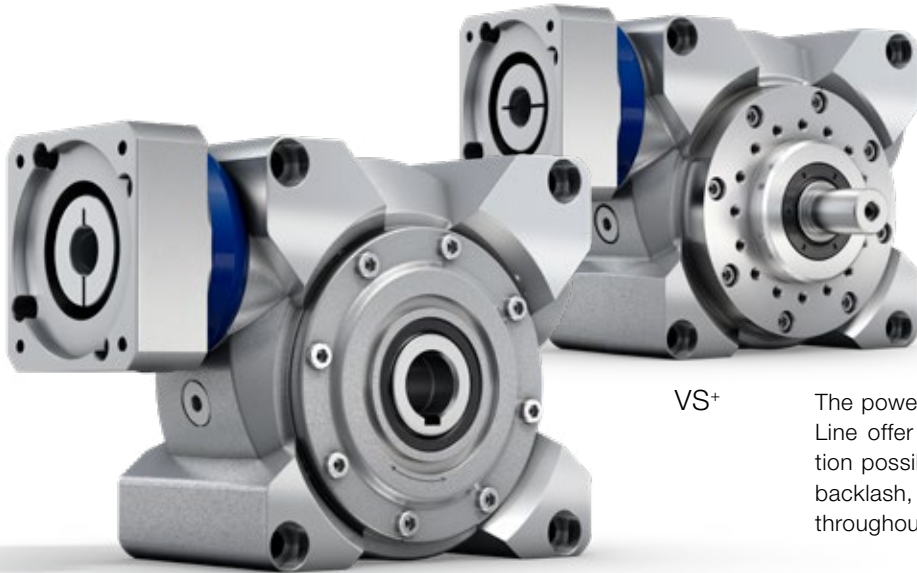


VH+ / VS+ / VT+ – Precision worm gearboxes



VH+

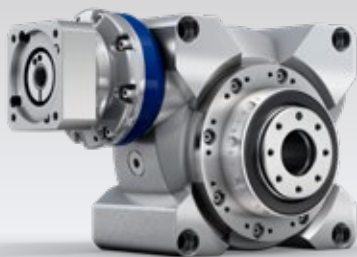
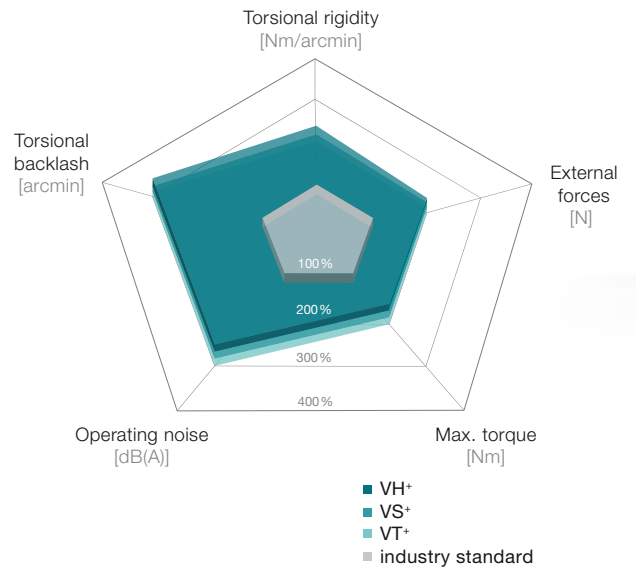
VS+

The powerful V-Drive worm gears of the alpha Advanced Line offer flexible output shapes and countless application possibilities. With high-quality tothing and constant backlash, the gearboxes remain exceptionally efficient throughout their entire service life.

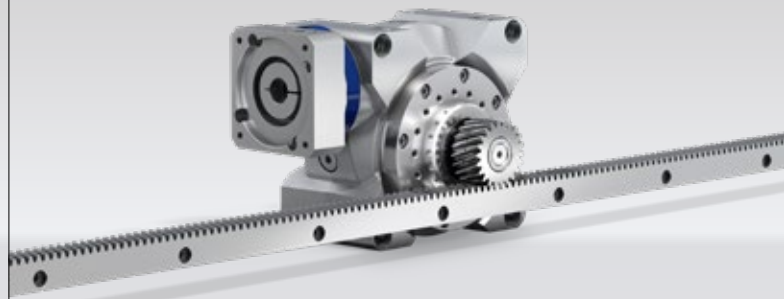
Product highlights

- Max. torsional backlash [arcmin]** ≤ 3 (Standard) / ≤ 2 (Reduced)
- Constant, low torsional backlash** consistently high quality and high positioning accuracy guaranteed throughout its lifespan
- No stick-slip effect** owing to the enhanced hollow-flank teeth
- Optimally sized output bearing** for absorbing high axial and radial forces in cyclic or continuous operation
- Hollow-flank teeth** with high overload capacity owing to the low specific tooth pressure

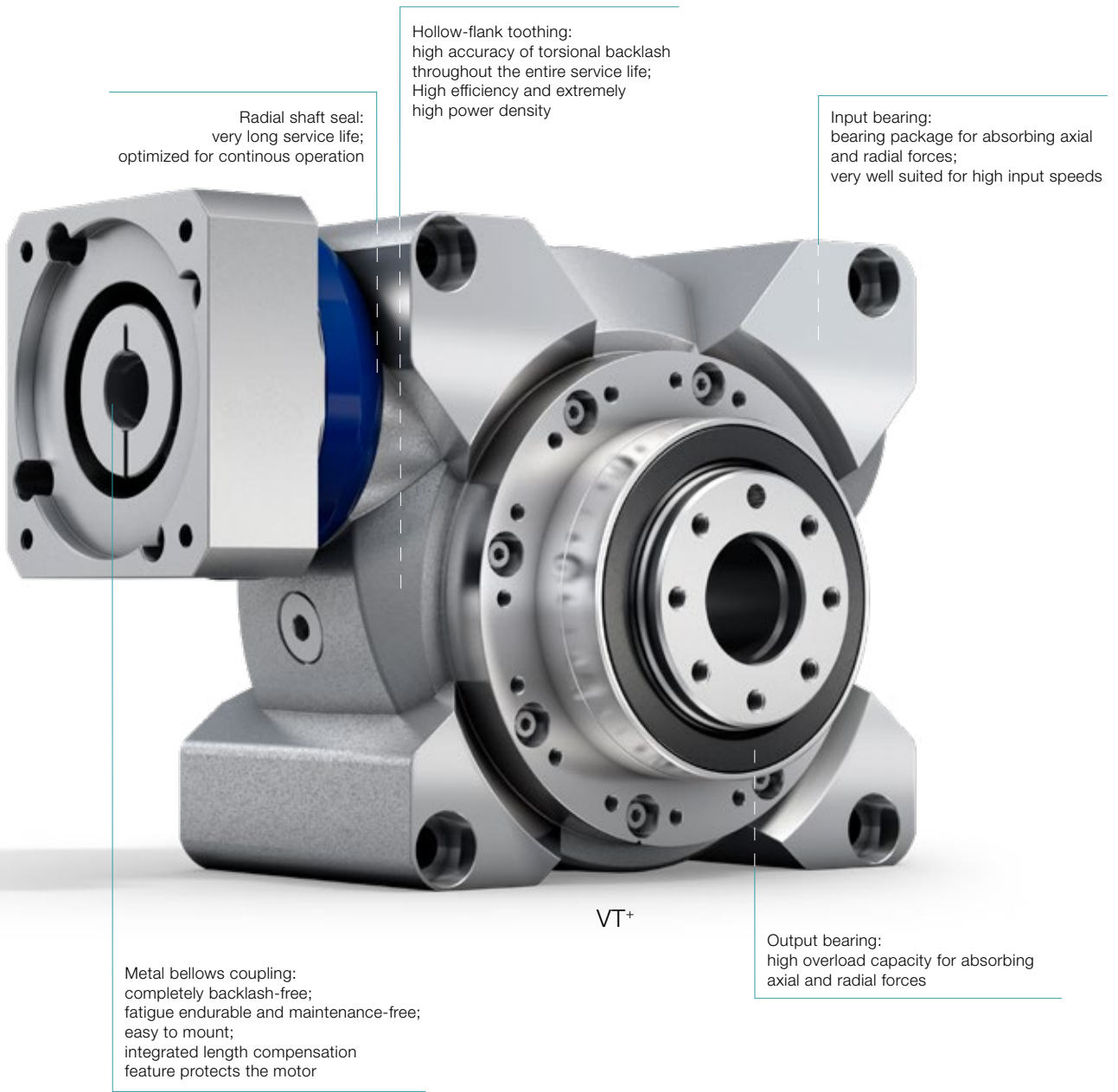
V-Drive Advanced compared to the industry standard



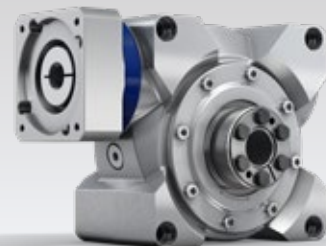
VT+ with integrated planetary input stage for higher ratios



VS+ in linear system



VS+ with metal bellows coupling BC3



VH+ with shrink disk

VH+ 040 MF 1-/2-stage

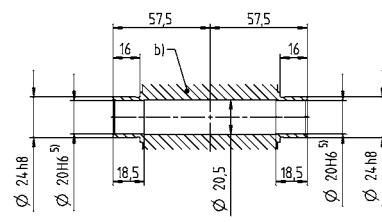
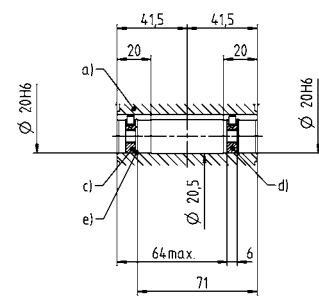
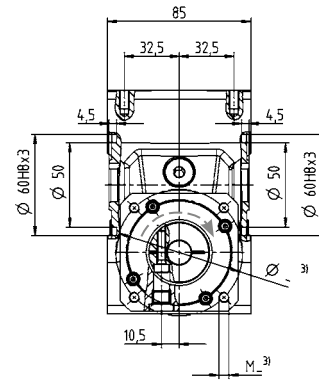
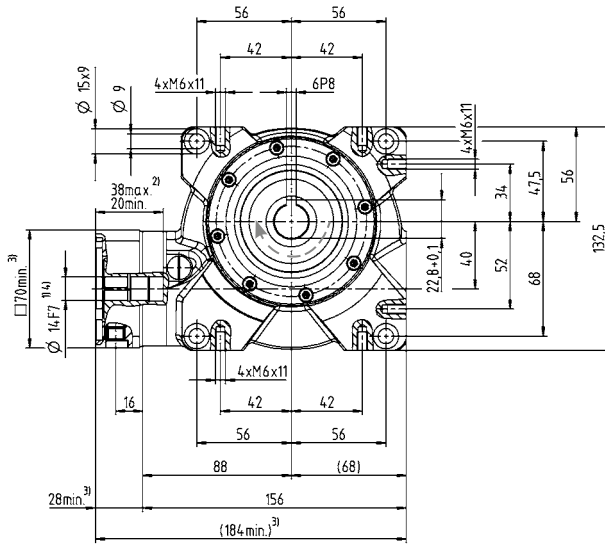
| | | | 1-stage | | | | | | 2-stage | | | | | | | | |
|--|--------------|-----------------|--------------------------------------|---------------------------------------|------|------|------|------|--------------------------------------|------|------|------|------|------|------|------|------|
| Ratio | <i>i</i> | | 4 | 7 | 10 | 16 | 28 | 40 | 50 | 70 | 100 | 140 | 200 | 280 | 400 | | |
| Max. torque ^{a) b)} (at $n_1 = 500$ rpm) | T_{2a} | Nm | 74 | 82 | 98 | 101 | 106 | 98 | 98 | 82 | 98 | 106 | 98 | 106 | 98 | | |
| | | in.lb | 655 | 726 | 867 | 894 | 938 | 867 | 867 | 726 | 867 | 938 | 867 | 938 | 867 | | |
| Torque for constant backlash (over the lifetime) | T_{2Servo} | Nm | 17 | 24 | 25 | 26 | 29 | 25 | 25 | 24 | 25 | 29 | 25 | 29 | 25 | | |
| | | in.lb | 150 | 212 | 221 | 230 | 257 | 221 | 221 | 212 | 221 | 257 | 221 | 257 | 221 | | |
| Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox) | T_{2Not} | Nm | 118 | 126 | 125 | 129 | 134 | 122 | 125 | 126 | 125 | 134 | 122 | 134 | 122 | | |
| | | in.lb | 1044 | 1115 | 1106 | 1142 | 1186 | 1080 | 1106 | 1115 | 1106 | 1186 | 1080 | 1186 | 1080 | | |
| Permitted average input speed (at 20 °C ambient temperature) ^{d)} | n_{1N} | rpm | 4000 | | | | | | 4400 | | | | | | | | |
| Max. input speed | n_{1Max} | rpm | 6000 | | | | | | | | | | | | | | |
| Mean no load running torque ^{b)} (at $n_1 = 3000$ rpm and 20 °C gearbox temperature) | T_{012} | Nm | 0.8 | 0.7 | 0.6 | 0.5 | 0.4 | 0.4 | 0.4 | 0.2 | 0.2 | 0.4 | 0.4 | 0.3 | 0.2 | | |
| | | in.lb | 7.1 | 6.2 | 5.3 | 4.4 | 3.5 | 3.5 | 3.5 | 1.8 | 1.8 | 3.5 | 3.5 | 2.7 | 1.8 | | |
| Max. backlash | j_1 | arcmin | Standard ≤ 3 / Reduced ≤ 2 | | | | | | Standard ≤ 4 / Reduced ≤ 3 | | | | | | | | |
| Torsional rigidity ^{b)} | C_{121} | Nm/arcmin | 4.5 | | | | | | 5 | | | | | | | | |
| | | in.lb/arcmin | 40 | | | | | | 40 | | | | | | | | |
| Max. axial force ^{c)} | F_{2AMax} | N | 3000 | | | | | | 3000 | | | | | | | | |
| | | lb _f | 675 | | | | | | 675 | | | | | | | | |
| Max. lateral force ^{c)} | F_{2QMax} | N | 2400 | | | | | | 2400 | | | | | | | | |
| | | lb _f | 540 | | | | | | 540 | | | | | | | | |
| Max. tilting moment | M_{2KMax} | Nm | 205 | | | | | | 205 | | | | | | | | |
| | | in.lb | 1814 | | | | | | 1814 | | | | | | | | |
| Efficiency at full load (at $n_1 = 500$ rpm) | η | % | 93 | 90 | 88 | 82 | 73 | 67 | 86 | 88 | 86 | 71 | 65 | 71 | 65 | | |
| Service life | L_h | h | > 20000 | | | | | | | | | | | | | | |
| Weight (incl. standard adapter plate) | m | kg | 5.0 | | | | | | 5.6 | | | | | | | | |
| | | lb _m | 11.1 | | | | | | 12.0 | | | | | | | | |
| Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®]) | L_{PA} | dB(A) | ≤ 54 | | | | | | ≤ 58 | | | | | | | | |
| Max. permitted housing temperature | | °C | +90 | | | | | | | | | | | | | | |
| | | F | 194 | | | | | | | | | | | | | | |
| Ambient temperature | | °C | -15 to +40 | | | | | | | | | | | | | | |
| | | F | 5 to 104 | | | | | | | | | | | | | | |
| Lubrication | | | Lubricated for life | | | | | | | | | | | | | | |
| Direction of rotation | | | In- and output same direction | | | | | | | | | | | | | | |
| Protection class | | | IP 65 | | | | | | | | | | | | | | |
| Shrink disc (Standard version) | | | SD 024x050 S2 | | | | | | | | | | | | | | |
| Max. torque (without axial force) | T_{max} | Nm | 250 | | | | | | | | | | | | | | |
| Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] | C | 14 | J_1 | kgcm ² | 0.52 | 0.38 | 0.34 | 0.32 | 0.32 | 0.31 | 0.25 | 0.28 | 0.24 | 0.23 | 0.19 | 0.18 | 0.18 |
| | | | | 10 ⁻³ in.lb.s ² | 0.46 | 0.34 | 0.30 | 0.28 | 0.28 | 0.27 | 0.22 | 0.25 | 0.21 | 0.20 | 0.17 | 0.16 | 0.16 |
| | E | 19 | J_1 | kgcm ² | 0.54 | 0.40 | 0.37 | 0.35 | 0.34 | 0.33 | 0.36 | 0.40 | 0.36 | 0.34 | 0.30 | 0.30 | 0.30 |
| | | | | 10 ⁻³ in.lb.s ² | 0.48 | 0.35 | 0.33 | 0.31 | 0.30 | 0.29 | 0.32 | 0.35 | 0.32 | 0.30 | 0.27 | 0.27 | 0.27 |

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

- ^{a)} At max. 10 % F_{2QMax}
- ^{b)} Valid for standard clamping hub diameter
- ^{c)} Refers to center of the output shaft or flange
- ^{d)} Please reduce input speed at higher ambient temperatures

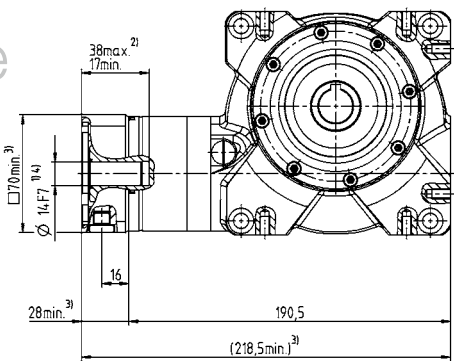
1-stage

up to 14/19⁴⁾
(C⁶⁾/E) clamping
hub diameter



2-stage

up to 14/19⁴⁾
(C⁶⁾/E) clamping
hub diameter



Motor shaft diameter [mm]

- a) Hollow shaft, keywayed
- b) Hollow shaft, smooth
- c) End disc for screw M6
- d) End disc as forcing washer for screw M8
- e) Locking ring – DIN 472

See technical data sheet for available clamping hub diameters (mass moment of inertia). Dimensions available on request.

Non-tolerated dimensions are nominal dimensions
¹⁾ Check motor shaft fit.
²⁾ Min. / Max. permissible motor shaft length.
 Longer motor shafts are adaptable, please contact us.
³⁾ The dimensions depend on the motor.
⁴⁾ Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm.
⁵⁾ Tolerance h6 for mounted shaft.
⁶⁾ Standard clamping hub diameter

Worm gearboxes

VH+

VH+ 050 MF 1-/2-stage

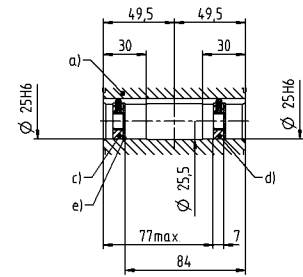
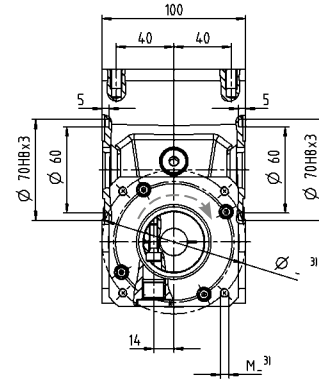
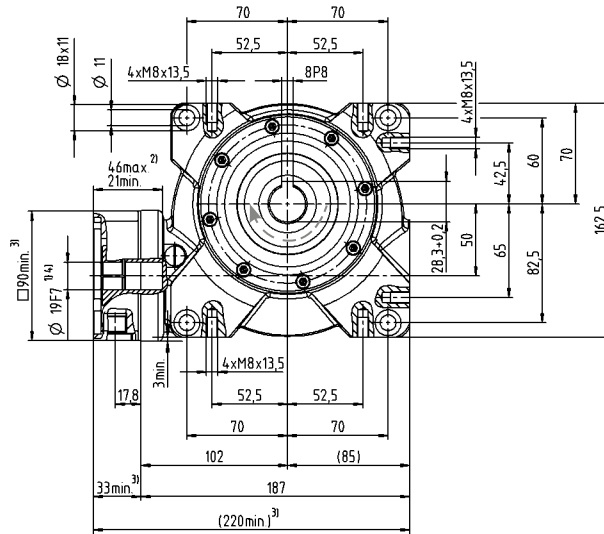
| | | | 1-stage | | | | | | 2-stage | | | | | | | | |
|--|--------------|-----------------|--------------------------------------|---------------------------------------|------|------|------|------|--------------------------------------|------|------|------|------|------|------|------|------|
| Ratio | <i>i</i> | | 4 | 7 | 10 | 16 | 28 | 40 | 50 | 70 | 100 | 140 | 200 | 280 | 400 | | |
| Max. torque ^{a) b)} (at $n_1 = 500$ rpm) | T_{2a} | Nm | 165 | 180 | 182 | 193 | 204 | 183 | 182 | 180 | 182 | 204 | 183 | 204 | 183 | | |
| | | in.lb | 1460 | 1593 | 1611 | 1708 | 1805 | 1620 | 1611 | 1593 | 1611 | 1805 | 1620 | 1805 | 1620 | | |
| Torque for constant backlash (over the lifetime) | T_{2Servo} | Nm | 54 | 71 | 74 | 81 | 90 | 74 | 74 | 71 | 74 | 90 | 74 | 90 | 74 | | |
| | | in.lb | 478 | 628 | 655 | 717 | 797 | 655 | 655 | 628 | 655 | 797 | 655 | 797 | 655 | | |
| Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox) | T_{2Not} | Nm | 230 | 242 | 242 | 250 | 262 | 236 | 242 | 242 | 242 | 262 | 236 | 262 | 236 | | |
| | | in.lb | 2036 | 2142 | 2142 | 2213 | 2319 | 2089 | 2142 | 2142 | 2142 | 2319 | 2089 | 2319 | 2089 | | |
| Permitted average input speed (at 20 °C ambient temperature) ^{d)} | n_{1N} | rpm | 4000 | | | | | | 3500 | | | | | | | | |
| Max. input speed | n_{1Max} | rpm | 6000 | | | | | | | | | | | | | | |
| Mean no load running torque ^{b)} (at $n_1 = 3000$ rpm and 20 °C gearbox temperature) | T_{012} | Nm | 2.3 | 2.2 | 1.6 | 1.5 | 1.2 | 1.1 | 0.7 | 0.5 | 0.4 | 0.6 | 0.6 | 0.4 | 0.4 | | |
| | | in.lb | 20.4 | 19.5 | 14.2 | 13.3 | 10.6 | 9.7 | 6.2 | 4.4 | 3.5 | 5.3 | 5.3 | 3.5 | 3.5 | | |
| Max. backlash | j_1 | arcmin | Standard ≤ 3 / Reduced ≤ 2 | | | | | | Standard ≤ 4 / Reduced ≤ 3 | | | | | | | | |
| Torsional rigidity ^{b)} | C_{121} | Nm/arcmin | 8 | | | | | | | | | | | | | | |
| | | in.lb/arcmin | 71 | | | | | | | | | | | | | | |
| Max. axial force ^{c)} | F_{2AMax} | N | 5000 | | | | | | | | | | | | | | |
| | | lb _f | 1125 | | | | | | | | | | | | | | |
| Max. lateral force ^{c)} | F_{2QMax} | N | 3800 | | | | | | | | | | | | | | |
| | | lb _f | 855 | | | | | | | | | | | | | | |
| Max. tilting moment | M_{2KMax} | Nm | 409 | | | | | | | | | | | | | | |
| | | in.lb | 3620 | | | | | | | | | | | | | | |
| Efficiency at full load (at $n_1 = 500$ rpm) | η | % | 92 | 89 | 86 | 82 | 72 | 64 | 84 | 87 | 84 | 70 | 62 | 70 | 62 | | |
| Service life | L_h | h | > 20000 | | | | | | | | | | | | | | |
| Weight (incl. standard adapter plate) | m | kg | 8.0 | | | | | | 8.7 | | | | | | | | |
| | | lb _m | 17.7 | | | | | | 19.0 | | | | | | | | |
| Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®]) | L_{PA} | dB(A) | ≤ 62 | | | | | | | | | | | | | | |
| Max. permitted housing temperature | | °C | +90 | | | | | | | | | | | | | | |
| | | F | 194 | | | | | | | | | | | | | | |
| Ambient temperature | | °C | -15 to +40 | | | | | | | | | | | | | | |
| | | F | 5 to 104 | | | | | | | | | | | | | | |
| Lubrication | | | Lubricated for life | | | | | | | | | | | | | | |
| Direction of rotation | | | In- and output same direction | | | | | | | | | | | | | | |
| Protection class | | | IP 65 | | | | | | | | | | | | | | |
| Shrink disc (Standard version) | | | SD 030x060 S2V | | | | | | | | | | | | | | |
| Max. torque (without axial force) | T_{max} | Nm | 550 | | | | | | | | | | | | | | |
| Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] | C | 14 | J_1 | kgcm ² | - | - | - | - | - | - | 0.80 | 0.80 | 0.80 | 0.70 | 0.70 | 0.70 | 0.70 |
| | | | | 10 ⁻³ in.lb.s ² | - | - | - | - | - | - | 0.71 | 0.71 | 0.71 | 0.62 | 0.62 | 0.62 | 0.62 |
| | E | 19 | J_1 | kgcm ² | 1.50 | 1.21 | 1.12 | 1.03 | 1.00 | 1.05 | 1.20 | 1.30 | 1.20 | 1.10 | 1.10 | 1.10 | 1.10 |
| | | | | 10 ⁻³ in.lb.s ² | 1.33 | 1.07 | 0.99 | 0.91 | 0.89 | 0.93 | 1.06 | 1.15 | 1.06 | 0.97 | 0.97 | 0.97 | 0.97 |
| | G | 24 | J_1 | kgcm ² | 1.6 | 1.32 | 1.23 | 1.14 | 1.11 | 1.15 | - | - | - | - | - | - | - |
| | | | | 10 ⁻³ in.lb.s ² | 1.4 | 1.2 | 1.1 | 1.0 | 0.98 | 1.0 | - | - | - | - | - | - | - |

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

- ^{a)} At max. 10 % F_{2QMax}
- ^{b)} Valid for standard clamping hub diameter
- ^{c)} Refers to center of the output shaft or flange
- ^{d)} Please reduce input speed at higher ambient temperatures

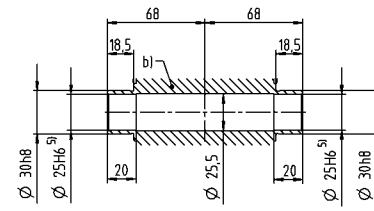
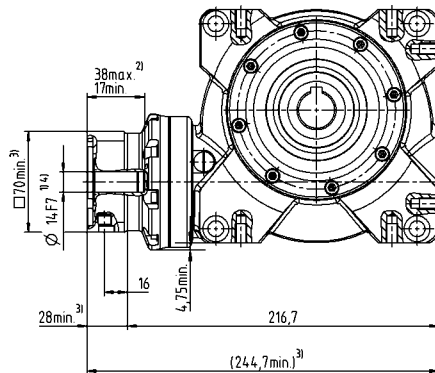
1-stage

up to 19/24⁴⁾
(E⁶⁾/G) clamping
hub diameter



2-stage

up to 14/19⁴⁾
(C⁶⁾/E) clamping
hub diameter



Motor shaft diameter [mm]

Worm gearboxes

VH+

- a) Hollow shaft, keywayed
- b) Hollow shaft, smooth
- c) End disc for screw M10
- d) End disc as forcing washer for screw M12
- e) Locking ring – DIN 472

See technical data sheet for available clamping hub diameters (mass moment of inertia). Dimensions available on request.

Non-tolerated dimensions are nominal dimensions

- ¹⁾ Check motor shaft fit.
- ²⁾ Min. / Max. permissible motor shaft length.
Longer motor shafts are adaptable, please contact us.
- ³⁾ The dimensions depend on the motor.
- ⁴⁾ Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm.
- ⁵⁾ Tolerance h6 for mounted shaft.
- ⁶⁾ Standard clamping hub diameter

VH+ 063 MF 1-/2-stage

| | | | 1-stage | | | | | | 2-stage | | | | | | | | |
|---|--------------|-----------------|--------------------------------------|---------------------------------------|------|------|------|------|--------------------------------------|------|------|------|------|------|------|------|------|
| Ratio | i | | 4 | 7 | 10 | 16 | 28 | 40 | 50 | 70 | 100 | 140 | 200 | 280 | 400 | | |
| Max. torque ^{a) b)} (at $n_1 = 500$ rpm) | T_{2a} | Nm | 319 | 353 | 364 | 372 | 392 | 363 | 364 | 353 | 364 | 392 | 363 | 392 | 363 | | |
| | | in.lb | 2823 | 3124 | 3221 | 3292 | 3469 | 3213 | 3221 | 3124 | 3221 | 3469 | 3213 | 3469 | 3213 | | |
| Torque for constant backlash (over the lifetime) | T_{2Servo} | Nm | 198 | 210 | 225 | 221 | 229 | 226 | 225 | 210 | 225 | 229 | 226 | 229 | 226 | | |
| | | in.lb | 1752 | 1859 | 1991 | 1956 | 2027 | 2000 | 1991 | 1859 | 1991 | 2027 | 2000 | 2027 | 2000 | | |
| Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox) | T_{2Not} | Nm | 460 | 484 | 491 | 494 | 518 | 447 | 491 | 484 | 494 | 518 | 447 | 518 | 447 | | |
| | | in.lb | 4071 | 4283 | 4345 | 4372 | 4584 | 3956 | 4345 | 4283 | 4372 | 4584 | 3956 | 4584 | 3956 | | |
| Permitted average input speed (at 20 °C ambient temperature) ^{d)} | n_{1N} | rpm | 4000 | | | | | | 3100 | | | | | | | | |
| Max. input speed | n_{1Max} | rpm | 4500 | | | | | | | | | | | | | | |
| Mean no load running torque ^{b)} (at $n_1 = 3000$ rpm and 20 °C gearbox temperature) | T_{012} | Nm | 4.2 | 3.1 | 3 | 2.4 | 2.3 | 2.2 | 1.2 | 0.7 | 0.7 | 1.1 | 1.1 | 0.8 | 0.6 | | |
| | | in.lb | 37.2 | 27.4 | 26.6 | 21.2 | 20.4 | 19.5 | 10.6 | 6.2 | 6.2 | 9.7 | 9.7 | 7.1 | 5.3 | | |
| Max. backlash | j_1 | arcmin | Standard ≤ 3 / Reduced ≤ 2 | | | | | | Standard ≤ 4 / Reduced ≤ 3 | | | | | | | | |
| Torsional rigidity ^{b)} | C_{121} | Nm/arcmin | 28 | | | | | | | | | | | | | | |
| | | in.lb/arcmin | 248 | | | | | | | | | | | | | | |
| Max. axial force ^{c)} | F_{2AMax} | N | 8250 | | | | | | | | | | | | | | |
| | | lb _f | 1856 | | | | | | | | | | | | | | |
| Max. lateral force ^{c)} | F_{2QMax} | N | 6000 | | | | | | | | | | | | | | |
| | | lb _f | 1350 | | | | | | | | | | | | | | |
| Max. tilting moment | M_{2KMax} | Nm | 843 | | | | | | | | | | | | | | |
| | | in.lb | 7461 | | | | | | | | | | | | | | |
| Efficiency at full load (at $n_1 = 500$ rpm) | η | % | 93 | 91 | 88 | 83 | 74 | 68 | 86 | 89 | 86 | 72 | 66 | 72 | 66 | | |
| Service life | L_h | h | > 20000 | | | | | | | | | | | | | | |
| Weight (incl. standard adapter plate) | m | kg | 13.0 | | | | | | 13.7 | | | | | | | | |
| | | lb _m | 28.7 | | | | | | 30.0 | | | | | | | | |
| Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®]) | L_{PA} | dB(A) | ≤ 64 | | | | | | | | | | | | | | |
| Max. permitted housing temperature | | °C | +90 | | | | | | | | | | | | | | |
| | | F | 194 | | | | | | | | | | | | | | |
| Ambient temperature | | °C | -15 to +40 | | | | | | | | | | | | | | |
| | | F | 5 to 104 | | | | | | | | | | | | | | |
| Lubrication | | | Lubricated for life | | | | | | | | | | | | | | |
| Direction of rotation | | | In- and output same direction | | | | | | | | | | | | | | |
| Protection class | | | IP 65 | | | | | | | | | | | | | | |
| Shrink disc (Standard version) | | | SD 036x072 S2V | | | | | | | | | | | | | | |
| Max. torque (without axial force) | T_{max} | Nm | 640 | | | | | | | | | | | | | | |
| Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] | E | 19 | J_1 | kgcm ² | - | - | - | - | - | - | 2.60 | 2.80 | 2.50 | 2.40 | 2.40 | 2.40 | 2.30 |
| | | | | 10 ⁻³ in.lb.s ² | - | - | - | - | - | - | 2.30 | 2.48 | 2.21 | 2.12 | 2.12 | 2.12 | 2.04 |
| | G | 24 | J_1 | kgcm ² | - | - | - | - | - | - | 4.10 | 4.30 | 4.10 | 4.00 | 4.00 | 3.90 | 3.90 |
| | | | | 10 ⁻³ in.lb.s ² | - | - | - | - | - | - | 3.63 | 3.81 | 3.63 | 3.54 | 3.54 | 3.45 | 3.45 |
| | H | 28 | J_1 | kgcm ² | 4.80 | 3.89 | 3.65 | 3.56 | 3.52 | 3.47 | - | - | - | - | - | - | - |
| | | | | 10 ⁻³ in.lb.s ² | 4.25 | 3.44 | 3.23 | 3.15 | 3.12 | 3.07 | - | - | - | - | - | - | - |

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Please contact us for optimum sizing at S1 conditions (Continuous operation).

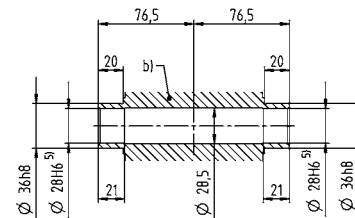
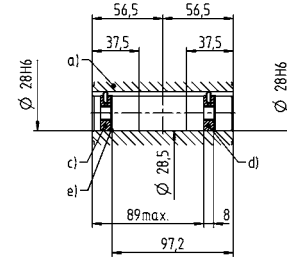
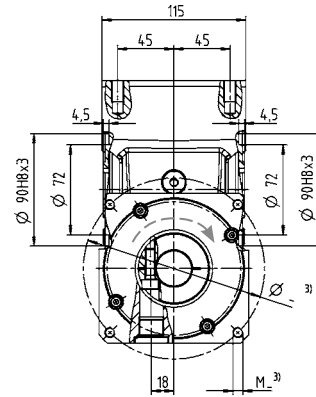
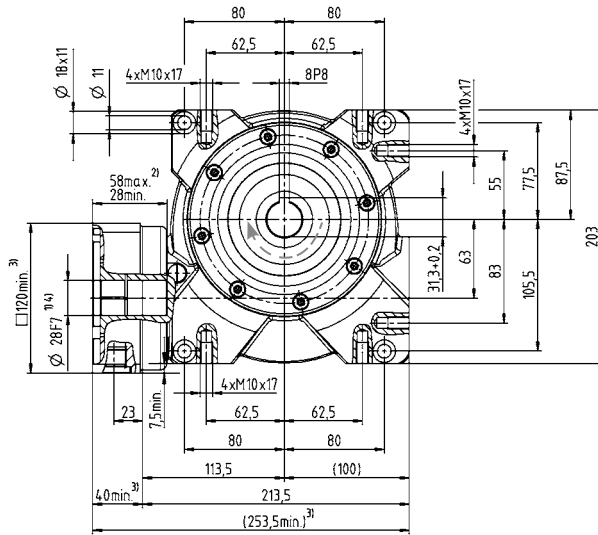
- ^{a)} At max. 10 % F_{2QMax}
- ^{b)} Valid for standard clamping hub diameter
- ^{c)} Refers to center of the output shaft or flange
- ^{d)} Please reduce input speed at higher ambient temperatures

View A

← A

1-stage

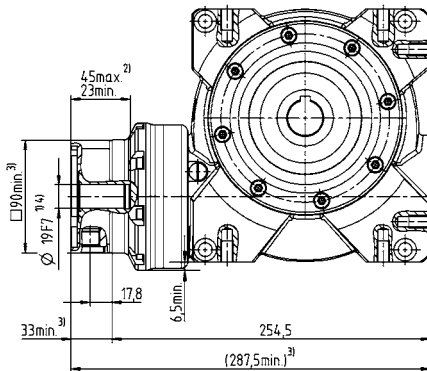
up to 28⁴⁾ (H)⁶⁾
clamping hub diameter



Motor shaft diameter [mm]

2-stage

up to 19/24⁴⁾
(E⁶⁾/G) clamping
hub diameter



- a) Hollow shaft, keywayed
- b) Hollow shaft, smooth
- c) End disc for screw M10
- d) End disc as forcing washer for screw M12
- e) Locking ring – DIN 472

See technical data sheet for available clamping hub diameters (mass moment of inertia). Dimensions available on request.

Non-tolerated dimensions are nominal dimensions

- ¹⁾ Check motor shaft fit.
- ²⁾ Min. / Max. permissible motor shaft length.
Longer motor shafts are adaptable, please contact us.
- ³⁾ The dimensions depend on the motor.
- ⁴⁾ Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm.
- ⁵⁾ Tolerance h6 for mounted shaft.
- ⁶⁾ Standard clamping hub diameter

Worm gearboxes

VH+

VH+ 080 MF 1-/2-stage

| | | | 1-stage | | | | | | 2-stage | | | | | | | |
|--|--------------|-----------------|---------------------------------------|-------|-------|-------|-------|-------|--------------------------------------|-------|-------|-------|-------|-------|-------|-------|
| Ratio | <i>i</i> | | 4 | 7 | 10 | 16 | 28 | 40 | 50 | 70 | 100 | 140 | 200 | 280 | 400 | |
| Max. torque ^{a) b)} (at $n_1 = 500$ rpm) | T_{2a} | Nm | 578 | 646 | 672 | 702 | 785 | 676 | 672 | 646 | 672 | 785 | 676 | 785 | 676 | |
| | | in.lb | 5115 | 5717 | 5947 | 6213 | 6947 | 5983 | 5947 | 5717 | 5947 | 6947 | 5983 | 6947 | 5983 | |
| Torque for constant backlash (over the lifetime) | T_{2Servo} | Nm | 469 | 601 | 613 | 677 | 764 | 631 | 613 | 601 | 613 | 764 | 631 | 764 | 631 | |
| | | in.lb | 4151 | 5319 | 5425 | 5991 | 6761 | 5584 | 5425 | 5319 | 5425 | 6761 | 5584 | 6761 | 5584 | |
| Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox) | T_{2Not} | Nm | 938 | 993 | 963 | 1005 | 1064 | 941 | 963 | 993 | 963 | 1064 | 941 | 1064 | 941 | |
| | | in.lb | 8301 | 8788 | 8523 | 8894 | 9416 | 8328 | 8523 | 8788 | 8523 | 9416 | 8328 | 9416 | 8328 | |
| Permitted average input speed (at 20 °C ambient temperature) ^{d)} | n_{1N} | rpm | 3500 | | | | | | 2900 | | | | | | | |
| Max. input speed | n_{1Max} | rpm | 4000 | | | | | | 4500 | | | | | | | |
| Mean no load running torque ^{b)} (at $n_1 = 3000$ rpm and 20 °C gearbox temperature) | T_{012} | Nm | 7.2 | 7.1 | 6.5 | 5 | 4.8 | 4.5 | 2.8 | 1.6 | 1.5 | 2.4 | 2.4 | 1.8 | 1.3 | |
| | | in.lb | 63.7 | 62.8 | 57.5 | 44.3 | 42.5 | 39.8 | 24.8 | 14.2 | 13.3 | 21.2 | 21.2 | 15.9 | 11.5 | |
| Max. backlash | j_1 | arcmin | Standard ≤ 3 / Reduced ≤ 2 | | | | | | Standard ≤ 4 / Reduced ≤ 3 | | | | | | | |
| Torsional rigidity ^{b)} | C_{121} | Nm/arcmin | 78 | | | | | | 78 | | | | | | | |
| | | in.lb/arcmin | 690 | | | | | | 690 | | | | | | | |
| Max. axial force ^{c)} | F_{2AMax} | N | 13900 | | | | | | 13900 | | | | | | | |
| | | lb _f | 3128 | | | | | | 3128 | | | | | | | |
| Max. lateral force ^{c)} | F_{2QMax} | N | 9000 | | | | | | 9000 | | | | | | | |
| | | lb _f | 2025 | | | | | | 2025 | | | | | | | |
| Max. tilting moment | M_{2KMax} | Nm | 1544 | | | | | | 1544 | | | | | | | |
| | | in.lb | 13664 | | | | | | 13664 | | | | | | | |
| Efficiency at full load (at $n_1 = 500$ rpm) | η | % | 94 | 92 | 89 | 86 | 77 | 70 | 87 | 90 | 87 | 75 | 68 | 75 | 68 | |
| Service life | L_h | h | > 20000 | | | | | | | | | | | | | |
| Weight (incl. standard adapter plate) | m | kg | 27.0 | | | | | | 29.5 | | | | | | | |
| | | lb _m | 59.7 | | | | | | 68.0 | | | | | | | |
| Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®]) | L_{PA} | dB(A) | ≤ 66 | | | | | | ≤ 68 | | | | | | | |
| Max. permitted housing temperature | | °C | +90 | | | | | | | | | | | | | |
| | | F | 194 | | | | | | | | | | | | | |
| Ambient temperature | | °C | -15 to +40 | | | | | | | | | | | | | |
| | | F | 5 to 104 | | | | | | | | | | | | | |
| Lubrication | | | Lubricated for life | | | | | | | | | | | | | |
| Direction of rotation | | | In- and output same direction | | | | | | | | | | | | | |
| Protection class | | | IP 65 | | | | | | | | | | | | | |
| Shrink disc (Standard version) | | | SD 050x090 S2V | | | | | | | | | | | | | |
| Max. torque (without axial force) | T_{max} | Nm | 1400 | | | | | | | | | | | | | |
| Mass moment of inertia (relates to the drive) | G 24 | J_1 | kgcm ² | - | - | - | - | - | - | 10.40 | 10.10 | 10.10 | 8.80 | 9.50 | 9.40 | 9.30 |
| | | | 10 ⁻³ in.lb.s ² | - | - | - | - | - | - | - | 9.20 | 8.94 | 8.94 | 7.79 | 8.41 | 8.32 |
| Clamping hub diameter [mm] | K 38 | J_1 | kgcm ² | 20.30 | 16.75 | 16.79 | 15.37 | 15.26 | 15.90 | 17.30 | 17.00 | 17.10 | 15.80 | 16.40 | 16.30 | 16.20 |
| | | | 10 ⁻³ in.lb.s ² | 17.97 | 14.82 | 14.86 | 13.60 | 13.51 | 14.07 | 15.31 | 15.05 | 15.13 | 13.98 | 14.51 | 14.43 | 14.34 |

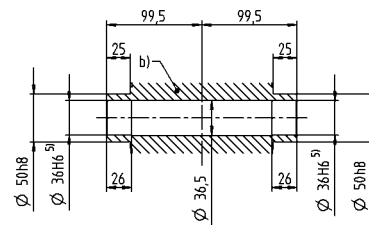
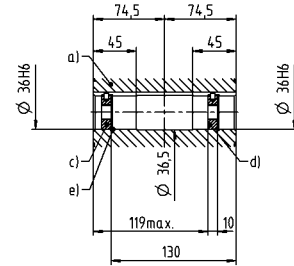
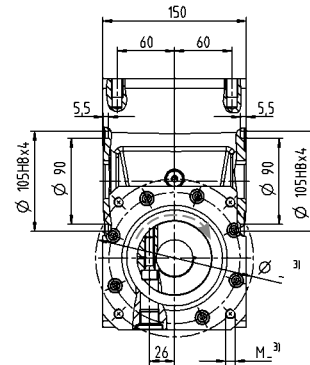
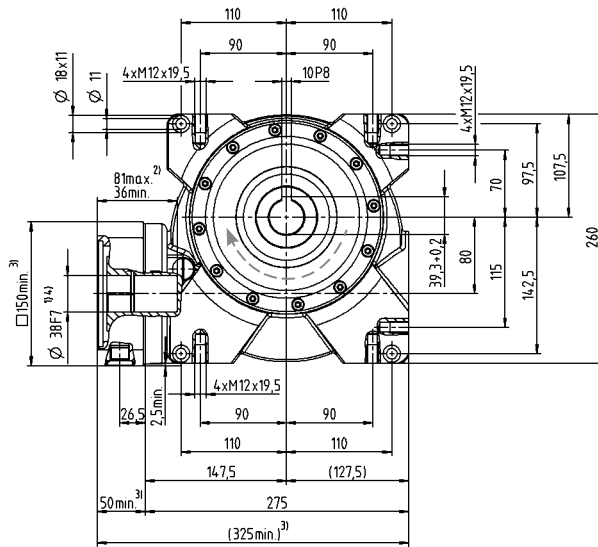
Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

- ^{a)} At max. 10 % F_{2QMax}
- ^{b)} Valid for standard Clamping hub diameter
- ^{c)} Refers to center of the output shaft or flange
- ^{d)} Please reduce input speed at higher ambient temperatures

← A

1-stage

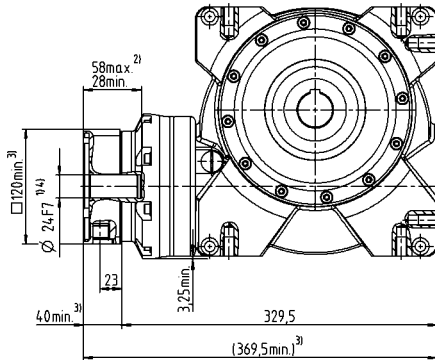
up to 38⁴⁾ (K)⁶⁾
clamping hub diameter



Motor shaft diameter [mm]

2-stage

up to 24/38⁴⁾
(G⁶⁾/K) clamping
hub diameter



- a) Hollow shaft, keywayed
- b) Hollow shaft, smooth
- c) End disc for screw M12
- d) End disc as forcing washer for screw M16
- e) Locking ring – DIN 472

See technical data sheet for available clamping hub diameters (mass moment of inertia). Dimensions available on request.

Non-tolerated dimensions are nominal dimensions

- ¹⁾ Check motor shaft fit.
- ²⁾ Min. / Max. permissible motor shaft length.
Longer motor shafts are adaptable, please contact us.
- ³⁾ The dimensions depend on the motor.
- ⁴⁾ Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm.
- ⁵⁾ Tolerance h6 for mounted shaft.
- ⁶⁾ Standard clamping hub diameter

Worm gearboxes

VH+

VH+ 100 MF 1-/2-stage

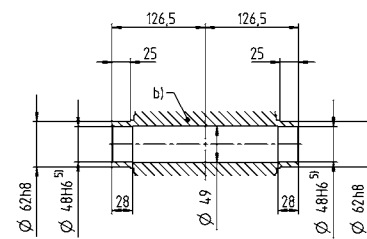
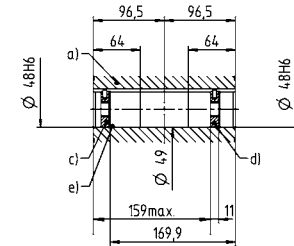
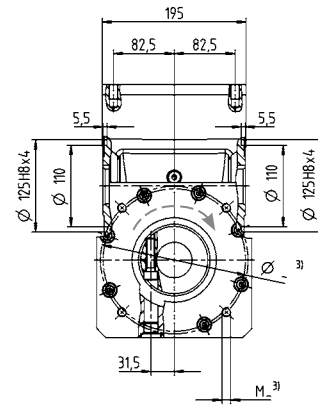
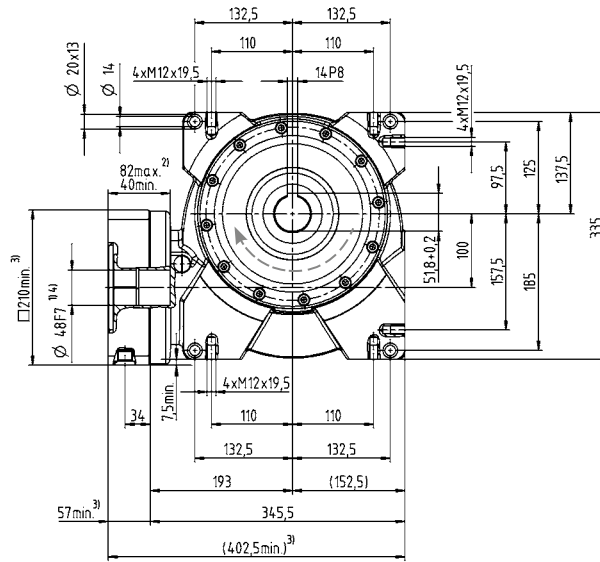
| | | | 1-stage | | | | | | 2-stage | | | | | | | | |
|---|--------------|-----------------|--------------------------------------|---------------------------------------|-------|-------|-------|-------|--------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Ratio | <i>i</i> | | 4 | 7 | 10 | 16 | 28 | 40 | 50 | 70 | 100 | 140 | 200 | 280 | 400 | | |
| Max. torque ^{a) b)} (at $n_1 = 500$ rpm) | T_{2a} | Nm | 1184 | 1336 | 1377 | 1392 | 1505 | 1376 | 1377 | 1336 | 1377 | 1505 | 1376 | 1505 | 1376 | | |
| | | in.lb | 10478 | 11824 | 12186 | 12319 | 13319 | 12178 | 12186 | 11825 | 12186 | 13319 | 12178 | 13319 | 12178 | | |
| Torque for constant backlash (over the lifetime) | T_{2Servo} | Nm | 1155 | 1304 | 1343 | 1359 | 1469 | 1343 | 1343 | 1304 | 1343 | 1469 | 1343 | 1469 | 1343 | | |
| | | in.lb | 10222 | 11540 | 11886 | 12027 | 13001 | 11886 | 11886 | 11541 | 11886 | 13001 | 11886 | 13001 | 11886 | | |
| Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox) | T_{2Not} | Nm | 1819 | 1932 | 1940 | 1955 | 2073 | 1856 | 1940 | 1940 | 1940 | 2073 | 1856 | 2073 | 1856 | | |
| | | in.lb | 16098 | 17098 | 17169 | 17302 | 18346 | 16426 | 17169 | 17169 | 17169 | 18346 | 16426 | 18346 | 16426 | | |
| Permitted average input speed (at 20 °C ambient temperature) ^{d)} | n_{1N} | rpm | 3000 | | | | | | 2700 | | | | | | | | |
| Max. input speed | n_{1Max} | rpm | 3500 | | | | | | 4000 | | | | | | | | |
| Mean no load running torque ^{b)} (at $n_1 = 3000$ rpm and 20 °C gearbox temperature) | T_{012} | Nm | 12.2 | 10.5 | 9.8 | 9.1 | 8.2 | 7.2 | 4.1 | 2.3 | 2.2 | 3.8 | 3.6 | 2.6 | 2 | | |
| | | in.lb | 108.0 | 92.9 | 86.7 | 80.5 | 72.6 | 63.7 | 36.3 | 20.4 | 19.5 | 33.6 | 31.9 | 23.0 | 17.7 | | |
| Max. backlash | j_1 | arcmin | Standard ≤ 3 / Reduced ≤ 2 | | | | | | Standard ≤ 4 / Reduced ≤ 3 | | | | | | | | |
| Torsional rigidity ^{b)} | C_{121} | Nm/arcmin | 153 | | | | | | 153 | | | | | | | | |
| | | in.lb/arcmin | 1354 | | | | | | 1354 | | | | | | | | |
| Max. axial force ^{c)} | F_{2AMax} | N | 19500 | | | | | | 19500 | | | | | | | | |
| | | lb _f | 4388 | | | | | | 4388 | | | | | | | | |
| Max. lateral force ^{c)} | F_{2QMax} | N | 14000 | | | | | | 14000 | | | | | | | | |
| | | lb _f | 3150 | | | | | | 3150 | | | | | | | | |
| Max. tilting moment | M_{2KMax} | Nm | 3059 | | | | | | 3059 | | | | | | | | |
| | | in.lb | 27072 | | | | | | 27072 | | | | | | | | |
| Efficiency at full load (at $n_1 = 500$ rpm) | η | % | 95 | 93 | 91 | 87 | 80 | 76 | 89 | 89 | 89 | 78 | 74 | 78 | 74 | | |
| Service life | L_h | h | > 20000 | | | | | | | | | | | | | | |
| Weight (incl. standard adapter plate) | m | kg | 51.0 | | | | | | 53.6 | | | | | | | | |
| | | lb _m | 112.7 | | | | | | 118.0 | | | | | | | | |
| Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®]) | L_{PA} | dB(A) | ≤ 70 | | | | | | | | | | | | | | |
| Max. permitted housing temperature | | °C | +90 | | | | | | | | | | | | | | |
| | | F | 194 | | | | | | | | | | | | | | |
| Ambient temperature | | °C | -15 to +40 | | | | | | | | | | | | | | |
| | | F | 5 to 104 | | | | | | | | | | | | | | |
| Lubrication | | | Lubricated for life | | | | | | | | | | | | | | |
| Direction of rotation | | | In- and output same direction | | | | | | | | | | | | | | |
| Protection class | | | IP 65 | | | | | | | | | | | | | | |
| Shrink disc (Standard version) | | | SD 062x110 S2V | | | | | | | | | | | | | | |
| Max. torque (without axial force) | T_{max} | Nm | 2300 | | | | | | | | | | | | | | |
| Mass moment of inertia (relates to the drive) | K | 38 | J_1 | kgcm ² | - | - | - | - | - | - | 31.70 | 33.00 | 31.10 | 30.10 | 30.40 | 30.00 | 29.80 |
| | | | | 10 ⁻³ in.lb.s ² | - | - | - | - | - | - | 28.05 | 29.21 | 27.52 | 26.64 | 26.90 | 26.55 | 26.37 |
| Clamping hub diameter [mm] | M | 48 | J_1 | kgcm ² | 50.25 | 40.70 | 38.77 | 39.62 | 37.15 | 37.47 | 46.40 | 47.70 | 45.80 | 44.80 | 45.10 | 44.70 | 44.50 |
| | | | | 10 ⁻³ in.lb.s ² | 44.47 | 36.02 | 34.31 | 35.06 | 32.88 | 33.16 | 41.06 | 42.21 | 40.53 | 39.65 | 39.91 | 39.56 | 39.38 |

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

- ^{a)} At max. 10 % F_{2QMax}
- ^{b)} Valid for standard Clamping hub diameter
- ^{c)} Refers to center of the output shaft or flange
- ^{d)} Please reduce input speed at higher ambient temperatures

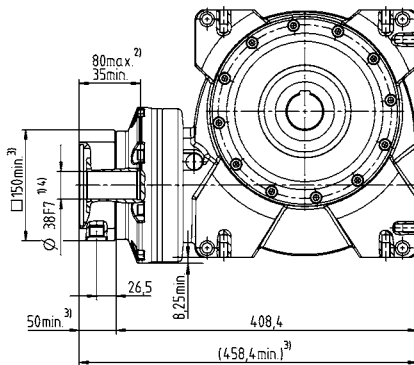
1-stage

up to 48⁴⁾ (M⁶⁾
clamping hub diameter



2-stage

up to 38 / 48⁴⁾
(K⁶⁾ / M) clamping
hub diameter



Motor shaft diameter [mm]

Worm gearboxes

VH+

- a) Hollow shaft, keywayed
- b) Hollow shaft, smooth
- c) End disc for screw M16
- d) End disc as forcing washer for screw M20
- e) Locking ring – DIN 472

See technical data sheet for available clamping hub diameters (mass moment of inertia). Dimensions available on request.

Non-tolerated dimensions are nominal dimensions

- ¹⁾ Check motor shaft fit.
- ²⁾ Min. / Max. permissible motor shaft length.
Longer motor shafts are adaptable, please contact us.
- ³⁾ The dimensions depend on the motor.
- ⁴⁾ Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm.
- ⁵⁾ Tolerance h6 for mounted shaft.
- ⁶⁾ Standard clamping hub diameter

VS+ 050 MF 1-/2-stage

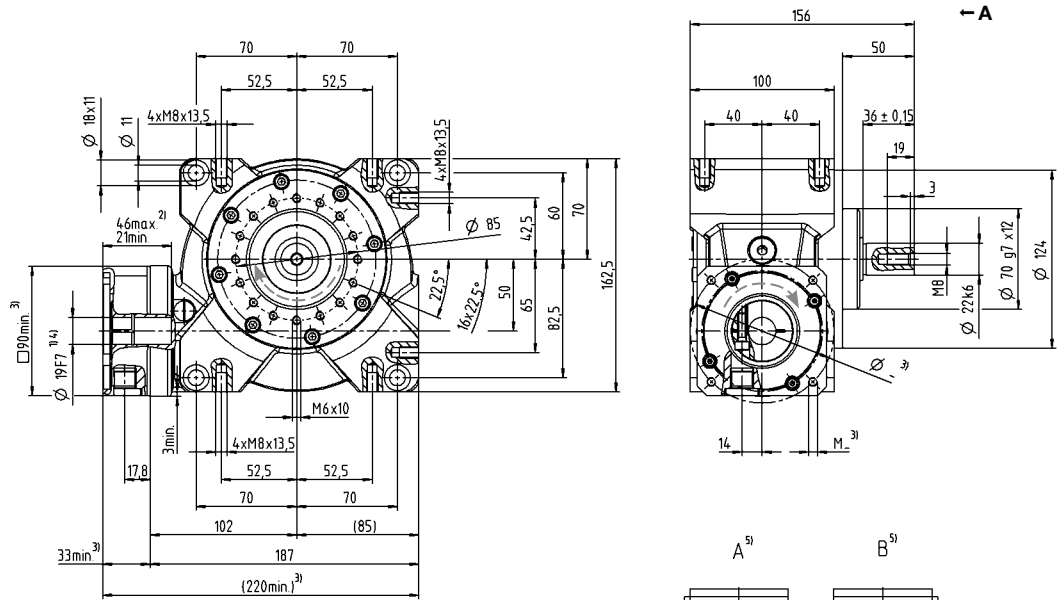
| | | | 1-stage | | | | | | 2-stage | | | | | | | | |
|---|--------------|-----------------|--------------------------------------|---------------------------------------|------|------|------|------|--------------------------------------|------|------|------|------|------|------|------|------|
| Ratio | i | | 4 | 7 | 10 | 16 | 28 | 40 | 50 | 70 | 100 | 140 | 200 | 280 | 400 | | |
| Max. torque ^{a) b) e)} (at $n_1 = 500$ rpm) | T_{2a} | Nm | 165 | 180 | 182 | 193 | 204 | 183 | 182 | 180 | 182 | 204 | 183 | 204 | 183 | | |
| | | in.lb | 1460 | 1593 | 1611 | 1708 | 1805 | 1620 | 1611 | 1593 | 1611 | 1805 | 1620 | 1805 | 1620 | | |
| Torque for constant backlash (over the lifetime) | T_{2Servo} | Nm | 54 | 71 | 74 | 81 | 90 | 74 | 74 | 71 | 74 | 90 | 74 | 90 | 74 | | |
| | | in.lb | 478 | 628 | 655 | 717 | 797 | 655 | 655 | 628 | 655 | 797 | 655 | 797 | 655 | | |
| Emergency stop torque ^{a) b) e)} (permitted 1000 times during the service life of the gearbox) | T_{2Not} | Nm | 230 | 242 | 242 | 250 | 262 | 236 | 242 | 242 | 242 | 262 | 236 | 262 | 236 | | |
| | | in.lb | 2036 | 2142 | 2142 | 2213 | 2319 | 2089 | 2142 | 2142 | 2142 | 2319 | 2089 | 2319 | 2089 | | |
| Permitted average input speed (at 20 °C ambient temperature) ^{d)} | n_{1N} | rpm | 4000 | | | | | | 3500 | | | | | | | | |
| Max. input speed | n_{1Max} | rpm | 6000 | | | | | | | | | | | | | | |
| Mean no load running torque ^{b)} (at $n_1 = 3000$ rpm and 20 °C gearbox temperature) | T_{012} | Nm | 2.3 | 2.2 | 1.6 | 1.5 | 1.2 | 1.1 | 0.7 | 0.5 | 0.4 | 0.6 | 0.6 | 0.4 | 0.4 | | |
| | | in.lb | 20.4 | 19.5 | 14.2 | 13.3 | 10.6 | 9.7 | 6.2 | 4.4 | 3.5 | 5.3 | 5.3 | 3.5 | 3.5 | | |
| Max. backlash | j_1 | arcmin | Standard ≤ 3 / Reduced ≤ 2 | | | | | | Standard ≤ 4 / Reduced ≤ 3 | | | | | | | | |
| Torsional rigidity ^{b)} | C_{121} | Nm/arcmin | 8 | | | | | | | | | | | | | | |
| | | in.lb/arcmin | 71 | | | | | | | | | | | | | | |
| Max. axial force ^{c)} | F_{2AMax} | N | 5000 | | | | | | | | | | | | | | |
| | | lb _f | 1125 | | | | | | | | | | | | | | |
| Max. lateral force ^{c)} | F_{2QMax} | N | 3800 | | | | | | | | | | | | | | |
| | | lb _f | 855 | | | | | | | | | | | | | | |
| Max. tilting moment | M_{2KMax} | Nm | 409 | | | | | | | | | | | | | | |
| | | in.lb | 3620 | | | | | | | | | | | | | | |
| Efficiency at full load (at $n_1 = 500$ rpm) | η | % | 92 | 89 | 86 | 82 | 72 | 64 | 84 | 87 | 84 | 70 | 62 | 70 | 62 | | |
| Service life | L_h | h | > 20000 | | | | | | | | | | | | | | |
| Weight (incl. standard adapter plate) | m | kg | 9.0 | | | | | | 9.7 | | | | | | | | |
| | | lb _m | 19.9 | | | | | | 21.0 | | | | | | | | |
| Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®]) | L_{PA} | dB(A) | ≤ 62 | | | | | | | | | | | | | | |
| Max. permitted housing temperature | | °C | +90 | | | | | | | | | | | | | | |
| | | F | 194 | | | | | | | | | | | | | | |
| Ambient temperature | | °C | -15 to +40 | | | | | | | | | | | | | | |
| | | F | 5 to 104 | | | | | | | | | | | | | | |
| Lubrication | | | Lubricated for life | | | | | | | | | | | | | | |
| Direction of rotation | | | In- and output same direction | | | | | | | | | | | | | | |
| Protection class | | | IP 65 | | | | | | | | | | | | | | |
| Metal bellows coupling (recommended product type – validate sizing with cymex [®]) | | | BC3 - 00200A - 022.000 - X | | | | | | | | | | | | | | |
| Bore diameter of coupling on the application side | | mm | X = 015.000 - 044.000 | | | | | | | | | | | | | | |
| Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] | C | 14 | J_1 | kgcm ² | - | - | - | - | - | - | 0.80 | 0.80 | 0.80 | 0.70 | 0.70 | 0.70 | 0.70 |
| | | | | 10 ⁻³ in.lb.s ² | - | - | - | - | - | - | 0.71 | 0.71 | 0.71 | 0.62 | 0.62 | 0.62 | 0.62 |
| | E | 19 | J_1 | kgcm ² | 1.50 | 1.21 | 1.12 | 1.03 | 1.00 | 1.05 | 1.20 | 1.30 | 1.20 | 1.10 | 1.10 | 1.10 | 1.10 |
| | | | | 10 ⁻³ in.lb.s ² | 1.33 | 1.07 | 0.99 | 0.91 | 0.89 | 0.93 | 1.06 | 1.15 | 1.06 | 0.97 | 0.97 | 0.97 | 0.97 |
| | G | 24 | J_1 | kgcm ² | 1.6 | 1.32 | 1.23 | 1.14 | 1.11 | 1.15 | - | - | - | - | - | - | - |
| | | | | 10 ⁻³ in.lb.s ² | 1.4 | 1.2 | 1.1 | 1.0 | 0.98 | 1.0 | - | - | - | - | - | - | - |

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

- ^{a)} At max. 10 % F_{2QMax}
- ^{b)} Valid for standard clamping hub diameter
- ^{c)} Refers to center of the output shaft or flange
- ^{d)} Please reduce input speed at higher ambient temperatures
- ^{e)} Smooth shaft

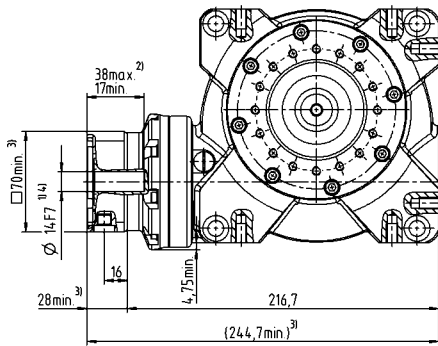
1-stage

up to 19/24⁴⁾
(E⁶⁾/G) clamping
hub diameter

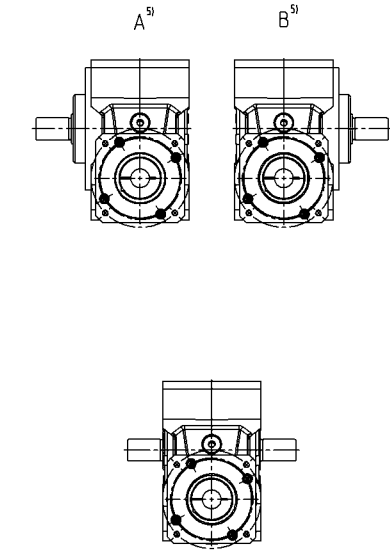


2-stage

up to 14/19⁴⁾
(C⁶⁾/E) clamping
hub diameter



Motor shaft diameter [mm]



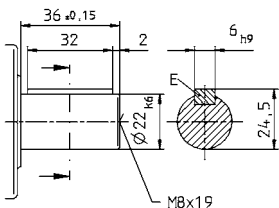
Optional dual-shaft output. Drawings available upon request.
Involute gearing is not possible.

Worm gearboxes

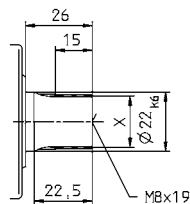
VS+

Other output variants

Shaft with key



Spined shaft (DIN 5480)



See technical data sheet for available clamping hub diameters
(mass moment of inertia). Dimensions available on request.

Non-tolerated dimensions are nominal dimensions

- ¹⁾ Check motor shaft fit.
- ²⁾ Min./Max. permissible motor shaft length.
Longer motor shafts are adaptable, please contact us.
- ³⁾ The dimensions depend on the motor.
- ⁴⁾ Smaller motor shaft diameter is compensated by a
bushing with a minimum thickness of 1 mm.
- ⁵⁾ Output side
- ⁶⁾ Standard clamping hub diameter

VS+ 063 MF 1-/2-stage

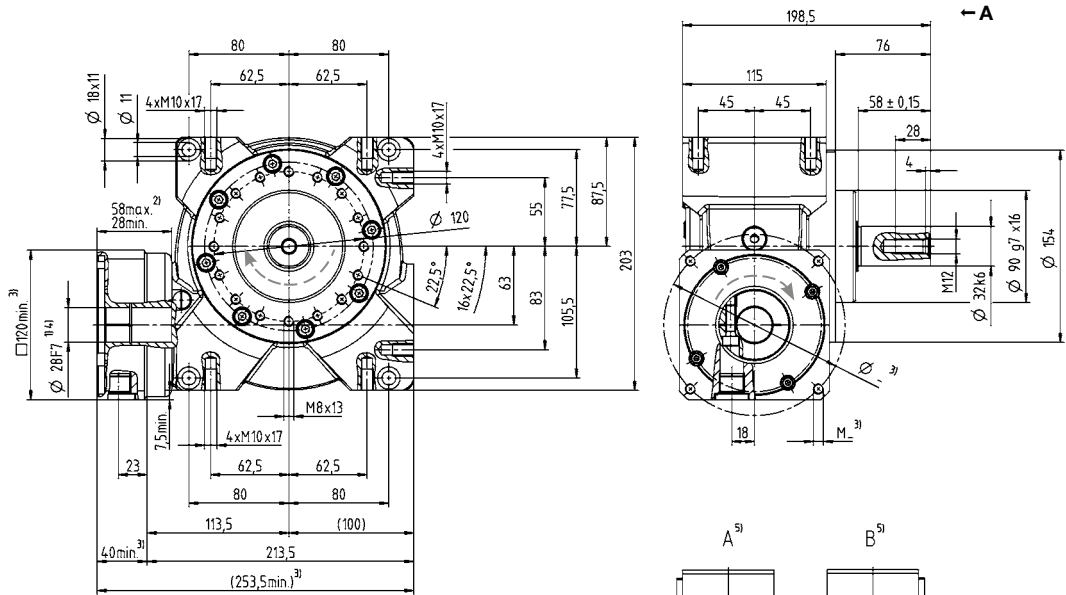
| | | | 1-stage | | | | | | 2-stage | | | | | | | | |
|--|--------------|-----------------|---------------------------------------|---------------------------------------|------|------|------|------|--------------------------------------|------|------|------|------|------|------|------|------|
| Ratio | <i>i</i> | | 4 | 7 | 10 | 16 | 28 | 40 | 50 | 70 | 100 | 140 | 200 | 280 | 400 | | |
| Max. torque ^{a) b) e)} (at $n_1 = 500$ rpm) | T_{2a} | Nm | 319 | 353 | 364 | 372 | 392 | 363 | 364 | 353 | 364 | 392 | 363 | 392 | 363 | | |
| | | in.lb | 2823 | 3124 | 3221 | 3292 | 3469 | 3213 | 3221 | 3124 | 3221 | 3469 | 3213 | 3469 | 3213 | | |
| Torque for constant backlash (over the lifetime) | T_{2Servo} | Nm | 198 | 210 | 225 | 221 | 229 | 226 | 225 | 210 | 225 | 229 | 226 | 229 | 226 | | |
| | | in.lb | 1752 | 1859 | 1991 | 1956 | 2027 | 2000 | 1991 | 1859 | 1991 | 2027 | 2000 | 2027 | 2000 | | |
| Emergency stop torque ^{a) b) e)} (permitted 1000 times during the service life of the gearbox) | T_{2Not} | Nm | 460 | 484 | 491 | 494 | 518 | 447 | 491 | 484 | 494 | 518 | 447 | 518 | 447 | | |
| | | in.lb | 4071 | 4283 | 4345 | 4372 | 4584 | 3956 | 4345 | 4283 | 4372 | 4584 | 3956 | 4584 | 3956 | | |
| Permitted average input speed (at 20 °C ambient temperature) ^{d)} | n_{1N} | rpm | 4000 | | | | | | 3100 | | | | | | | | |
| Max. input speed | n_{1Max} | rpm | 4500 | | | | | | | | | | | | | | |
| Mean no load running torque ^{b)} (at $n_1 = 3000$ rpm and 20 °C gearbox temperature) | T_{012} | Nm | 4.2 | 3.1 | 3 | 2.4 | 2.3 | 2.2 | 1.2 | 0.7 | 0.7 | 1.1 | 1.1 | 0.8 | 0.6 | | |
| | | in.lb | 37.2 | 27.4 | 26.6 | 21.2 | 20.4 | 19.5 | 10.6 | 6.2 | 6.2 | 9.7 | 9.7 | 7.1 | 5.3 | | |
| Max. backlash | j_i | arcmin | Standard ≤ 3 / Reduced ≤ 2 | | | | | | Standard ≤ 4 / Reduced ≤ 3 | | | | | | | | |
| Torsional rigidity ^{b)} | C_{121} | Nm/arcmin | 28 | | | | | | | | | | | | | | |
| | | in.lb/arcmin | 248 | | | | | | | | | | | | | | |
| Max. axial force ^{c)} | F_{2AMax} | N | 8250 | | | | | | | | | | | | | | |
| | | lb _f | 1856 | | | | | | | | | | | | | | |
| Max. lateral force ^{c)} | F_{2QMMax} | N | 6000 | | | | | | | | | | | | | | |
| | | lb _f | 1350 | | | | | | | | | | | | | | |
| Max. tilting moment | M_{2KMax} | Nm | 843 | | | | | | | | | | | | | | |
| | | in.lb | 7461 | | | | | | | | | | | | | | |
| Efficiency at full load (at $n_1 = 500$ rpm) | η | % | 93 | 91 | 88 | 83 | 74 | 68 | 86 | 89 | 86 | 72 | 66 | 72 | 66 | | |
| Service life | L_h | h | > 20000 | | | | | | | | | | | | | | |
| Weight (incl. standard adapter plate) | m | kg | 16.0 | | | | | | 16.7 | | | | | | | | |
| | | lb _m | 35.4 | | | | | | 37.0 | | | | | | | | |
| Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®]) | L_{PA} | dB(A) | ≤ 64 | | | | | | | | | | | | | | |
| Max. permitted housing temperature | | °C | +90 | | | | | | | | | | | | | | |
| | | F | 194 | | | | | | | | | | | | | | |
| Ambient temperature | | °C | -15 to +40 | | | | | | | | | | | | | | |
| | | F | 5 to 104 | | | | | | | | | | | | | | |
| Lubrication | | | Lubricated for life | | | | | | | | | | | | | | |
| Direction of rotation | | | In- and output same direction | | | | | | | | | | | | | | |
| Protection class | | | IP 65 | | | | | | | | | | | | | | |
| Metal bellows coupling (recommended product type – validate sizing with cymex [®]) | | | BC3 - 00500A - 032.000 - X | | | | | | | | | | | | | | |
| Bore diameter of coupling on the application side | | mm | X = 024.000 - 056.000 | | | | | | | | | | | | | | |
| Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] | E | 19 | J_1 | kgcm ² | - | - | - | - | - | - | 2.60 | 2.80 | 2.50 | 2.40 | 2.40 | 2.40 | 2.30 |
| | | | | 10 ⁻³ in.lb.s ² | - | - | - | - | - | - | 2.30 | 2.48 | 2.21 | 2.12 | 2.12 | 2.12 | 2.04 |
| | G | 24 | J_1 | kgcm ² | - | - | - | - | - | - | 4.10 | 4.30 | 4.10 | 4.00 | 4.00 | 3.90 | 3.90 |
| | | | | 10 ⁻³ in.lb.s ² | - | - | - | - | - | - | 3.63 | 3.81 | 3.63 | 3.54 | 3.54 | 3.45 | 3.45 |
| H | 28 | J_1 | kgcm ² | 4.80 | 3.89 | 3.65 | 3.56 | 3.52 | 3.47 | - | - | - | - | - | - | - | |
| | | | 10 ⁻³ in.lb.s ² | 4.25 | 3.44 | 3.23 | 3.15 | 3.12 | 3.07 | - | - | - | - | - | - | - | |

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

- ^{a)} At max. 10 % F_{2QMax}
- ^{b)} Valid for standard clamping hub diameter
- ^{c)} Refers to center of the output shaft or flange
- ^{d)} Please reduce input speed at higher ambient temperatures
- ^{e)} Smooth shaft

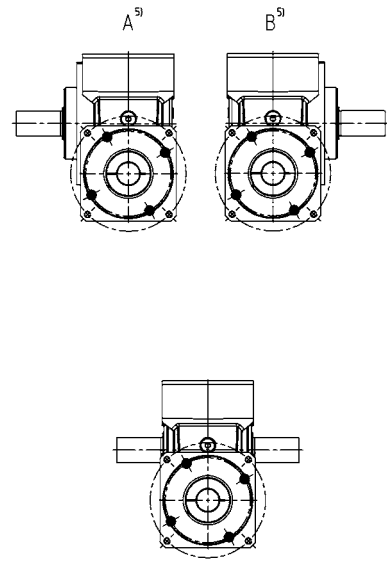
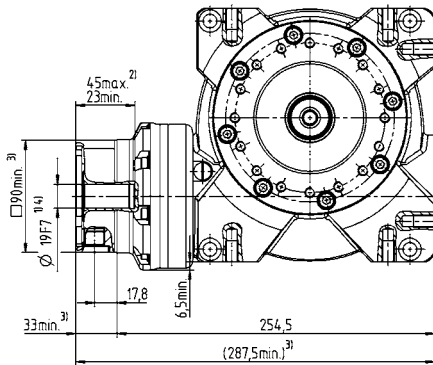
1-stage

up to 28⁴⁾ (H)⁶⁾
clamping hub diameter



2-stage

up to 19/24⁴⁾ (E⁶⁾/G)
clamping hub diameter



Optional dual-shaft output. Drawings available upon request.
Involute gearing is not possible.

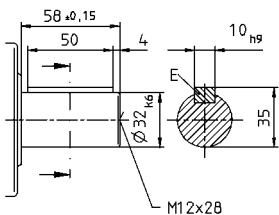
Motor shaft diameter [mm]

Worm gearboxes

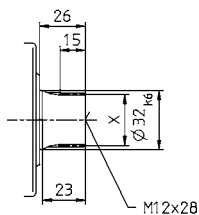
VS+

Other output variants

Shaft with key



Spined shaft (DIN 5480)



See technical data sheet for available clamping hub diameters (mass moment of inertia). Dimensions available on request.

Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit.

²⁾ Min./Max. permissible motor shaft length.

Longer motor shafts are adaptable, please contact us.

³⁾ The dimensions depend on the motor.

⁴⁾ Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm.

⁵⁾ Output side

⁶⁾ Standard clamping hub diameter

VS+ 080 MF 1-/2-stage

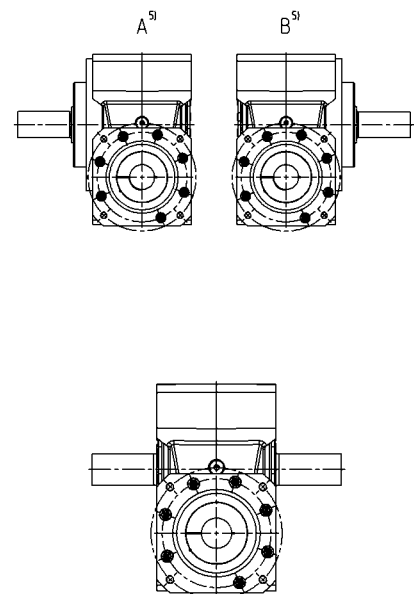
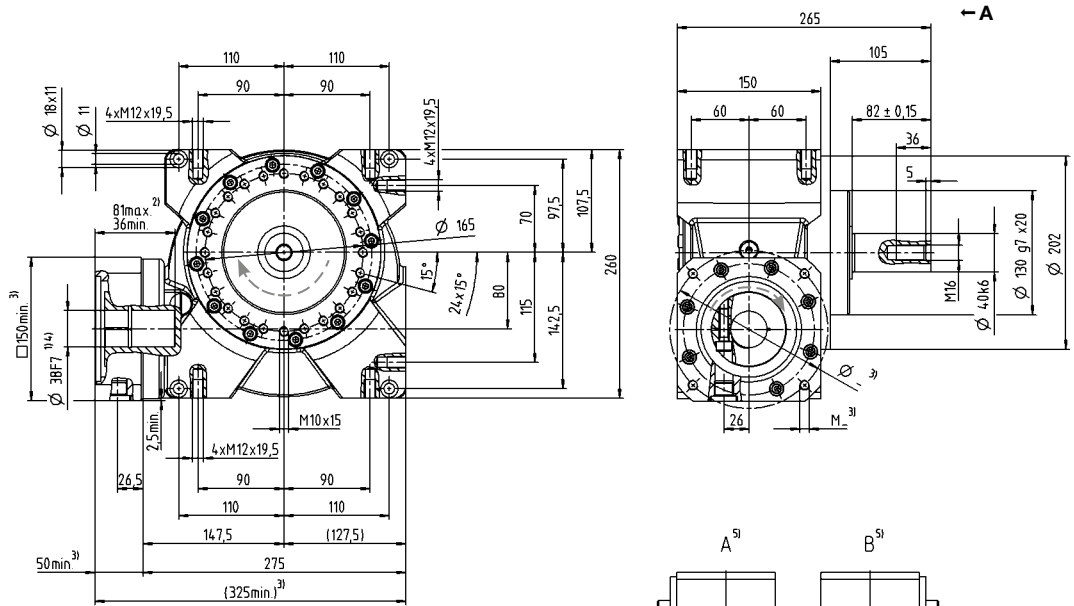
| | | | 1-stage | | | | | | 2-stage | | | | | | | |
|--|--------------|-----------------|---------------------------------------|-------|-------|-------|-------|-------|--------------------------------------|-------|-------|-------|-------|-------|-------|-------|
| Ratio | <i>i</i> | | 4 | 7 | 10 | 16 | 28 | 40 | 50 | 70 | 100 | 140 | 200 | 280 | 400 | |
| Max. torque ^{a) b) e)} (at $n_1 = 500$ rpm) | T_{2a} | Nm | 578 | 646 | 672 | 702 | 785 | 676 | 672 | 646 | 672 | 785 | 676 | 785 | 676 | |
| | | in.lb | 5115 | 5717 | 5947 | 6213 | 6947 | 5983 | 5947 | 5717 | 5947 | 6947 | 5983 | 6947 | 5983 | |
| Torque for constant backlash (over the lifetime) | T_{2Servo} | Nm | 469 | 601 | 613 | 677 | 764 | 631 | 613 | 601 | 613 | 764 | 631 | 764 | 631 | |
| | | in.lb | 4151 | 5319 | 5425 | 5991 | 6761 | 5584 | 5425 | 5319 | 5425 | 6761 | 5584 | 6761 | 5584 | |
| Emergency stop torque ^{a) b) e)} (permitted 1000 times during the service life of the gearbox) | T_{2Not} | Nm | 938 | 993 | 963 | 1005 | 1064 | 941 | 963 | 993 | 963 | 1064 | 941 | 1064 | 941 | |
| | | in.lb | 8301 | 8788 | 8523 | 8894 | 9416 | 8328 | 8523 | 8788 | 8523 | 9416 | 8328 | 9416 | 8328 | |
| Permitted average input speed (at 20 °C ambient temperature) ^{d)} | n_{1N} | rpm | 3500 | | | | | | 2900 | | | | | | | |
| Max. input speed | n_{1Max} | rpm | 4000 | | | | | | 4500 | | | | | | | |
| Mean no load running torque ^{b)} (at $n_1 = 3000$ rpm and 20 °C gearbox temperature) | T_{012} | Nm | 7.2 | 7.1 | 6.5 | 5 | 4.8 | 4.5 | 2.8 | 1.6 | 1.5 | 2.4 | 2.4 | 1.8 | 1.3 | |
| | | in.lb | 63.7 | 62.8 | 57.5 | 44.3 | 42.5 | 39.8 | 24.8 | 14.2 | 13.3 | 21.2 | 21.2 | 15.9 | 11.5 | |
| Max. backlash | j_i | arcmin | Standard ≤ 3 / Reduced ≤ 2 | | | | | | Standard ≤ 4 / Reduced ≤ 3 | | | | | | | |
| Torsional rigidity ^{b)} | C_{121} | Nm/arcmin | 78 | | | | | | 78 | | | | | | | |
| | | in.lb/arcmin | 690 | | | | | | 690 | | | | | | | |
| Max. axial force ^{c)} | F_{2AMax} | N | 13900 | | | | | | 13900 | | | | | | | |
| | | lb _f | 3128 | | | | | | 3128 | | | | | | | |
| Max. lateral force ^{c)} | F_{2QMax} | N | 9000 | | | | | | 9000 | | | | | | | |
| | | lb _f | 2025 | | | | | | 2025 | | | | | | | |
| Max. tilting moment | M_{2KMax} | Nm | 1544 | | | | | | 1544 | | | | | | | |
| | | in.lb | 13664 | | | | | | 13664 | | | | | | | |
| Efficiency at full load (at $n_1 = 500$ rpm) | η | % | 94 | 92 | 89 | 86 | 77 | 70 | 87 | 90 | 87 | 75 | 68 | 75 | 68 | |
| Service life | L_h | h | > 20000 | | | | | | | | | | | | | |
| Weight (incl. standard adapter plate) | m | kg | 33.0 | | | | | | 35.5 | | | | | | | |
| | | lb _m | 72.9 | | | | | | 78.0 | | | | | | | |
| Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®]) | L_{PA} | dB(A) | ≤ 66 | | | | | | ≤ 68 | | | | | | | |
| Max. permitted housing temperature | | °C | +90 | | | | | | | | | | | | | |
| | | F | 194 | | | | | | | | | | | | | |
| Ambient temperature | | °C | -15 to +40 | | | | | | | | | | | | | |
| | | F | 5 to 104 | | | | | | | | | | | | | |
| Lubrication | | | Lubricated for life | | | | | | | | | | | | | |
| Direction of rotation | | | In- and output same direction | | | | | | | | | | | | | |
| Protection class | | | IP 65 | | | | | | | | | | | | | |
| Metal bellows coupling (recommended product type – validate sizing with cymex [®]) | | | BC3 - 00800A - 040.000 - X | | | | | | | | | | | | | |
| Bore diameter of coupling on the application side | | mm | X = 030.000 - 060.000 | | | | | | | | | | | | | |
| Mass moment of inertia (relates to the drive) | G 24 | J_i | kgcm ² | - | - | - | - | - | - | 10.40 | 10.10 | 10.10 | 8.80 | 9.50 | 9.40 | 9.30 |
| | | | 10 ⁻³ in.lb.s ² | - | - | - | - | - | - | 9.20 | 8.94 | 8.94 | 7.79 | 8.41 | 8.32 | 8.23 |
| Clamping hub diameter [mm] | K 38 | J_i | kgcm ² | 20.30 | 16.56 | 16.69 | 15.33 | 15.24 | 15.90 | 17.30 | 17.00 | 17.10 | 15.80 | 16.40 | 16.30 | 16.20 |
| | | | 10 ⁻³ in.lb.s ² | 17.97 | 14.66 | 14.77 | 13.57 | 13.49 | 14.07 | 15.31 | 15.05 | 15.13 | 13.98 | 14.51 | 14.43 | 14.34 |

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

- ^{a)} At max. 10 % F_{2QMax}
- ^{b)} Valid for standard Clamping hub diameter
- ^{c)} Refers to center of the output shaft or flange
- ^{d)} Please reduce input speed at higher ambient temperatures
- ^{e)} Smooth shaft

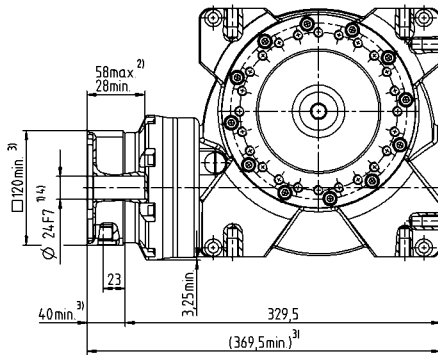
1-stage

up to 38⁴⁾ (K)⁶⁾
clamping hub diameter



2-stage

up to 24/38⁴⁾ (G⁶⁾/K)
clamping hub diameter



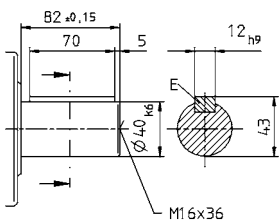
Motor shaft diameter [mm]

Optional dual-shaft output. Drawings available upon request.
Involute gearing is not possible.

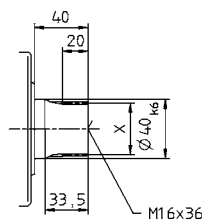
Worm gearboxes

Other output variants

Shaft with key



Spined shaft (DIN 5480)



See technical data sheet for available clamping hub diameters (mass moment of inertia). Dimensions available on request.

Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit.

²⁾ Min./Max. permissible motor shaft length.

Longer motor shafts are adaptable, please contact us.

³⁾ The dimensions depend on the motor.

⁴⁾ Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm.

⁵⁾ Output side

⁶⁾ Standard clamping hub diameter

VS+

VS+ 100 MF 1-/2-stage

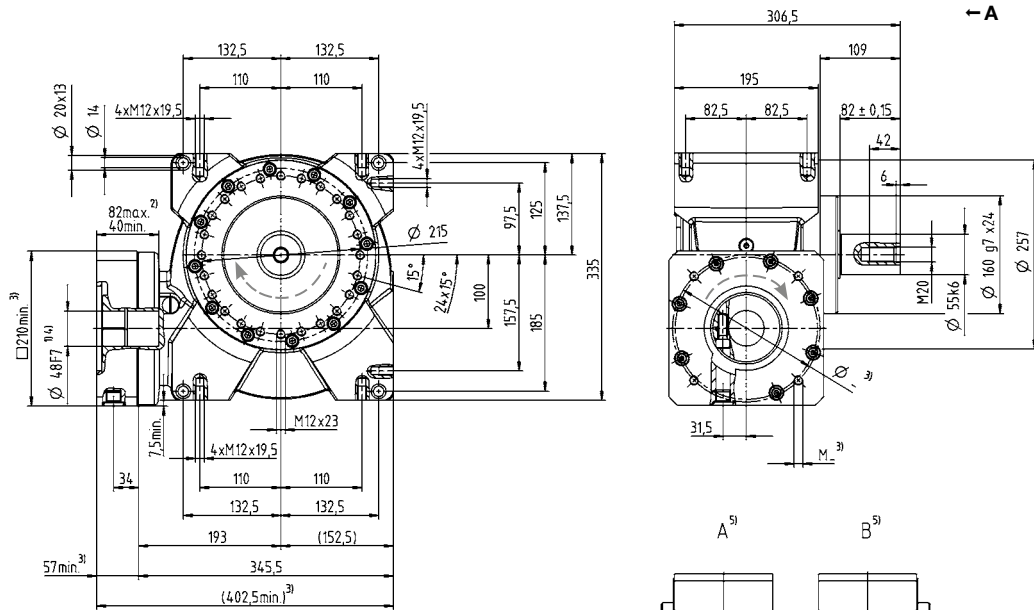
| | | | 1-stage | | | | | | 2-stage | | | | | | | | |
|--|--------------|-----------------|--------------------------------------|---------------------------------------|-------|-------|-------|-------|--------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Ratio | <i>i</i> | | 4 | 7 | 10 | 16 | 28 | 40 | 50 | 70 | 100 | 140 | 200 | 280 | 400 | | |
| Max. torque ^{a) b) e)} (at $n_1 = 500$ rpm) | T_{2a} | Nm | 1184 | 1336 | 1377 | 1392 | 1505 | 1376 | 1377 | 1336 | 1377 | 1505 | 1376 | 1505 | 1376 | | |
| | | in.lb | 10478 | 11824 | 12186 | 12319 | 13319 | 12178 | 12186 | 11825 | 12186 | 13319 | 12178 | 13319 | 12178 | | |
| Torque for constant backlash (over the lifetime) | T_{2Servo} | Nm | 1155 | 1304 | 1343 | 1359 | 1469 | 1343 | 1343 | 1304 | 1343 | 1469 | 1343 | 1469 | 1343 | | |
| | | in.lb | 10222 | 11540 | 11886 | 12027 | 13001 | 11886 | 11886 | 11541 | 11886 | 13001 | 11886 | 13001 | 11886 | | |
| Emergency stop torque ^{a) b) e)} (permitted 1000 times during the service life of the gearbox) | T_{2Not} | Nm | 1819 | 1932 | 1940 | 1955 | 2073 | 1856 | 1940 | 1940 | 1940 | 2073 | 1856 | 2073 | 1856 | | |
| | | in.lb | 16098 | 17098 | 17169 | 17302 | 18346 | 16426 | 17169 | 17169 | 17169 | 18346 | 16426 | 18346 | 16426 | | |
| Permitted average input speed (at 20 °C ambient temperature) ^{d)} | n_{1N} | rpm | 3000 | | | | | | 2700 | | | | | | | | |
| Max. input speed | n_{1Max} | rpm | 3500 | | | | | | 4000 | | | | | | | | |
| Mean no load running torque ^{b)} (at $n_1 = 3000$ rpm and 20 °C gearbox temperature) | T_{012} | Nm | 12.2 | 10.5 | 9.8 | 9.1 | 8.2 | 7.2 | 4.1 | 2.3 | 2.2 | 3.8 | 3.6 | 2.6 | 2 | | |
| | | in.lb | 108.0 | 92.9 | 86.7 | 80.5 | 72.6 | 63.7 | 36.3 | 20.4 | 19.5 | 33.6 | 31.9 | 23.0 | 17.7 | | |
| Max. backlash | j_1 | arcmin | Standard ≤ 3 / Reduced ≤ 2 | | | | | | Standard ≤ 4 / Reduced ≤ 3 | | | | | | | | |
| Torsional rigidity ^{b)} | C_{121} | Nm/arcmin | | | | | | | 153 | | | | | | | | |
| | | in.lb/arcmin | | | | | | | 1354 | | | | | | | | |
| Max. axial force ^{c)} | F_{2AMax} | N | | | | | | | 19500 | | | | | | | | |
| | | lb _f | | | | | | | 4388 | | | | | | | | |
| Max. lateral force ^{c)} | F_{2QMax} | N | | | | | | | 14000 | | | | | | | | |
| | | lb _f | | | | | | | 3150 | | | | | | | | |
| Max. tilting moment | M_{2KMax} | Nm | | | | | | | 3059 | | | | | | | | |
| | | in.lb | | | | | | | 27072 | | | | | | | | |
| Efficiency at full load (at $n_1 = 500$ rpm) | η | % | 95 | 93 | 91 | 87 | 80 | 76 | 89 | 89 | 89 | 78 | 74 | 78 | 74 | | |
| Service life | L_h | h | > 20000 | | | | | | | | | | | | | | |
| Weight (incl. standard adapter plate) | m | kg | 62.0 | | | | | | 64.6 | | | | | | | | |
| | | lb _m | 137.0 | | | | | | 143.0 | | | | | | | | |
| Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®]) | L_{PA} | dB(A) | ≤ 70 | | | | | | | | | | | | | | |
| Max. permitted housing temperature | | °C | +90 | | | | | | | | | | | | | | |
| | | F | 194 | | | | | | | | | | | | | | |
| Ambient temperature | | °C | -15 to +40 | | | | | | | | | | | | | | |
| | | F | 5 to 104 | | | | | | | | | | | | | | |
| Lubrication | | | Lubricated for life | | | | | | | | | | | | | | |
| Direction of rotation | | | In- and output same direction | | | | | | | | | | | | | | |
| Protection class | | | IP 65 | | | | | | | | | | | | | | |
| Metal bellows coupling (recommended product type – validate sizing with cymex [®]) | | | BC3 - 01500A - 055.000 - X | | | | | | | | | | | | | | |
| Bore diameter of coupling on the application side | | mm | X = 035.000 - 070.000 | | | | | | | | | | | | | | |
| Mass moment of inertia (relates to the drive) | K | 38 | J_1 | kgcm ² | - | - | - | - | - | - | 31.70 | 33.00 | 31.10 | 30.10 | 30.40 | 30.00 | 29.80 |
| | | | | 10 ⁻³ in.lb.s ² | - | - | - | - | - | - | 28.05 | 29.21 | 27.52 | 26.64 | 26.90 | 26.55 | 26.37 |
| Clamping hub diameter [mm] | M | 48 | J_1 | kgcm ² | 50.02 | 40.63 | 38.73 | 39.60 | 37.14 | 37.47 | 46.40 | 47.70 | 45.80 | 44.80 | 45.10 | 44.70 | 44.50 |
| | | | | 10 ⁻³ in.lb.s ² | 44.27 | 35.96 | 34.28 | 35.05 | 32.87 | 33.16 | 41.06 | 42.21 | 40.53 | 39.65 | 39.91 | 39.56 | 39.38 |

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

- ^{a)} At max. 10 % F_{2QMax}
- ^{b)} Valid for standard clamping hub diameter
- ^{c)} Refers to center of the output shaft or flange
- ^{d)} Please reduce input speed at higher ambient temperatures
- ^{e)} Smooth shaft

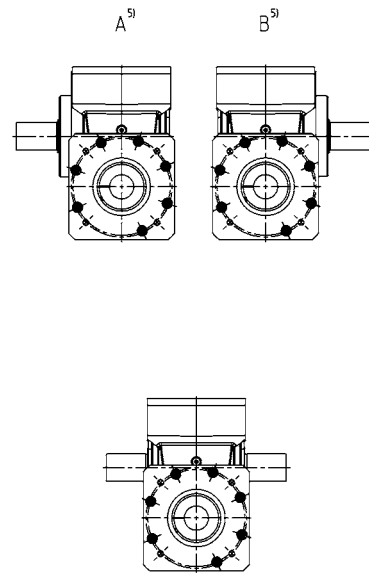
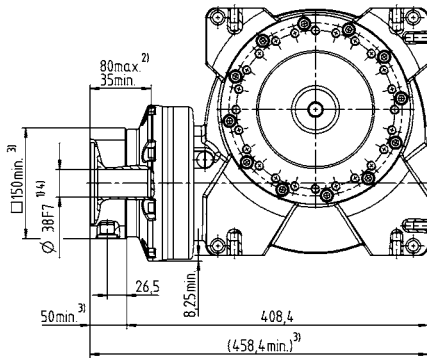
1-stage

up to 48⁴⁾ (M⁶⁾
clamping hub diameter



2-stage

up to 38/48⁴⁾
(K⁶⁾/M) clamping hub diameter



Optional dual-shaft output. Drawings available upon request.
Involute gearing is not possible.

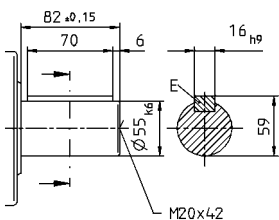
Motor shaft diameter [mm]

Worm gearboxes

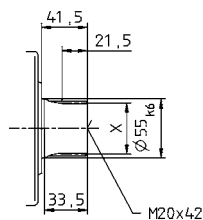
VS+

Other output variants

Shaft with key



Splined shaft (DIN 5480)



See technical data sheet for available clamping hub diameters (mass moment of inertia). Dimensions available on request.

Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit.

²⁾ Min./Max. permissible motor shaft length.

Longer motor shafts are adaptable, please contact us.

³⁾ The dimensions depend on the motor.

⁴⁾ Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm.

⁵⁾ Output side

⁶⁾ Standard clamping hub diameter

VT+ 050 MF 1-/2-stage

| | | | 1-stage | | | | | | 2-stage | | | | | | | | |
|--|--------------|-----------------|--------------------------------------|---------------------------------------|------|------|------|------|--------------------------------------|------|------|------|------|------|------|------|------|
| Ratio | i | | 4 | 7 | 10 | 16 | 28 | 40 | 50 | 70 | 100 | 140 | 200 | 280 | 400 | | |
| Max. torque ^{a) b)} (at $n_1 = 500$ rpm) | T_{2a} | Nm | 165 | 180 | 182 | 193 | 204 | 183 | 182 | 180 | 182 | 204 | 183 | 204 | 183 | | |
| | | in.lb | 1460 | 1593 | 1611 | 1708 | 1805 | 1620 | 1611 | 1593 | 1611 | 1805 | 1620 | 1805 | 1620 | | |
| Torque for constant backlash (over the lifetime) | T_{2Servo} | Nm | 54 | 71 | 74 | 81 | 90 | 74 | 74 | 71 | 74 | 90 | 74 | 90 | 74 | | |
| | | in.lb | 478 | 628 | 655 | 717 | 797 | 655 | 655 | 628 | 655 | 797 | 655 | 797 | 655 | | |
| Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox) | T_{2Not} | Nm | 230 | 242 | 242 | 250 | 262 | 236 | 242 | 242 | 242 | 262 | 236 | 262 | 236 | | |
| | | in.lb | 2036 | 2142 | 2142 | 2213 | 2319 | 2089 | 2142 | 2142 | 2142 | 2319 | 2089 | 2319 | 2089 | | |
| Permitted average input speed (at 20 °C ambient temperature) ^{d)} | n_{1N} | rpm | 4000 | | | | | | 3500 | | | | | | | | |
| Max. input speed | n_{1Max} | rpm | 6000 | | | | | | | | | | | | | | |
| Mean no load running torque ^{b)} (at $n_1 = 3000$ rpm and 20 °C gearbox temperature) | T_{012} | Nm | 2.3 | 2.2 | 1.6 | 1.5 | 1.2 | 1.1 | 0.7 | 0.5 | 0.4 | 0.6 | 0.6 | 0.4 | 0.4 | | |
| | | in.lb | 20.4 | 19.5 | 14.2 | 13.3 | 10.6 | 9.7 | 6.2 | 4.4 | 3.5 | 5.3 | 5.3 | 3.5 | 3.5 | | |
| Max. backlash | j_i | arcmin | Standard ≤ 3 / Reduced ≤ 2 | | | | | | Standard ≤ 4 / Reduced ≤ 3 | | | | | | | | |
| Torsional rigidity ^{b)} | C_{121} | Nm/arcmin | 17 | | | | | | 8 | | | | | | | | |
| | | in.lb/arcmin | 150 | | | | | | 71 | | | | | | | | |
| Max. axial force ^{c)} | F_{2AMax} | N | 5000 | | | | | | | | | | | | | | |
| | | lb _f | 1125 | | | | | | | | | | | | | | |
| Max. tilting moment | M_{2KMax} | Nm | 409 | | | | | | | | | | | | | | |
| | | in.lb | 3620 | | | | | | | | | | | | | | |
| Efficiency at full load (at $n_1 = 500$ rpm) | η | % | 92 | 89 | 86 | 82 | 72 | 64 | 84 | 87 | 84 | 70 | 62 | 70 | 62 | | |
| Tilting rigidity | C_{2K} | Nm/arcmin | 504 | | | | | | | | | | | | | | |
| | | in.lb/arcmin | 4460 | | | | | | | | | | | | | | |
| Service life | L_h | h | > 20000 | | | | | | | | | | | | | | |
| Weight (incl. standard adapter plate) | m | kg | 9.0 | | | | | | 9.5 | | | | | | | | |
| | | lb _m | 19.9 | | | | | | 21.0 | | | | | | | | |
| Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®]) | L_{PA} | dB(A) | ≤ 62 | | | | | | | | | | | | | | |
| Max. permitted housing temperature | | °C | +90 | | | | | | | | | | | | | | |
| | | F | 194 | | | | | | | | | | | | | | |
| Ambient temperature | | °C | -15 to +40 | | | | | | | | | | | | | | |
| | | F | 5 to 104 | | | | | | | | | | | | | | |
| Lubrication | | | Lubricated for life | | | | | | | | | | | | | | |
| Direction of rotation | | | In- and output same direction | | | | | | | | | | | | | | |
| Protection class | | | IP 65 | | | | | | | | | | | | | | |
| Metal bellows coupling (recommended product type – validate sizing with cymex [®]) | | | BCT-00060AAX-050.000 | | | | | | | | | | | | | | |
| Bore diameter of coupling on the application side | | mm | X = 014.000 - 035.000 | | | | | | | | | | | | | | |
| Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] | C | 14 | J_i | kgcm ² | - | - | - | - | - | - | 0.80 | 0.80 | 0.80 | 0.70 | 0.70 | 0.70 | 0.70 |
| | | | | 10 ⁻³ in.lb.s ² | - | - | - | - | - | - | 0.71 | 0.71 | 0.71 | 0.62 | 0.62 | 0.62 | 0.62 |
| | E | 19 | J_i | kgcm ² | 1.50 | 1.21 | 1.12 | 1.03 | 1.00 | 1.05 | 1.20 | 1.30 | 1.20 | 1.10 | 1.10 | 1.10 | 1.10 |
| | | | | 10 ⁻³ in.lb.s ² | 1.33 | 1.07 | 0.99 | 0.91 | 0.89 | 0.93 | 1.06 | 1.15 | 1.06 | 0.97 | 0.97 | 0.97 | 0.97 |
| | G | 24 | J_i | kgcm ² | 1.6 | 1.32 | 1.23 | 1.14 | 1.11 | 1.15 | - | - | - | - | - | - | - |
| | | | | 10 ⁻³ in.lb.s ² | 1.4 | 1.2 | 1.1 | 1.0 | 0.98 | 1.0 | - | - | - | - | - | - | - |

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

^{a)} At max. 10 % M_{2KMax}

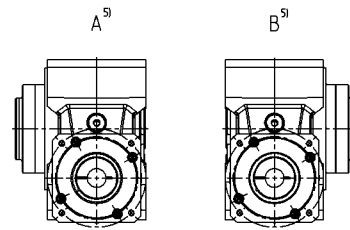
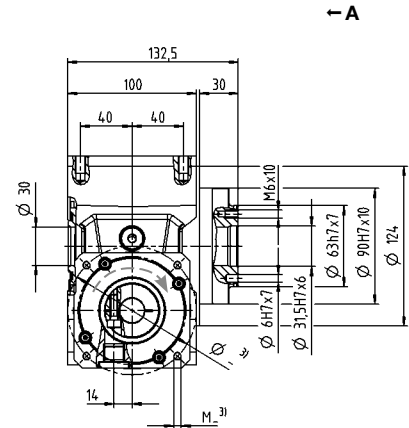
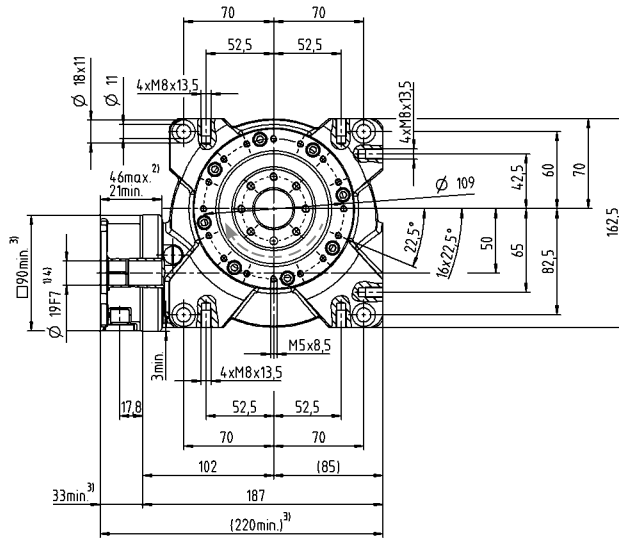
^{b)} Valid for standard clamping hub diameter

^{c)} Refers to center of the output shaft or flange

^{d)} Please reduce input speed at higher ambient temperatures

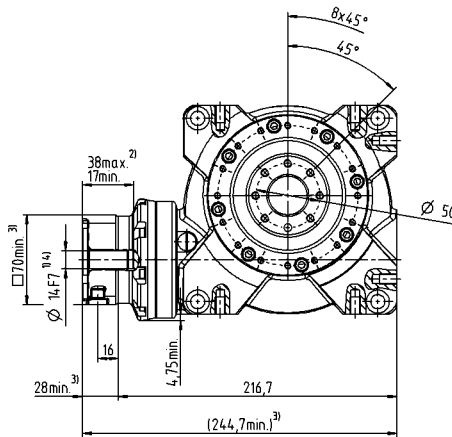
1-stage

up to 19/24⁴⁾
(E⁶⁾/G) clamping
hub diameter



2-stage

up to 14/19⁴⁾
(C⁶⁾/E) clamping
hub diameter



Motor shaft diameter [mm]

Worm gearboxes

See technical data sheet for available clamping hub diameters (mass moment of inertia). Dimensions available on request.

Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit.

²⁾ Min. / Max. permissible motor shaft length.

Longer motor shafts are adaptable, please contact us.

³⁾ The dimensions depend on the motor.

⁴⁾ Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm.

⁵⁾ Output side

⁶⁾ Standard clamping hub diameter

VT⁺

VT+ 063 MF 1-/2-stage

| | | | 1-stage | | | | | | 2-stage | | | | | | | |
|--|--------------|---------------------------------------|---------------------------------------|------|------|------|------|------|--------------------------------------|------|------|------|------|------|------|------|
| Ratio | <i>i</i> | | 4 | 7 | 10 | 16 | 28 | 40 | 50 | 70 | 100 | 140 | 200 | 280 | 400 | |
| Max. torque ^{a) b)} (at $n_1 = 500$ rpm) | T_{2a} | Nm | 319 | 353 | 364 | 372 | 392 | 363 | 364 | 353 | 364 | 392 | 363 | 392 | 363 | |
| | | in.lb | 2823 | 3124 | 3221 | 3292 | 3469 | 3213 | 3221 | 3124 | 3221 | 3469 | 3213 | 3469 | 3213 | |
| Torque for constant backlash (over the lifetime) | T_{2Servo} | Nm | 198 | 210 | 225 | 221 | 229 | 226 | 225 | 210 | 225 | 229 | 226 | 229 | 226 | |
| | | in.lb | 1752 | 1859 | 1991 | 1956 | 2027 | 2000 | 1991 | 1859 | 1991 | 2027 | 2000 | 2027 | 2000 | |
| Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox) | T_{2Not} | Nm | 460 | 484 | 491 | 494 | 518 | 447 | 491 | 484 | 494 | 518 | 447 | 518 | 447 | |
| | | in.lb | 4071 | 4283 | 4345 | 4372 | 4584 | 3956 | 4345 | 4283 | 4372 | 4584 | 3956 | 4584 | 3956 | |
| Permitted average input speed (at 20 °C ambient temperature) ^{d)} | n_{1N} | rpm | 4000 | | | | | | 3100 | | | | | | | |
| Max. input speed | n_{1Max} | rpm | 4500 | | | | | | | | | | | | | |
| Mean no load running torque ^{b)} (at $n_1 = 3000$ rpm and 20 °C gearbox temperature) | T_{012} | Nm | 4.2 | 3.1 | 3 | 2.4 | 2.3 | 2.2 | 1.2 | 0.7 | 0.7 | 1.1 | 1.1 | 0.8 | 0.6 | |
| | | in.lb | 37.2 | 27.4 | 26.6 | 21.2 | 20.4 | 19.5 | 10.6 | 6.2 | 6.2 | 9.7 | 9.7 | 7.1 | 5.3 | |
| Max. backlash | j_i | arcmin | Standard ≤ 3 / Reduced ≤ 2 | | | | | | Standard ≤ 4 / Reduced ≤ 3 | | | | | | | |
| Torsional rigidity ^{b)} | C_{121} | Nm/arcmin | 50 | | | | | | 28 | | | | | | | |
| | | in.lb/arcmin | 443 | | | | | | 248 | | | | | | | |
| Max. axial force ^{c)} | F_{2AMax} | N | 8250 | | | | | | | | | | | | | |
| | | lb _f | 1856 | | | | | | | | | | | | | |
| Max. tilting moment | M_{2KMax} | Nm | 843 | | | | | | | | | | | | | |
| | | in.lb | 7461 | | | | | | | | | | | | | |
| Efficiency at full load (at $n_1 = 500$ rpm) | η | % | 93 | 91 | 88 | 83 | 74 | 68 | 86 | 89 | 86 | 72 | 66 | 72 | 66 | |
| Tilting rigidity | C_{2K} | Nm/arcmin | 603 | | | | | | | | | | | | | |
| | | in.lb/arcmin | 5337 | | | | | | | | | | | | | |
| Service life | L_h | h | > 20000 | | | | | | | | | | | | | |
| Weight (incl. standard adapter plate) | m | kg | 15.0 | | | | | | 15.2 | | | | | | | |
| | | lb _m | 33 | | | | | | 34.0 | | | | | | | |
| Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®]) | L_{PA} | dB(A) | ≤ 64 | | | | | | | | | | | | | |
| Max. permitted housing temperature | | °C | +90 | | | | | | | | | | | | | |
| | | F | 194 | | | | | | | | | | | | | |
| Ambient temperature | | °C | -15 to +40 | | | | | | | | | | | | | |
| | | F | 5 to 104 | | | | | | | | | | | | | |
| Lubrication | | | Lubricated for life | | | | | | | | | | | | | |
| Direction of rotation | | | In- and output same direction | | | | | | | | | | | | | |
| Protection class | | | IP 65 | | | | | | | | | | | | | |
| Metal bellows coupling (recommended product type – validate sizing with cymex [®]) | | | BCT-00150AAX-063.000 | | | | | | | | | | | | | |
| Bore diameter of coupling on the application side | | mm | X = 019.000 - 042.000 | | | | | | | | | | | | | |
| Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] | E 19 | J_1 | kgcm ² | - | - | - | - | - | - | 2.60 | 2.80 | 2.50 | 2.40 | 2.40 | 2.40 | |
| | | | 10 ⁻³ in.lb.s ² | - | - | - | - | - | - | - | 2.30 | 2.48 | 2.21 | 2.12 | 2.12 | 2.12 |
| | G 24 | J_1 | kgcm ² | - | - | - | - | - | - | 4.10 | 4.30 | 4.10 | 4.00 | 4.00 | 3.90 | 3.90 |
| | | | 10 ⁻³ in.lb.s ² | - | - | - | - | - | - | - | 3.63 | 3.81 | 3.63 | 3.54 | 3.54 | 3.45 |
| H 28 | J_1 | kgcm ² | 4.80 | 3.89 | 3.65 | 3.56 | 3.52 | 3.47 | - | - | - | - | - | - | - | |
| | | 10 ⁻³ in.lb.s ² | 4.25 | 3.44 | 3.23 | 3.15 | 3.12 | 3.07 | - | - | - | - | - | - | - | |

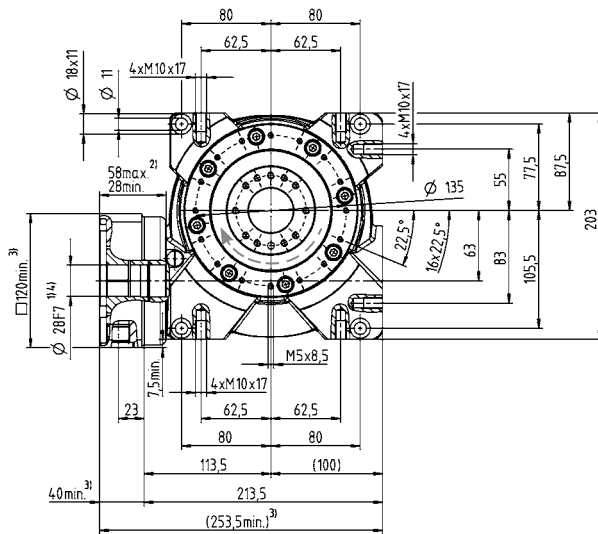
Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

- ^{a)} At max. 10 % M_{2KMax}
- ^{b)} Valid for standard clamping hub diameter
- ^{c)} Refers to center of the output shaft or flange
- ^{d)} Please reduce input speed at higher ambient temperatures

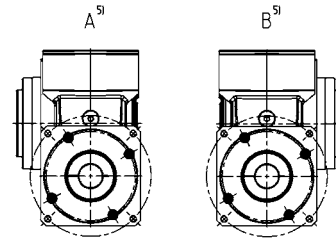
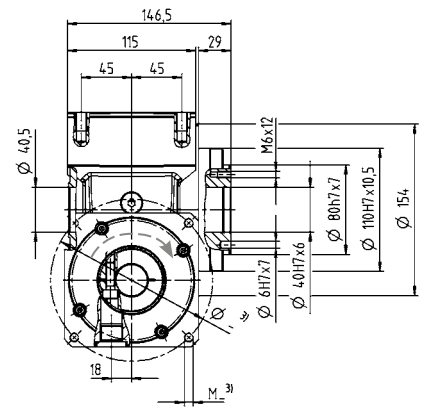
View A

1-stage

up to 28⁴⁾ (H)⁶⁾
clamping hub diameter

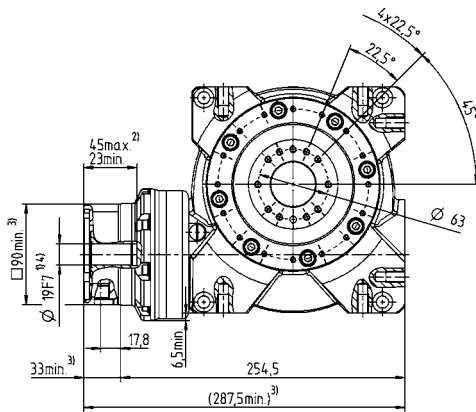


← A



2-stage

up to 19/24⁴⁾
(E⁶⁾/G) clamping hub diameter



Motor shaft diameter [mm]

Worm gearboxes

See technical data sheet for available clamping hub diameters (mass moment of inertia). Dimensions available on request.

Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit.

²⁾ Min. / Max. permissible motor shaft length.

Longer motor shafts are adaptable, please contact us.

³⁾ The dimensions depend on the motor.

⁴⁾ Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm.

⁵⁾ Output side

⁶⁾ Standard clamping hub diameter

VT+

VT+ 080 MF 1-/2-stage

| | | | 1-stage | | | | | | 2-stage | | | | | | | | |
|--|--------------|-----------------|--------------------------------------|---------------------------------------|-------|-------|-------|-------|--------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Ratio | <i>i</i> | | 4 | 7 | 10 | 16 | 28 | 40 | 50 | 70 | 100 | 140 | 200 | 280 | 400 | | |
| Max. torque ^{a) b)} (at $n_n = 500$ rpm) | T_{2a} | Nm | 578 | 646 | 672 | 702 | 785 | 676 | 672 | 646 | 672 | 785 | 676 | 785 | 676 | | |
| | | in.lb | 5115 | 5717 | 5947 | 6213 | 6947 | 5983 | 5947 | 5717 | 5947 | 6947 | 5983 | 6947 | 5983 | | |
| Torque for constant backlash (over the lifetime) | T_{2Servo} | Nm | 469 | 601 | 613 | 677 | 764 | 631 | 613 | 601 | 613 | 764 | 631 | 764 | 631 | | |
| | | in.lb | 4151 | 5319 | 5425 | 5991 | 6761 | 5584 | 5425 | 5319 | 5425 | 6761 | 5584 | 6761 | 5584 | | |
| Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox) | T_{2Not} | Nm | 938 | 993 | 963 | 1005 | 1064 | 941 | 963 | 993 | 963 | 1064 | 941 | 1064 | 941 | | |
| | | in.lb | 8301 | 8788 | 8523 | 8894 | 9416 | 8328 | 8523 | 8788 | 8523 | 9416 | 8328 | 9416 | 8328 | | |
| Permitted average input speed (at 20 °C ambient temperature) ^{d)} | n_{1N} | rpm | 3500 | | | | | | 2900 | | | | | | | | |
| Max. input speed | n_{1Max} | rpm | 4000 | | | | | | 4500 | | | | | | | | |
| Mean no load running torque ^{b)} (at $n_n = 3000$ rpm and 20 °C gearbox temperature) | T_{012} | Nm | 7.2 | 7.1 | 6.5 | 5 | 4.8 | 4.5 | 2.8 | 1.6 | 1.5 | 2.4 | 2.4 | 1.8 | 1.3 | | |
| | | in.lb | 63.7 | 62.8 | 57.5 | 44.3 | 42.5 | 39.8 | 24.8 | 14.2 | 13.3 | 21.2 | 21.2 | 15.9 | 11.5 | | |
| Max. backlash | j_i | arcmin | Standard ≤ 3 / Reduced ≤ 2 | | | | | | Standard ≤ 4 / Reduced ≤ 3 | | | | | | | | |
| Torsional rigidity ^{b)} | C_{121} | Nm/arcmin | 113 | | | | | | 78 | | | | | | | | |
| | | in.lb/arcmin | 1000 | | | | | | 690 | | | | | | | | |
| Max. axial force ^{c)} | F_{2AMax} | N | 13900 | | | | | | 13900 | | | | | | | | |
| | | lb _f | 3128 | | | | | | 3128 | | | | | | | | |
| Max. tilting moment | M_{2KMax} | Nm | 1544 | | | | | | 1544 | | | | | | | | |
| | | in.lb | 13664 | | | | | | 13664 | | | | | | | | |
| Efficiency at full load (at $n_n = 500$ rpm) | η | % | 94 | 92 | 89 | 86 | 77 | 70 | 87 | 90 | 87 | 75 | 68 | 75 | 68 | | |
| Tilting rigidity | C_{2K} | Nm/arcmin | 1178 | | | | | | 1178 | | | | | | | | |
| | | in.lb/arcmin | 10425 | | | | | | 10425 | | | | | | | | |
| Service life | L_h | h | > 20000 | | | | | | > 20000 | | | | | | | | |
| Weight (incl. standard adapter plate) | m | kg | 32.0 | | | | | | 33.5 | | | | | | | | |
| | | lb _m | 70.7 | | | | | | 74.0 | | | | | | | | |
| Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®]) | L_{PA} | dB(A) | ≤ 66 | | | | | | ≤ 68 | | | | | | | | |
| Max. permitted housing temperature | | °C | +90 | | | | | | +90 | | | | | | | | |
| | | F | 194 | | | | | | 194 | | | | | | | | |
| Ambient temperature | | °C | -15 to +40 | | | | | | -15 to +40 | | | | | | | | |
| | | F | 5 to 104 | | | | | | 5 to 104 | | | | | | | | |
| Lubrication | | | Lubricated for life | | | | | | Lubricated for life | | | | | | | | |
| Direction of rotation | | | In- and output same direction | | | | | | In- and output same direction | | | | | | | | |
| Protection class | | | IP 65 | | | | | | IP 65 | | | | | | | | |
| Metal bellows coupling (recommended product type – validate sizing with cymex [®]) | | | BCT-00300AAX-080.000 | | | | | | BCT-00300AAX-080.000 | | | | | | | | |
| Bore diameter of coupling on the application side | | mm | X = 024.000 - 060.000 | | | | | | X = 024.000 - 060.000 | | | | | | | | |
| Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] | G | 24 | J_1 | kgcm ² | - | - | - | - | - | 10.40 | 10.10 | 10.10 | 8.80 | 9.50 | 9.40 | 9.30 | |
| | | | | 10 ⁻³ in.lb.s ² | - | - | - | - | - | 9.20 | 8.94 | 8.94 | 7.79 | 8.41 | 8.32 | 8.23 | |
| | K | 38 | J_1 | kgcm ² | 20.30 | 16.56 | 16.69 | 15.33 | 15.24 | 15.90 | 17.30 | 17.00 | 17.10 | 15.80 | 16.40 | 16.30 | 16.20 |
| | | | | 10 ⁻³ in.lb.s ² | 17.97 | 14.66 | 14.77 | 13.57 | 13.49 | 14.07 | 15.31 | 15.05 | 15.13 | 13.98 | 14.51 | 14.43 | 14.34 |

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

- ^{a)} At max. 10 % M_{2KMax}
- ^{b)} Valid for standard clamping hub diameter
- ^{c)} Refers to center of the output shaft or flange
- ^{d)} Please reduce input speed at higher ambient temperatures

VT+ 100 MF 1-/2-stage

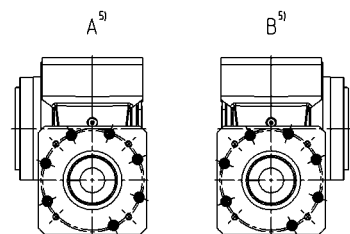
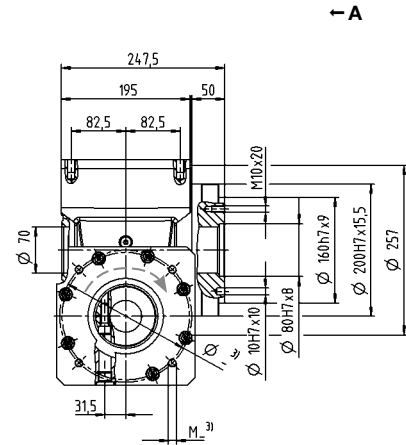
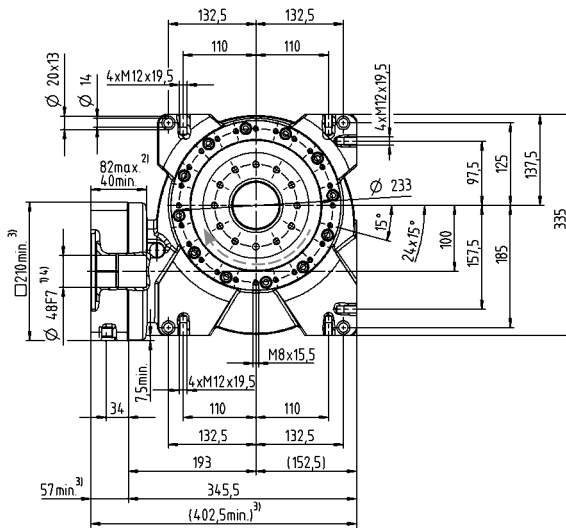
| | | | 1-stage | | | | | | 2-stage | | | | | | | | |
|--|--------------|-----------------|--------------------------------------|---------------------------------------|-------|-------|-------|-------|--------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Ratio | <i>i</i> | | 4 | 7 | 10 | 16 | 28 | 40 | 50 | 70 | 100 | 140 | 200 | 280 | 400 | | |
| Max. torque ^{a) b)} (at $n_1 = 500$ rpm) | T_{2a} | Nm | 1184 | 1336 | 1377 | 1392 | 1505 | 1376 | 1377 | 1336 | 1377 | 1505 | 1376 | 1505 | 1376 | | |
| | | in.lb | 10478 | 11824 | 12186 | 12319 | 13319 | 12178 | 12186 | 11825 | 12186 | 13319 | 12178 | 13319 | 12178 | | |
| Torque for constant backlash (over the lifetime) | T_{2Servo} | Nm | 1155 | 1304 | 1343 | 1359 | 1469 | 1343 | 1343 | 1304 | 1343 | 1469 | 1343 | 1469 | 1343 | | |
| | | in.lb | 10222 | 11540 | 11886 | 12027 | 13001 | 11886 | 11886 | 11541 | 11886 | 13001 | 11886 | 13001 | 11886 | | |
| Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox) | T_{2Not} | Nm | 1819 | 1932 | 1940 | 1955 | 2073 | 1856 | 1940 | 1940 | 1940 | 2073 | 1856 | 2073 | 1856 | | |
| | | in.lb | 16098 | 17098 | 17169 | 17302 | 18346 | 16426 | 17169 | 17169 | 17169 | 18346 | 16426 | 18346 | 16426 | | |
| Permitted average input speed (at 20 °C ambient temperature) ^{d)} | n_{1N} | rpm | 3000 | | | | | | 2700 | | | | | | | | |
| Max. input speed | n_{1Max} | rpm | 3500 | | | | | | 4000 | | | | | | | | |
| Mean no load running torque ^{b)} (at $n_1 = 3000$ rpm and 20 °C gearbox temperature) | T_{012} | Nm | 12.2 | 10.5 | 9.8 | 9.1 | 8.2 | 7.2 | 4.1 | 2.3 | 2.2 | 3.8 | 3.6 | 2.6 | 2 | | |
| | | in.lb | 108.0 | 92.9 | 86.7 | 80.5 | 72.6 | 63.7 | 36.3 | 20.4 | 19.5 | 33.6 | 31.9 | 23.0 | 17.7 | | |
| Max. backlash | j_i | arcmin | Standard ≤ 3 / Reduced ≤ 2 | | | | | | Standard ≤ 4 / Reduced ≤ 3 | | | | | | | | |
| Torsional rigidity ^{b)} | C_{121} | Nm/arcmin | 213 | | | | | | 153 | | | | | | | | |
| | | in.lb/arcmin | 1885 | | | | | | 1354 | | | | | | | | |
| Max. axial force ^{c)} | F_{2AMax} | N | 19500 | | | | | | | | | | | | | | |
| | | lb _f | 4388 | | | | | | | | | | | | | | |
| Max. tilting moment | M_{2KMax} | Nm | 3059 | | | | | | | | | | | | | | |
| | | in.lb | 27072 | | | | | | | | | | | | | | |
| Efficiency at full load (at $n_1 = 500$ rpm) | η | % | 95 | 93 | 91 | 87 | 80 | 76 | 89 | 89 | 89 | 78 | 74 | 78 | 74 | | |
| Tilting rigidity | C_{2K} | Nm/arcmin | 2309 | | | | | | | | | | | | | | |
| | | in.lb/arcmin | 20435 | | | | | | | | | | | | | | |
| Service life | L_h | h | > 20000 | | | | | | | | | | | | | | |
| Weight (incl. standard adapter plate) | m | kg | 63.0 | | | | | | 64.6 | | | | | | | | |
| | | lb _m | 139.0 | | | | | | 143.0 | | | | | | | | |
| Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®]) | L_{PA} | dB(A) | ≤ 70 | | | | | | | | | | | | | | |
| Max. permitted housing temperature | | °C | +90 | | | | | | | | | | | | | | |
| | | F | 194 | | | | | | | | | | | | | | |
| Ambient temperature | | °C | -15 to +40 | | | | | | | | | | | | | | |
| | | F | 5 to 104 | | | | | | | | | | | | | | |
| Lubrication | | | Lubricated for life | | | | | | | | | | | | | | |
| Direction of rotation | | | In- and output same direction | | | | | | | | | | | | | | |
| Protection class | | | IP 65 | | | | | | | | | | | | | | |
| Metal bellows coupling (recommended product type – validate sizing with cymex [®]) | | | BCT-01500AAX-125.000 | | | | | | | | | | | | | | |
| Bore diameter of coupling on the application side | | mm | X = 050.000 - 080.000 | | | | | | | | | | | | | | |
| Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] | K | 38 | J_1 | kgcm ² | - | - | - | - | - | 31.70 | 33.00 | 31.10 | 30.10 | 30.40 | 30.00 | 29.80 | |
| | | | | 10 ⁻³ in.lb.s ² | - | - | - | - | - | 28.05 | 29.21 | 27.52 | 26.64 | 26.90 | 26.55 | 26.37 | |
| | M | 48 | J_1 | kgcm ² | 50.02 | 40.63 | 38.73 | 39.60 | 37.14 | 37.47 | 46.40 | 47.70 | 45.80 | 44.80 | 45.10 | 44.70 | 44.50 |
| | | | | 10 ⁻³ in.lb.s ² | 44.27 | 35.96 | 34.28 | 35.05 | 32.87 | 33.16 | 41.06 | 42.21 | 40.53 | 39.65 | 39.91 | 39.56 | 39.38 |

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

- ^{a)} At max. 10 % M_{2KMax}
- ^{b)} Valid for standard clamping hub diameter
- ^{c)} Refers to center of the output shaft or flange
- ^{d)} Please reduce input speed at higher ambient temperatures

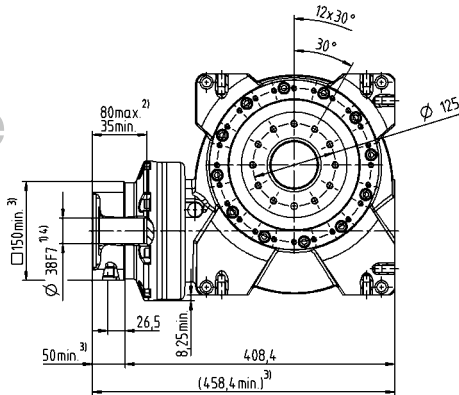
1-stage

up to 48⁴⁾ (M⁶⁾
clamping hub diameter



2-stage

up to 38 / 48⁴⁾
(K⁶⁾ / (M) clamping hub diameter



Motor shaft diameter [mm]

Worm gearboxes

See technical data sheet for available clamping hub diameters (mass moment of inertia). Dimensions available on request.

- Non-tolerated dimensions are nominal dimensions
- ¹⁾ Check motor shaft fit.
- ²⁾ Min. / Max. permissible motor shaft length.
Longer motor shafts are adaptable, please contact us.
- ³⁾ The dimensions depend on the motor.
- ⁴⁾ Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm.
- ⁵⁾ Output side
- ⁶⁾ Standard clamping hub diameter

VT+