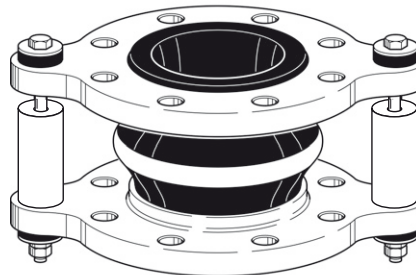
Tie rods with outer
limitation in
rubber bushings



Außenverspannung
mit Kugelscheibe
und Kegelpfanne
Type ... ZS
(ab/from DN 350)

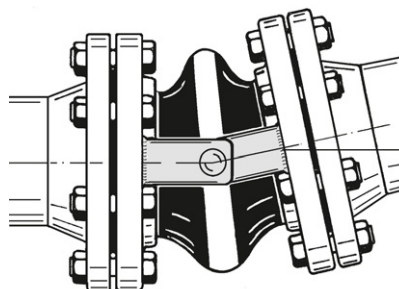
Tie rods with
outer limitation
in spherical discs
and conical seats

Sonderausführungen · Special Designs



Innen- und
Außenverspannung
Type ... ZSS
(bis/up to DN 300)

Tie rods with inner
and outer limitation



Angular-
Innenverspannung
Type ... RG
Angular limiter