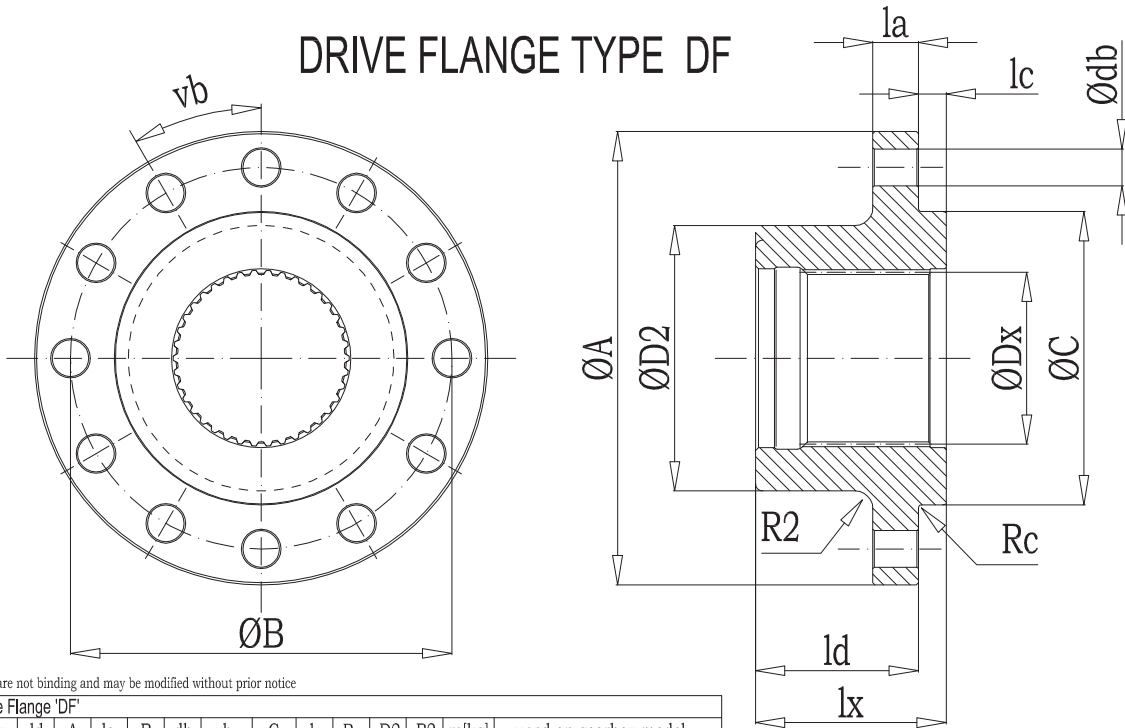


Accessories

DRIVE FLANGE TYPE DF



Data and dimensions are not binding and may be modified without prior notice

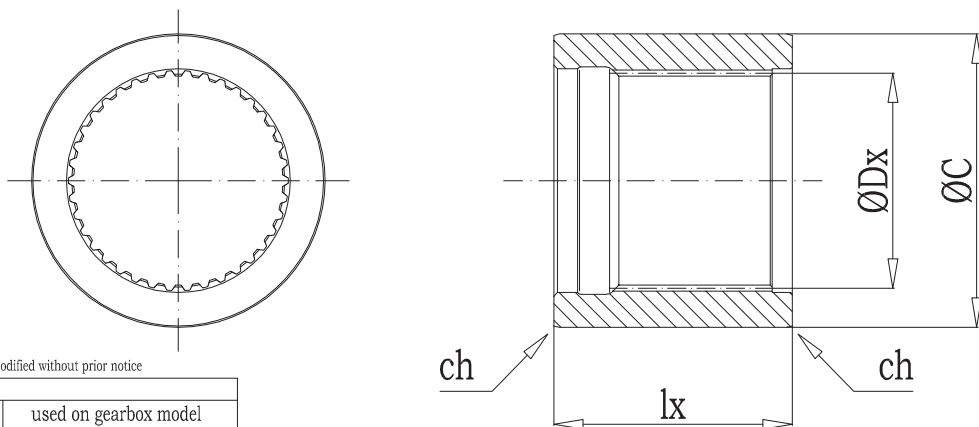
| Dimensions, Drive Flange 'DF' | | | | | | | | | | | | | | | |
|-------------------------------|--------|-----|-----|-----|----|-----|------|----------|--------|----|-----|-----|----|-------|------------------------------------|
| Type | Dx | lx | ld | A | la | B | db | vb | C | lc | Rc | D2 | R2 | m[kg] | used on gearbox model |
| DF 40 | 40x36 | 55 | 47 | 147 | 12 | 125 | 10.5 | 6x60° | 60 f7 | 8 | 1 | 70 | 6 | 2.2 | 15, 18 - X12 |
| DF 48 | 48x44 | 55 | 47 | 147 | 12 | 125 | 10.5 | 12x30° | 60 f7 | 8 | 1 | 70 | 6 | 2.0 | 22, 28, 32 - X14 |
| DF 58 | 58x53 | 68 | 58 | 166 | 14 | 145 | 12.5 | 12x30° | 95 f7 | 10 | 1 | 88 | 8 | 3.5 | 36, 42, 50, 60, 67 - X12 |
| DF 5R | 58x53 | 80 | 70 | 166 | 14 | 145 | 12.5 | 12x30° | 95 f7 | 10 | 1 | 88 | 8 | 3.9 | 36, 42, 50, 60, 67 - X16 |
| DF 70 | 70x64 | 90 | 76 | 208 | 20 | 175 | 19 | 12x30° | 125 f7 | 14 | 1.5 | 120 | 10 | 8.5 | 75, 85, 100, 110, 130 - X12 |
| DF 80 | 80x74 | 90 | 76 | 208 | 20 | 175 | 19 | 12x30° | 125 f7 | 14 | 1.5 | 120 | 10 | 7.6 | 140, 170 - X12 |
| DF 10 | 100x94 | 110 | 90 | 254 | 24 | 212 | 21 | 12x30° | 170 f7 | 20 | 2 | 145 | 11 | 14.1 | 200, 220, 260 - X14 300, 360 - X12 |
| DF 12 | 120x3 | 130 | 111 | 309 | 31 | 260 | 25 | 12x30° | 200 f7 | 19 | 2 | 181 | 12 | 26.4 | 420, 480, 560 - X14 |
| DF 13 | 130x3 | 130 | 111 | 309 | 31 | 260 | 25 | 12x30° | 200 f7 | 19 | 2 | 181 | 12 | 24.2 | 630 - X12 |
| DF 15 | 150x5 | 150 | 131 | 384 | 31 | 320 | 32 | 12x30° | 220 f7 | 19 | 3 | 220 | 16 | 41.6 | 750, 900 - X12 |
| DF 17 | 170x5 | 170 | 151 | 404 | 36 | 340 | 32 | 16x22.5° | 240 f7 | 19 | 3 | 240 | 16 | 51.1 | 1100, 1300 - X14 |
| DF 20 | 200x5 | 200 | 160 | 512 | 50 | 440 | 38 | 18x20° | 300 f7 | 40 | 4 | 300 | 20 | 108.4 | 1700, 2100 - X12 |
| DF 22 | 220x5 | 220 | 160 | 542 | 50 | 470 | 38 | 20x18° | 320 f7 | 60 | 4 | 320 | 20 | 125.5 | 2500 - X14 |

DIMENSIONS IN MM UNLESS OTHERWISE SPECIFIED

Material:
Alloy Steel 42CrMo4 +QT
(4140 Quenched and Tempered)

Custom versions available

SPLINE BUSH TYPE XB



Data and dimensions are not binding and may be modified without prior notice

| Dimensions, Splined Bushing 'XB' | | | | | | |
|----------------------------------|--------|-----|--------|-------|-------|------------------------------------|
| Type | Dx | lx | C | ch | m[kg] | used on gearbox model |
| XB 40 | 40x36 | 55 | 60 f7 | 2x15° | 0.7 | 15, 18 - X12 |
| XB 48 | 48x44 | 55 | 68 f7 | 2x15° | 0.8 | 22, 28, 32 - X14 |
| XB 58 | 58x53 | 68 | 78 f7 | 2x15° | 1.2 | 36, 42, 50, 60, 67 - X12 |
| XB 5R | 58x53 | 80 | 78 f7 | 2x15° | 1.4 | 36, 42, 50, 60, 67 - X16 |
| XB 70 | 70x64 | 90 | 95 f7 | 3x15° | 2.3 | 75, 85, 100, 110, 130 - X12 |
| XB 80 | 80x74 | 90 | 108 f7 | 3x15° | 2.9 | 140, 170 - X12 |
| XB 10 | 100x94 | 110 | 136 f7 | 3x15° | 5.7 | 200, 220, 260 - X14 300, 360 - X12 |
| XB 12 | 120x3 | 130 | 160 f7 | 3x15° | 9.1 | 420, 480, 560 - X14 |
| XB 13 | 130x3 | 130 | 195 f7 | 3x15° | 16.4 | 630 - X12 |
| XB 15 | 150x5 | 150 | 200 f7 | 3x15° | 17.1 | 750, 900 - X12 |
| XB 17 | 170x5 | 170 | 220 f7 | 3x15° | 21.4 | 1100, 1300 - X14 |
| XB 20 | 200x5 | 200 | 280 f7 | 4x15° | 48.5 | 1700, 2100 - X12 |
| XB 22 | 220x5 | 220 | 290 f7 | 4x15° | 50 | 2500 - X14 |

Material:
Weldable Steel St 52 (E 355, Gr.65)

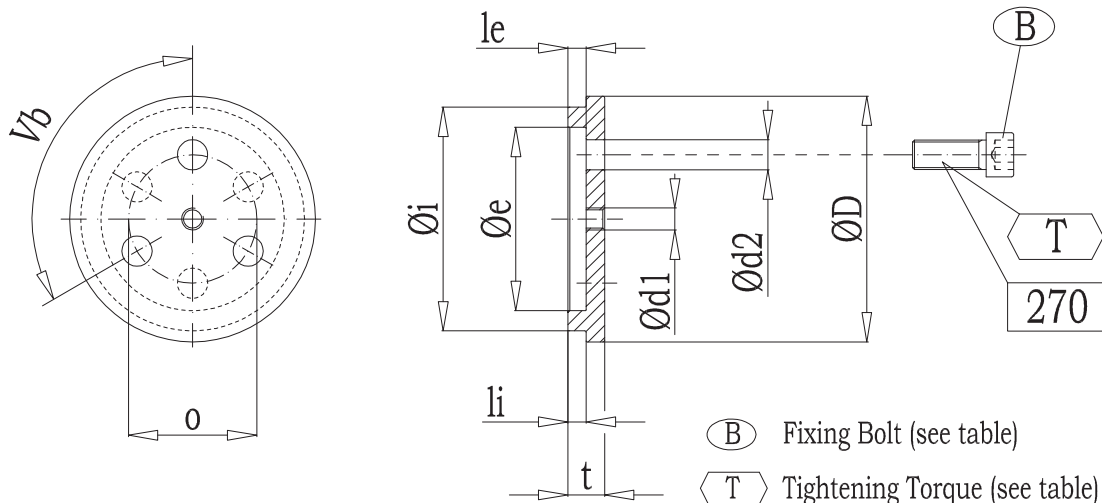
Carbonitriding necessary to achieve full performance of spline profile

Custom versions available

DIMENSIONS IN MM UNLESS OTHERWISE SPECIFIED

Accessories

FIXING FLANGE TYPE FF



(B) Fixing Bolt (see table)
 (T) Tightening Torque (see table)

270 Use Locking Agent, 270 or equivalent

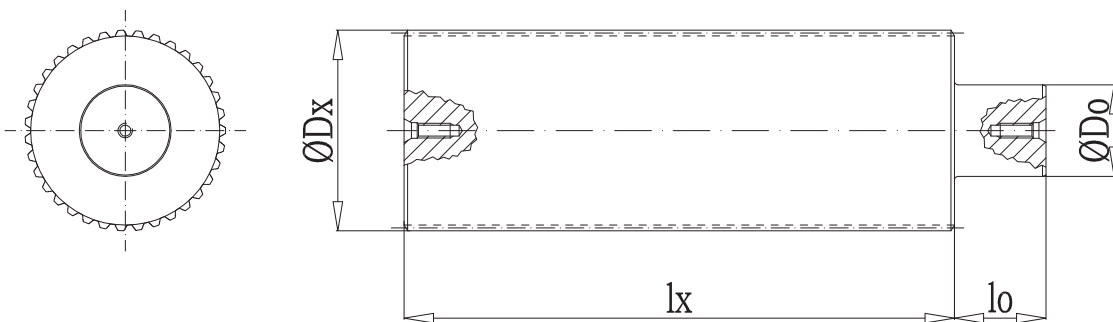
Data and dimensions are not binding and may be modified without prior notice

| Dimensions, Fixing Flange 'FF' | | | | | | | | | | | | | | | |
|--------------------------------|-----|-----|------|--------|--------|------|--------|------|-----|------|-------------|-------|----------|-------|------------------------------------|
| Type | D | d1 | d2 | Vb | e | le | i | li | o | t | B DIN 912 | T[Nm] | T[lb-ft] | m[kg] | used on gearbox model |
| FF 40 | 49 | M6 | 6.5 | 3x120° | 35 K7 | 5 | 42 f7 | 5 | 24 | 9 | M6x16-12.9 | 14 | 10 | 0.07 | 15, 18 - X12 |
| FF 48 | 58 | M8 | 8.5 | 3x120° | 43 K7 | 5 | 50 f7 | 5 | 29 | 10 | M8x20-12.9 | 35 | 26 | 0.12 | 22, 28, 32 - X14 |
| FF 58 | 69 | M8 | 10.5 | 3x120° | 50 K7 | 7.5 | 60 f7 | 7.5 | 32 | 13 | M10x25-12.9 | 69 | 51 | 0.20 | 36, 42, 50, 60, 67 - X12, X16 |
| FF 70 | 79 | M10 | 10.5 | 3x120° | 62 K7 | 9 | 72 f7 | 9 | 40 | 17 | M10x25-12.9 | 69 | 51 | 0.36 | 75, 85, 100, 110, 130 - X12 |
| FF 80 | 92 | M10 | 12.5 | 3x120° | 70 K7 | 9 | 82 f7 | 9 | 45 | 17 | M12x30-12.9 | 120 | 89 | 0.49 | 140, 170 - X12 |
| FF 10 | 114 | M10 | 14.5 | 3x120° | 85 K7 | 11 | 105 f7 | 11 | 65 | 21 | M14x35-12.9 | 190 | 140 | 1.01 | 200, 220, 260 - X14 300, 360 - X12 |
| FF 12 | 134 | M12 | 16.5 | 3x120° | 100 K7 | 10 | 122 f7 | 10 | 70 | 20 | M16x40-12.9 | 295 | 218 | 1.35 | 420, 480, 560 - X14 |
| FF 13 | 144 | M12 | 16.5 | 3x120° | 110 K7 | 10 | 132 f7 | 10 | 70 | 20 | M16x40-12.9 | 295 | 218 | 1.53 | 630 - X12 |
| FF 15 | 164 | M12 | 16.5 | 3x120° | 125 K7 | 12 | 151 f7 | 12 | 70 | 22 | M16x40-12.9 | 295 | 218 | 2.13 | 750, 900 - X12 |
| FF 17 | 184 | M12 | 16.5 | 3x120° | 145 K7 | 11.5 | 171 f7 | 11.5 | 90 | 23.5 | M16x40-12.9 | 295 | 218 | 2.13 | 1100, 1300 - X14 |
| FF 20 | 226 | M16 | 16.5 | 6x60° | 170 K7 | 19 | 202 f7 | 19 | 140 | 44 | M16x60-12.9 | 295 | 218 | 9.0 | 1700, 2100 - X12 |
| FF 22 | 246 | M16 | 16.5 | 6x60° | 190 K7 | 19 | 222 f7 | 19 | 160 | 44 | M16x60-12.9 | 295 | 218 | 10.6 | 2500 - X14 |

Material:
 Steel C40 (1040)
 Custom versions available

DIMENSIONS IN MM UNLESS OTHERWISE SPECIFIED

SPLINE ROD TYPE ZR



Data and dimensions are not binding and may be modified without prior notice

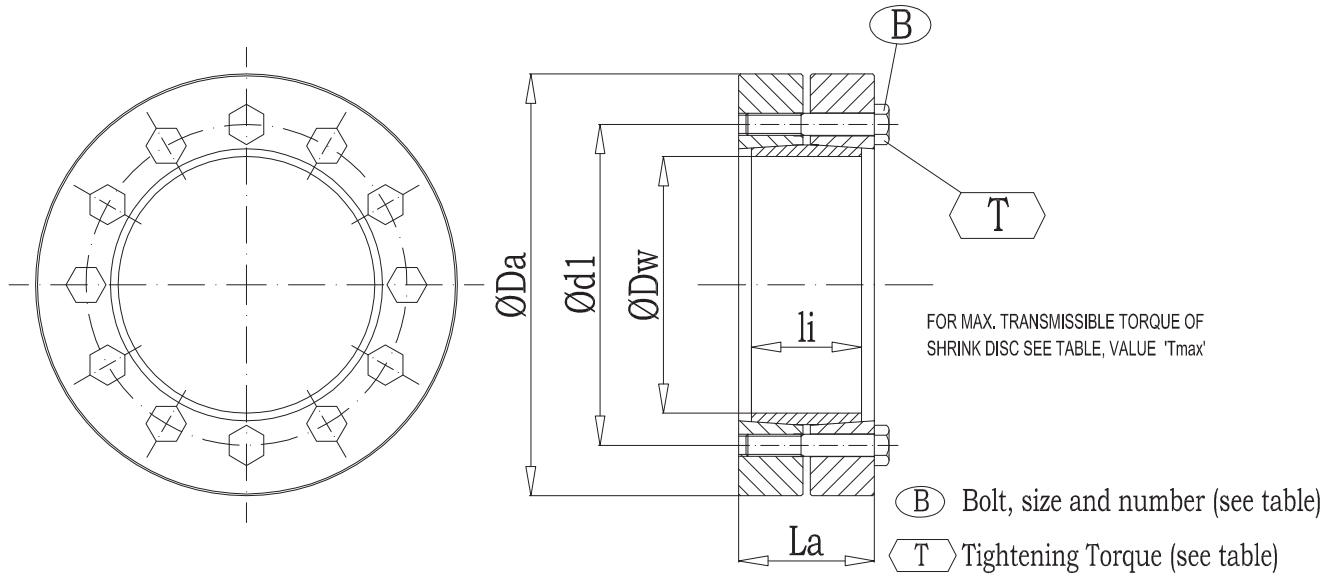
| Dimensions, Splined Rod 'ZR' | | | | | | |
|------------------------------|--------|-----|-------|----|-------|-----------------------------|
| Type | Dx | lx | Do | lo | m[kg] | used on gearbox model |
| ZR 40 | 40x36 | 230 | — | — | 2 | 15, 18 - Z21 |
| ZR 45 | 45x41 | 230 | — | — | 2.6 | 22, 28, 32 - Z23 |
| ZR 58 | 58x53 | 230 | — | — | 4.3 | 36, 42, 50, 60, 67 - Z21 |
| ZR 70 | 70x64 | 250 | 30 h9 | 30 | 7 | 75, 85, 100, 110, 130 - Z21 |
| ZR 80 | 80x74 | 250 | 30 h9 | 30 | 9.2 | 140, 170 - Z21 |
| ZR 90 | 90x74 | 250 | 30 h9 | 30 | 11.7 | 200, 220, 260 - Z23 |
| ZR 10 | 100x94 | 300 | 50 h9 | 50 | 18 | 300, 360, 420 - Z21 |
| ZR 11 | 110x3 | 300 | 50 h9 | 50 | 21.7 | 480, 560 - Z23 |
| ZR 13 | 130x3 | 300 | 50 h9 | 50 | 30.2 | 630 - Z21 |
| ZR 15 | 150x5 | 300 | 50 h9 | 50 | 39.1 | 750, 900 - Z21 |
| ZR 16 | 160x5 | 300 | 50 h9 | 50 | 44.6 | 1100, 1300 - Z23 |
| ZR 20 | 200x5 | 400 | 70 h9 | 70 | 95 | 1700, 2100 - Z21 |
| ZR 21 | 210x5 | 400 | 70 h9 | 70 | 105 | 2500 - Z23 |

Material:
 Alloy Steel 42CrMo4 +QT
 (4140 Quenched and Tempered)

Custom versions available

DIMENSIONS IN MM UNLESS OTHERWISE SPECIFIED

Accessories SHRINK DISC TYPE SD



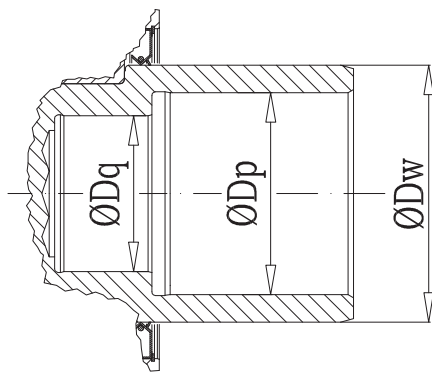
Data and dimensions are not binding and may be modified without prior notice

| Dimensions, Shrink Disc 'SD' | | | | | | | | | | | | |
|------------------------------|-----|-----|-----|-----|-----|----------|-------|----------|-------|----------|-------------|-------------------------------|
| Type | Dw | Da | d1 | li | La | B | T[Nm] | T[lb-ft] | m[kg] | Tmax[Nm] | Tmax[lb-ft] | Gearbox Model |
| SD 60 | 60 | 110 | 86 | 23 | 31 | 8 x M6 | 12 | 9 | 1.3 | 2300 | 1700 | 15, 18, 22, 28, 32 - P24 |
| SD 90 | 90 | 155 | 114 | 30 | 39 | 10 x M8 | 30 | 22 | 3.3 | 7250 | 5350 | 36, 42, 50, 60, 67 - P24 |
| SD 110 | 110 | 185 | 136 | 39 | 50 | 9 x M10 | 59 | 44 | 5.9 | 10800 | 7950 | 75, 85, 100, 110, 130 - P24 |
| SD 125 | 125 | 215 | 160 | 55 | 65 | 10 x M12 | 100 | 74 | 11 | 20000 | 14750 | 140, 170, 200, 220, 260 - P20 |
| SD 125 | 125 | 215 | 160 | 55 | 65 | 10 x M12 | 100 | 74 | 11 | 22500 | 16600 | 140, 170, 200, 220, 260 - P22 |
| SD 140 | 140 | 230 | 175 | 60 | 74 | 12 x M12 | 100 | 74 | 13 | 29500 | 21750 | 140, 170, 200, 220, 260 - P24 |
| SD 165 | 165 | 290 | 210 | 72 | 88 | 10 x M16 | 250 | 185 | 26 | 55000 | 40550 | 300, 360, 420, 480, 560 - P24 |
| SD 185 | 185 | 330 | 236 | 92 | 112 | 14 x M16 | 250 | 185 | 47 | 78000 | 57550 | 630 - P22 |
| SD 200 | 200 | 350 | 246 | 92 | 112 | 15 x M16 | 250 | 185 | 50 | 108000 | 79650 | 750, 900 - P22 |
| SD 220 | 220 | 370 | 270 | 114 | 134 | 20 x M16 | 250 | 185 | 65 | 147000 | 108400 | 1100, 1300 - P24 |
| SD 260 | 260 | 430 | 321 | 136 | 160 | 18 x M20 | 490 | 360 | 100 | 240000 | 177000 | 1700, 2100, 2500 - P22 |

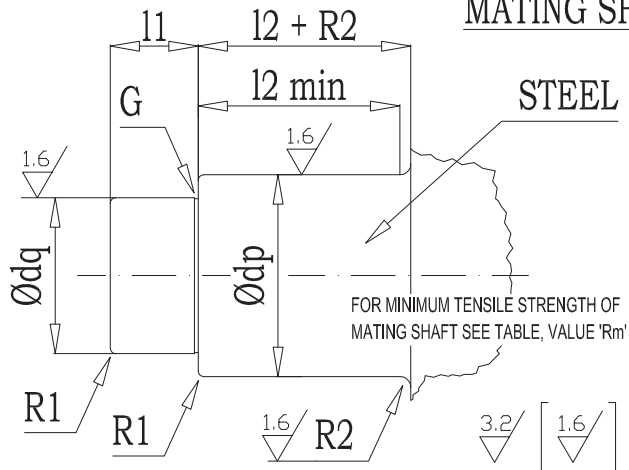
DIMENSIONS IN MM UNLESS OTHERWISE SPECIFIED

RECOMMENDED DIMENSIONS OF MATING SHAFT

GEARBOX SHAFT



MATING SHAFT



Data and dimensions are not binding and may be modified without prior notice

| Recommended Dimensions of Mating Shaft | | | | | | | | | |
|--|--------|----|----|--------|--------|--------|------------|----------------------|-------------------------------|
| Type | dq | l1 | R1 | dp | l2 min | R2 min | G (DIN509) | Rm (of mating shaft) | Gearbox Model |
| SD 60 | 35 g6 | 21 | 2 | 50 h6 | 50 | 3 | F1.0x0.2 | 600 MPa min. | 15, 18, 22, 28, 32 - P24 |
| SD 90 | 50 g6 | 25 | 3 | 75 g6 | 70 | 4 | F1.0x0.2 | 600 MPa min. | 36, 42, 50, 60, 67 - P24 |
| SD 110 | 70 g6 | 52 | 4 | 85 g6 | 90 | 5 | F1.6x0.3 | 600 MPa min. | 75, 85, 100, 110, 130 - P24 |
| SD 125 | 80 g6 | 38 | 4 | 95 g6 | 100 | 5 | F1.6x0.3 | 700 MPa min. | 140, 170, 200, 220, 260 - P20 |
| SD 125 | 85 g6 | 38 | 4 | 100 g6 | 100 | 5 | F2.5x0.4 | 700 MPa min. | 140, 170, 200, 220, 260 - P22 |
| SD 140 | 85 g6 | 48 | 5 | 110 g6 | 110 | 6 | F2.5x0.4 | 700 MPa min. | 140, 170, 200, 220, 260 - P24 |
| SD 165 | 100 g6 | 57 | 5 | 130 g6 | 115 | 6 | F2.5x0.4 | 750 MPa min. | 300, 360, 420, 480, 560 - P24 |
| SD 185 | 110 g6 | 57 | 5 | 140 g6 | 145 | 6 | F2.5x0.4 | 750 MPa min. | 630 - P22 |
| SD 200 | 130 g6 | 62 | 5 | 160 g6 | 160 | 8 | F4.0x0.5 | 750 MPa min. | 750, 900 - P22 |
| SD 220 | 130 g6 | 72 | 5 | 170 g6 | 170 | 8 | F4.0x0.5 | 800 MPa min. | 1100, 1300 - P24 |
| SD 260 | 170 g6 | 95 | 5 | 200 g6 | 210 | 8 | F4.0x0.5 | 800 MPa min. | 1700, 2100, 2500 - P22 |

DIMENSIONS IN MM UNLESS OTHERWISE SPECIFIED