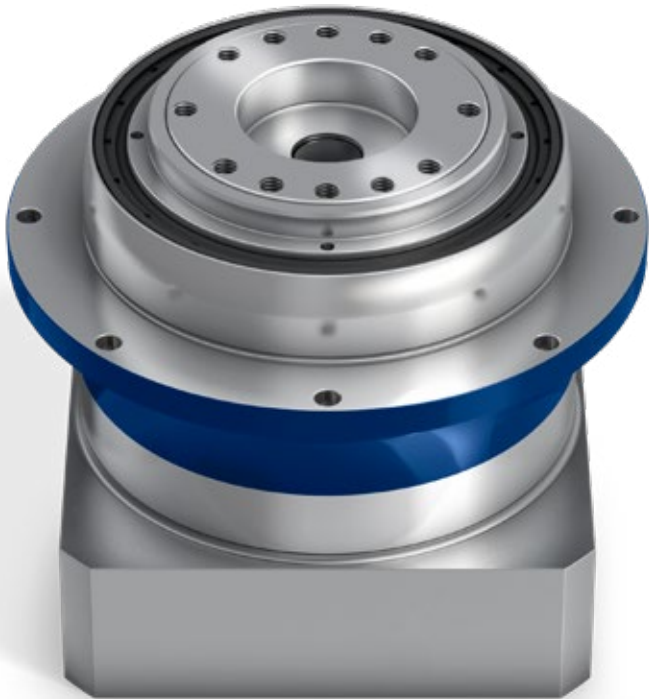


TP+ / TP+ HIGH TORQUE – Compact precision



TP+

Product highlights

Max. torsional backlash [arcmin] $\leq 1 - 4$

High torsional rigidity

Space-saving design

Available output types

Flange, System output

Flexible drive options

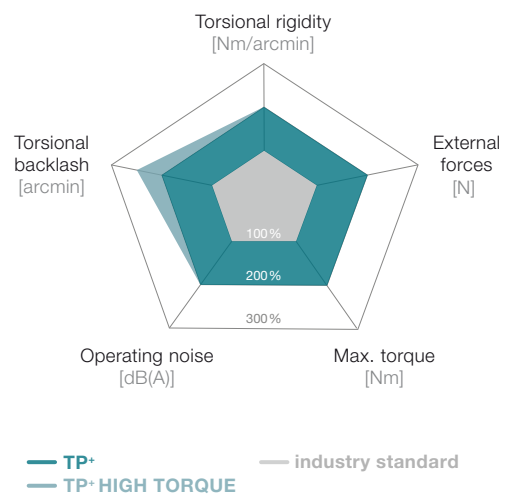
Clamping hub socket, optimized mass inertia, keyed clamping hub socket

Other gearbox models

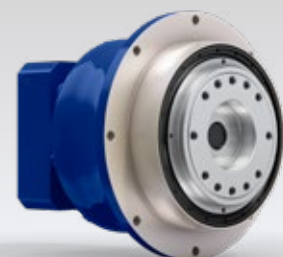
Corrosion resistant design, food-grade lubrication

Compact top performers with output flange. The standard version is ideally suited for high positioning accuracy and highly dynamic cyclic operation. The TP+ HIGH TORQUE is particularly appropriate for high-precision applications in which high torsional rigidity is required.

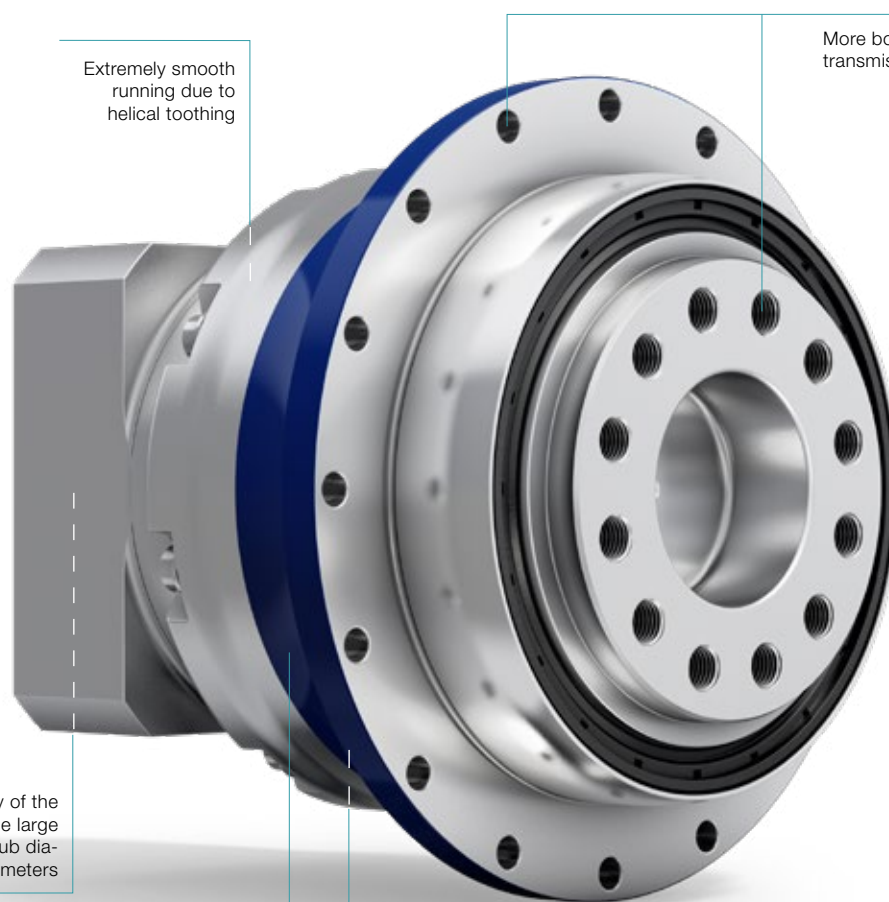
TP+ compared to the industry standard



TP+ 2000



TP+ in corrosion resistant design



Extremely smooth running due to helical toothing

More bores for very high torque transmission

Connectivity of the motor shafts due to the large number of clamping hub diameters

Very high torque density due to superior toothing concept

TP+ HIGH TORQUE

Tapered roller bearing for absorbing axial and radial forces



TP+ HIGH TORQUE with rack and pinion



premo® TP Line

TP+ 004 MF 1-stage

| | | | | 1-stage | | | | | |
|--|---|----|---------------------------|---|-------------------------------|------|------|------|------|
| Ratio | | | <i>i</i> | | 4 | 5 | 7 | 8 | 10 |
| Max. torque ^{a) b)} | | | <i>T</i> _{2a} | <i>Nm</i> | 83 | 83 | 83 | 56 | 56 |
| | | | | <i>in.lb</i> | 735 | 735 | 735 | 496 | 496 |
| Max. acceleration torque ^{b)} (max. 1000 cycles per hour) | | | <i>T</i> _{2B} | <i>Nm</i> | 66 | 66 | 66 | 42 | 42 |
| | | | | <i>in.lb</i> | 584 | 584 | 584 | 372 | 372 |
| Nominal torque (at <i>n</i> _n) | | | <i>T</i> _{2N} | <i>Nm</i> | 27 | 27 | 26 | 26 | 27 |
| | | | | <i>in.lb</i> | 239 | 236 | 226 | 230 | 237 |
| Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox) | | | <i>T</i> _{2Not} | <i>Nm</i> | 100 | 100 | 100 | 100 | 100 |
| | | | | <i>in.lb</i> | 885 | 885 | 885 | 885 | 885 |
| Permitted average input speed (at <i>T</i> _{2N} and 20 °C ambient temperature) ^{d)} | | | <i>n</i> _{1N} | <i>rpm</i> | 3300 | 3300 | 4000 | 4000 | 4000 |
| Max. input speed | | | <i>n</i> _{1Max} | <i>rpm</i> | 7500 | 7500 | 7500 | 7500 | 7500 |
| Mean no load running torque ^{b)} (at <i>n</i> _i = 3000 rpm and 20 °C gearbox temperature) | | | <i>T</i> ₀₁₂ | <i>Nm</i> | 0.56 | 0.48 | 0.37 | 0.37 | 0.31 |
| | | | | <i>in.lb</i> | 5.0 | 4.2 | 3.3 | 3.3 | 2.7 |
| Max. backlash | | | <i>j</i> _t | <i>arcmin</i> | Standard ≤ 4 / Reduced ≤ 2 | | | | |
| Torsional rigidity ^{b)} | | | <i>C</i> ₁₂₁ | <i>Nm/arcmin</i> | 12 | 12 | 11 | 8 | 8 |
| | | | | <i>in.lb/arcmin</i> | 106 | 106 | 97 | 71 | 71 |
| Tilting rigidity | | | <i>C</i> _{2K} | <i>Nm/arcmin</i> | 85 | | | | |
| | | | | <i>in.lb/arcmin</i> | 752 | | | | |
| Max. axial force ^{c)} | | | <i>F</i> _{2AMax} | <i>N</i> | 2119 | | | | |
| | | | | <i>lb_f</i> | 477 | | | | |
| Max. tilting moment | | | <i>M</i> _{2KMax} | <i>Nm</i> | 110 | | | | |
| | | | | <i>in.lb</i> | 974 | | | | |
| Efficiency at full load | | | <i>η</i> | % | 97 | | | | |
| Service life ^{f)} | | | <i>L</i> _h | <i>h</i> | > 20000 | | | | |
| Weight (incl. standard adapter plate) | | | <i>m</i> | <i>kg</i> | 1.4 | | | | |
| | | | | <i>lb_m</i> | 3.1 | | | | |
| Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®]) | | | <i>L</i> _{PA} | <i>dB(A)</i> | ≤ 55 | | | | |
| Max. permitted housing temperature | | | | °C | +90 | | | | |
| | | | | <i>F</i> | 194 | | | | |
| Ambient temperature | | | | °C | –15 to +40 | | | | |
| | | | | <i>F</i> | 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-00015AAX-031.500 | | | | |
| Bore diameter of coupling on the application side | | | | <i>mm</i> | X = 012.000 - 028.000 | | | | |
| Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] Optimized mass inertia version available on request | B | 11 | <i>J</i> _i | <i>kgcm</i> ² | 0.17 | 0.14 | 0.11 | 0.11 | 0.09 |
| | | | | <i>10⁻³ in.lb.s</i> ² | 0.15 | 0.12 | 0.10 | 0.10 | 0.08 |
| | C | 14 | <i>J</i> _i | <i>kgcm</i> ² | 0.25 | 0.21 | 0.18 | 0.18 | 0.17 |
| | | | | <i>10⁻³ in.lb.s</i> ² | 0.22 | 0.19 | 0.16 | 0.16 | 0.15 |
| | E | 19 | <i>J</i> _i | <i>kgcm</i> ² | 0.57 | 0.54 | 0.51 | 0.51 | 0.49 |
| | | | | <i>10⁻³ in.lb.s</i> ² | 0.50 | 0.48 | 0.45 | 0.45 | 0.43 |

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com

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

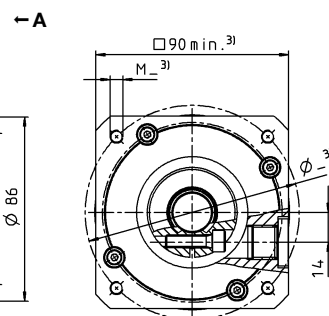
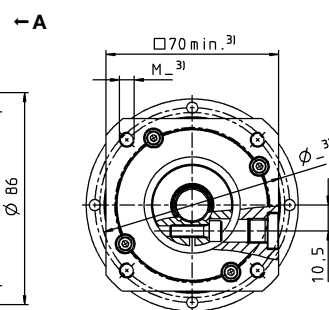
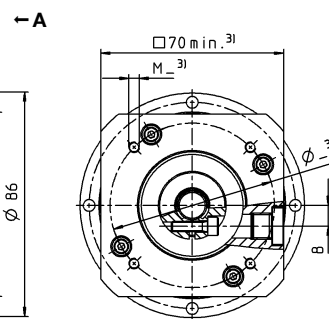
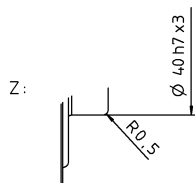
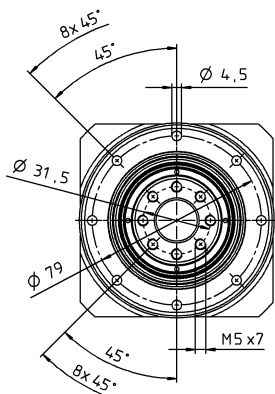
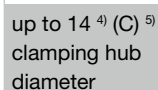
^{b)} Valid for standard clamping hub diameter

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

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

^{f)} Please contact us to discuss
application-specific service lifetimes

up to 11 ⁴⁾ (B)
clamping hub
diameter

⁵⁾ Standard clamping hub diameter

TP+ 004 MF 2-stage

| | | | | 2-stage | | | | | | | | | | | | | | | | | |
|--|--|--|---------------------------|-----------------------|-------------------------------|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Ratio | | | <i>i</i> | | 16 | 20 | 21 | 25 | 28 | 31 | 32 | 35 | 40 | 50 | 61 | 64 | 70 | 91 | 100 | | |
| Max. torque ^{a) b)} | | | <i>T</i> _{2a} | <i>Nm</i> | 57 | 57 | 60 | 72 | 57 | 50 | 57 | 72 | 57 | 72 | 49 | 48 | 56 | 43 | 48 | | |
| | | | | <i>in.lb</i> | 507 | 507 | 533 | 634 | 507 | 442 | 507 | 634 | 507 | 634 | 435 | 423 | 499 | 385 | 423 | | |
| Max. acceleration torque ^{b)} (max. 1000 cycles per hour) | | | <i>T</i> _{2B} | <i>Nm</i> | 57 | 57 | 48 | 66 | 57 | 48 | 57 | 66 | 57 | 66 | 49 | 42 | 56 | 38 | 42 | | |
| | | | | <i>in.lb</i> | 507 | 507 | 425 | 584 | 504 | 425 | 507 | 584 | 507 | 584 | 434 | 372 | 496 | 336 | 372 | | |
| Nominal torque (at <i>n</i> _n) | | | <i>T</i> _{2N} | <i>Nm</i> | 39 | 41 | 32 | 41 | 45 | 36 | 39 | 45 | 46 | 48 | 39 | 34 | 45 | 31 | 34 | | |
| | | | | <i>in.lb</i> | 342 | 365 | 286 | 361 | 403 | 320 | 343 | 399 | 406 | 421 | 341 | 297 | 399 | 272 | 297 | | |
| Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox) | | | <i>T</i> _{2Not} | <i>Nm</i> | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | | |
| | | | | <i>in.lb</i> | 885 | 885 | 885 | 885 | 885 | 885 | 885 | 885 | 885 | 885 | 885 | 885 | 885 | 885 | 885 | 885 | |
| Permitted average input speed (at <i>T</i> _{2n} and 20 °C ambient temperature) ^{d)} | | | <i>n</i> _{1N} | <i>rpm</i> | 4000 | 4000 | 4000 | 4000 | 4000 | 4000 | 4000 | 4000 | 4000 | 4800 | 5500 | 4800 | 5500 | 5500 | 5500 | | |
| Max. input speed | | | <i>n</i> _{1Max} | <i>rpm</i> | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | | |
| Mean no load running torque ^{b)} (at <i>n</i> _i = 3000 rpm and 20 °C gearbox temperature) | | | <i>T</i> ₀₁₂ | <i>Nm</i> | 0.28 | 0.23 | 0.24 | 0.22 | 0.21 | 0.22 | 0.21 | 0.17 | 0.18 | 0.17 | 0.16 | 0.17 | 0.17 | 0.15 | 0.16 | | |
| | | | | <i>in.lb</i> | 2.5 | 2.0 | 2.1 | 1.9 | 1.9 | 1.9 | 1.9 | 1.5 | 1.6 | 1.5 | 1.4 | 1.5 | 1.5 | 1.3 | 1.4 | | |
| Max. backlash | | | <i>j</i> _t | <i>arcmin</i> | Standard ≤ 4 / Reduced ≤ 2 | | | | | | | | | | | | | | | | |
| Torsional rigidity ^{b)} | | | <i>C</i> _{t21} | <i>Nm/arcmin</i> | 12 | 12 | 10 | 12 | 12 | 9 | 12 | 12 | 11 | 12 | 9 | 12 | 11 | 7 | 8 | | |
| | | | | <i>in.lb/arcmin</i> | 106 | 106 | 89 | 106 | 106 | 80 | 106 | 106 | 97 | 106 | 80 | 106 | 97 | 62 | 71 | | |
| Tilting rigidity | | | <i>C</i> _{2K} | <i>Nm/arcmin</i> | 85 | | | | | | | | | | | | | | | | |
| | | | | <i>in.lb/arcmin</i> | 752 | | | | | | | | | | | | | | | | |
| Max. axial force ^{c)} | | | <i>F</i> _{2AMax} | <i>N</i> | 2119 | | | | | | | | | | | | | | | | |
| | | | | <i>lb_f</i> | 477 | | | | | | | | | | | | | | | | |
| Max. tilting moment | | | <i>M</i> _{2KMax} | <i>Nm</i> | 110 | | | | | | | | | | | | | | | | |
| | | | | <i>in.lb</i> | 974 | | | | | | | | | | | | | | | | |
| Efficiency at full load | | | <i>η</i> | % | 94 | | | | | | | | | | | | | | | | |
| Service life ^{f)} | | | <i>L</i> _h | <i>h</i> | > 20000 | | | | | | | | | | | | | | | | |
| Weight (incl. standard adapter plate) | | | <i>m</i> | <i>kg</i> | 1.5 | | | | | | | | | | | | | | | | |
| | | | | <i>lb_m</i> | 3.3 | | | | | | | | | | | | | | | | |
| Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®) | | | <i>L</i> _{PA} | <i>dB(A)</i> | ≤ 54 | | | | | | | | | | | | | | | | |
| Max. permitted housing temperature | | | | °C | +90 | | | | | | | | | | | | | | | | |
| | | | | <i>F</i> | 194 | | | | | | | | | | | | | | | | |
| Ambient temperature | | | | °C | -15 to +40 | | | | | | | | | | | | | | | | |
| | | | | <i>F</i> | 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-00015AAX-031.500 | | | | | | | | | | | | | | | | |
| Bore diameter of coupling on the application side | | | | <i>mm</i> | X = 012.000 - 028.000 | | | | | | | | | | | | | | | | |
| Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] Optimized mass inertia version available on request | | | B | 11 | <i>J</i> _i | <i>kgcm²</i> | 0.078 | 0.070 | 0.074 | 0.068 | 0.062 | 0.072 | 0.062 | 0.061 | 0.057 | 0.057 | 0.058 | 0.060 | 0.056 | 0.057 | 0.056 |
| | | | | | | <i>10⁻³ in.lb.s²</i> | 0.069 | 0.062 | 0.065 | 0.060 | 0.055 | 0.064 | 0.055 | 0.054 | 0.050 | 0.050 | 0.051 | 0.053 | 0.050 | 0.050 | 0.050 |
| | | | C | 14 | <i>J</i> _i | <i>kgcm²</i> | 0.17 | 0.17 | 0.17 | 0.16 | 0.16 | 0.17 | 0.16 | 0.16 | 0.15 | 0.15 | 0.15 | 0.16 | 0.15 | 0.15 | 0.15 |
| | | | | | | <i>10⁻³ in.lb.s²</i> | 0.15 | 0.15 | 0.15 | 0.15 | 0.14 | 0.15 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.13 | 0.14 |

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com

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

^{b)} Valid for standard clamping hub diameter

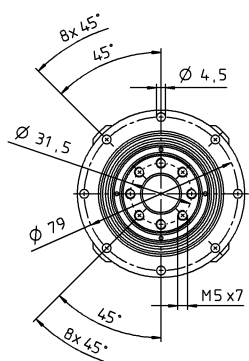
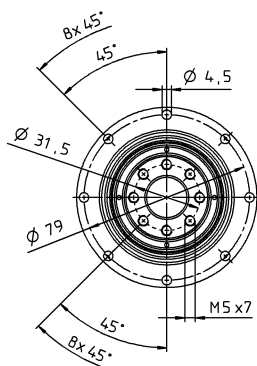
^{c)} Refers to center of the output shaft or flange

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

^{f)} Please contact us to discuss
application-specific service lifetimes

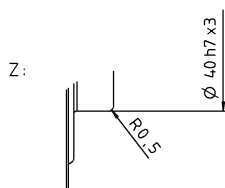
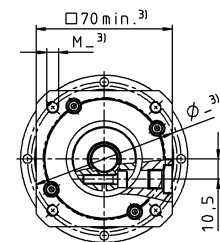
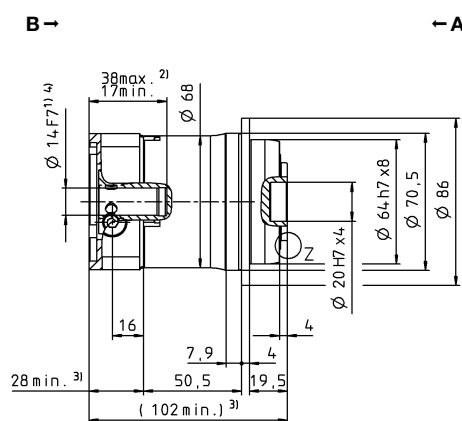
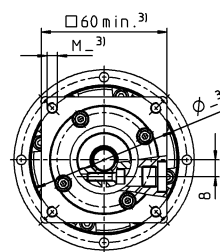
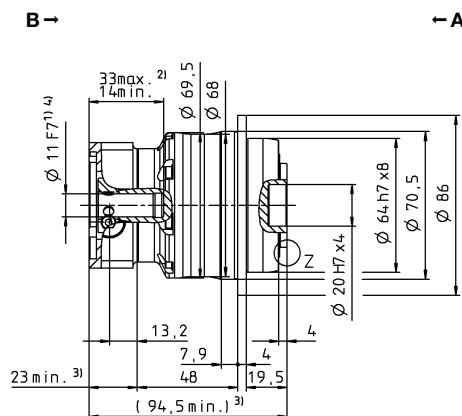
2-stage

up to 11 ⁴⁾ (B) ⁵⁾
clamping hub
diameter



Motor shaft diameter [mm]

up to 14 ⁴⁾ (C)
clamping hub
diameter



Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

³⁾ The dimensions depend on the motor

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

⁵⁾ Standard clamping hub diameter

TP+ 010 MF 1-stage

| | | | | 1-stage | | | | | |
|--|---|----|---------------------------|---|-------------------------------|------|------|------|------|
| Ratio | | | <i>i</i> | | 4 | 5 | 7 | 8 | 10 |
| Max. torque ^{a) b)} | | | <i>T</i> _{2a} | <i>Nm</i> | 185 | 210 | 210 | 168 | 168 |
| | | | | <i>in.lb</i> | 1640 | 1859 | 1859 | 1487 | 1487 |
| Max. acceleration torque ^{b)} (max. 1000 cycles per hour) | | | <i>T</i> _{2B} | <i>Nm</i> | 172 | 172 | 172 | 126 | 126 |
| | | | | <i>in.lb</i> | 1522 | 1522 | 1522 | 1115 | 1115 |
| Nominal torque (at <i>n</i> _n) | | | <i>T</i> _{2N} | <i>Nm</i> | 84 | 81 | 81 | 80 | 81 |
| | | | | <i>in.lb</i> | 743 | 716 | 719 | 712 | 720 |
| Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox) | | | <i>T</i> _{2Not} | <i>Nm</i> | 250 | 250 | 251 | 251 | 251 |
| | | | | <i>in.lb</i> | 2213 | 2213 | 2222 | 2222 | 2222 |
| Permitted average input speed (at <i>T</i> _{2N} and 20 °C ambient temperature) ^{d)} | | | <i>n</i> _{1N} | <i>rpm</i> | 2600 | 2900 | 3100 | 3100 | 3100 |
| Max. input speed | | | <i>n</i> _{1Max} | <i>rpm</i> | 7500 | 7500 | 7500 | 7500 | 7500 |
| Mean no load running torque ^{b)} (at <i>n</i> _i = 3000 rpm and 20 °C gearbox temperature) | | | <i>T</i> ₀₁₂ | <i>Nm</i> | 1.3 | 1.1 | 0.84 | 0.84 | 0.64 |
| | | | | <i>in.lb</i> | 12 | 9.5 | 7.4 | 7.4 | 5.7 |
| Max. backlash | | | <i>j</i> _t | <i>arcmin</i> | Standard ≤ 3 / Reduced ≤ 1 | | | | |
| Torsional rigidity ^{b)} | | | <i>C</i> _{t21} | <i>Nm/arcmin</i> | 32 | 33 | 30 | 23 | 23 |
| | | | | <i>in.lb/arcmin</i> | 283 | 292 | 266 | 204 | 204 |
| Tilting rigidity | | | <i>C</i> _{2K} | <i>Nm/arcmin</i> | 225 | | | | |
| | | | | <i>in.lb/arcmin</i> | 1991 | | | | |
| Max. axial force ^{c)} | | | <i>F</i> _{2AMax} | <i>N</i> | 2795 | | | | |
| | | | | <i>lb_f</i> | 629 | | | | |
| Max. tilting moment | | | <i>M</i> _{2KMax} | <i>Nm</i> | 270 | | | | |
| | | | | <i>in.lb</i> | 2390 | | | | |
| Efficiency at full load | | | <i>η</i> | % | 97 | | | | |
| Service life ^{f)} | | | <i>L</i> _n | <i>h</i> | > 20000 | | | | |
| Weight (incl. standard adapter plate) | | | <i>m</i> | <i>kg</i> | 3.8 | | | | |
| | | | | <i>lb_m</i> | 8.4 | | | | |
| Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®) | | | <i>L</i> _{PA} | <i>dB(A)</i> | ≤ 57 | | | | |
| Max. permitted housing temperature | | | | °C | +90 | | | | |
| | | | | <i>F</i> | 194 | | | | |
| Ambient temperature | | | | °C | –15 to +40 | | | | |
| | | | | <i>F</i> | 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 | | | | <i>mm</i> | X = 014.000 - 035.000 | | | | |
| Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] Optimized mass inertia version available on request | C | 14 | <i>J</i> _i | <i>kgcm</i> ² | 0.78 | 0.62 | 0.48 | 0.48 | 0.40 |
| | | | | <i>10⁻³ in.lb.s</i> ² | 0.69 | 0.55 | 0.42 | 0.42 | 0.35 |
| | E | 19 | <i>J</i> _i | <i>kgcm</i> ² | 0.95 | 0.79 | 0.64 | 0.64 | 0.57 |
| | | | | <i>10⁻³ in.lb.s</i> ² | 0.84 | 0.70 | 0.57 | 0.57 | 0.50 |
| | G | 24 | <i>J</i> _i | <i>kgcm</i> ² | 2.32 | 2.16 | 2.02 | 2.02 | 1.94 |
| | | | | <i>10⁻³ in.lb.s</i> ² | 2.05 | 1.91 | 1.79 | 1.79 | 1.72 |

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com

^{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

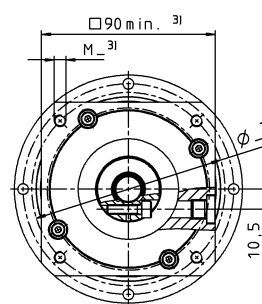
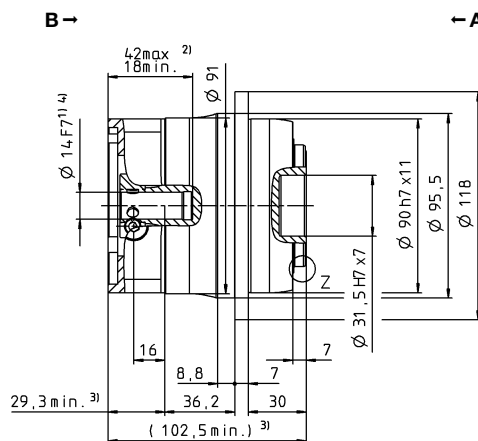
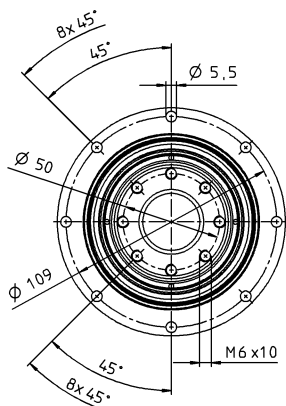
^{f)} Please contact us to discuss
application-specific service lifetimes

View A

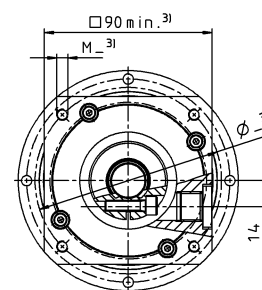
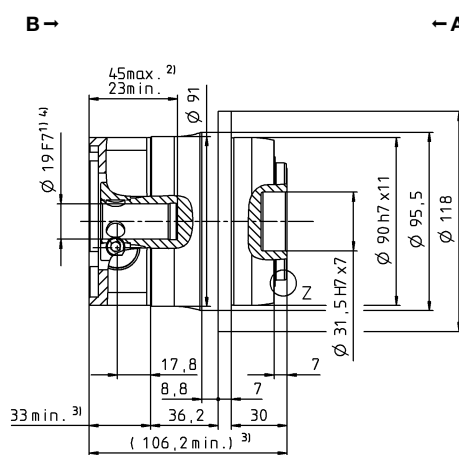
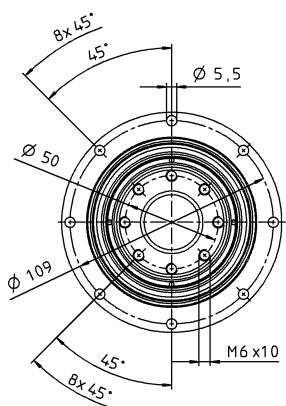
View B

1-stage

up to 14 ⁴⁾ (C)
clamping hub
diameter

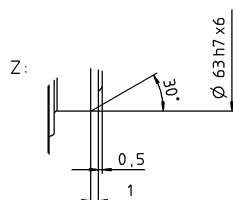
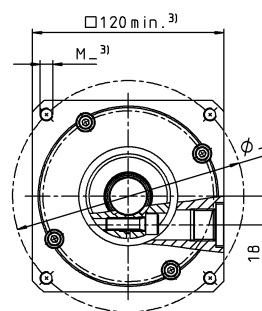
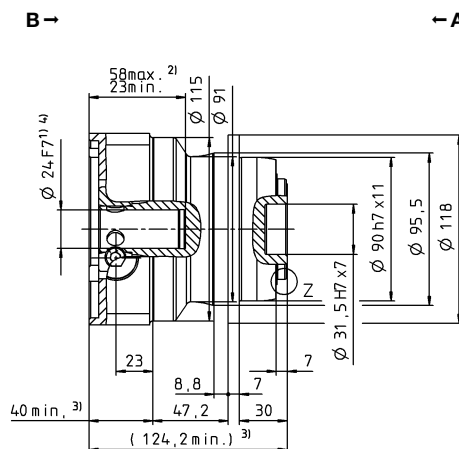
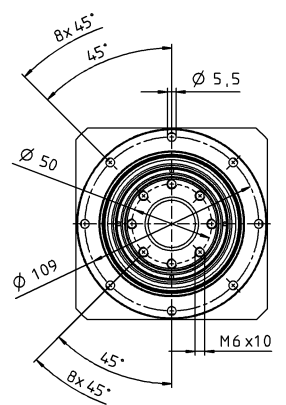


up to 19 ⁴⁾ (E) ⁵⁾
clamping hub
diameter



Motor shaft diameter [mm]

up to 24 ⁴⁾ (G)
clamping hub
diameter



Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

³⁾ The dimensions depend on the motor

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

⁵⁾ Standard clamping hub diameter

| | | | | 2-stage | | | | | | | | | | | | | | | |
|--|---|----|---------------------------|--|----------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio | | | <i>i</i> | | 16 | 20 | 21 | 25 | 28 | 31 | 32 | 35 | 40 | 50 | 61 | 64 | 70 | 91 | 100 |
| Max. torque ^{a) b)} | | | <i>T</i> _{2a} | <i>Nm</i> | 157 | 126 | 133 | 158 | 157 | 121 | 157 | 158 | 154 | 158 | 121 | 105 | 157 | 96 | 105 |
| | | | | <i>in.lb</i> | 1392 | 1118 | 1174 | 1398 | 1392 | 1071 | 1392 | 1398 | 1363 | 1398 | 1071 | 932 | 1392 | 848 | 932 |
| Max. acceleration torque ^{b)} (max. 1000 cycles per hour) | | | <i>T</i> _{2B} | <i>Nm</i> | 157 | 126 | 120 | 158 | 157 | 121 | 157 | 158 | 154 | 158 | 121 | 105 | 157 | 96 | 105 |
| | | | | <i>in.lb</i> | 1392 | 1118 | 1062 | 1398 | 1392 | 1071 | 1392 | 1398 | 1363 | 1398 | 1071 | 932 | 1392 | 848 | 932 |
| Nominal torque (at <i>n</i> _N) | | | <i>T</i> _{2N} | <i>Nm</i> | 106 | 101 | 96 | 124 | 107 | 87 | 119 | 126 | 112 | 126 | 97 | 84 | 126 | 77 | 84 |
| | | | | <i>in.lb</i> | 935 | 895 | 850 | 1097 | 945 | 770 | 1053 | 1118 | 987 | 1118 | 857 | 746 | 1114 | 678 | 746 |
| Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox) | | | <i>T</i> _{2Not} | <i>Nm</i> | 251 | 251 | 251 | 251 | 251 | 251 | 251 | 251 | 251 | 251 | 251 | 251 | 251 | 251 | 251 |
| | | | | <i>in.lb</i> | 2222 | 2222 | 2222 | 2222 | 2222 | 2222 | 2222 | 2222 | 2222 | 2222 | 2222 | 2222 | 2222 | 2222 | 2222 |
| Permitted average input speed (at <i>T</i> _{2N} and 20 °C ambient temperature) ^{c)} | | | <i>n</i> _{1N} | <i>rpm</i> | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | 3800 | 4500 | 3800 | 4500 | 4500 | 4500 |
| Max. input speed | | | <i>n</i> _{1Max} | <i>rpm</i> | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 |
| Mean no load running torque ^{b)} (at <i>n</i> _i = 3000 rpm and 20 °C gearbox temperature) | | | <i>T</i> ₀₁₂ | <i>Nm</i> | 0.56 | 0.48 | 0.47 | 0.44 | 0.40 | 0.40 | 0.40 | 0.28 | 0.32 | 0.32 | 0.23 | 0.32 | 0.24 | 0.24 | 0.25 |
| | | | | <i>in.lb</i> | 5.0 | 4.2 | 4.2 | 3.9 | 3.5 | 3.5 | 3.5 | 2.5 | 2.8 | 2.8 | 2.0 | 2.8 | 2.1 | 2.1 | 2.2 |
| Max. backlash | | | <i>j</i> _t | <i>arcmin</i> | Standard ≤ 3 / Reduced ≤ 1 | | | | | | | | | | | | | | |
| Torsional rigidity ^{b)} | | | <i>C</i> _{t21} | <i>Nm/arcmin</i> | 32 | 32 | 26 | 32 | 31 | 24 | 31 | 32 | 30 | 30 | 24 | 30 | 28 | 21 | 22 |
| | | | | <i>in.lb/arcmin</i> | 283 | 283 | 230 | 283 | 274 | 212 | 274 | 283 | 266 | 266 | 212 | 266 | 248 | 186 | 195 |
| Tilting rigidity | | | <i>C</i> _{2K} | <i>Nm/arcmin</i> | 225 | | | | | | | | | | | | | | |
| | | | | <i>in.lb/arcmin</i> | 1991 | | | | | | | | | | | | | | |
| Max. axial force ^{c)} | | | <i>F</i> _{2AMax} | <i>N</i> | 2795 | | | | | | | | | | | | | | |
| | | | | <i>lb_f</i> | 629 | | | | | | | | | | | | | | |
| Max. tilting moment | | | <i>M</i> _{2KMax} | <i>Nm</i> | 270 | | | | | | | | | | | | | | |
| | | | | <i>in.lb</i> | 2390 | | | | | | | | | | | | | | |
| Efficiency at full load | | | <i>η</i> | % | 94 | | | | | | | | | | | | | | |
| Service life ^{f)} | | | <i>L</i> _h | <i>h</i> | > 20000 | | | | | | | | | | | | | | |
| Weight (incl. standard adapter plate) | | | <i>m</i> | <i>kg</i> | 3.6 | | | | | | | | | | | | | | |
| | | | | <i>lb_m</i> | 8.0 | | | | | | | | | | | | | | |
| Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®) | | | <i>L</i> _{PA} | <i>dB(A)</i> | ≤ 55 | | | | | | | | | | | | | | |
| Max. permitted housing temperature | | | | °C | +90 | | | | | | | | | | | | | | |
| | | | | <i>F</i> | 194 | | | | | | | | | | | | | | |
| Ambient temperature | | | | °C | –15 to +40 | | | | | | | | | | | | | | |
| | | | | <i>F</i> | 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 | | | | <i>mm</i> | X = 014.000 - 035.000 | | | | | | | | | | | | | | |
| Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] Optimized mass inertia version available on request | B | 11 | <i>J</i> _i | <i>kgcm</i> ² | 0.17 | 0.14 | 0.15 | 0.13 | 0.11 | 0.14 | 0.11 | 0.10 | 0.09 | 0.09 | 0.09 | 0.10 | 0.09 | 0.09 | 0.09 |
| | | | | 10 ⁻³ <i>in.lb.s</i> ² | 0.15 | 0.12 | 0.13 | 0.12 | 0.10 | 0.12 | 0.10 | 0.09 | 0.08 | 0.08 | 0.09 | 0.08 | 0.08 | 0.08 | 0.08 |
| | C | 14 | <i>J</i> _i | <i>kgcm</i> ² | 0.24 | 0.21 | 0.22 | 0.20 | 0.18 | 0.21 | 0.18 | 0.18 | 0.17 | 0.17 | 0.17 | 0.17 | 0.16 | 0.17 | 0.16 |
| | | | | 10 ⁻³ <i>in.lb.s</i> ² | 0.21 | 0.19 | 0.20 | 0.18 | 0.16 | 0.18 | 0.16 | 0.16 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.14 |
| | E | 19 | <i>J</i> _i | <i>kgcm</i> ² | 0.56 | 0.53 | 0.55 | 0.53 | 0.51 | 0.53 | 0.51 | 0.50 | 0.49 | 0.49 | 0.49 | 0.52 | 0.49 | 0.49 | 0.49 |
| | | | | 10 ⁻³ <i>in.lb.s</i> ² | 0.50 | 0.47 | 0.48 | 0.47 | 0.45 | 0.47 | 0.45 | 0.44 | 0.43 | 0.43 | 0.43 | 0.46 | 0.43 | 0.43 | 0.43 |

Please use our sizing software cymex® for a detailed sizing – www.wittenstein-cymex.com

a) At max. 10 % M_{2KMav}

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

f) Please contact us to discuss.

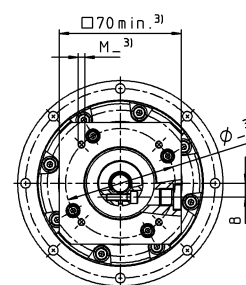
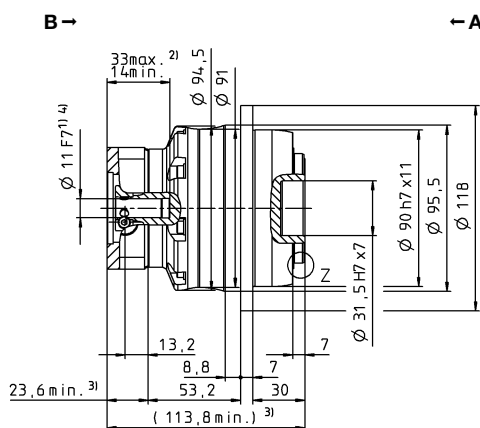
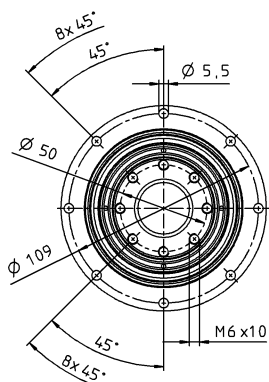
application-specific service lifetimes

View A

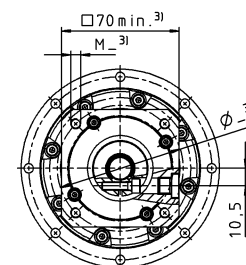
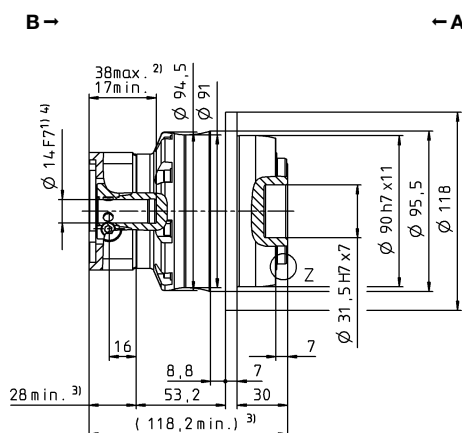
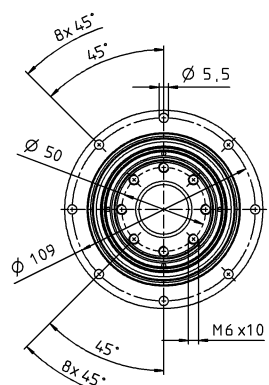
View B

2-stage

up to 11⁴⁾ (B)
clamping hub
diameter

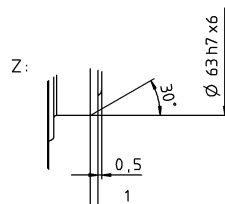
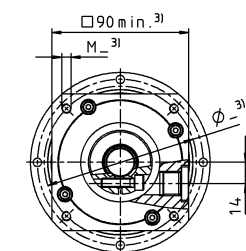
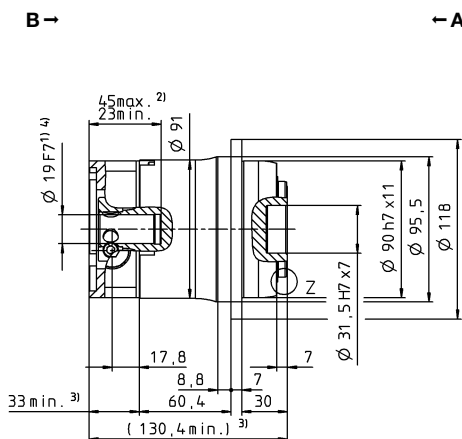
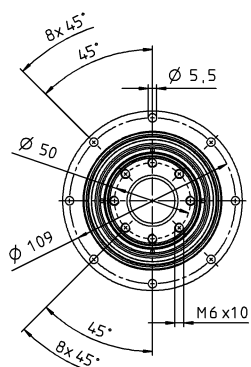


up to 14⁴⁾ (C)⁵⁾
clamping hub
diameter



Motor shaft diameter [mm]

up to 19⁴⁾ (E)
clamping hub
diameter



Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

³⁾ The dimensions depend on the motor

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

⁵⁾ Standard clamping hub diameter

TP+ 025 MF 1-stage

| | | | | 1-stage | | | | | |
|--|---|---------------------------|-----------------------|---------------------------------------|------|------|------|------|------|
| Ratio | | <i>i</i> | | 4 | 5 | 7 | 8 | 10 | |
| Max. torque ^{a) b)} | | <i>T</i> _{2a} | Nm | 352 | 380 | 352 | 352 | 352 | |
| | | | in.lb | 3115 | 3363 | 3115 | 3115 | 3115 | |
| Max. acceleration torque ^{b)} (max. 1000 cycles per hour) | | <i>T</i> _{2B} | Nm | 352 | 380 | 352 | 318 | 318 | |
| | | | in.lb | 3115 | 3363 | 3115 | 2815 | 2815 | |
| Nominal torque (at <i>n</i> _N) | | <i>T</i> _{2N} | Nm | 175 | 169 | 172 | 172 | 180 | |
| | | | in.lb | 1548 | 1498 | 1524 | 1521 | 1591 | |
| Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox) | | <i>T</i> _{2Not} | Nm | 625 | 625 | 625 | 625 | 625 | |
| | | | in.lb | 5532 | 5532 | 5532 | 5532 | 5532 | |
| Permitted average input speed (at <i>T</i> _{2N} and 20 °C ambient temperature) ^{d)} | | <i>n</i> _{1N} | rpm | 2300 | 2500 | 2500 | 2500 | 2500 | |
| Max. input speed | | <i>n</i> _{1Max} | rpm | 5500 | 5500 | 5500 | 5500 | 5500 | |
| Mean no load running torque ^{b)} (at <i>n</i> _i = 3000 rpm and 20 °C gearbox temperature) | | <i>T</i> ₀₁₂ | Nm | 2.8 | 2.3 | 1.7 | 1.7 | 1.2 | |
| | | | in.lb | 25 | 20 | 15 | 15 | 10 | |
| Max. backlash | | <i>j</i> _t | arcmin | Standard ≤ 3 / Reduced ≤ 1 | | | | | |
| Torsional rigidity ^{b)} | | <i>C</i> _{t21} | Nm/arcmin | 80 | 86 | 76 | 62 | 62 | |
| | | | in.lb/arcmin | 708 | 761 | 673 | 549 | 549 | |
| Tilting rigidity | | <i>C</i> _{2K} | Nm/arcmin | 550 | | | | | |
| | | | in.lb/arcmin | 4868 | | | | | |
| Max. axial force ^{c)} | | <i>F</i> _{2AMax} | N | 4800 | | | | | |
| | | | lb _f | 1080 | | | | | |
| Max. tilting moment | | <i>M</i> _{2KMax} | Nm | 440 | | | | | |
| | | | in.lb | 3894 | | | | | |
| Efficiency at full load | | <i>η</i> | % | 97 | | | | | |
| Service life ^{f)} | | <i>L</i> _h | h | > 20000 | | | | | |
| Weight (incl. standard adapter plate) | | <i>m</i> | kg | 6.5 | | | | | |
| | | | lb _m | 14.4 | | | | | |
| Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®) | | <i>L</i> _{PA} | dB(A) | ≤ 61 | | | | | |
| 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] Optimized mass inertia version available on request | E | 19 | <i>J</i> _i | kgcm ² | 2.59 | 2.11 | 1.69 | 1.69 | 1.45 |
| | | | | 10 ⁻³ in.lb.s ² | 2.29 | 1.87 | 1.50 | 1.50 | 1.28 |
| | G | 24 | <i>J</i> _i | kgcm ² | 3.28 | 2.80 | 2.38 | 2.38 | 2.14 |
| | | | | 10 ⁻³ in.lb.s ² | 2.90 | 2.48 | 2.11 | 2.11 | 1.89 |
| | H | 28 | <i>J</i> _i | kgcm ² | 2.89 | 2.41 | 1.99 | 1.99 | 1.75 |
| | | | | 10 ⁻³ in.lb.s ² | 2.56 | 2.13 | 1.76 | 1.76 | 1.55 |
| | K | 38 | <i>J</i> _i | kgcm ² | 10.3 | 9.87 | 9.45 | 9.45 | 9.21 |
| | | | | 10 ⁻³ in.lb.s ² | 9.12 | 8.73 | 8.36 | 8.36 | 8.15 |

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com

^{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

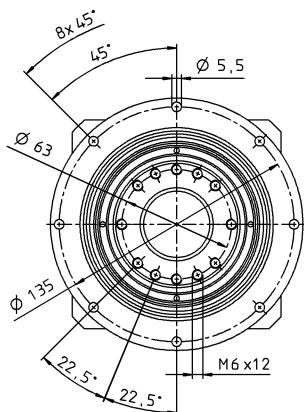
^{f)} Please contact us to discuss
application-specific service lifetimes

View A

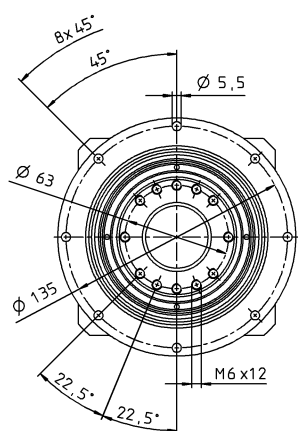
View B

1-stage

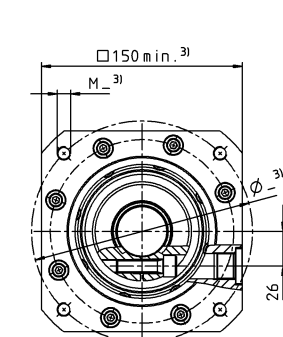
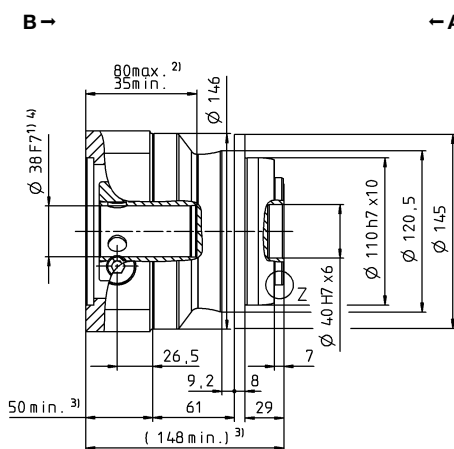
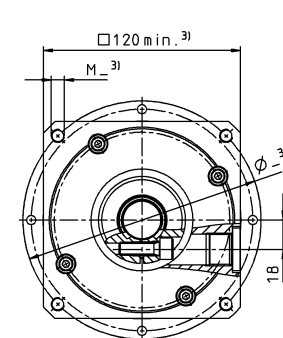
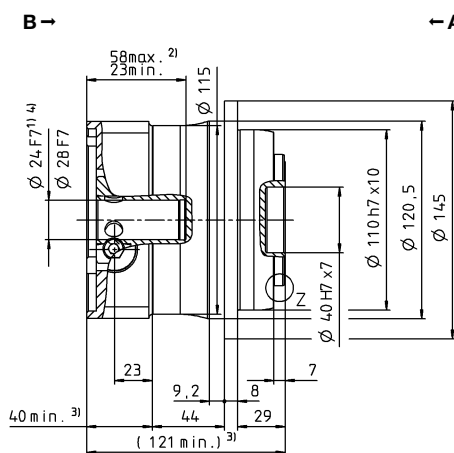
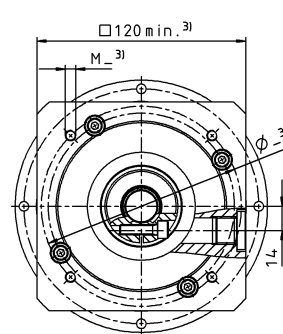
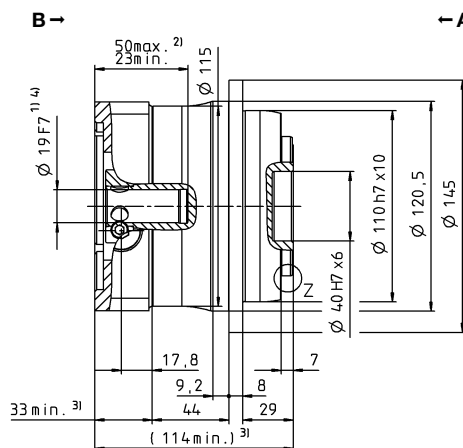
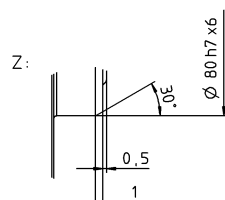
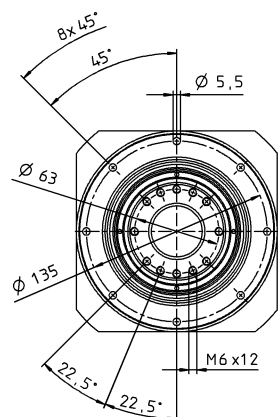
up to 19⁴⁾ (E)
clamping hub diameter



up to 24/28⁴⁾
(G⁵⁾/H) clamping hub diameter



up to 38⁴⁾ (K)
clamping hub diameter



Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

³⁾ The dimensions depend on the motor

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

⁵⁾ Standard clamping hub diameter

TP+ 025 MF 2-stage

| | | | | | 2-stage | | | | | | | | | | | | | | |
|--|---|----|---------------------------|---------------------------------|-------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio | | | <i>i</i> | | 16 | 20 | 21 | 25 | 28 | 31 | 32 | 35 | 40 | 50 | 61 | 64 | 70 | 91 | 100 |
| Max. torque ^{a) b)} | | | <i>T</i> _{2a} | <i>Nm</i> | 352 | 352 | 352 | 380 | 352 | 352 | 352 | 380 | 352 | 380 | 352 | 352 | 352 | 352 | 352 |
| | | | | <i>in.lb</i> | 3115 | 3115 | 3115 | 3363 | 3115 | 3115 | 3115 | 3363 | 3115 | 3363 | 3115 | 3115 | 3115 | 3115 | 3115 |
| Max. acceleration torque ^{b)} (max. 1000 cycles per hour) | | | <i>T</i> _{2B} | <i>Nm</i> | 352 | 352 | 330 | 380 | 352 | 330 | 352 | 380 | 352 | 380 | 308 | 292 | 352 | 275 | 292 |
| | | | | <i>in.lb</i> | 3115 | 3115 | 2921 | 3363 | 3115 | 2921 | 3115 | 3363 | 3115 | 3363 | 2726 | 2584 | 3115 | 2434 | 2584 |
| Nominal torque (at <i>n</i> _n) | | | <i>T</i> _{2N} | <i>Nm</i> | 250 | 267 | 211 | 265 | 282 | 231 | 251 | 294 | 282 | 304 | 246 | 233 | 282 | 220 | 233 |
| | | | | <i>in.lb</i> | 2213 | 2366 | 1872 | 2348 | 2492 | 2047 | 2220 | 2598 | 2492 | 2691 | 2181 | 2064 | 2492 | 1947 | 2064 |
| Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox) | | | <i>T</i> _{2Not} | <i>Nm</i> | 625 | 625 | 625 | 625 | 625 | 625 | 625 | 625 | 625 | 625 | 625 | 625 | 625 | 625 | 625 |
| | | | | <i>in.lb</i> | 5532 | 5532 | 5532 | 5532 | 5532 | 5532 | 5532 | 5532 | 5532 | 5532 | 5532 | 5532 | 5532 | 5532 | 5532 |
| Permitted average input speed (at <i>T</i> _{2N} and 20 °C ambient temperature) ^{d)} | | | <i>n</i> _{1N} | <i>rpm</i> | 2800 | 2800 | 2800 | 2800 | 2800 | 2800 | 2800 | 2800 | 2800 | 3100 | 3500 | 3100 | 3500 | 4200 | 4200 |
| Max. input speed | | | <i>n</i> _{1Max} | <i>rpm</i> | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 |
| Mean no load running torque ^{b)} (at <i>n</i> _i = 3000 rpm and 20 °C gearbox temperature) | | | <i>T</i> ₀₁₂ | <i>Nm</i> | 1.2 | 1.0 | 1.1 | 0.90 | 0.80 | 0.84 | 0.80 | 0.60 | 0.59 | 0.50 | 0.48 | 0.50 | 0.42 | 0.48 | 0.38 |
| | | | | <i>in.lb</i> | 10 | 8.9 | 9.9 | 8.0 | 7.1 | 7.4 | 7.1 | 5.3 | 5.2 | 4.4 | 4.2 | 4.4 | 3.7 | 4.2 | 3.4 |
| Max. backlash | | | <i>j</i> _t | <i>arcmin</i> | Standard ≤ 3 / Reduced ≤ 1 | | | | | | | | | | | | | | |
| Torsional rigidity ^{b)} | | | <i>C</i> _{t21} | <i>Nm/arcmin</i> | 81 | 81 | 70 | 83 | 80 | 54 | 80 | 82 | 76 | 80 | 61 | 80 | 71 | 55 | 60 |
| | | | | <i>in.lb/arcmin</i> | 717 | 717 | 620 | 735 | 708 | 478 | 708 | 726 | 673 | 708 | 540 | 708 | 628 | 487 | 531 |
| Tilting rigidity | | | <i>C</i> _{2K} | <i>Nm/arcmin</i> | 550 | | | | | | | | | | | | | | |
| | | | | <i>in.lb/arcmin</i> | 4868 | | | | | | | | | | | | | | |
| Max. axial force ^{c)} | | | <i>F</i> _{2AMax} | <i>N</i> | 4800 | | | | | | | | | | | | | | |
| | | | | <i>lb_f</i> | 1080 | | | | | | | | | | | | | | |
| Max. tilting moment | | | <i>M</i> _{2KMax} | <i>Nm</i> | 440 | | | | | | | | | | | | | | |
| | | | | <i>in.lb</i> | 3894 | | | | | | | | | | | | | | |
| Efficiency at full load | | | <i>η</i> | % | 94 | | | | | | | | | | | | | | |
| Service life ^{f)} | | | <i>L</i> _h | <i>h</i> | > 20000 | | | | | | | | | | | | | | |
| Weight (incl. standard adapter plate) | | | <i>m</i> | <i>kg</i> | 6.7 | | | | | | | | | | | | | | |
| | | | | <i>lb_m</i> | 14.8 | | | | | | | | | | | | | | |
| Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®) | | | <i>L</i> _{PA} | <i>dB(A)</i> | ≤ 58 | | | | | | | | | | | | | | |
| Max. permitted housing temperature | | | | °C | +90 | | | | | | | | | | | | | | |
| | | | | <i>F</i> | 194 | | | | | | | | | | | | | | |
| Ambient temperature | | | | °C | –15 to +40 | | | | | | | | | | | | | | |
| | | | | <i>F</i> | 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 | | | | <i>mm</i> | X = 019.000 - 042.000 | | | | | | | | | | | | | | |
| Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] Optimized mass inertia version available on request | C | 14 | <i>J</i> _i | <i>kgcm²</i> | 0.66 | 0.55 | 0.60 | 0.53 | 0.44 | 0.55 | 0.44 | 0.43 | 0.38 | 0.38 | 0.39 | 0.40 | 0.37 | 0.38 | 0.37 |
| | | | | <i>10⁻³ in.lb.s²</i> | 0.58 | 0.48 | 0.53 | 0.47 | 0.39 | 0.49 | 0.39 | 0.38 | 0.34 | 0.33 | 0.34 | 0.36 | 0.33 | 0.34 | 0.33 |
| | E | 19 | <i>J</i> _i | <i>kgcm²</i> | 0.83 | 0.71 | 0.77 | 0.70 | 0.61 | 0.72 | 0.61 | 0.60 | 0.55 | 0.55 | 0.55 | 0.57 | 0.54 | 0.55 | 0.54 |
| | | | | <i>10⁻³ in.lb.s²</i> | 0.73 | 0.63 | 0.68 | 0.62 | 0.54 | 0.64 | 0.54 | 0.53 | 0.49 | 0.48 | 0.49 | 0.50 | 0.48 | 0.48 | 0.48 |
| | G | 24 | <i>J</i> _i | <i>kgcm²</i> | 2.20 | 2.08 | 2.14 | 2.07 | 1.98 | 2.09 | 1.98 | 1.97 | 1.92 | 1.92 | 1.92 | 2.00 | 1.91 | 1.92 | 1.91 |
| | | | | <i>10⁻³ in.lb.s²</i> | 1.95 | 1.84 | 1.89 | 1.83 | 1.75 | 1.85 | 1.75 | 1.74 | 1.70 | 1.70 | 1.70 | 1.77 | 1.69 | 1.70 | 1.69 |
| | H | 28 | <i>J</i> _i | <i>kgcm²</i> | 2.00 | 1.91 | 1.96 | 1.89 | 1.82 | 1.85 | 1.89 | 1.81 | 1.76 | 1.76 | 1.76 | 1.83 | 1.75 | 1.75 | 1.75 |
| | | | | <i>10⁻³ in.lb.s²</i> | 1.77 | 1.69 | 1.73 | 1.67 | 1.61 | 1.64 | 1.67 | 1.60 | 1.56 | 1.56 | 1.56 | 1.62 | 1.55 | 1.55 | 1.55 |

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com

^{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 temperature

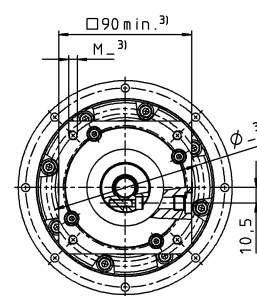
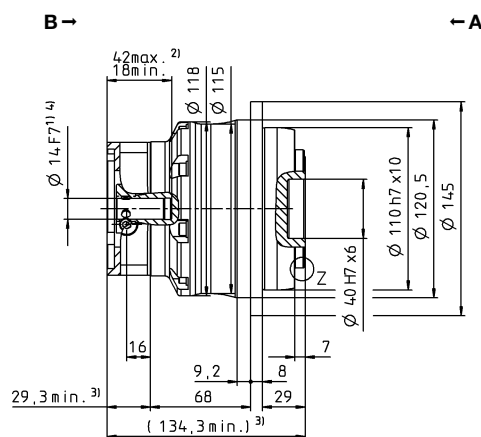
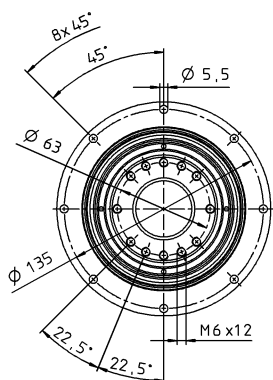
^{f)} Please contact us to discuss application-specific service lifetimes

View A

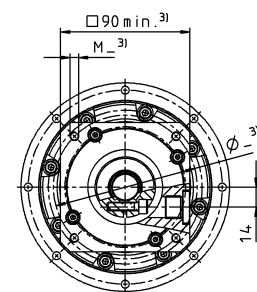
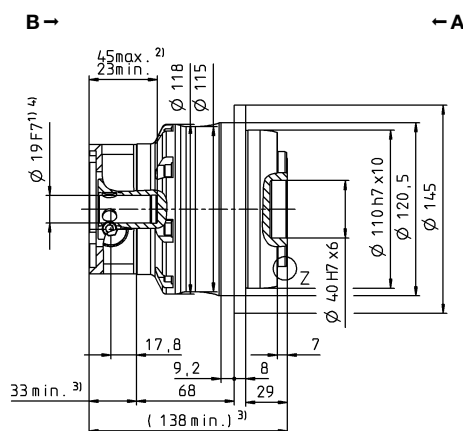
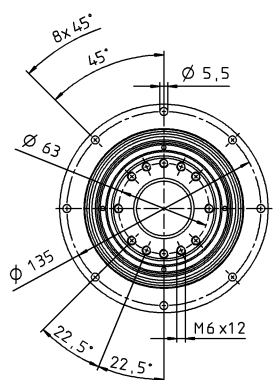
View B

2-stage

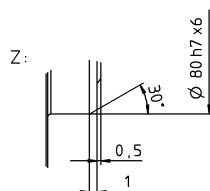
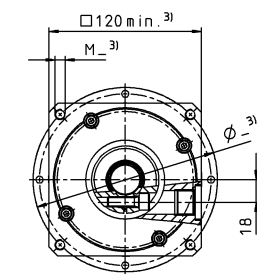
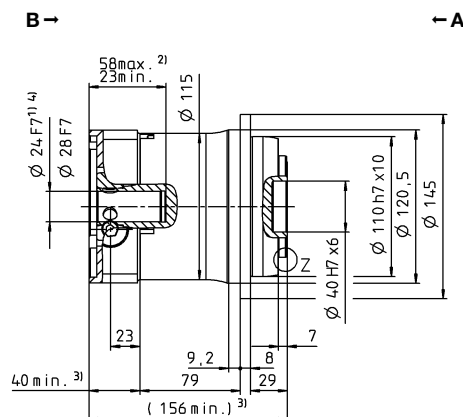
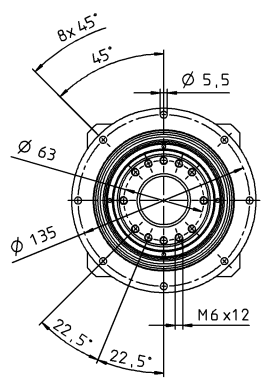
up to 14 ⁴⁾ (C)
clamping hub
diameter



up to 19 ⁴⁾ (E) ⁵⁾
clamping hub
diameter



up to 24/28 ⁴⁾
(G/H) clamping
hub diameter



Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

³⁾ The dimensions depend on the motor

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

⁵⁾ Standard clamping hub diameter

TP+ 050 MF 1-stage

| | | | | 1-stage | | | | | |
|--|---|---------------------------|-----------------------|---------------------------------|-------|-------|-------|-------|------|
| Ratio | | <i>i</i> | | 4 | 5 | 7 | 8 | 10 | |
| Max. torque ^{a) b)} | | <i>T</i> _{2a} | <i>Nm</i> | 992 | 992 | 868 | 720 | 720 | |
| | | | <i>in.lb</i> | 8780 | 8780 | 7686 | 6373 | 6373 | |
| Max. acceleration torque ^{b)} (max. 1000 cycles per hour) | | <i>T</i> _{2B} | <i>Nm</i> | 840 | 840 | 840 | 648 | 648 | |
| | | | <i>in.lb</i> | 7435 | 7435 | 7435 | 5735 | 5735 | |
| Nominal torque (at <i>n</i> _N) | | <i>T</i> _{2N} | <i>Nm</i> | 345 | 337 | 322 | 316 | 331 | |
| | | | <i>in.lb</i> | 3052 | 2987 | 2854 | 2796 | 2928 | |
| Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox) | | <i>T</i> _{2Not} | <i>Nm</i> | 1250 | 1250 | 1250 | 1250 | 1250 | |
| | | | <i>in.lb</i> | 11064 | 11064 | 11064 | 11064 | 11064 | |
| Permitted average input speed (at <i>T</i> _{2N} and 20 °C ambient temperature) ^{d)} | | <i>n</i> _{1N} | <i>rpm</i> | 1900 | 2000 | 2500 | 2500 | 2500 | |
| Max. input speed | | <i>n</i> _{1Max} | <i>rpm</i> | 5000 | 5000 | 5000 | 5000 | 5000 | |
| Mean no load running torque ^{b)} (at <i>n</i> ₁ = 3000 rpm and 20 °C gearbox temperature) | | <i>T</i> ₀₁₂ | <i>Nm</i> | 6.5 | 5.3 | 3.8 | 3.8 | 2.9 | |
| | | | <i>in.lb</i> | 57 | 47 | 33 | 33 | 26 | |
| Max. backlash | | <i>j</i> _t | <i>arcmin</i> | Standard ≤ 3 / Reduced ≤ 1 | | | | | |
| Torsional rigidity ^{b)} | | <i>C</i> ₁₂₁ | <i>Nm/arcmin</i> | 190 | 187 | 159 | 123 | 123 | |
| | | | <i>in.lb/arcmin</i> | 1682 | 1655 | 1407 | 1089 | 1089 | |
| Tilting rigidity | | <i>C</i> _{2K} | <i>Nm/arcmin</i> | 560 | | | | | |
| | | | <i>in.lb/arcmin</i> | 4956 | | | | | |
| Max. axial force ^{c)} | | <i>F</i> _{2AMax} | <i>N</i> | 6130 | | | | | |
| | | | <i>lb_f</i> | 1379 | | | | | |
| Max. tilting moment | | <i>M</i> _{2KMax} | <i>Nm</i> | 1335 | | | | | |
| | | | <i>in.lb</i> | 11816 | | | | | |
| Efficiency at full load | | <i>η</i> | % | 97 | | | | | |
| Service life ^{f)} | | <i>L</i> _h | <i>h</i> | > 20000 | | | | | |
| Weight (incl. standard adapter plate) | | <i>m</i> | <i>kg</i> | 14 | | | | | |
| | | | <i>lb_m</i> | 30.9 | | | | | |
| Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®) | | <i>L</i> _{PA} | <i>dB(A)</i> | ≤ 64 | | | | | |
| Max. permitted housing temperature | | | °C | +90 | | | | | |
| | | | <i>F</i> | 194 | | | | | |
| Ambient temperature | | | °C | –15 to +40 | | | | | |
| | | | <i>F</i> | 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-00300AAX-080.000 | | | | | |
| Bore diameter of coupling on the application side | | | <i>mm</i> | X = 024.000 - 060.000 | | | | | |
| Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] Optimized mass inertia version available on request | G | 24 | <i>J</i> ₁ | <i>kgcm²</i> | 9.47 | 7.85 | 6.39 | 6.39 | 5.54 |
| | | | | <i>10⁻³ in.lb.s²</i> | 8.38 | 6.95 | 5.66 | 5.66 | 4.90 |
| | I | 32 | <i>J</i> ₁ | <i>kgcm²</i> | 12.6 | 11.0 | 9.55 | 9.55 | 8.10 |
| | | | | <i>10⁻³ in.lb.s²</i> | 11.2 | 9.74 | 8.45 | 8.45 | 7.17 |
| | K | 38 | <i>J</i> ₁ | <i>kgcm²</i> | 13.7 | 12.1 | 10.6 | 10.6 | 9.78 |
| | | | | <i>10⁻³ in.lb.s²</i> | 12.1 | 10.7 | 9.38 | 9.38 | 8.66 |
| | M | 48 | <i>J</i> ₁ | <i>kgcm²</i> | 28.3 | 26.7 | 25.3 | 25.3 | 24.4 |
| | | | | <i>10⁻³ in.lb.s²</i> | 25.1 | 23.6 | 22.4 | 22.4 | 21.6 |

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com

^{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

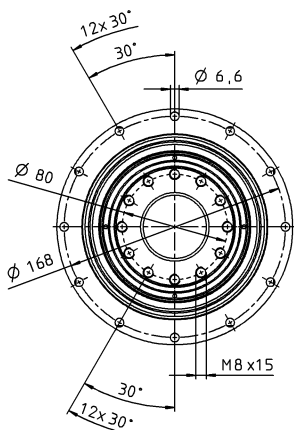
^{f)} Please contact us to discuss
application-specific service lifetimes

View A

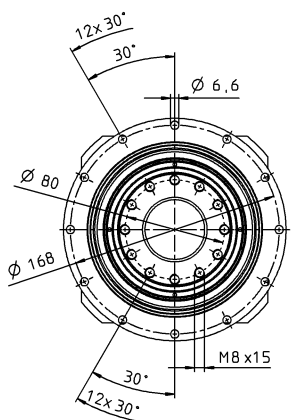
View B

1-stage

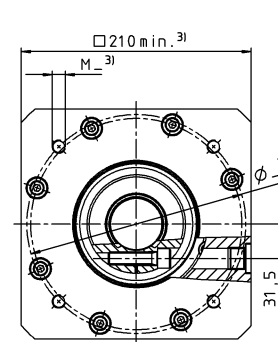
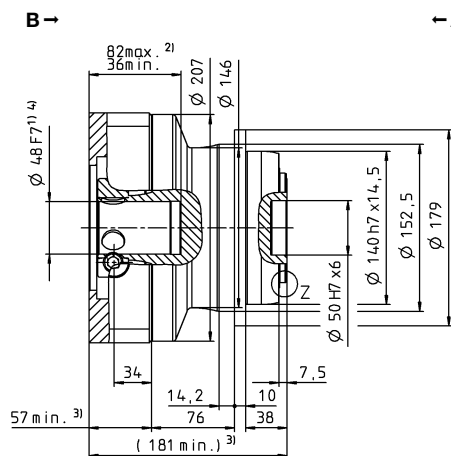
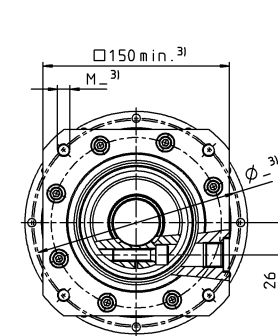
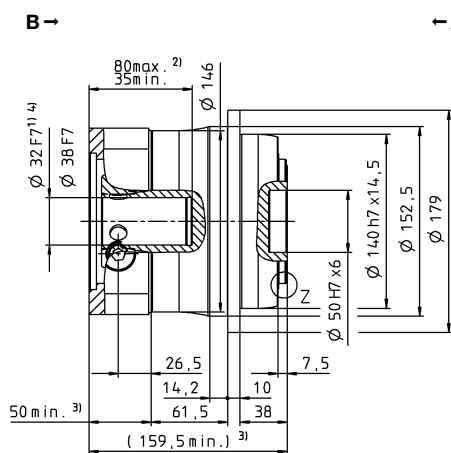
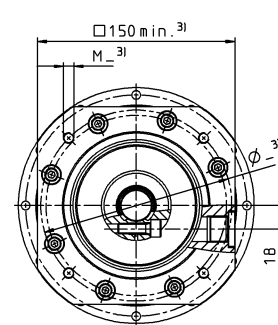
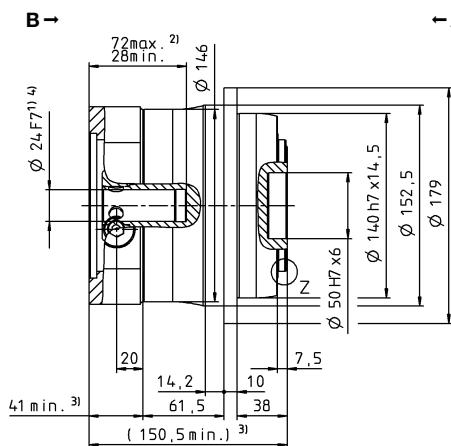
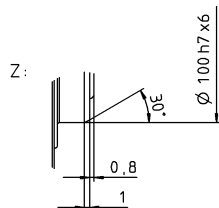
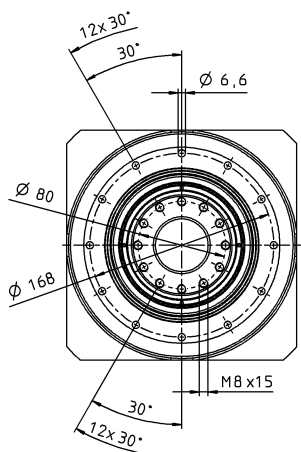
up to 24⁴⁾ (G)
clamping hub diameter



up to 32/38⁴⁾
(I/K⁵⁾) clamping hub diameter



up to 48⁴⁾ (M)
clamping hub diameter



Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

³⁾ The dimensions depend on the motor

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

⁵⁾ Standard clamping hub diameter

TP+ 050 MF 2-stage

| | | | | 2-stage | | | | | | | | | | | | | | | |
|--|---|---------------------------|-----------------------|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Ratio | | <i>i</i> | | 16 | 20 | 21 | 25 | 28 | 31 | 32 | 35 | 40 | 50 | 61 | 64 | 70 | 91 | 100 | |
| Max. torque ^{a) b)} | | <i>T</i> _{2a} | <i>Nm</i> | 825 | 825 | 660 | 825 | 825 | 682 | 825 | 825 | 825 | 825 | 605 | 594 | 770 | 550 | 594 | |
| | | | <i>in.lb</i> | 7302 | 7302 | 5842 | 7302 | 7302 | 6036 | 7302 | 7302 | 7302 | 7302 | 5355 | 5257 | 6815 | 4868 | 5257 | |
| Max. acceleration torque ^{b)} (max. 1000 cycles per hour) | | <i>T</i> _{2B} | <i>Nm</i> | 825 | 825 | 660 | 825 | 825 | 682 | 825 | 825 | 825 | 825 | 605 | 594 | 770 | 550 | 594 | |
| | | | <i>in.lb</i> | 7302 | 7302 | 5842 | 7302 | 7302 | 6036 | 7302 | 7302 | 7302 | 7302 | 5355 | 5257 | 6815 | 4868 | 5257 | |
| Nominal torque (at <i>n</i> _n) | | <i>T</i> _{2N} | <i>Nm</i> | 461 | 493 | 393 | 489 | 545 | 431 | 464 | 541 | 607 | 585 | 425 | 475 | 598 | 440 | 475 | |
| | | | <i>in.lb</i> | 4078 | 4361 | 3476 | 4332 | 4824 | 3812 | 4104 | 4792 | 5370 | 5179 | 3765 | 4206 | 5291 | 3894 | 4206 | |
| Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox) | | <i>T</i> _{2Not} | <i>Nm</i> | 1250 | 1250 | 1250 | 1250 | 1250 | 1250 | 1250 | 1250 | 1250 | 1250 | 1250 | 1250 | 1250 | 1250 | 1250 | |
| | | | <i>in.lb</i> | 11064 | 11064 | 11064 | 11064 | 11064 | 11064 | 11064 | 11064 | 11064 | 11064 | 11064 | 11064 | 11064 | 11064 | 11064 | 11064 |
| Permitted average input speed (at <i>T</i> _{2N} and 20 °C ambient temperature) ^{c)} | | <i>n</i> _{1N} | <i>rpm</i> | 2900 | 2900 | 2900 | 2900 | 2900 | 2900 | 2900 | 2900 | 2900 | 3200 | 3200 | 3200 | 3200 | 3900 | 3900 | |
| Max. input speed | | <i>n</i> _{1Max} | <i>rpm</i> | 6250 | 6250 | 6250 | 6250 | 6250 | 6250 | 6250 | 6250 | 6250 | 6250 | 6250 | 6250 | 6250 | 6250 | 6250 | |
| Mean no load running torque ^{b)} (at <i>n</i> _i = 3000 rpm and 20 °C gearbox temperature) | | <i>T</i> ₀₁₂ | <i>Nm</i> | 2.8 | 2.4 | 2.2 | 2.6 | 2.0 | 1.9 | 2.0 | 1.5 | 1.5 | 1.2 | 1.0 | 1.2 | 1.1 | 0.96 | 0.88 | |
| | | | <i>in.lb</i> | 25 | 22 | 20 | 23 | 17 | 17 | 17 | 14 | 13 | 11 | 8.9 | 11 | 9.9 | 8.5 | 7.8 | |
| Max. backlash | | <i>j</i> _t | <i>arcmin</i> | Standard ≤ 3 / Reduced ≤ 1 | | | | | | | | | | | | | | | |
| Torsional rigidity ^{b)} | | <i>C</i> _{t21} | <i>Nm/arcmin</i> | 180 | 185 | 145 | 180 | 180 | 130 | 180 | 175 | 175 | 175 | 123 | 175 | 145 | 100 | 115 | |
| | | | <i>in.lb/arcmin</i> | 1593 | 1637 | 1283 | 1593 | 1593 | 1151 | 1593 | 1549 | 1549 | 1549 | 1089 | 1549 | 1283 | 885 | 1018 | |
| Tilting rigidity | | <i>C</i> _{2K} | <i>Nm/arcmin</i> | 560 | | | | | | | | | | | | | | | |
| | | | <i>in.lb/arcmin</i> | 4956 | | | | | | | | | | | | | | | |
| Max. axial force ^{c)} | | <i>F</i> _{2AMax} | <i>N</i> | 6130 | | | | | | | | | | | | | | | |
| | | | <i>lb_f</i> | 1379 | | | | | | | | | | | | | | | |
| Max. tilting moment | | <i>M</i> _{2KMax} | <i>Nm</i> | 1335 | | | | | | | | | | | | | | | |
| | | | <i>in.lb</i> | 11816 | | | | | | | | | | | | | | | |
| Efficiency at full load | | <i>η</i> | % | 94 | | | | | | | | | | | | | | | |
| Service life ^{f)} | | <i>L</i> _h | <i>h</i> | > 20000 | | | | | | | | | | | | | | | |
| Weight (incl. standard adapter plate) | | <i>m</i> | <i>kg</i> | 14.1 | | | | | | | | | | | | | | | |
| | | | <i>lb_m</i> | 31.2 | | | | | | | | | | | | | | | |
| Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®) | | <i>L</i> _{PA} | <i>dB(A)</i> | ≤ 58 | | | | | | | | | | | | | | | |
| Max. permitted housing temperature | | | °C | +90 | | | | | | | | | | | | | | | |
| | | | <i>F</i> | 194 | | | | | | | | | | | | | | | |
| Ambient temperature | | | °C | -15 to +40 | | | | | | | | | | | | | | | |
| | | | <i>F</i> | 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-00300AAX-080.000 | | | | | | | | | | | | | | | |
| Bore diameter of coupling on the application side | | | <i>mm</i> | X = 024.000 - 060.000 | | | | | | | | | | | | | | | |
| Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] Optimized mass inertia version available on request | E | 19 | <i>J</i> _i | <i>kgcm</i> ² | 2.53 | 2.08 | 2.30 | 2.01 | 1.67 | 2.12 | 1.67 | 1.64 | 1.44 | 1.42 | 1.46 | 1.51 | 1.41 | 1.43 | 1.40 |
| | | | | 10 ^{-3 in.lb.s} ² | 2.24 | 1.84 | 2.04 | 1.78 | 1.48 | 1.88 | 1.48 | 1.45 | 1.27 | 1.26 | 1.29 | 1.34 | 1.25 | 1.27 | 1.24 |
| | G | 24 | <i>J</i> _i | <i>kgcm</i> ² | 3.22 | 2.77 | 2.99 | 2.70 | 2.37 | 2.81 | 2.37 | 2.33 | 2.13 | 2.12 | 2.15 | 2.20 | 2.10 | 2.12 | 2.09 |
| | | | | 10 ^{-3 in.lb.s} ² | 2.85 | 2.45 | 2.65 | 2.39 | 2.10 | 2.49 | 2.10 | 2.06 | 1.89 | 1.88 | 1.90 | 1.95 | 1.86 | 1.88 | 1.85 |
| | K | 38 | <i>J</i> _i | <i>kgcm</i> ² | 10.3 | 9.83 | 10.1 | 9.77 | 9.43 | 9.88 | 9.43 | 9.40 | 9.20 | 9.18 | 9.22 | 9.50 | 9.17 | 9.19 | 9.16 |
| | | | | 10 ^{-3 in.lb.s} ² | 9.12 | 8.70 | 8.94 | 8.65 | 8.35 | 8.74 | 8.35 | 8.32 | 8.14 | 8.12 | 8.16 | 8.41 | 8.12 | 8.13 | 8.11 |

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com

^{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

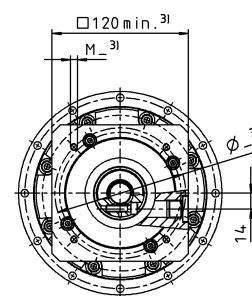
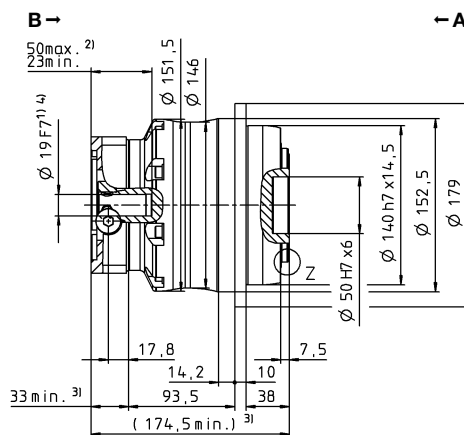
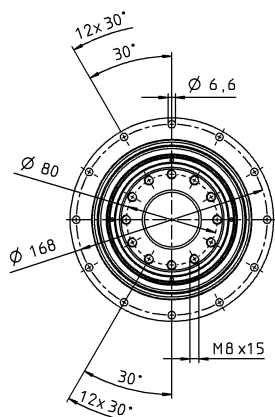
^{f)} Please contact us to discuss
application-specific service lifetimes

View A

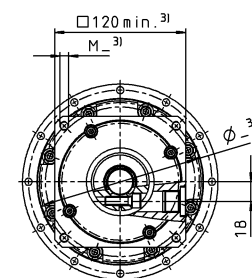
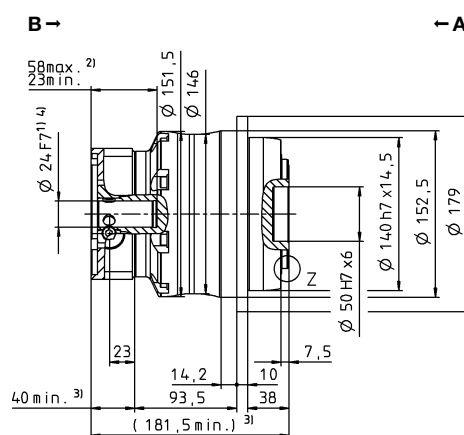
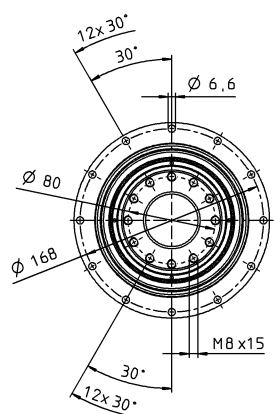
View B

2-stage

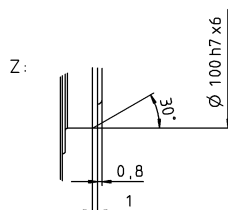
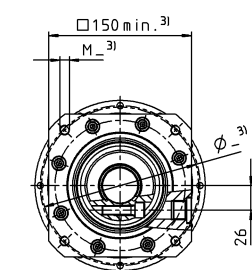
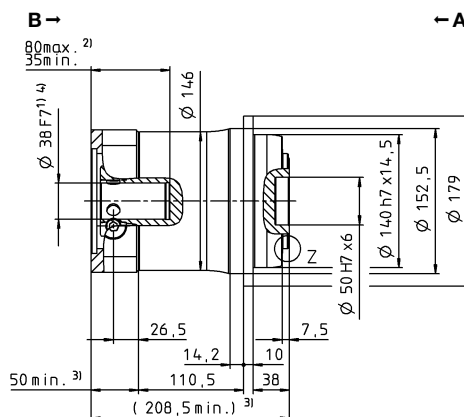
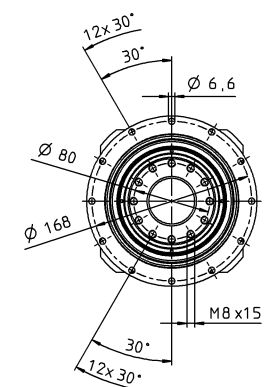
up to 19 ⁴⁾ (E)
clamping hub
diameter



up to 24 ⁴⁾ (G) ⁵⁾
clamping hub
diameter



up to 38 ⁴⁾ (K)
clamping hub
diameter



Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

³⁾ The dimensions depend on the motor

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

⁵⁾ Standard clamping hub diameter

TP+ 110 MF 1-stage

| | | | | 1-stage | | | | | |
|--|---|----|---------------------------|---|-------------------------------|-------|-------|-------|-------|
| Ratio | | | <i>i</i> | | 4 | 5 | 7 | 8 | 10 |
| Max. torque ^{a) b)} | | | <i>T</i> _{2a} | <i>Nm</i> | 2560 | 2560 | 2560 | 2240 | 2240 |
| | | | | <i>in.lb</i> | 22658 | 22658 | 22658 | 19826 | 19826 |
| Max. acceleration torque ^{b)} (max. 1000 cycles per hour) | | | <i>T</i> _{2B} | <i>Nm</i> | 1920 | 1920 | 1920 | 1680 | 1680 |
| | | | | <i>in.lb</i> | 16994 | 16994 | 16994 | 14869 | 14869 |
| Nominal torque (at <i>n</i> _n) | | | <i>T</i> _{2N} | <i>Nm</i> | 946 | 919 | 861 | 861 | 901 |
| | | | | <i>in.lb</i> | 8375 | 8134 | 7618 | 7618 | 7972 |
| Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox) | | | <i>T</i> _{2Not} | <i>Nm</i> | 3075 | 3075 | 3075 | 3075 | 3075 |
| | | | | <i>in.lb</i> | 27216 | 27216 | 27216 | 27216 | 27216 |
| Permitted average input speed (at <i>T</i> _{2N} and 20 °C ambient temperature) ^{d)} | | | <i>n</i> _{1N} | <i>rpm</i> | 1400 | 1500 | 2000 | 2000 | 2000 |
| Max. input speed | | | <i>n</i> _{1Max} | <i>rpm</i> | 4500 | 4500 | 4500 | 4500 | 4500 |
| Mean no load running torque ^{b)} (at <i>n</i> _i = 3000 rpm and 20 °C gearbox temperature) | | | <i>T</i> ₀₁₂ | <i>Nm</i> | 16 | 12 | 8.8 | 8.8 | 6.0 |
| | | | | <i>in.lb</i> | 138 | 109 | 78 | 78 | 53 |
| Max. backlash | | | <i>j</i> _t | <i>arcmin</i> | Standard ≤ 3 / Reduced ≤ 1 | | | | |
| Torsional rigidity ^{b)} | | | <i>C</i> ₁₂₁ | <i>Nm/arcmin</i> | 610 | 610 | 550 | 445 | 445 |
| | | | | <i>in.lb/arcmin</i> | 5399 | 5399 | 4868 | 3939 | 3939 |
| Tilting rigidity | | | <i>C</i> _{2K} | <i>Nm/arcmin</i> | 1452 | | | | |
| | | | | <i>in.lb/arcmin</i> | 12851 | | | | |
| Max. axial force ^{c)} | | | <i>F</i> _{2AMax} | <i>N</i> | 10050 | | | | |
| | | | | <i>lb_f</i> | 2261 | | | | |
| Max. tilting moment | | | <i>M</i> _{2KMax} | <i>Nm</i> | 3280 | | | | |
| | | | | <i>in.lb</i> | 29031 | | | | |
| Efficiency at full load | | | <i>η</i> | % | 97 | | | | |
| Service life ^{f)} | | | <i>L</i> _h | <i>h</i> | > 20000 | | | | |
| Weight (incl. standard adapter plate) | | | <i>m</i> | <i>kg</i> | 30 | | | | |
| | | | | <i>lb_m</i> | 66.3 | | | | |
| Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®]) | | | <i>L</i> _{PA} | <i>dB(A)</i> | ≤ 68 | | | | |
| Max. permitted housing temperature | | | | °C | +90 | | | | |
| | | | | <i>F</i> | 194 | | | | |
| Ambient temperature | | | | °C | –15 to +40 | | | | |
| | | | | <i>F</i> | 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 | | | | <i>mm</i> | X = 050.000 - 080.000 | | | | |
| Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] Optimized mass inertia version available on request | K | 38 | <i>J</i> _i | <i>kgcm</i> ² | 44.5 | 34.6 | 25.5 | 25.5 | 20.6 |
| | | | | <i>10⁻³ in.lb.s</i> ² | 39.4 | 30.6 | 22.6 | 22.6 | 18.2 |
| | M | 48 | <i>J</i> _i | <i>kgcm</i> ² | 58.8 | 41.9 | 32.9 | 32.9 | 28.0 |
| | | | | <i>10⁻³ in.lb.s</i> ² | 52.0 | 37.1 | 29.1 | 29.1 | 24.8 |
| | N | 55 | <i>J</i> _i | <i>kgcm</i> ² | 61.5 | 51.5 | 42.3 | 42.3 | 37.3 |
| | | | | <i>10⁻³ in.lb.s</i> ² | 54.4 | 45.6 | 37.4 | 37.4 | 33.0 |

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com

^{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

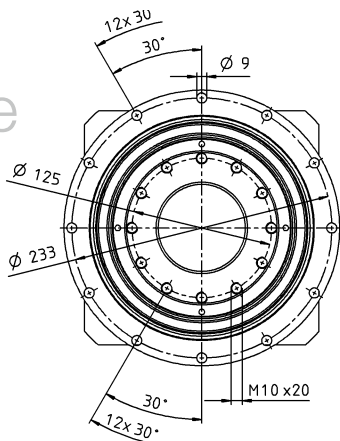
^{f)} Please contact us to discuss
application-specific service lifetimes

View A

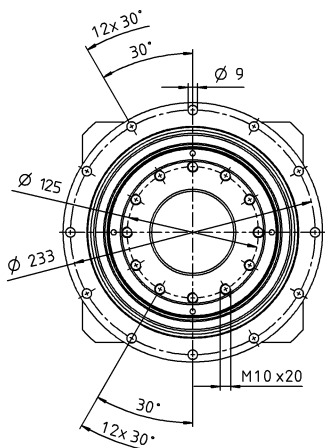
View B

1-stage

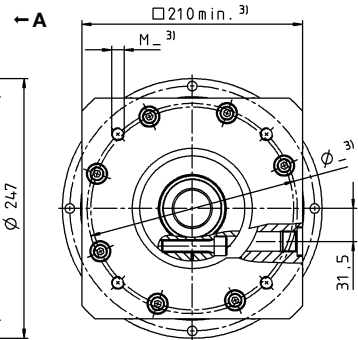
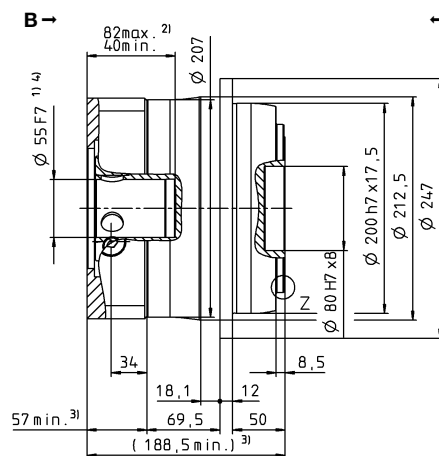
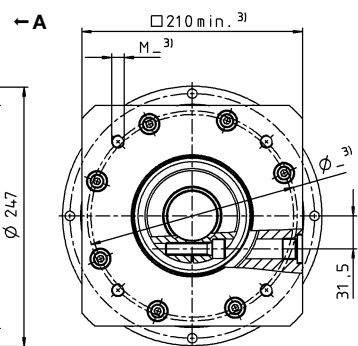
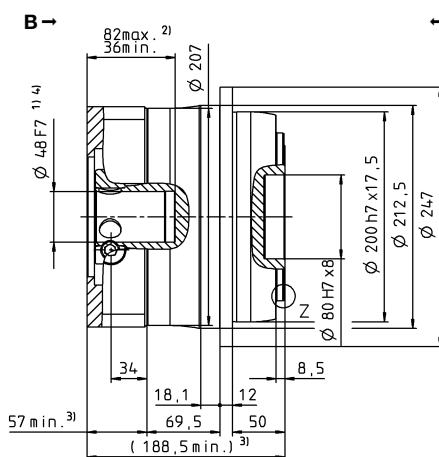
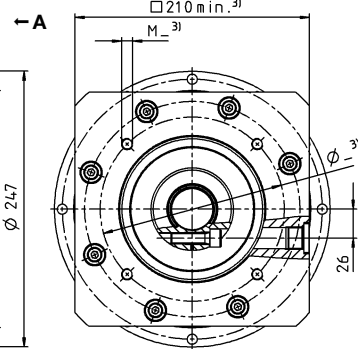
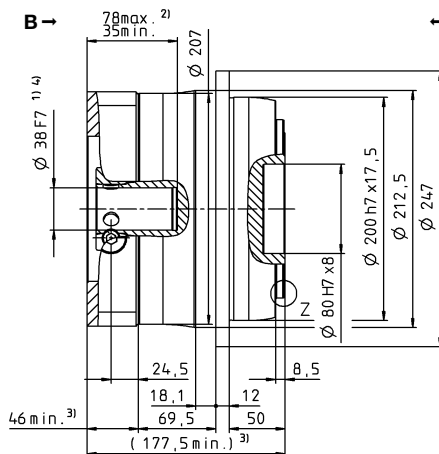
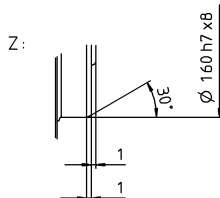
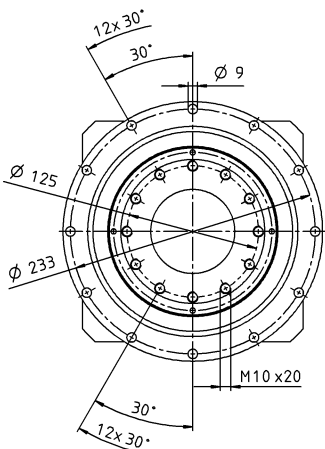
up to 38⁴⁾ (K)
clamping hub
diameter



up to 48⁴⁾ (M)⁵⁾
clamping hub
diameter



up to 55⁴⁾ (N)
clamping hub
diameter



Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

³⁾ The dimensions depend on the motor

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

⁵⁾ Standard clamping hub diameter

TP+ 110 MF 2-stage

| | | | | 2-stage | | | | | | | | | | | | | | | |
|--|---|----|---------------------------|---------------------------------------|-------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Ratio | | | <i>i</i> | | 16 | 20 | 21 | 25 | 28 | 31 | 32 | 35 | 40 | 50 | 61 | 64 | 70 | 91 | 100 |
| Max. torque ^{a) b)} | | | <i>T</i> _{2a} | Nm | 1760 | 1760 | 1540 | 1760 | 1760 | 1760 | 1760 | 1760 | 1760 | 1760 | 1540 | 1540 | 1760 | 1430 | 1540 |
| | | | | in.lb | 15577 | 15577 | 13630 | 15577 | 15577 | 15577 | 15577 | 15577 | 15577 | 15577 | 15577 | 13630 | 13630 | 15577 | 12657 |
| Max. acceleration torque ^{b)} (max. 1000 cycles per hour) | | | <i>T</i> _{2B} | Nm | 1760 | 1760 | 1540 | 1760 | 1760 | 1760 | 1760 | 1760 | 1760 | 1760 | 1540 | 1540 | 1760 | 1430 | 1540 |
| | | | | in.lb | 15577 | 15577 | 13630 | 15577 | 15577 | 15577 | 15577 | 15577 | 15577 | 15577 | 15577 | 13630 | 13630 | 15577 | 12657 |
| Nominal torque (at <i>n</i> _N) | | | <i>T</i> _{2N} | Nm | 1205 | 1240 | 1023 | 1278 | 1257 | 1065 | 1221 | 1408 | 1315 | 1408 | 1232 | 1232 | 1408 | 1144 | 1232 |
| | | | | in.lb | 10669 | 10976 | 9051 | 11312 | 11121 | 9422 | 10807 | 12462 | 11636 | 12462 | 10904 | 10904 | 12462 | 10125 | 10904 |
| Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox) | | | <i>T</i> _{2Not} | Nm | 3075 | 3075 | 3075 | 3075 | 3075 | 3075 | 3075 | 3075 | 3075 | 3075 | 3075 | 3075 | 3075 | 3075 | 3075 |
| | | | | in.lb | 27216 | 27216 | 27216 | 27216 | 27216 | 27216 | 27216 | 27216 | 27216 | 27216 | 27216 | 27216 | 27216 | 27216 | 27216 |
| Permitted average input speed (at <i>T</i> _{2N} and 20 °C ambient temperature) ^{c)} | | | <i>n</i> _{1N} | rpm | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2900 | 3200 | 2900 | 3200 | 3400 | 3400 |
| Max. input speed | | | <i>n</i> _{1Max} | rpm | 5625 | 5625 | 5625 | 5625 | 5625 | 5625 | 5625 | 5625 | 5625 | 5625 | 5625 | 5625 | 5625 | 5625 | 5625 |
| Mean no load running torque ^{b)} (at <i>n</i> _i = 3000 rpm and 20 °C gearbox temperature) | | | <i>T</i> ₀₁₂ | Nm | 7.0 | 5.8 | 5.2 | 5.2 | 4.5 | 4.4 | 4.5 | 3.1 | 3.0 | 2.5 | 2.1 | 2.5 | 2.0 | 1.8 | 1.8 |
| | | | | in.lb | 52 | 52 | 46 | 46 | 40 | 39 | 40 | 28 | 27 | 22 | 18 | 22 | 18 | 16 | 16 |
| Max. backlash | | | <i>j</i> _t | arcmin | Standard ≤ 3 / Reduced ≤ 1 | | | | | | | | | | | | | | |
| Torsional rigidity ^{b)} | | | <i>C</i> _{t21} | Nm/arcmin | 585 | 580 | 465 | 570 | 560 | 440 | 560 | 560 | 520 | 525 | 415 | 525 | 480 | 360 | 395 |
| | | | | in.lb/arcmin | 5178 | 5133 | 4116 | 5045 | 4956 | 3894 | 4956 | 4956 | 4602 | 4647 | 3673 | 4647 | 4248 | 3186 | 3496 |
| Tilting rigidity | | | <i>C</i> _{2K} | Nm/arcmin | 1452 | | | | | | | | | | | | | | |
| | | | | in.lb/arcmin | 12851 | | | | | | | | | | | | | | |
| Max. axial force ^{c)} | | | <i>F</i> _{2AMax} | N | 10050 | | | | | | | | | | | | | | |
| | | | | lb _f | 2261 | | | | | | | | | | | | | | |
| Max. tilting moment | | | <i>M</i> _{2KMax} | Nm | 3280 | | | | | | | | | | | | | | |
| | | | | in.lb | 29031 | | | | | | | | | | | | | | |
| Efficiency at full load | | | <i>η</i> | % | 94 | | | | | | | | | | | | | | |
| Service life ^{f)} | | | <i>L</i> _h | h | > 20000 | | | | | | | | | | | | | | |
| Weight (incl. standard adapter plate) | | | <i>m</i> | kg | 34 | | | | | | | | | | | | | | |
| | | | | lb _m | 75.1 | | | | | | | | | | | | | | |
| Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®) | | | <i>L</i> _{PA} | dB(A) | ≤ 61 | | | | | | | | | | | | | | |
| 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] Optimized mass inertia version available on request | G | 24 | <i>J</i> _i | kgcm ² | 8.51 | 8.21 | 8.98 | 7.82 | 6.57 | 8.09 | 6.57 | 6.37 | 5.63 | 5.54 | 5.63 | 5.78 | 5.44 | 5.51 | 5.40 |
| | | | | 10 ⁻³ in.lb.s ² | 7.53 | 7.27 | 7.95 | 6.92 | 5.81 | 7.16 | 5.81 | 5.64 | 4.98 | 4.90 | 4.98 | 5.12 | 4.81 | 4.88 | 4.78 |
| | I | 32 | <i>J</i> _i | kgcm ² | 11.7 | 11.4 | 12.1 | 11.0 | 9.73 | 11.3 | 9.73 | 9.54 | 8.80 | 8.70 | 8.80 | 8.95 | 8.61 | 8.67 | 8.56 |
| | | | | 10 ⁻³ in.lb.s ² | 10.4 | 10.1 | 10.7 | 9.74 | 8.61 | 10.0 | 8.61 | 8.44 | 7.79 | 7.70 | 7.79 | 7.92 | 7.62 | 7.67 | 7.58 |
| | K | 38 | <i>J</i> _i | kgcm ² | 12.7 | 12.5 | 13.2 | 12.1 | 10.8 | 12.3 | 10.8 | 10.6 | 9.87 | 9.77 | 9.87 | 10.0 | 9.68 | 9.74 | 9.63 |
| | | | | 10 ⁻³ in.lb.s ² | 11.2 | 11.1 | 11.7 | 10.7 | 9.56 | 10.9 | 9.56 | 9.39 | 8.73 | 8.65 | 8.73 | 8.87 | 8.57 | 8.62 | 8.52 |
| | M | 48 | <i>J</i> _i | kgcm ² | 27.4 | 27.1 | 27.8 | 26.7 | 25.4 | 26.9 | 25.4 | 25.3 | 24.5 | 24.4 | 24.5 | 24.9 | 24.3 | 24.4 | 24.3 |
| | | | | 10 ⁻³ in.lb.s ² | 24.3 | 24.0 | 24.6 | 23.6 | 22.5 | 23.8 | 22.5 | 22.4 | 21.7 | 21.6 | 21.7 | 22.0 | 21.5 | 21.6 | 21.5 |

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com

^{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

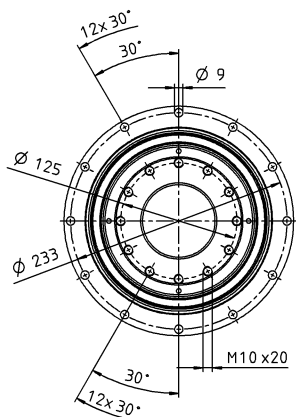
^{f)} Please contact us to discuss
application-specific service lifetimes

View A

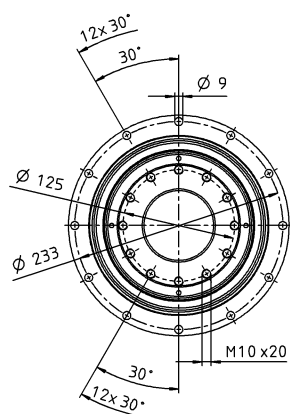
View B

2-stage

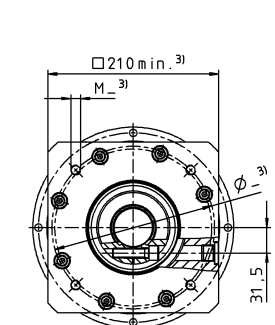
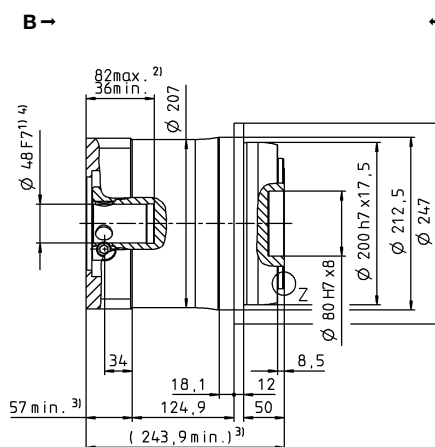
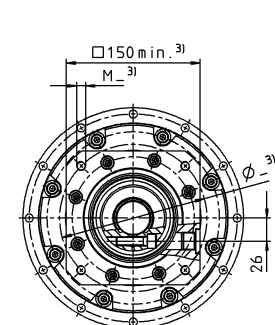
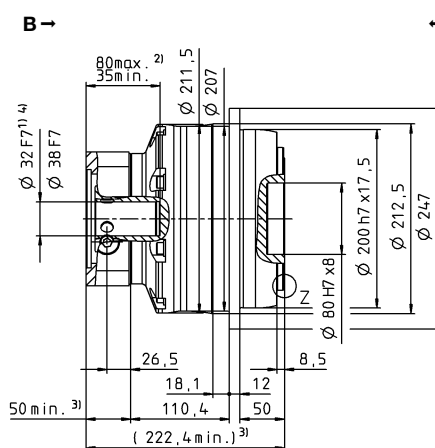
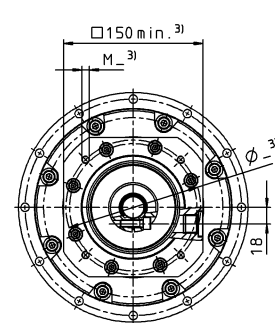
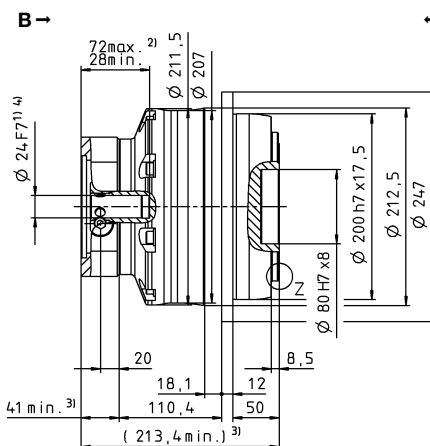
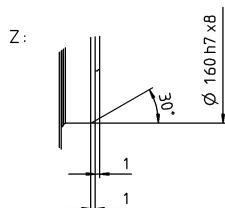
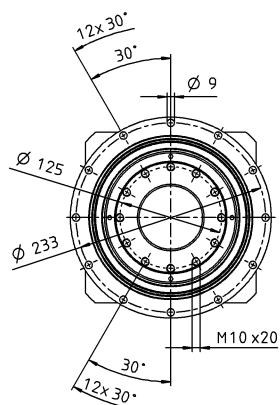
up to 24⁴⁾ (G)
clamping hub
diameter



up to 32/38⁴⁾
(I/K⁵⁾) clamping
hub diameter



up to 48⁴⁾ (M)
clamping hub
diameter



Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

³⁾ The dimensions depend on the motor

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

⁵⁾ Standard clamping hub diameter

TP+ 300 MF 1-stage

| | | | | 1-stage | | | | |
|--|---|-------------|-----------------|---------------------------------------|-------|-------|-------|------|
| Ratio | | i | | 5 | 7 | 8 | 10 | |
| Max. torque ^{a) b)} | | T_{2a} | Nm | 5600 | 5250 | 2800 | 2800 | |
| | | | in.lb | 49564 | 46467 | 24782 | 24782 | |
| Max. acceleration torque ^{b)} (max. 1000 cycles per hour) | | T_{2B} | Nm | 4200 | 3960 | 2280 | 2280 | |
| | | | in.lb | 37173 | 35049 | 20180 | 20180 | |
| Nominal torque (at n_n) | | T_{2N} | Nm | 1996 | 1835 | 1815 | 1794 | |
| | | | in.lb | 17666 | 16242 | 16063 | 15878 | |
| Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox) | | T_{2Not} | Nm | 9900 | 9900 | 8557 | 8750 | |
| | | | in.lb | 87623 | 87623 | 75733 | 77445 | |
| Permitted average input speed (at T_{2n} and 20 °C ambient temperature) ^{d)} | | n_{1N} | rpm | 1000 | 1400 | 1400 | 1700 | |
| Max. input speed | | n_{1Max} | rpm | 3000 | 3000 | 3000 | 3000 | |
| Mean no load running torque ^{b)} (at n_i = 2000 rpm and 20 °C gearbox temperature) | | T_{012} | Nm | 20 | 14 | 14 | 8.8 | |
| | | | in.lb | 177 | 120 | 120 | 78 | |
| Max. backlash | | j_t | arcmin | Standard ≤ 3 / Reduced ≤ 1 | | | | |
| Torsional rigidity ^{b)} | | C_{t21} | Nm/arcmin | 1000 | 900 | 700 | 700 | |
| | | | in.lb/arcmin | 8851 | 7966 | 6196 | 6196 | |
| Tilting rigidity | | C_{2K} | Nm/arcmin | 5560 | | | | |
| | | | in.lb/arcmin | 49210 | | | | |
| Max. axial force ^{c)} | | F_{2AMax} | N | 33000 | | | | |
| | | | lb _f | 7425 | | | | |
| Max. tilting moment | | M_{2KMax} | Nm | 3900 | | | | |
| | | | in.lb | 34518 | | | | |
| Efficiency at full load | | η | % | 95 | | | | |
| Service life ^{f)} | | L_h | h | > 20000 | | | | |
| Weight (incl. standard adapter plate) | | m | kg | 60 | | | | |
| | | | lb _m | 132.6 | | | | |
| 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®) | | | | – | | | | |
| Bore diameter of coupling on the application side | | | mm | – | | | | |
| Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] Optimized mass inertia version available on request | N | 55 | J_i | kgcm ² | 82.6 | 61.2 | 61.2 | 49.5 |
| | | | | 10 ⁻³ in.lb.s ² | 73.1 | 54.2 | 54.2 | 43.8 |

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com

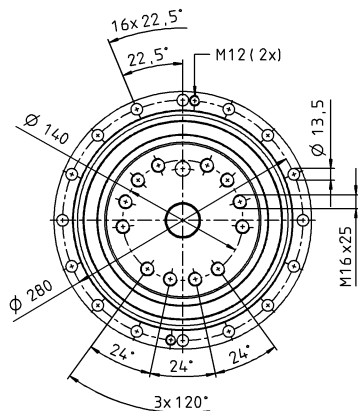
- ^{a)} At max. 10 % M_{2KMax}
^{b)} Valid for standard clamping hub diameter
^{c)} Refers to center of the output shaft or flange
^{d)} Please reduce input speed at higher ambient temperatures
^{f)} Please contact us to discuss application-specific service lifetimes

View A

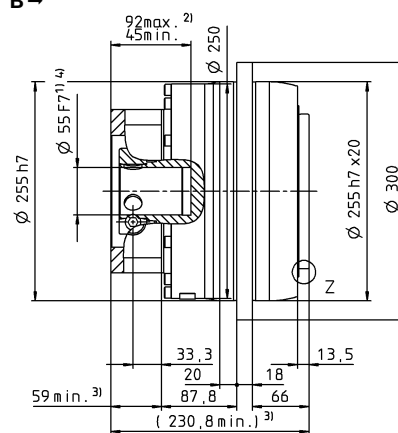
View B

Motor shaft diameter [mm]

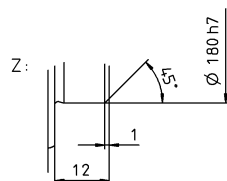
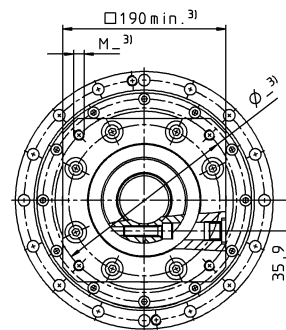
1-stage

up to 55 ⁴⁾ (N) ⁵⁾
clamping hub
diameter


B →



← A



Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

³⁾ The dimensions depend on the motor

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

⁵⁾ Standard clamping hub diameter

TP+ 300 MF 2-stage

| | | | | 2-stage | | | | | | | | | | | |
|--|---------------------------|-----------------------|---------------------------------|-------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Ratio | <i>i</i> | | | 20 | 21 | 25 | 31 | 32 | 35 | 50 | 61 | 64 | 70 | 91 | 100 |
| Max. torque ^{a) b)} | <i>T</i> _{2a} | <i>Nm</i> | | 3850 | 3740 | 3949 | 3850 | 3630 | 3949 | 3600 | 3080 | 2800 | 3630 | 2800 | 2800 |
| | | <i>in.lb</i> | | 34076 | 33102 | 34947 | 34076 | 32128 | 34947 | 31863 | 27260 | 24782 | 32128 | 24782 | 24782 |
| Max. acceleration torque ^{b)} (max. 1000 cycles per hour) | <i>T</i> _{2B} | <i>Nm</i> | | 3850 | 3740 | 3949 | 3850 | 3630 | 3949 | 3600 | 3080 | 2800 | 3630 | 2800 | 2800 |
| | | <i>in.lb</i> | | 34076 | 33102 | 34952 | 34076 | 32128 | 34952 | 31863 | 27260 | 24782 | 32128 | 24782 | 24782 |
| Nominal torque (at <i>n</i> _n) | <i>T</i> _{2N} | <i>Nm</i> | | 1354 | 1456 | 1676 | 2114 | 2353 | 1710 | 1722 | 2070 | 2240 | 2339 | 2240 | 2240 |
| | | <i>in.lb</i> | | 11981 | 12888 | 14834 | 18709 | 20823 | 15131 | 15238 | 18320 | 19826 | 20698 | 19826 | 19826 |
| Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox) | <i>T</i> _{2Not} | <i>Nm</i> | | 9900 | 9870 | 9900 | 9156 | 9900 | 9900 | 9900 | 9008 | 9900 | 9900 | 8750 | 8750 |
| | | <i>in.lb</i> | | 87623 | 87357 | 87623 | 81035 | 87623 | 87623 | 87623 | 79728 | 87623 | 87623 | 77445 | 77445 |
| Permitted average input speed (at <i>T</i> _{2a} and 20 °C ambient temperature) ^{d)} | <i>n</i> _{1N} | <i>rpm</i> | | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2300 | 2400 | 2300 | 2400 | 2500 | 2500 |
| Max. input speed | <i>n</i> _{1Max} | <i>rpm</i> | | 4375 | 4375 | 4375 | 4375 | 4375 | 4375 | 4375 | 4375 | 4375 | 4375 | 4375 | 4375 |
| Mean no load running torque ^{b)} (at <i>n</i> _i = 2000 rpm and 20 °C gearbox temperature) | <i>T</i> ₀₁₂ | <i>Nm</i> | | 6.7 | 5.5 | 5.5 | 4.8 | 5.5 | 4.0 | 3.8 | 2.8 | 3.8 | 3.0 | 2.8 | 2.4 |
| | | <i>in.lb</i> | | 59 | 49 | 48 | 43 | 48 | 35 | 34 | 25 | 34 | 26 | 25 | 21 |
| Max. backlash | <i>j</i> _t | <i>arcmin</i> | | Standard ≤ 3 / Reduced ≤ 2 | | | | | | | | | | | |
| Torsional rigidity ^{b)} | <i>C</i> _{t21} | <i>Nm/arcmin</i> | | 850 | 800 | 950 | 750 | 950 | 900 | 800 | 700 | 800 | 800 | 600 | 650 |
| | | <i>in.lb/arcmin</i> | | 7523 | 7081 | 8408 | 6638 | 8408 | 7966 | 7081 | 6196 | 7081 | 7081 | 5310 | 5753 |
| Tilting rigidity | <i>C</i> _{2K} | <i>Nm/arcmin</i> | | 5560 | | | | | | | | | | | |
| | | <i>in.lb/arcmin</i> | | 49210 | | | | | | | | | | | |
| Max. axial force ^{c)} | <i>F</i> _{2AMax} | <i>N</i> | | 33000 | | | | | | | | | | | |
| | | <i>lb_f</i> | | 7425 | | | | | | | | | | | |
| Max. tilting moment | <i>M</i> _{2KMax} | <i>Nm</i> | | 5900 | | | | | | | | | | | |
| | | <i>in.lb</i> | | 52220 | | | | | | | | | | | |
| Efficiency at full load | <i>η</i> | % | | 94 | | | | | | | | | | | |
| Service life ^{f)} | <i>L</i> _h | <i>h</i> | | > 20000 | | | | | | | | | | | |
| Weight (incl. standard adapter plate) | <i>m</i> | <i>kg</i> | | 58.5 | | | | | | | | | | | |
| | | <i>lb_m</i> | | 129.3 | | | | | | | | | | | |
| Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®) | <i>L</i> _{PA} | <i>dB(A)</i> | | ≤ 61 | | | | | | | | | | | |
| Max. permitted housing temperature | | °C | | +90 | | | | | | | | | | | |
| | | <i>F</i> | | 194 | | | | | | | | | | | |
| Ambient temperature | | °C | | –15 to +40 | | | | | | | | | | | |
| | | <i>F</i> | | 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®) | | | | – | | | | | | | | | | | |
| Bore diameter of coupling on the application side | | <i>mm</i> | | – | | | | | | | | | | | |
| Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] Optimized mass inertia version available on request | M 48 | <i>J</i> _i | <i>kgcm²</i> | 27.5 | 27.0 | 25.9 | 25.6 | 22.4 | 22.4 | 21.5 | 21.4 | 25.8 | 21.3 | 21.2 | 21.2 |
| | | | <i>10⁻³ in.lb.s²</i> | 24.3 | 23.9 | 22.9 | 22.7 | 19.8 | 19.8 | 19.0 | 18.9 | 22.8 | 18.9 | 18.8 | 18.8 |

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com

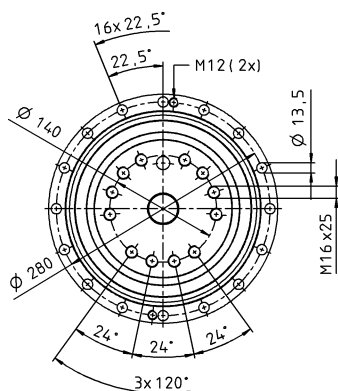
- ^{a)} At max. 10 % M_{2KMax}
^{b)} Valid for standard clamping hub diameter
^{c)} Refers to center of the output shaft or flange
^{d)} Please reduce input speed at higher ambient temperatures
^{f)} Please contact us to discuss application-specific service lifetimes

View A

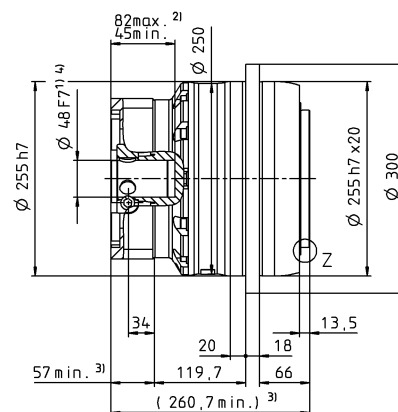
View B

Motor shaft diameter [mm]

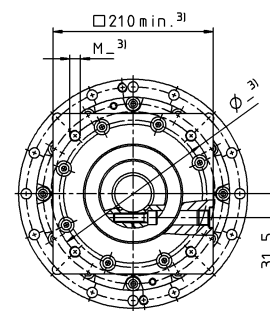
2-stage

up to 48 ⁴⁾ (M) ⁵⁾
clamping hub
diameter


B →



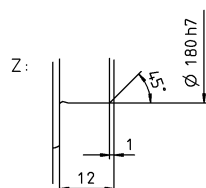
← A



Planetary gearboxes

TP+

MF



Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

³⁾ The dimensions depend on the motor

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

⁵⁾ Standard clamping hub diameter

TP+ 500 MF 1-stage

| | | | 1-stage | | | |
|--|-------------|---------------------------------------|--------------------------------------|--------|--------|--------|
| Ratio | <i>i</i> | | 5 | 7 | 8 | 10 |
| Max. torque ^{a) b)} | T_{2a} | Nm | 9600 | 6790 | 4000 | 4000 |
| | | in.lb | 84968 | 60097 | 35403 | 35403 |
| Max. acceleration torque ^{b)} (max. 1000 cycles per hour) | T_{2B} | Nm | 7200 | 6000 | 4000 | 4000 |
| | | in.lb | 63726 | 53105 | 35403 | 35403 |
| Nominal torque (at n_n) | T_{2N} | Nm | 3131 | 2857 | 2830 | 2840 |
| | | in.lb | 27711 | 25286 | 25049 | 25135 |
| Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox) | T_{2Not} | Nm | 15000 | 15000 | 15000 | 15000 |
| | | in.lb | 132762 | 132762 | 132762 | 132762 |
| Permitted average input speed (at T_{2N} and 20 °C ambient temperature) ^{d)} | n_{1N} | rpm | 900 | 1300 | 1300 | 1500 |
| Max. input speed | n_{1Max} | rpm | 3000 | 3000 | 3000 | 3000 |
| Mean no load running torque ^{b)} (at $n_i = 2000$ rpm and 20 °C gearbox temperature) | T_{012} | Nm | 27 | 19 | 19 | 12 |
| | | in.lb | 242 | 170 | 170 | 110 |
| Max. backlash | j_t | arcmin | Standard ≤ 3 / Reduced ≤ 1 | | | |
| Torsional rigidity ^{b)} | C_{t21} | Nm/arcmin | 1450 | 1300 | 1100 | 1100 |
| | | in.lb/arcmin | 12834 | 11506 | 9736 | 9736 |
| Tilting rigidity | C_{2K} | Nm/arcmin | 9480 | | | |
| | | in.lb/arcmin | 83906 | | | |
| Max. axial force ^{c)} | F_{2AMax} | N | 50000 | | | |
| | | lb _f | 11250 | | | |
| Max. tilting moment | M_{2KMax} | Nm | 5500 | | | |
| | | in.lb | 48679 | | | |
| Efficiency at full load | η | % | 95 | | | |
| Service life ^{f)} | L_h | h | > 20000 | | | |
| Weight (incl. standard adapter plate) | m | kg | 82 | | | |
| | | lb _m | 181.2 | | | |
| 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 [®]) | | | – | | | |
| Bore diameter of coupling on the application side | | mm | – | | | |
| Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] Optimized mass inertia version available on request | O 60 J_1 | kgcm ² | 182 | 142 | 142 | 120 |
| | | 10 ⁻³ in.lb.s ² | 161 | 126 | 126 | 106 |

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com

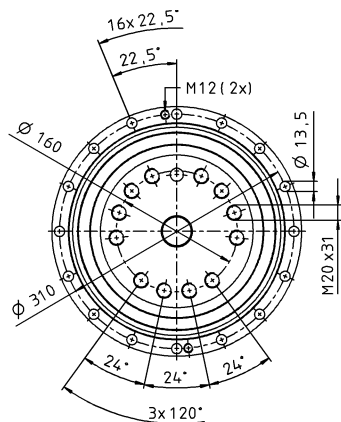
- ^{a)} At max. 10 % M_{2KMax}
^{b)} Valid for standard clamping hub diameter
^{c)} Refers to center of the output shaft or flange
^{d)} Please reduce input speed at higher ambient temperatures
^{f)} Please contact us to discuss application-specific service lifetimes

View A

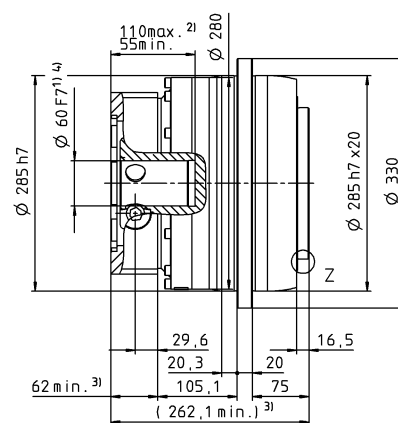
View B

Motor shaft diameter [mm]

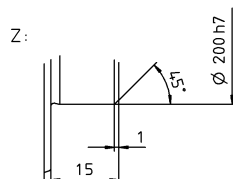
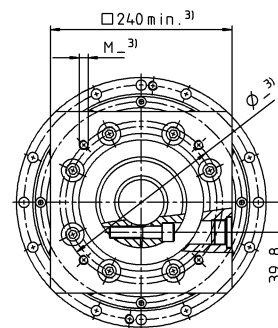
1-stage

up to 60 ⁴⁾ (O) ⁵⁾
clamping hub
diameter


B →



← A



Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

³⁾ The dimensions depend on the motor

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

⁵⁾ Standard clamping hub diameter

TP+ 500 MF 2-stage

| | | | | 2-stage | | | | | | | | | | | | |
|--|---------------------------|-----------------------|-----------------------|----------------------------------|--------|--------|-------|--------|--------|--------|-------|--------|--------|--------|--------|------|
| Ratio | <i>i</i> | | | 20 | 21 | 25 | 31 | 32 | 35 | 50 | 61 | 64 | 70 | 91 | 100 | |
| Max. torque ^{a) b)} | <i>T</i> _{2a} | <i>Nm</i> | | 5446 | 5718 | 6808 | 6354 | 5500 | 6808 | 4975 | 5280 | 4800 | 5500 | 4800 | 4800 | |
| | | <i>in.lb</i> | | 48202 | 50612 | 60252 | 56239 | 48679 | 60252 | 44033 | 46732 | 42484 | 48679 | 42484 | 42484 | |
| Max. acceleration torque ^{b)} (max. 1000 cycles per hour) | <i>T</i> _{2B} | <i>Nm</i> | | 5446 | 5718 | 6808 | 6324 | 5500 | 6808 | 4975 | 5280 | 4800 | 5500 | 4800 | 4800 | |
| | | <i>in.lb</i> | | 48202 | 50612 | 60252 | 56239 | 48679 | 60252 | 44033 | 46732 | 42484 | 48679 | 42484 | 42484 | |
| Nominal torque (at <i>n</i> _n) | <i>T</i> _{2N} | <i>Nm</i> | | 3026 | 3270 | 3729 | 4086 | 4376 | 3828 | 3697 | 4224 | 3840 | 4400 | 3840 | 3840 | |
| | | <i>in.lb</i> | | 26785 | 28944 | 33002 | 36160 | 38730 | 33878 | 32720 | 37386 | 33987 | 38944 | 33987 | 33987 | |
| Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox) | <i>T</i> _{2Not} | <i>Nm</i> | | 15000 | 13928 | 15000 | 10854 | 15000 | 15000 | 15000 | 10678 | 15000 | 15000 | 15000 | 15000 | |
| | | <i>in.lb</i> | | 132762 | 123274 | 132762 | 96063 | 132762 | 132762 | 132762 | 94513 | 132762 | 132762 | 132762 | 132762 | |
| Permitted average input speed (at <i>T</i> _{2a} and 20 °C ambient temperature) ^{d)} | <i>n</i> _{1N} | <i>rpm</i> | | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 2000 | 2100 | 2000 | 2100 | 2200 | 2200 | |
| Max. input speed | <i>n</i> _{1Max} | <i>rpm</i> | | 4375 | 4375 | 4375 | 4375 | 4375 | 4375 | 4375 | 4375 | 4375 | 4375 | 4375 | 4375 | |
| Mean no load running torque ^{b)} (at <i>n</i> _i = 2000 rpm and 20 °C gearbox temperature) | <i>T</i> ₀₁₂ | <i>Nm</i> | | 10 | 9.6 | 9.2 | 7.0 | 9.2 | 7.0 | 5.8 | 3.4 | 5.8 | 4.5 | 3.5 | 3.6 | |
| | | <i>in.lb</i> | | 92 | 85 | 81 | 62 | 81 | 62 | 51 | 30 | 51 | 40 | 31 | 32 | |
| Max. backlash | <i>j</i> _t | <i>arcmin</i> | | Standard ≤ 3 / Reduced ≤ 2 | | | | | | | | | | | | |
| Torsional rigidity ^{b)} | <i>C</i> _{t21} | <i>Nm/arcmin</i> | | 1400 | 1200 | 1450 | 1200 | 1450 | 1400 | 1300 | 1100 | 1300 | 1250 | 950 | 1050 | |
| | | <i>in.lb/arcmin</i> | | 12391 | 10621 | 12834 | 10621 | 12834 | 12391 | 11506 | 9736 | 11506 | 11064 | 8408 | 9293 | |
| Tilting rigidity | <i>C</i> _{2K} | <i>Nm/arcmin</i> | | 9480 | | | | | | | | | | | | |
| | | <i>in.lb/arcmin</i> | | 83906 | | | | | | | | | | | | |
| Max. axial force ^{c)} | <i>F</i> _{2AMax} | <i>N</i> | | 50000 | | | | | | | | | | | | |
| | | <i>lb_f</i> | | 11250 | | | | | | | | | | | | |
| Max. tilting moment | <i>M</i> _{2KMax} | <i>Nm</i> | | 8800 | | | | | | | | | | | | |
| | | <i>in.lb</i> | | 77887 | | | | | | | | | | | | |
| Efficiency at full load | <i>η</i> | % | | 94 | | | | | | | | | | | | |
| Service life ^{f)} | <i>L</i> _n | <i>h</i> | | > 20000 | | | | | | | | | | | | |
| Weight (incl. standard adapter plate) | <i>m</i> | <i>kg</i> | | 77.5 | | | | | | | | | | | | |
| | | <i>lb_m</i> | | 171.3 | | | | | | | | | | | | |
| Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®) | <i>L</i> _{PA} | <i>dB(A)</i> | | ≤ 60 | | | | | | | | | | | | |
| Max. permitted housing temperature | | °C | | +90 | | | | | | | | | | | | |
| | | <i>F</i> | | 194 | | | | | | | | | | | | |
| Ambient temperature | | °C | | –15 to +40 | | | | | | | | | | | | |
| | | <i>F</i> | | 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®) | | | | – | | | | | | | | | | | | |
| Bore diameter of coupling on the application side | | <i>mm</i> | | – | | | | | | | | | | | | |
| Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] Optimized mass inertia version available on request | M | 48 | <i>J</i> _i | <i>kgcm²</i> | 24.8 | 35.9 | 40.2 | 33.7 | 35.4 | 27.4 | 27.4 | 25.4 | 25.8 | 31.0 | 25.0 | 25.2 |
| | | | | 10 ⁻³ <i>in.lb.s²</i> | 21.9 | 31.8 | 35.6 | 29.8 | 31.3 | 24.2 | 24.2 | 22.5 | 22.8 | 27.4 | 22.1 | 22.3 |

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com

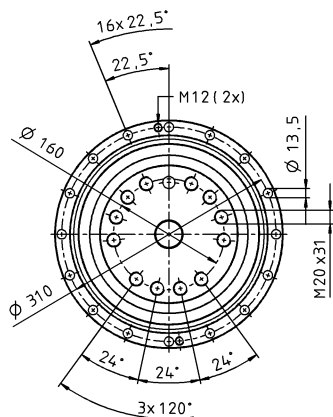
- ^{a)} At max. 10 % M_{2KMax}
^{b)} Valid for standard clamping hub diameter
^{c)} Refers to center of the output shaft or flange
^{d)} Please reduce input speed at higher ambient temperatures
^{f)} Please contact us to discuss application-specific service lifetimes

View A

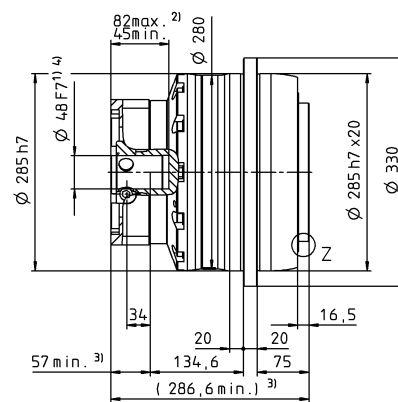
View B

Motor shaft diameter [mm]

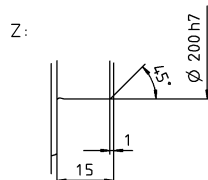
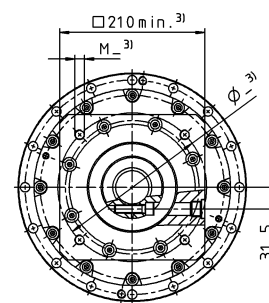
2-stage

up to 48 ⁴⁾ (M) ⁵⁾
clamping hub
diameter


B →



← A



Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

³⁾ The dimensions depend on the motor

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

⁵⁾ Standard clamping hub diameter

TP+ 010 MA 2-/3-stage

| | | | | 2-stage | | | | 3-stage | | | | |
|--|---|----|---------------------------|--|-------------------------------|------|------|---------|------|------|------|------|
| Ratio | | | <i>i</i> | | 22 | 27.5 | 38.5 | 55 | 88 | 110 | 154 | 220 |
| Max. torque ^{a) b)} | | | <i>T</i> _{2a} | <i>Nm</i> | 315 | 315 | 315 | 315 | 315 | 315 | 315 | 315 |
| | | | | <i>in.lb</i> | 2788 | 2788 | 2788 | 2788 | 2788 | 2788 | 2788 | 2788 |
| Max. acceleration torque ^{b)} (max. 1000 cycles per hour) | | | <i>T</i> _{2B} | <i>Nm</i> | 230 | 230 | 230 | 230 | 230 | 230 | 230 | 230 |
| | | | | <i>in.lb</i> | 2036 | 2036 | 2036 | 2036 | 2036 | 2036 | 2036 | 2036 |
| Nominal torque (at <i>n</i> _n) | | | <i>T</i> _{2N} | <i>Nm</i> | 140 | 137 | 139 | 147 | 184 | 184 | 181 | 184 |
| | | | | <i>in.lb</i> | 1242 | 1213 | 1230 | 1303 | 1629 | 1629 | 1599 | 1629 |
| Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox) | | | <i>T</i> _{2Not} | <i>Nm</i> | 525 | 525 | 525 | 525 | 525 | 525 | 525 | 525 |
| | | | | <i>in.lb</i> | 4647 | 4647 | 4647 | 4647 | 4647 | 4647 | 4647 | 4647 |
| Permitted average input speed (at <i>T</i> _{2N} and 20 °C ambient temperature) ^{d)} | | | <i>n</i> _{1N} | <i>rpm</i> | 4000 | 4000 | 4000 | 4000 | 4500 | 4500 | 4500 | 4500 |
| Max. input speed | | | <i>n</i> _{1Max} | <i>rpm</i> | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 |
| Mean no load running torque ^{b)} (at <i>n</i> ₁ = 3000 rpm and 20 °C gearbox temperature) | | | <i>T</i> ₀₁₂ | <i>Nm</i> | 0.52 | 0.47 | 0.41 | 0.38 | 0.28 | 0.26 | 0.22 | 0.18 |
| | | | | <i>in.lb</i> | 4.6 | 4.2 | 4.0 | 3.4 | 2.5 | 2.3 | 1.9 | 1.6 |
| Max. backlash | | | <i>j</i> _t | <i>arcmin</i> | ≤ 1 | | | | | | | |
| Torsional rigidity ^{b)} | | | <i>C</i> _{t21} | <i>Nm/arcmin</i> | 43 | 43 | 43 | 42 | 42 | 42 | 42 | 42 |
| | | | | <i>in.lb/arcmin</i> | 381 | 381 | 381 | 372 | 372 | 372 | 372 | 372 |
| Tilting rigidity | | | <i>C</i> _{2K} | <i>Nm/arcmin</i> | 225 | | | | | | | |
| | | | | <i>in.lb/arcmin</i> | 1991 | | | | | | | |
| Max. axial force ^{c)} | | | <i>F</i> _{2AMax} | <i>N</i> | 2795 | | | | | | | |
| | | | | <i>lb_f</i> | 629 | | | | | | | |
| Max. tilting moment | | | <i>M</i> _{2KMax} | <i>Nm</i> | 400 | | | | | | | |
| | | | | <i>in.lb</i> | 3540 | | | | | | | |
| Efficiency at full load | | | <i>η</i> | % | 94 | | | | | | | |
| Service life ^{f)} | | | <i>L</i> _h | <i>h</i> | > 20000 | | | | | | | |
| Weight (incl. standard adapter plate) | | | <i>m</i> | <i>kg</i> | 3.2 | | | | 3.6 | | | |
| | | | | <i>lb_m</i> | 7.1 | | | | 8.0 | | | |
| Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®) | | | <i>L</i> _{PA} | <i>dB(A)</i> | ≤ 56 | | | | | | | |
| Max. permitted housing temperature | | | | °C | +90 | | | | | | | |
| | | | | <i>F</i> | 194 | | | | | | | |
| Ambient temperature | | | | °C | –15 to +40 | | | | | | | |
| | | | | <i>F</i> | 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-050.00 | | | | | | | |
| Bore diameter of coupling on the application side | | | | <i>mm</i> | X = 016.000 - 038.000 | | | | | | | |
| Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] Optimized mass inertia version available on request | C | 14 | <i>J</i> ₁ | <i>kgcm²</i> | 0.21 | 0.18 | 0.16 | 0.14 | 0.16 | 0.15 | 0.14 | 0.13 |
| | | | | <i>10⁻³ in.lb.s²</i> | 0.19 | 0.16 | 0.14 | 0.12 | 0.14 | 0.13 | 0.12 | 0.12 |
| | E | 19 | <i>J</i> ₁ | <i>kgcm²</i> | 0.52 | 0.50 | 0.47 | 0.46 | - | - | - | - |
| | | | | <i>10⁻³ in.lb.s²</i> | 0.46 | 0.44 | 0.42 | 0.41 | - | - | - | - |

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com

^{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

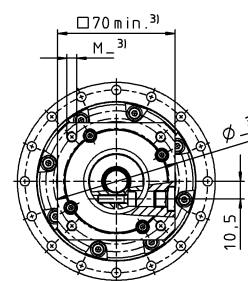
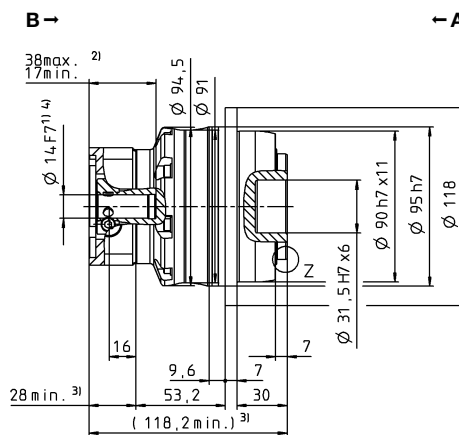
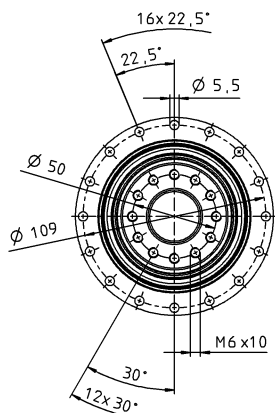
^{f)} Please contact us to discuss
application-specific service lifetimes

View A

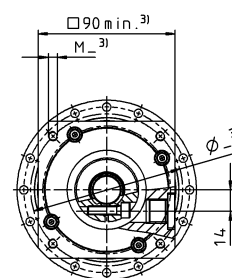
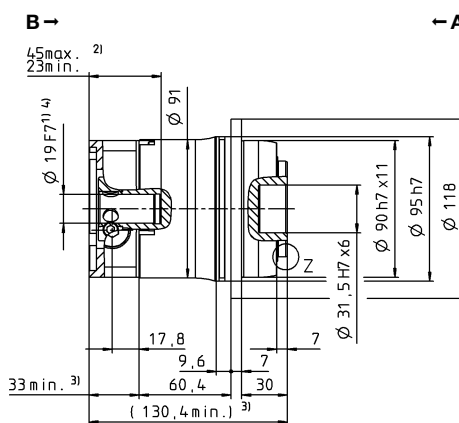
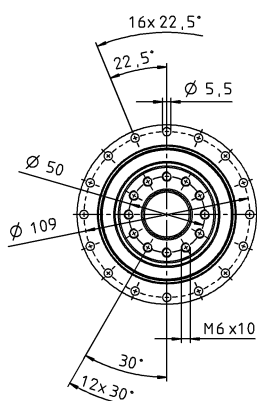
View B

2-stage

up to 14⁴⁾ (C)⁵⁾
clamping hub
diameter



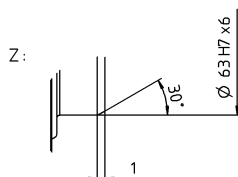
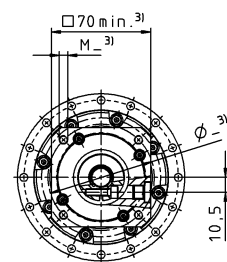
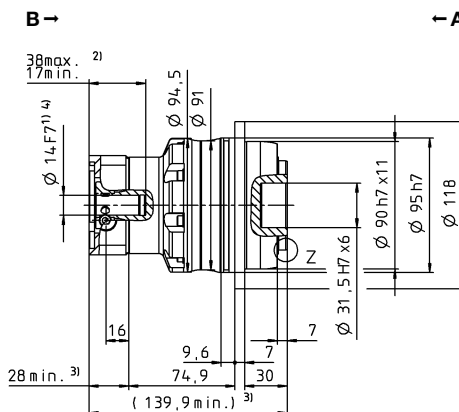
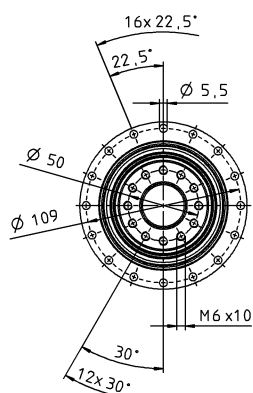
up to 19⁴⁾ (E)
clamping hub
diameter



Motor shaft diameter [mm]

3-stage

up to 14⁴⁾ (C)⁵⁾
clamping hub
diameter



Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

³⁾ The dimensions depend on the motor

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

⁵⁾ Standard clamping hub diameter

TP+ 025 MA 2-/3-stage

| | | | | 2-stage | | | | 3-stage | | | | | |
|--|--|------|---------------------------|--|-------------------------------|-------|-------|---------|-------|-------|-------|-------|-------|
| Ratio | | | <i>i</i> | | 22 | 27.5 | 38.5 | 55 | 66 | 88 | 110 | 154 | 220 |
| Max. torque ^{a) b)} | | | <i>T</i> _{2a} | <i>Nm</i> | 583 | 583 | 583 | 583 | 525 | 525 | 525 | 525 | 525 |
| | | | | <i>in.lb</i> | 5160 | 5160 | 5160 | 5160 | 4645 | 4645 | 4645 | 4645 | 4645 |
| Max. acceleration torque ^{b)} (max. 1000 cycles per hour) | | | <i>T</i> _{2B} | <i>Nm</i> | 530 | 530 | 530 | 530 | 480 | 480 | 480 | 480 | 480 |
| | | | | <i>in.lb</i> | 4691 | 4691 | 4691 | 4691 | 4248 | 4248 | 4248 | 4248 | 4248 |
| Nominal torque (at <i>n</i> _n) | | | <i>T</i> _{2N} | <i>Nm</i> | 312 | 314 | 371 | 413 | 260 | 276 | 296 | 330 | 364 |
| | | | | <i>in.lb</i> | 2762 | 2775 | 3286 | 3652 | 2304 | 2447 | 2617 | 2920 | 3222 |
| Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox) | | | <i>T</i> _{2Not} | <i>Nm</i> | 1200 | 1200 | 1200 | 1200 | 1200 | 1200 | 1200 | 1200 | 1200 |
| | | | | <i>in.lb</i> | 10621 | 10621 | 10621 | 10621 | 10621 | 10621 | 10621 | 10621 | 10621 |
| Permitted average input speed (at <i>T</i> _{2n} and 20 °C ambient temperature) ^{d)} | | | <i>n</i> _{1N} | <i>rpm</i> | 3500 | 3500 | 3500 | 3500 | 4000 | 4000 | 4000 | 4000 | 4000 |
| Max. input speed | | | <i>n</i> _{1Max} | <i>rpm</i> | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 |
| Mean no load running torque ^{b)} (at <i>n</i> _i = 3000 rpm and 20 °C gearbox temperature) | | | <i>T</i> ₀₁₂ | <i>Nm</i> | 1.0 | 0.87 | 0.78 | 0.70 | 0.62 | 0.52 | 0.44 | 0.35 | 0.27 |
| | | | | <i>in.lb</i> | 9.2 | 7.7 | 6.9 | 6.2 | 5.5 | 4.6 | 3.9 | 3.1 | 2.4 |
| Max. backlash | | | <i>j</i> _t | <i>arcmin</i> | ≤ 1 | | | | | | | | |
| Torsional rigidity ^{b)} | | | <i>C</i> _{t21} | <i>Nm/arcmin</i> | 105 | 105 | 105 | 100 | 95 | 95 | 95 | 95 | 95 |
| | | | | <i>in.lb/arcmin</i> | 929 | 929 | 929 | 885 | 841 | 841 | 841 | 841 | 841 |
| Tilting rigidity | | | <i>C</i> _{2K} | <i>Nm/arcmin</i> | 550 | | | | | | | | |
| | | | | <i>in.lb/arcmin</i> | 4868 | | | | | | | | |
| Max. axial force ^{c)} | | | <i>F</i> _{2AMax} | <i>N</i> | 4800 | | | | | | | | |
| | | | | <i>lb_f</i> | 1080 | | | | | | | | |
| Max. tilting moment | | | <i>M</i> _{2KMax} | <i>Nm</i> | 550 | | | | | | | | |
| | | | | <i>in.lb</i> | 4868 | | | | | | | | |
| Efficiency at full load | | | <i>η</i> | % | 94 | | | | | | | | |
| Service life ^{f)} | | | <i>L</i> _h | <i>h</i> | > 20000 | | | | | | | | |
| Weight (incl. standard adapter plate) | | | <i>m</i> | <i>kg</i> | 5.6 | | | | 6.1 | | | | |
| | | | | <i>lb_m</i> | 12.4 | | | | 13.5 | | | | |
| Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®) | | | <i>L</i> _{PA} | <i>dB(A)</i> | ≤ 58 | | | | ≤ 56 | | | | |
| Max. permitted housing temperature | | | | °C | +90 | | | | | | | | |
| | | | | <i>F</i> | 194 | | | | | | | | |
| Ambient temperature | | | | °C | –15 to +40 | | | | | | | | |
| | | | | <i>F</i> | 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-00300AAX-063.00 | | | | | | | | |
| Bore diameter of coupling on the application side | | | | <i>mm</i> | X = 030.000 - 056.000 | | | | | | | | |
| Mass moment of inertia (relates to the drive) | | E 19 | <i>J</i> _i | <i>kgcm²</i> | 0.87 | 0.7 | 0.6 | 0.55 | 0.63 | 0.56 | 0.53 | 0.51 | 0.50 |
| | | | | <i>10⁻³ in.lb.s²</i> | 0.77 | 0.62 | 0.53 | 0.49 | 0.56 | 0.50 | 0.47 | 0.45 | 0.44 |
| Clamping hub diameter [mm] Optimized mass inertia version available on request | | G 24 | <i>J</i> _i | <i>kgcm²</i> | 2.39 | 2.22 | 2.12 | 2.07 | - | - | - | - | - |
| | | | | <i>10⁻³ in.lb.s²</i> | 2.12 | 1.96 | 1.88 | 1.83 | - | - | - | - | - |

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com

^{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

^{f)} Please contact us to discuss
application-specific service lifetimes

TP+ 050 MA 2-/3-stage

| | | | | 2-stage | | | | 3-stage | | | | | | |
|--|--|---|---------------------------|-----------------------|--|-------|-------|---------|-------|-------|-------|-------|-------|-------|
| Ratio | | | <i>i</i> | | 22 | 27.5 | 38.5 | 55 | 66 | 88 | 110 | 154 | 220 | |
| Max. torque ^{a) b)} | | | <i>T</i> _{2a} | <i>Nm</i> | 1402 | 1402 | 1402 | 1402 | 1402 | 1402 | 1402 | 1402 | 1402 | |
| | | | | <i>in.lb</i> | 12406 | 12406 | 12406 | 12406 | 12406 | 12406 | 12406 | 12406 | 12406 | 12406 |
| Max. acceleration torque ^{b)} (max. 1000 cycles per hour) | | | <i>T</i> _{2B} | <i>Nm</i> | 992 | 992 | 992 | 992 | 992 | 992 | 992 | 992 | 992 | |
| | | | | <i>in.lb</i> | 8780 | 8780 | 8780 | 8780 | 8780 | 8780 | 8780 | 8780 | 8780 | 8780 |
| Nominal torque (at <i>n</i> _n) | | | <i>T</i> _{2N} | <i>Nm</i> | 523 | 566 | 638 | 717 | 723 | 794 | 794 | 794 | 794 | |
| | | | | <i>in.lb</i> | 4632 | 5005 | 5649 | 6348 | 6400 | 7024 | 7024 | 7024 | 7024 | 7024 |
| Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox) | | | <i>T</i> _{2Not} | <i>Nm</i> | 2375 | 2375 | 2375 | 2375 | 2375 | 2375 | 2375 | 2375 | 2375 | |
| | | | | <i>in.lb</i> | 21021 | 21021 | 21021 | 21021 | 21021 | 21021 | 21021 | 21021 | 21021 | 21021 |
| Permitted average input speed (at <i>T</i> _{2N} and 20 °C ambient temperature) ^{d)} | | | <i>n</i> _{1N} | <i>rpm</i> | 3000 | 3000 | 3000 | 3000 | 3500 | 3500 | 3500 | 3500 | 3500 | |
| Max. input speed | | | <i>n</i> _{1Max} | <i>rpm</i> | 6250 | 6250 | 6250 | 6250 | 6250 | 6250 | 6250 | 6250 | 6250 | |
| Mean no load running torque ^{b)} (at <i>n</i> _i = 3000 rpm and 20 °C gearbox temperature) | | | <i>T</i> ₀₁₂ | <i>Nm</i> | 2.7 | 2.4 | 2.1 | 1.7 | 1.8 | 1.3 | 1.1 | 0.9 | 0.72 | |
| | | | | <i>in.lb</i> | 23.9 | 21.2 | 18.9 | 15.0 | 15.9 | 11.5 | 10.1 | 8.0 | 6.4 | |
| Max. backlash | | | <i>j</i> _t | <i>arcmin</i> | ≤ 1 | | | | | | | | | |
| Torsional rigidity ^{b)} | | | <i>C</i> _{t21} | <i>Nm/arcmin</i> | 220 | 220 | 220 | 220 | 205 | 205 | 205 | 205 | 205 | |
| | | | | <i>in.lb/arcmin</i> | 1947 | 1947 | 1947 | 1947 | 1814 | 1814 | 1814 | 1814 | 1814 | 1814 |
| Tilting rigidity | | | <i>C</i> _{2K} | <i>Nm/arcmin</i> | 560 | | | | | | | | | |
| | | | | <i>in.lb/arcmin</i> | 4956 | | | | | | | | | |
| Max. axial force ^{c)} | | | <i>F</i> _{2AMax} | <i>N</i> | 6130 | | | | | | | | | |
| | | | | <i>lb_f</i> | 1379 | | | | | | | | | |
| Max. tilting moment | | | <i>M</i> _{2KMax} | <i>Nm</i> | 1335 | | | | | | | | | |
| | | | | <i>in.lb</i> | 11816 | | | | | | | | | |
| Efficiency at full load | | | <i>η</i> | % | 94 | | | | 92 | | | | | |
| Service life ^{f)} | | | <i>L</i> _h | <i>h</i> | > 20000 | | | | | | | | | |
| Weight (incl. standard adapter plate) | | | <i>m</i> | <i>kg</i> | 12.5 | | | | 13.4 | | | | | |
| | | | | <i>lb_m</i> | 27.6 | | | | 29.6 | | | | | |
| Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®) | | | <i>L</i> _{PA} | <i>dB(A)</i> | ≤ 60 | | | | ≤ 57 | | | | | |
| Max. permitted housing temperature | | | | °C | +90 | | | | | | | | | |
| | | | | <i>F</i> | 194 | | | | | | | | | |
| Ambient temperature | | | | °C | –15 to +40 | | | | | | | | | |
| | | | | <i>F</i> | 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-00300AAX-080.00 | | | | | | | | | |
| Bore diameter of coupling on the application side | | | | <i>mm</i> | X = 045.000 - 056.000 | | | | | | | | | |
| Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] Optimized mass inertia version available on request | | G | 24 | <i>J</i> _i | <i>kgcm²</i> | 3.80 | 3.33 | 3.00 | 2.80 | 2.60 | 2.40 | 2.20 | 2.10 | 2.10 |
| | | | | | <i>10⁻³ in.lb.s²</i> | 3.36 | 2.95 | 2.66 | 2.48 | 2.30 | 2.10 | 1.90 | 1.90 | 1.90 |
| | | K | 38 | <i>J</i> _i | <i>kgcm²</i> | 10.7 | 10.3 | 9.90 | 9.70 | - | - | - | - | - |
| | | | | | <i>10⁻³ in.lb.s²</i> | 9.47 | 9.12 | 8.76 | 8.58 | - | - | - | - | - |

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com

^{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

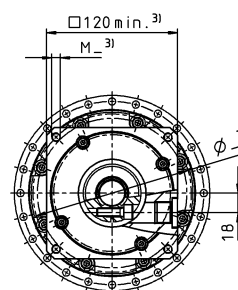
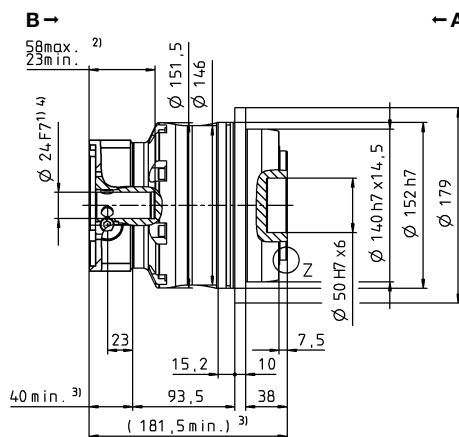
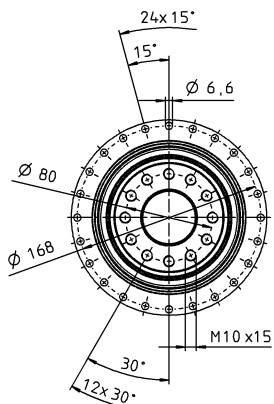
^{f)} Please contact us to discuss
application-specific service lifetimes

View A

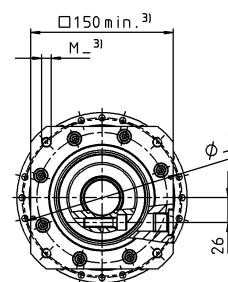
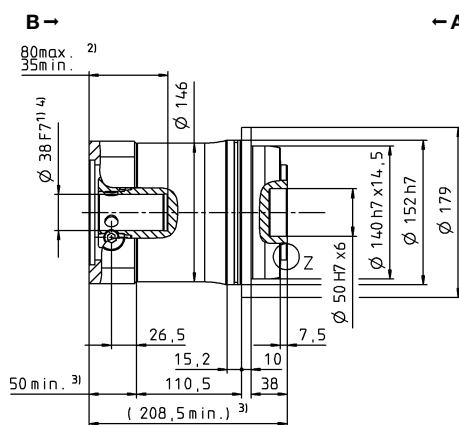
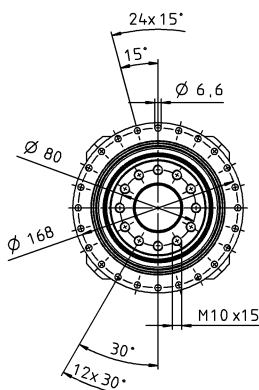
View B

2-stage

up to 24 ⁴⁾ (G) ⁵⁾
clamping hub
diameter



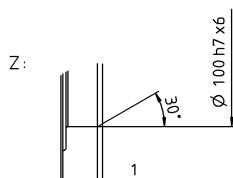
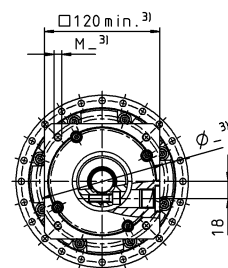
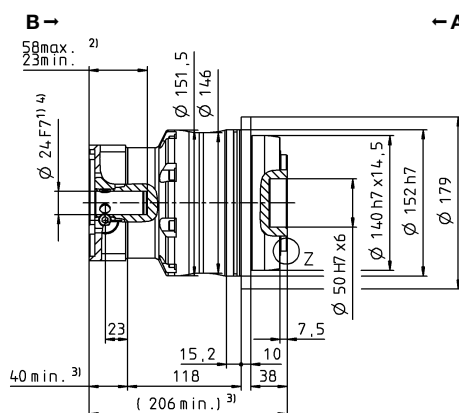
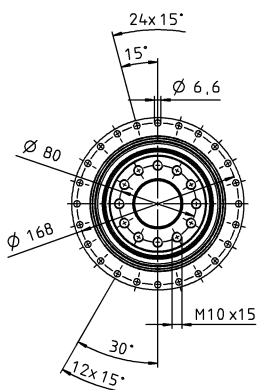
up to 38 ⁴⁾ (K)
clamping hub
diameter



Motor shaft diameter [mm]

3-stage

up to 24 ⁴⁾ (G) ⁵⁾
clamping hub
diameter



Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

³⁾ The dimensions depend on the motor

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

⁵⁾ Standard clamping hub diameter

TP+ 110 MA 2- / 3-stage

| | | | 2-stage | | | | 3-stage | | | | | | |
|--|---------------------------|----|-----------------------|--|-------|-------|---------|-------|-------|-------|-------|-------|------|
| Ratio | <i>i</i> | | | 22 | 27.5 | 38.5 | 55 | 66 | 88 | 110 | 154 | 220 | |
| Max. torque ^{a) b)} | <i>T</i> _{2a} | | <i>Nm</i> | 3822 | 3822 | 3822 | 3200 | 3023 | 3023 | 3023 | 3023 | 3023 | |
| | | | <i>in.lb</i> | 33826 | 33826 | 33826 | 28323 | 26757 | 26757 | 26757 | 26757 | 26757 | |
| Max. acceleration torque ^{b)} (max. 1000 cycles per hour) | <i>T</i> _{2B} | | <i>Nm</i> | 3100 | 3100 | 3100 | 2400 | 2600 | 2600 | 2600 | 2600 | 2600 | |
| | | | <i>in.lb</i> | 27437 | 27437 | 27437 | 21242 | 23012 | 23012 | 23012 | 23012 | 23012 | |
| Nominal torque (at <i>n</i> _n) | <i>T</i> _{2N} | | <i>Nm</i> | 1546 | 1662 | 2149 | 1827 | 1649 | 1797 | 1924 | 2080 | 2080 | |
| | | | <i>in.lb</i> | 13687 | 14708 | 19022 | 16169 | 14593 | 15909 | 17033 | 18410 | 18410 | |
| Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox) | <i>T</i> _{2Not} | | <i>Nm</i> | 6500 | 6500 | 6500 | 6500 | 6500 | 6500 | 6500 | 6500 | 6500 | |
| | | | <i>in.lb</i> | 57530 | 57530 | 57530 | 57530 | 57530 | 57530 | 57530 | 57530 | 57530 | |
| Permitted average input speed (at <i>T</i> _{2N} and 20 °C ambient temperature) ^{c)} | <i>n</i> _{1N} | | <i>rpm</i> | 2500 | 2500 | 2500 | 2500 | 3000 | 3000 | 3000 | 3000 | 3000 | |
| Max. input speed | <i>n</i> _{1Max} | | <i>rpm</i> | 5625 | 5625 | 5625 | 5625 | 5625 | 5625 | 5625 | 5625 | 5625 | |
| Mean no load running torque ^{b)} (at <i>n</i> _i = 3000 rpm and 20 °C gearbox temperature) | <i>T</i> ₀₁₂ | | <i>Nm</i> | 6.2 | 5.5 | 4.8 | 4.3 | 3.8 | 3.0 | 2.6 | 1.8 | 1.6 | |
| | | | <i>in.lb</i> | 55.0 | 48.7 | 42.5 | 38.1 | 33.6 | 26.9 | 23 | 15.6 | 14.2 | |
| Max. backlash | <i>j</i> _t | | <i>arcmin</i> | ≤ 1 | | | | | | | | | |
| Torsional rigidity ^{b)} | <i>C</i> _{t21} | | <i>Nm/arcmin</i> | 730 | 725 | 715 | 670 | 650 | 650 | 650 | 650 | 650 | |
| | | | <i>in.lb/arcmin</i> | 6461 | 6417 | 6328 | 5930 | 5753 | 5753 | 5753 | 5753 | 5753 | |
| Tilting rigidity | <i>C</i> _{2K} | | <i>Nm/arcmin</i> | 1452 | | | | | | | | | |
| | | | <i>in.lb/arcmin</i> | 12851 | | | | | | | | | |
| Max. axial force ^{c)} | <i>F</i> _{2AMax} | | <i>N</i> | 10050 | | | | | | | | | |
| | | | <i>lb_f</i> | 2261 | | | | | | | | | |
| Max. tilting moment | <i>M</i> _{2KMax} | | <i>Nm</i> | 3280 | | | | | | | | | |
| | | | <i>in.lb</i> | 29031 | | | | | | | | | |
| Efficiency at full load | <i>η</i> | | % | 94 | | | | | | | | | |
| Service life ^{f)} | <i>L</i> _h | | <i>h</i> | > 20000 | | | | | | | | | |
| Weight (incl. standard adapter plate) | <i>m</i> | | <i>kg</i> | 33.1 | | | | 35.4 | | | | | |
| | | | <i>lb_m</i> | 73.2 | | | | 78.2 | | | | | |
| Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®]) | <i>L</i> _{PA} | | <i>dB(A)</i> | ≤ 61 | | | | ≤ 59 | | | | | |
| Max. permitted housing temperature | | | °C | +90 | | | | | | | | | |
| | | | <i>F</i> | 194 | | | | | | | | | |
| Ambient temperature | | | °C | –15 to +40 | | | | | | | | | |
| | | | <i>F</i> | 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-125.00 | | | | | | | | | |
| Bore diameter of coupling on the application side | | | <i>mm</i> | X = 055.000 - 070.000 | | | | | | | | | |
| Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] Optimized mass inertia version available on request | K | 38 | <i>J</i> ₁ | <i>kgcm</i> ² | 16.6 | 15.2 | 13.9 | 13.1 | 13.8 | 10.2 | 9.80 | 9.50 | 9.20 |
| | | | | 10 ^{–3} <i>in.lb.s</i> ² | 14.7 | 13.5 | 12.3 | 11.6 | 12.2 | 9.00 | 8.70 | 8.40 | 8.10 |
| | M | 48 | <i>J</i> ₁ | <i>kgcm</i> ² | 31.4 | 29.9 | 28.7 | 28.0 | - | - | - | - | - |
| | | | | 10 ^{–3} <i>in.lb.s</i> ² | 27.8 | 26.5 | 25.4 | 24.8 | - | - | - | - | - |

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com

^{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

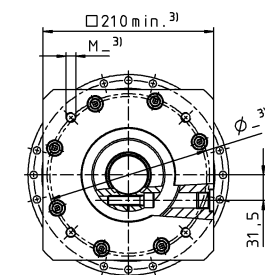
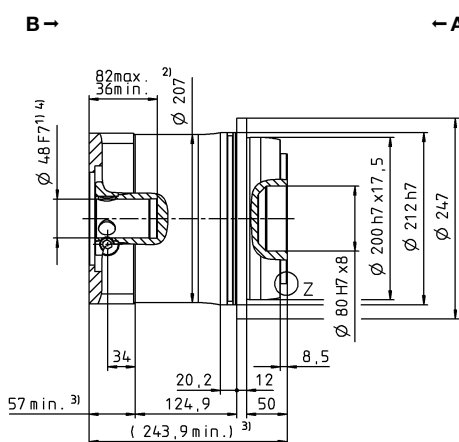
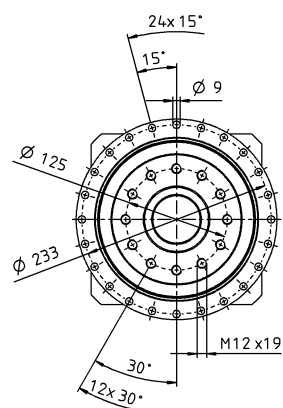
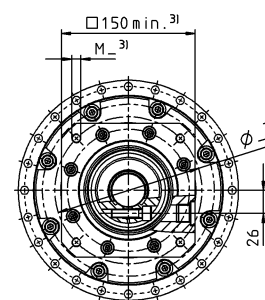
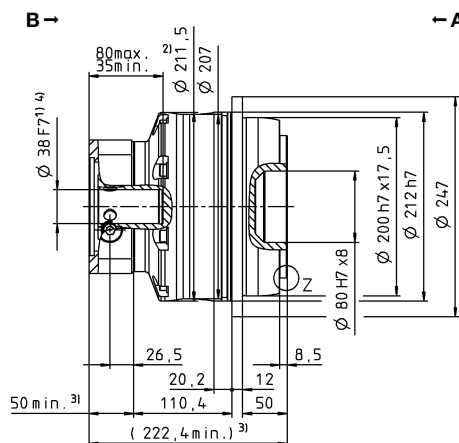
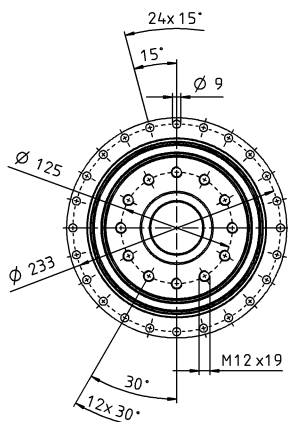
^{f)} Please contact us to discuss
application-specific service lifetimes

View A

View B

2-stage

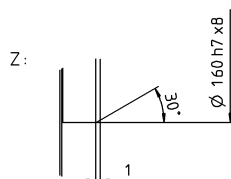
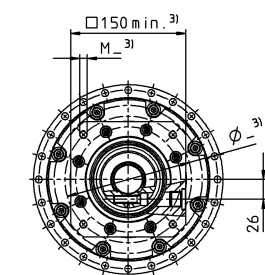
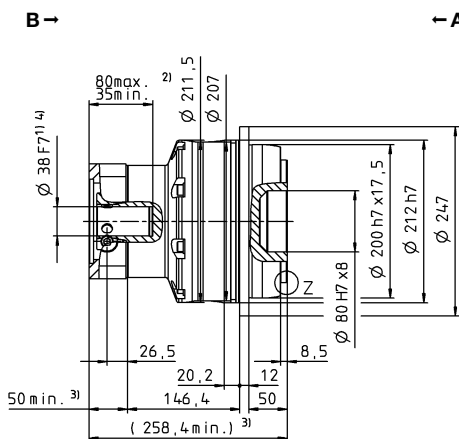
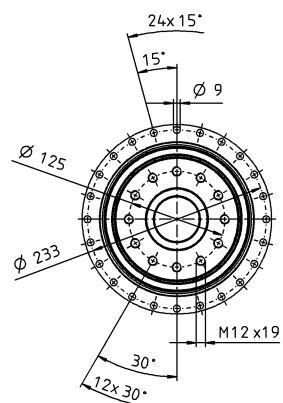
up to 38⁴⁾ (K)⁵⁾
clamping hub
diameter



Motor shaft diameter [mm]

3-stage

up to 38⁴⁾ (K)⁵⁾
clamping hub
diameter



Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

³⁾ The dimensions depend on the motor

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

⁵⁾ Standard clamping hub diameter

TP+ 300 MA 1-/2-/3-stage

| | | | | 1-stage | 2-stage | | | | 3-stage | | | | | |
|--|---|----|---------------------------|--|-------------------------------|--------|------------------------------|--------|---------|--------|--------|--------|--------|--------|
| Ratio | | | <i>i</i> | | 5.5 | 22 | 27.5 | 38.5 | 55 | 66 | 88 | 110 | 154 | 220 |
| Max. torque ^{a) b)} | | | <i>T</i> _{2a} | <i>Nm</i> | 7360 | 7535 | 7535 | 7535 | 5473 | 6987 | 6987 | 6987 | 6987 | 6987 |
| | | | | <i>in.lb</i> | 65142 | 66691 | 66691 | 66691 | 48436 | 61838 | 61838 | 61838 | 61838 | 61838 |
| Max. acceleration torque ^{b)} (max. 1000 cycles per hour) | | | <i>T</i> _{2B} | <i>Nm</i> | 5520 | 6600 | 6600 | 6600 | 4680 | 6600 | 6600 | 6600 | 6600 | 6600 |
| | | | | <i>in.lb</i> | 48856 | 58415 | 58415 | 58415 | 41422 | 58415 | 58415 | 58415 | 58415 | 58415 |
| Nominal torque (at <i>n</i> _n) | | | <i>T</i> _{2N} | <i>Nm</i> | 2829 | 3566 | 3788 | 3884 | 3744 | 3216 | 3506 | 3750 | 4148 | 4617 |
| | | | | <i>in.lb</i> | 25035 | 31563 | 33530 | 34378 | 33137 | 28465 | 31035 | 33186 | 36711 | 40863 |
| Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox) | | | <i>T</i> _{2Not} | <i>Nm</i> | 10938 | 15333 | 15333 | 15296 | 15333 | 15333 | 15333 | 15333 | 15333 | 15333 |
| | | | | <i>in.lb</i> | 96806 | 135709 | 135709 | 135377 | 135709 | 135709 | 135709 | 135709 | 135709 | 135709 |
| Permitted average input speed (at <i>T</i> _{2N} and 20 °C ambient temperature) ^{d)} | | | <i>n</i> _{1N} | <i>rpm</i> | 1000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 |
| Max. input speed | | | <i>n</i> _{1Max} | <i>rpm</i> | 3125 | 4375 | 4375 | 4375 | 4375 | 4375 | 4375 | 4375 | 4375 | 4375 |
| Mean no load running torque ^{b)} (at <i>n</i> _i = 2000 rpm and 20 °C gearbox temperature) | | | <i>T</i> ₀₁₂ | <i>Nm</i> | 19 | 8.8 | 7.8 | 6.8 | 5.9 | 5.2 | 3.6 | 3.1 | 2.1 | 1.5 |
| | | | | <i>in.lb</i> | 170 | 78 | 69 | 60 | 52 | 46 | 32 | 27 | 19 | 13 |
| Max. backlash | | | <i>j</i> _t | <i>arcmin</i> | Standard ≤ 2 / Reduced ≤ 1 | | Standard ≤ 3 / Reduced ≤ 1.5 | | | | | | | |
| Torsional rigidity ^{b)} | | | <i>C</i> ₁₂₁ | <i>Nm/arcmin</i> | 1200 | 1200 | 1200 | 1200 | 1200 | 1200 | 1200 | 1200 | 1200 | 1200 |
| | | | | <i>in.lb/arcmin</i> | 10621 | 10621 | 10621 | 10621 | 10621 | 10621 | 10621 | 10621 | 10621 | 10621 |
| Tilting rigidity | | | <i>C</i> _{2K} | <i>Nm/arcmin</i> | 5560 | | | | | | | | | |
| | | | | <i>in.lb/arcmin</i> | 49210 | | | | | | | | | |
| Max. axial force ^{c)} | | | <i>F</i> _{2AMax} | <i>N</i> | 33000 | | | | | | | | | |
| | | | | <i>lb_f</i> | 7425 | | | | | | | | | |
| Max. tilting moment | | | <i>M</i> _{2KMax} | <i>Nm</i> | 3900 | 6500 | | | | | | | | |
| | | | | <i>in.lb</i> | 34518 | 57530 | | | | | | | | |
| Efficiency at full load | | | <i>η</i> | % | 95 | 93 | | | | | | | | |
| Service life ^{f)} | | | <i>L</i> _h | <i>h</i> | > 20000 | | | | | | | | | |
| Weight (incl. standard adapter plate) | | | <i>m</i> | <i>kg</i> | 55 | 64 | | | | 67 | | | | |
| | | | | <i>lb_m</i> | 122 | 141 | | | | 148 | | | | |
| Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®]) | | | <i>L</i> _{PA} | <i>dB(A)</i> | ≤ 65 | ≤ 62 | | | | ≤ 59 | | | | |
| Max. permitted housing temperature | | | | °C | +90 | | | | | | | | | |
| | | | | <i>F</i> | 194 | | | | | | | | | |
| Ambient temperature | | | | °C | –15 to +40 | | | | | | | | | |
| | | | | <i>F</i> | 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-04000AAX-145.00 | | | | | | | | | |
| Bore diameter of coupling on the application side | | | | <i>mm</i> | X = 070.000 - 100.000 | | | | | | | | | |
| Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] Optimized mass inertia version available on request | K | 38 | <i>J</i> ₁ | <i>kgcm²</i> | - | - | - | - | - | 16.6 | 12.9 | 11.6 | 10.3 | 9.50 |
| | | | | <i>10⁻³ in.lb.s²</i> | - | - | - | - | - | 14.7 | 11.4 | 10.3 | 9.10 | 8.40 |
| | M | 48 | <i>J</i> ₁ | <i>kgcm²</i> | - | 30.8 | 27.6 | 24.9 | 23.0 | - | - | - | - | - |
| | | | | <i>10⁻³ in.lb.s²</i> | - | 27.3 | 24.4 | 22.0 | 20.4 | - | - | - | - | - |
| | N | 55 | <i>J</i> ₁ | <i>kgcm²</i> | 129 | - | - | - | - | - | - | - | - | - |
| | | | | <i>10⁻³ in.lb.s²</i> | 114 | - | - | - | - | - | - | - | - | - |

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com

^{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

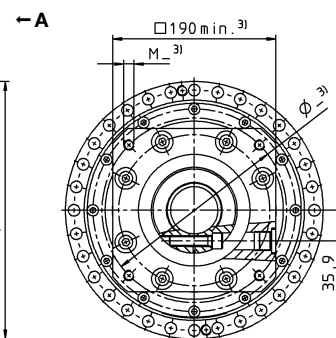
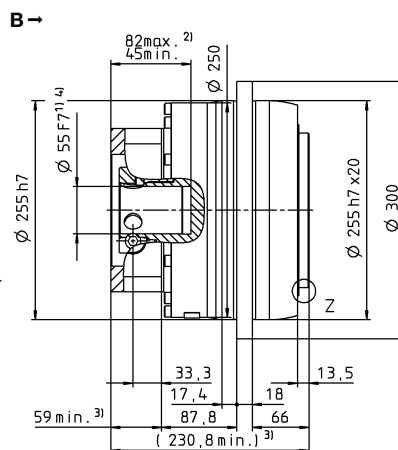
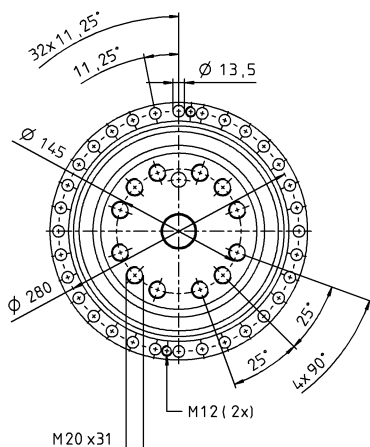
^{f)} Please contact us to discuss
application-specific service lifetimes

View A

View B

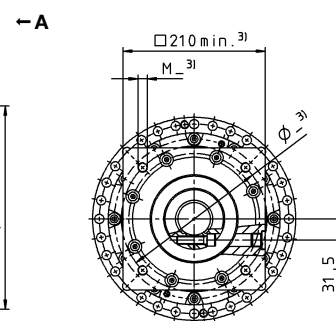
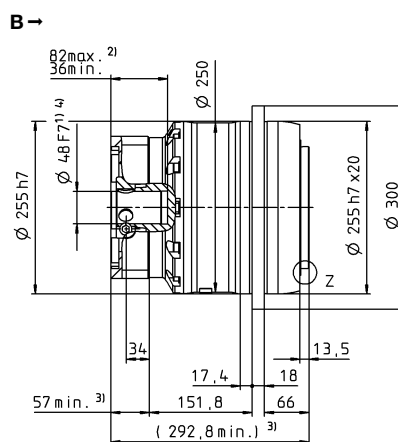
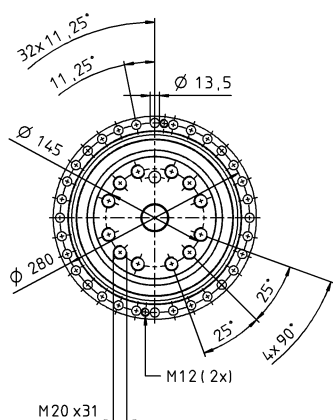
1-stage

up to 55⁴⁾ (N)⁵⁾
clamping hub
diameter



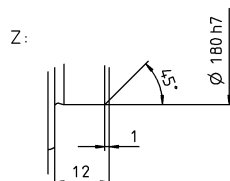
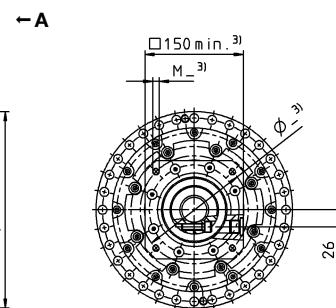
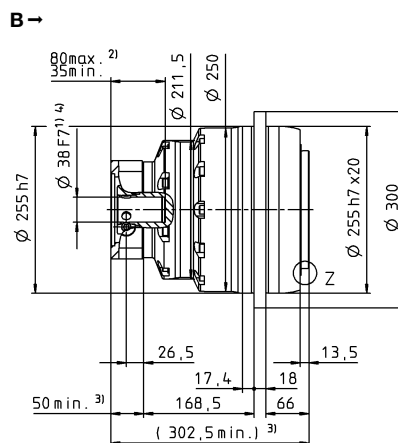
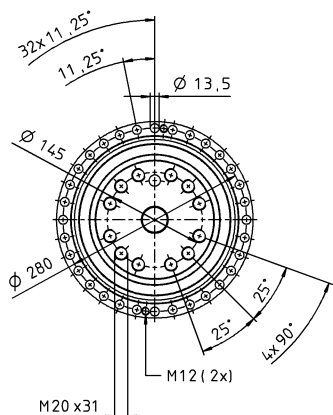
2-stage

up to 48⁴⁾ (M)⁵⁾
clamping hub
diameter



3-stage

up to 38⁴⁾ (K)⁵⁾
clamping hub
diameter



Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

³⁾ The dimensions depend on the motor

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

⁵⁾ Standard clamping hub diameter

Motor shaft diameter [mm]

Planetary gearboxes

TP*

MA

TP+ 500 MA 1-/2-/3-stage

| | | | | 1-stage | 2-stage | | | | 3-stage | | | | | |
|--|---|----|---------------------------|--|-------------------------------|--------|------------------------------|--------|---------|--------|--------|--------|--------|--------|
| Ratio | | | <i>i</i> | | 5.5 | 22 | 27.5 | 38.5 | 55 | 66 | 88 | 110 | 154 | 220 |
| Max. torque ^{a) b)} | | | <i>T</i> _{2a} | <i>Nm</i> | 10450 | 10450 | 10450 | 10450 | 10450 | 10450 | 10450 | 10450 | 10450 | 10450 |
| | | | | <i>in.lb</i> | 92491 | 92491 | 92491 | 92491 | 92491 | 92491 | 92491 | 92491 | 92491 | 92491 |
| Max. acceleration torque ^{b)} (max. 1000 cycles per hour) | | | <i>T</i> _{2B} | <i>Nm</i> | 9600 | 10450 | 10450 | 10450 | 8640 | 10450 | 10450 | 10450 | 10450 | 10450 |
| | | | | <i>in.lb</i> | 84968 | 92491 | 92491 | 92491 | 76471 | 92491 | 92491 | 92491 | 92491 | 92491 |
| Nominal torque (at <i>n</i> _n) | | | <i>T</i> _{2N} | <i>Nm</i> | 4313 | 5068 | 4980 | 5057 | 5325 | 4941 | 7464 | 7396 | 7546 | 7907 |
| | | | | <i>in.lb</i> | 38174 | 44858 | 44075 | 44759 | 47129 | 43731 | 66060 | 65462 | 66792 | 69986 |
| Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox) | | | <i>T</i> _{2Not} | <i>Nm</i> | 18750 | 25000 | 25000 | 25000 | 25000 | 25000 | 25000 | 25000 | 25000 | 25000 |
| | | | | <i>in.lb</i> | 165953 | 221270 | 221270 | 221270 | 221270 | 221270 | 221270 | 221270 | 221270 | 221270 |
| Permitted average input speed (at <i>T</i> _{2N} and 20 °C ambient temperature) ^{d)} | | | <i>n</i> _{1N} | <i>rpm</i> | 900 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 |
| Max. input speed | | | <i>n</i> _{1Max} | <i>rpm</i> | 3125 | 4375 | 4375 | 4375 | 4375 | 4375 | 4375 | 4375 | 4375 | 4375 |
| Mean no load running torque ^{b)} (at <i>n</i> _i = 2000 rpm and 20 °C gearbox temperature) | | | <i>T</i> ₀₁₂ | <i>Nm</i> | 27 | 11 | 10 | 8.9 | 7.8 | 6.8 | 5.0 | 4.7 | 3.6 | 3.0 |
| | | | | <i>in.lb</i> | 241 | 100 | 89 | 79 | 69 | 60 | 45 | 42 | 32 | 27 |
| Max. backlash | | | <i>j</i> _t | <i>arcmin</i> | Standard ≤ 2 / Reduced ≤ 1 | | Standard ≤ 3 / Reduced ≤ 1.5 | | | | | | | |
| Torsional rigidity ^{b)} | | | <i>C</i> ₁₂₁ | <i>Nm/arcmin</i> | 2000 | 2000 | 2000 | 1950 | 1900 | 1800 | 1800 | 1800 | 1800 | 1800 |
| | | | | <i>in.lb/arcmin</i> | 17702 | 17702 | 17702 | 17259 | 16817 | 15931 | 15931 | 15931 | 15931 | 15931 |
| Tilting rigidity | | | <i>C</i> _{2K} | <i>Nm/arcmin</i> | 9480 | | | | | | | | | |
| | | | | <i>in.lb/arcmin</i> | 83906 | | | | | | | | | |
| Max. axial force ^{c)} | | | <i>F</i> _{2AMax} | <i>N</i> | 50000 | | | | | | | | | |
| | | | | <i>lb_f</i> | 11250 | | | | | | | | | |
| Max. tilting moment | | | <i>M</i> _{2KMax} | <i>Nm</i> | 6600 | 9500 | | | | | | | | |
| | | | | <i>in.lb</i> | 58415 | 84083 | | | | | | | | |
| Efficiency at full load | | | <i>η</i> | % | 95 | 93 | | | | | | | | |
| Service life ^{f)} | | | <i>L</i> _h | <i>h</i> | > 20000 | | | | | | | | | |
| Weight (incl. standard adapter plate) | | | <i>m</i> | <i>kg</i> | 80 | 80 | | | | 89 | | | | |
| | | | | <i>lb_m</i> | 177 | 177 | | | | 197 | | | | |
| Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®]) | | | <i>L</i> _{PA} | <i>dB(A)</i> | ≤ 70 | ≤ 63 | | | | ≤ 60 | | | | |
| Max. permitted housing temperature | | | | °C | +90 | | | | | | | | | |
| | | | | <i>F</i> | 194 | | | | | | | | | |
| Ambient temperature | | | | °C | –15 to +40 | | | | | | | | | |
| | | | | <i>F</i> | 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-10000AAX-166.00 | | | | | | | | | |
| Bore diameter of coupling on the application side | | | | <i>mm</i> | X = 080.000 - 180.000 | | | | | | | | | |
| Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] Optimized mass inertia version available on request | K | 38 | <i>J</i> ₁ | <i>kgcm²</i> | - | - | - | - | - | 17.9 | 13.5 | 11.9 | 10.5 | 9.70 |
| | | | | <i>10⁻³ in.lb.s²</i> | - | - | - | - | - | 15.8 | 11.9 | 10.5 | 9.30 | 8.60 |
| | M | 48 | <i>J</i> ₁ | <i>kgcm²</i> | - | 43.8 | 36.9 | 30.5 | 27.0 | 32.7 | 28.3 | 26.7 | 25.2 | 24.4 |
| | | | | <i>10⁻³ in.lb.s²</i> | - | 38.8 | 32.7 | 27.0 | 23.9 | 28.9 | 25.0 | 23.6 | 22.3 | 21.6 |
| | O | 60 | <i>J</i> ₁ | <i>kgcm²</i> | 175 | - | - | - | - | - | - | - | - | - |
| | | | | <i>10⁻³ in.lb.s²</i> | 155 | - | - | - | - | - | - | - | - | - |

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com

^{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

^{f)} Please contact us to discuss

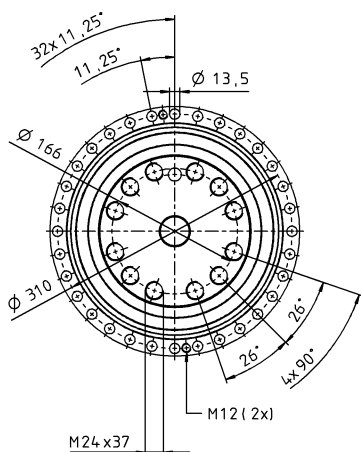
application-specific service lifetimes

View A

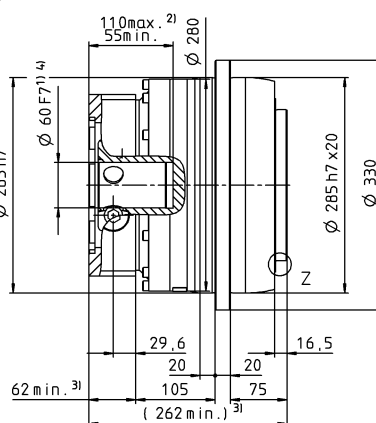
View B

1-stage

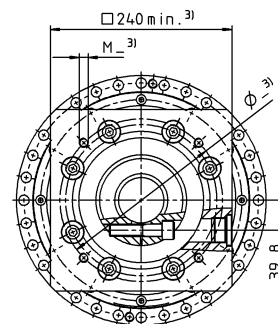
up to 60⁴⁾ (O)⁵⁾
clamping hub
diameter



B→

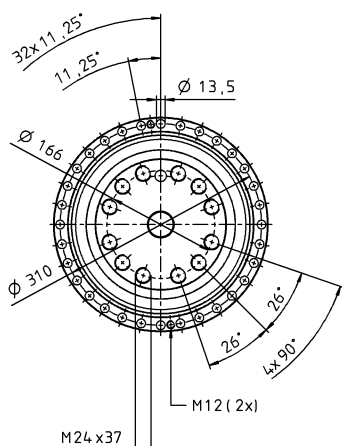


←A

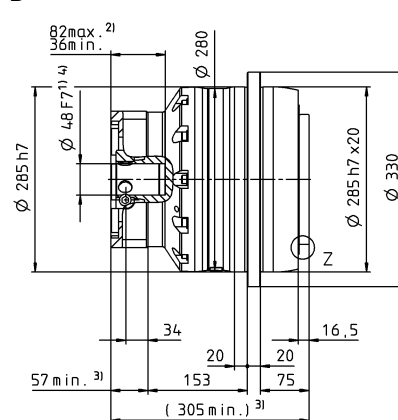


2-stage

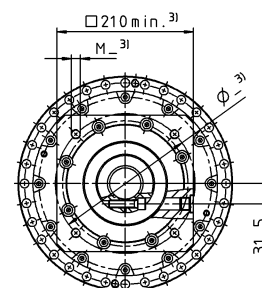
up to 48⁴⁾ (M)⁵⁾
clamping hub
diameter



B→

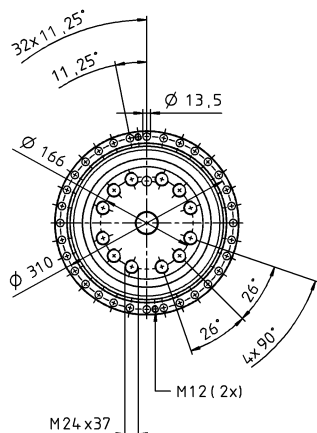


←A

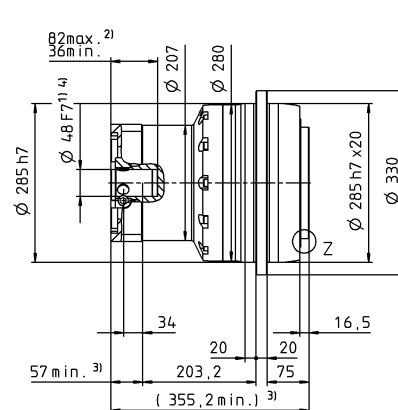


3-stage

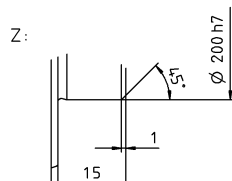
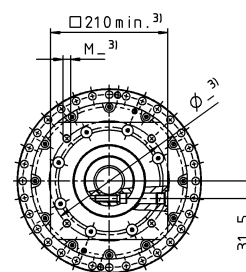
up to 38/48⁴⁾
(K/M⁵⁾) clamping
hub diameter



B→



←A



Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

³⁾ The dimensions depend on the motor

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

⁵⁾ Standard clamping hub diameter

Motor shaft diameter [mm]

Planetary gearboxes

TP

MA

TP+ 2000 MA 2-/3-stage

| | | | | 2-stage | | 3-stage | | | | | | | | | | |
|--|--|--|---------------------------|-----------------------|-------------------------------|--|--------|--------|--------|--------|--------|--------|--------|--------|----|---|
| Ratio | | | <i>i</i> | | 22 | 30.25 | 66 | 88 | 110 | 121 | 154 | 220 | 302.5 | | | |
| Max. torque ^{a) b)} | | | <i>T</i> _{2a} | <i>Nm</i> | 22000 | 22000 | 22000 | 22000 | 22000 | 22000 | 22000 | 15600 | 21500 | | | |
| | | | | <i>in.lb</i> | 194718 | 194718 | 194718 | 194718 | 194718 | 194718 | 194718 | 138072 | 190292 | | | |
| Max. acceleration torque ^{b)} (max. 1000 cycles per hour) | | | <i>T</i> _{2B} | <i>Nm</i> | 22000 | 22000 | 22000 | 22000 | 22000 | 22000 | 22000 | 15600 | 21500 | | | |
| | | | | <i>in.lb</i> | 194718 | 194718 | 194718 | 194718 | 194718 | 194718 | 194718 | 138072 | 190292 | | | |
| Nominal torque (at <i>n</i> _n) | | | <i>T</i> _{2N} | <i>Nm</i> | 13500 | 13500 | 13500 | 13500 | 13500 | 13500 | 13500 | 10000 | 13500 | | | |
| | | | | <i>in.lb</i> | 119486 | 119486 | 119486 | 119486 | 119486 | 119486 | 119486 | 88508 | 119486 | | | |
| Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox) | | | <i>T</i> _{2Not} | <i>Nm</i> | 44000 | 44000 | 44000 | 44000 | 44000 | 44000 | 44000 | 44000 | 44000 | | | |
| | | | | <i>in.lb</i> | 389435 | 389435 | 389435 | 389435 | 389435 | 389435 | 389435 | 389435 | 389435 | 389435 | | |
| Permitted average input speed (at <i>T</i> _{2n} and 20 °C ambient temperature) ^{d)} | | | <i>n</i> _{1N} | <i>rpm</i> | 2000 | 2000 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | | | |
| Max. input speed | | | <i>n</i> _{1Max} | <i>rpm</i> | 3000 | 3000 | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | | | |
| Mean no load running torque ^{b) h)} (at <i>n</i> _i = 2000 rpm and 20 °C gearbox temperature) | | | <i>T</i> ₀₁₂ | <i>Nm</i> | 17 | 13 | 7.5 | 6.0 | 5.0 | 5.0 | 4.5 | 4.0 | 4.0 | | | |
| | | | | <i>in.lb</i> | 151 | 115 | 66 | 53 | 44 | 44 | 40 | 35 | 35 | | | |
| Max. backlash | | | <i>j</i> _t | <i>arcmin</i> | ≤ 3 | | | | | | | | | | | |
| Torsional rigidity ^{b)} | | | <i>C</i> _{t21} | <i>Nm/arcmin</i> | 2900 | 2900 | 3000 | 3000 | 3000 | 3000 | 2950 | 2850 | 2850 | | | |
| | | | | <i>in.lb/arcmin</i> | 25667 | 25667 | 26552 | 26552 | 26552 | 26552 | 26110 | 25225 | 25225 | | | |
| Tilting rigidity | | | <i>C</i> _{2K} | <i>Nm/arcmin</i> | 13000 | | | | | | | | | | | |
| | | | | <i>in.lb/arcmin</i> | 115060 | | | | | | | | | | | |
| Max. axial force ^{c)} | | | <i>F</i> _{2AMax} | <i>N</i> | 100000 | | | | | | | | | | | |
| | | | | <i>lb_f</i> | 22500 | | | | | | | | | | | |
| Max. tilting moment | | | <i>M</i> _{2KMax} | <i>Nm</i> | 31600 | | | | | | | | | | | |
| | | | | <i>in.lb</i> | 279685 | | | | | | | | | | | |
| Efficiency at full load | | | <i>η</i> | % | 95 | | | | | | | | | | | |
| Service life ^{f)} | | | <i>L</i> _h | <i>h</i> | > 20000 | | | | | | | | | | | |
| Weight (incl. standard adapter plate) | | | <i>m</i> | <i>kg</i> | 190 | | | 185 | | | | | | | | |
| | | | | <i>lb_m</i> | 420 | | | 409 | | | | | | | | |
| Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®]) | | | <i>L</i> _{PA} | <i>dB(A)</i> | ≤ 68 | | | ≤ 66 | | | | | | | | |
| Max. permitted housing temperature | | | | °C | +90 | | | | | | | | | | | |
| | | | | <i>F</i> | 194 | | | | | | | | | | | |
| Ambient temperature | | | | °C | 0 to +40 | | | | | | | | | | | |
| | | | | <i>F</i> | 32 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 [®]) | | | | | – | | | | | | | | | | | |
| Bore diameter of coupling on the application side | | | | <i>mm</i> | – | | | | | | | | | | | |
| Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] Optimized mass inertia version available on request | | | M | 48 | <i>J</i> _i | <i>kgcm²</i> | – | – | 52 | 37 | 35 | 35 | 28 | 26 | 25 | |
| | | | | | | <i>10⁻³ in.lb.s²</i> | – | – | 46 | 33 | 31 | 31 | 25 | 23 | 22 | |
| | | | N | 55 | <i>J</i> _i | <i>kgcm²</i> | 101 | 74 | – | – | – | – | – | – | – | – |
| | | | | | | <i>10⁻³ in.lb.s²</i> | 89 | 65 | – | – | – | – | – | – | – | – |

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com

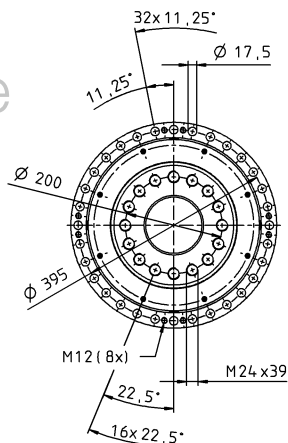
- ^{a)} At max. 10 % M_{2KMax}
^{b)} Valid for standard clamping hub diameter
^{c)} Refers to center of the output shaft or flange
^{d)} Please reduce input speed at higher ambient temperatures
^{f)} Please contact us to discuss application-specific service lifetimes
^{h)} Depending on the mounting position.
Please contact WITTENSTEIN alpha for details.

View A

View B

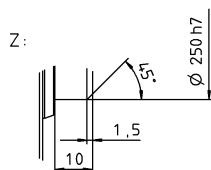
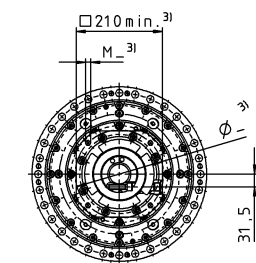
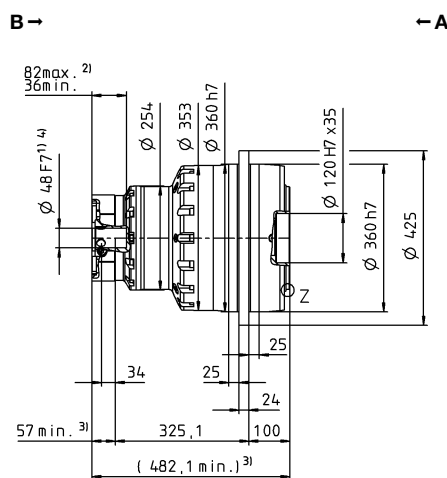
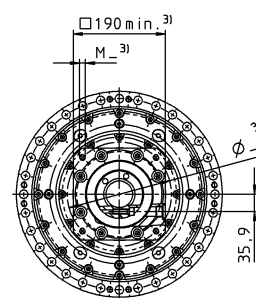
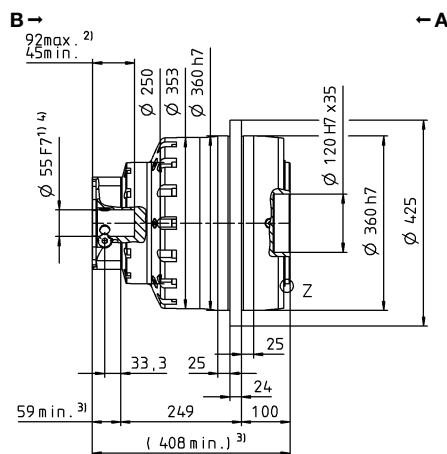
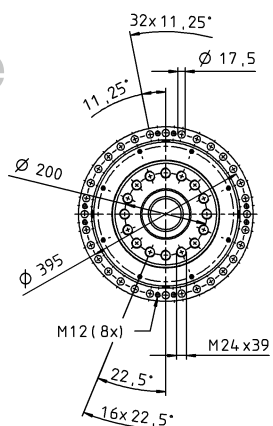
2-stage

up to 55⁴⁾ (N)⁵⁾
clamping hub
diameter



3-stage

up to 48⁴⁾ (M)⁵⁾
clamping hub
diameter



Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

³⁾ The dimensions depend on the motor

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

⁵⁾ Standard clamping hub diameter

Motor shaft diameter [mm]

Planetary gearboxes

TP*

MA