

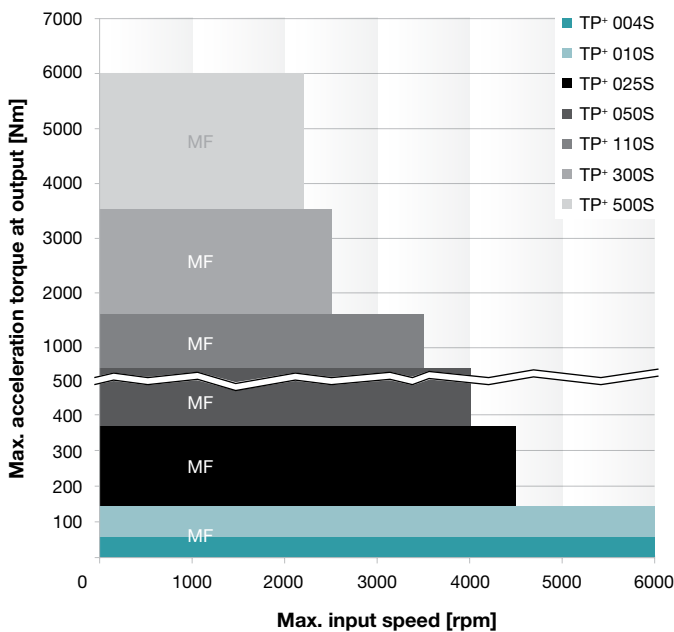
TP+/TP+ HIGH TORQUE – Compact precision



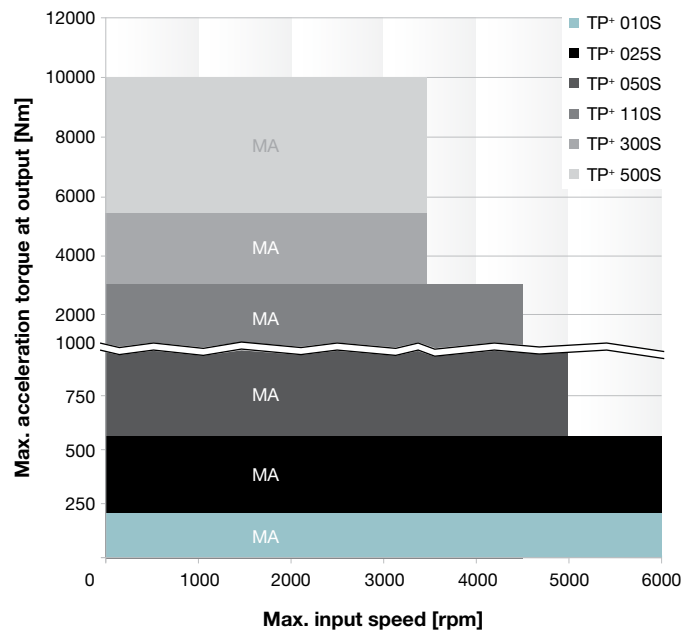
Compact top performers with drive flange. The standard version is ideally suited for high positioning accuracy and highly dynamic cyclic operation. The TP+ HIGH TORQUE is particularly well suited for high-precision applications in which high torsional rigidity is required.

Quick size selection

TP+ MF (example for $i = 5$)
For applications in cyclic operation ($ED \leq 60\%$)



TP+ HIGH TORQUE MA (example for $i = 22$)
For applications in cyclic operation ($ED \leq 60\%$)



Versions and Applications

TP+ MF version (standard version)

- Highly dynamic applications
- High positioning accuracy (e.g. clamped drives)
- Space-saving designs

TP+ HIGH TORQUE MA version

- Maximum power density
- Maximum positioning accuracy (e.g. clamped drives)
- High torsional rigidity
- Demanding safety requirements (e.g. vertical axes)

Comparison

| Features | | TP+ MF version from page 30 | TP+ HIGH TORQUE MA version from page 54 |
|--|----------|-----------------------------------|---|
| Ratios ^{c)} | | 4 - 100 | 22 - 220 |
| Torsional backlash [arcmin] ^{c)} | Standard | ≤ 3 | ≤ 1 |
| | Reduced | ≤ 1 | - |
| Output type | | | |
| Output flange | | • | • |
| System output with pinion | | • | • |
| Input type | | | |
| Motor mounted version | | • | • |
| Input shaft | | • | |
| Type | | | |
| Food-grade lubrication ^{a) b)} | | • | • |
| Corrosion resistant ^{a) b)} | | • | • |
| Optimized mass moment of inertia ^{a)} | | • | • |
| Accessories | | | |
| Coupling | | • | • |
| Rack | | • | • |
| Pinion | | • | • |
| torqXis sensor flange | | • | • |
| Flange shaft | | • | • |
| Intermediate plate for cooling connection | | • | • |
| For Delta robot applications | | • | • |

^{a)} Power reduction; technical data available upon request

^{b)} Please contact WITTENSTEIN alpha

^{c)} In relation to reference sizes

Planetary gearheads
High End



TP+

MF

MA

TP+ 004 MF 1-stage

| | | | | 1-stage | | | | |
|--|-------------|-----------------|-------|---------------------------------------|------|------|------|------|
| Ratio ^{a)} | | <i>i</i> | | 4 | 5 | 7 | 10 | |
| cymex®-optimized acceleration torque (please contact us regarding the design) | T_{2Bcym} | Nm | | 60 | 62 | 60 | – | |
| | | in.lb | | 531 | 549 | 531 | – | |
| Max. acceleration torque (max. 1000 cycles per hour) | T_{2B} | Nm | | 55 | 55 | 55 | 35 | |
| | | in.lb | | 487 | 487 | 487 | 310 | |
| Nominal output torque (with n_m) | T_{2N} | Nm | | 28 | 28 | 28 | 18 | |
| | | in.lb | | 248 | 248 | 248 | 159 | |
| Emergency stop torque (permitted 1000 times during the service life of the gearhead) | T_{2Not} | Nm | | 100 | 100 | 100 | 100 | |
| | | in.lb | | 885 | 885 | 885 | 885 | |
| Nominal input speed (with T_{2N} and 20 °C ambient temperature ^{b)}) | n_{1N} | rpm | | 3300 | 3300 | 4000 | 4000 | |
| Max. input speed | n_{1Max} | rpm | | 6000 | 6000 | 6000 | 6000 | |
| Mean no load running torque (with $n_1=3000$ rpm and 20 °C gearhead temperature ^{c)}) | T_{012} | Nm | | 0.95 | 0.80 | 0.60 | 0.45 | |
| | | in.lb | | 8.41 | 7.08 | 5.31 | 3.98 | |
| Max. torsional backlash | j_t | arcmin | | Standard ≤ 4 / Reduced ≤ 2 | | | | |
| Torsional rigidity ^{c)} | C_{t21} | Nm/ arcmin | | 12 | 12 | 11 | 8 | |
| | | in.lb/ arcmin | | 106 | 106 | 97 | 71 | |
| Tilting rigidity | C_{2K} | Nm/ arcmin | | – | | | | |
| | | in.lb/ arcmin | | – | | | | |
| Max. axial force ^{d)} | F_{2AMax} | N | | 1630 | | | | |
| | | lb _f | | 367 | | | | |
| Max. tilting moment | M_{2KMax} | Nm | | 110 | | | | |
| | | in.lb | | 974 | | | | |
| Efficiency at full load | η | % | | 97 | | | | |
| Service life (For calculation, see the Chapter "Information") | L_h | h | | > 20000 | | | | |
| Weight incl. standard adapter plate | m | kg | | 1.4 | | | | |
| | | lb _m | | 3.1 | | | | |
| Operating noise (with $i=10$ and $n_1=3000$ rpm no load) | L_{PA} | dB(A) | | ≤ 58 | | | | |
| Max. permitted housing temperature | | °C | | +90 | | | | |
| | | F | | 194 | | | | |
| Ambient temperature | | °C | | -15 to +40 | | | | |
| | | F | | 5 to 104 | | | | |
| Lubrication | | | | Lubricated for life | | | | |
| Paint | | | | Blue RAL 5002 | | | | |
| Direction of rotation | | | | Motor and gearhead same direction | | | | |
| Protection class | | | | IP 65 | | | | |
| Moment of inertia (relates to the drive) | B | 11 | J_1 | kgcm ² | 0.17 | 0.14 | 0.11 | 0.09 |
| | | | | 10 ⁻² in.lb.s ² | 0.15 | 0.12 | 0.10 | 0.08 |
| Clamping hub diameter [mm] | C | 14 | J_1 | kgcm ² | 0.25 | 0.21 | 0.18 | 0.17 |
| | | | | 10 ⁻² in.lb.s ² | 0.22 | 0.19 | 0.16 | 0.15 |
| | E | 19 | J_1 | kgcm ² | 0.57 | 0.54 | 0.51 | 0.49 |
| | | | | 10 ⁻² in.lb.s ² | 0.50 | 0.47 | 0.45 | 0.43 |

Reduced mass moments of inertia available on request.

^{a)} Other ratios available on request

^{b)} For higher ambient temperatures, please reduce input speed

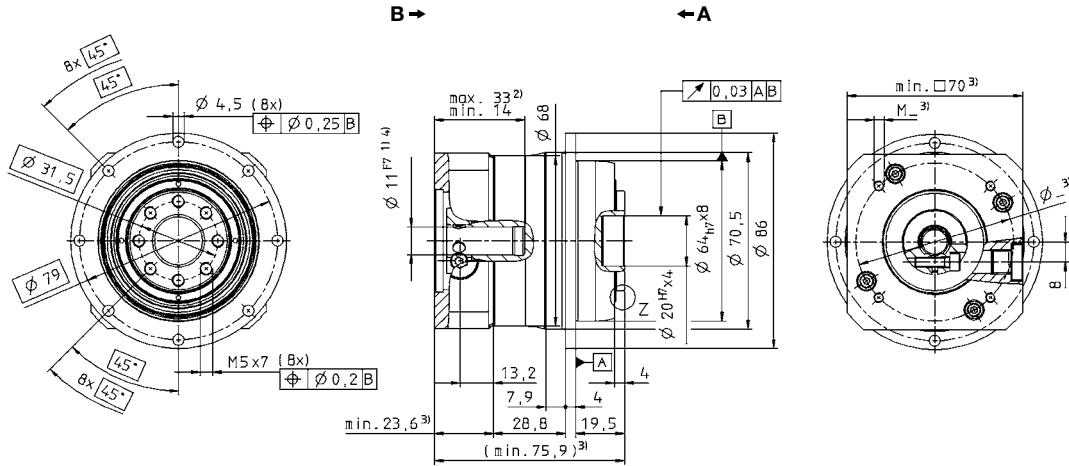
^{c)} Valid for clamping hub diameter of 14 mm

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

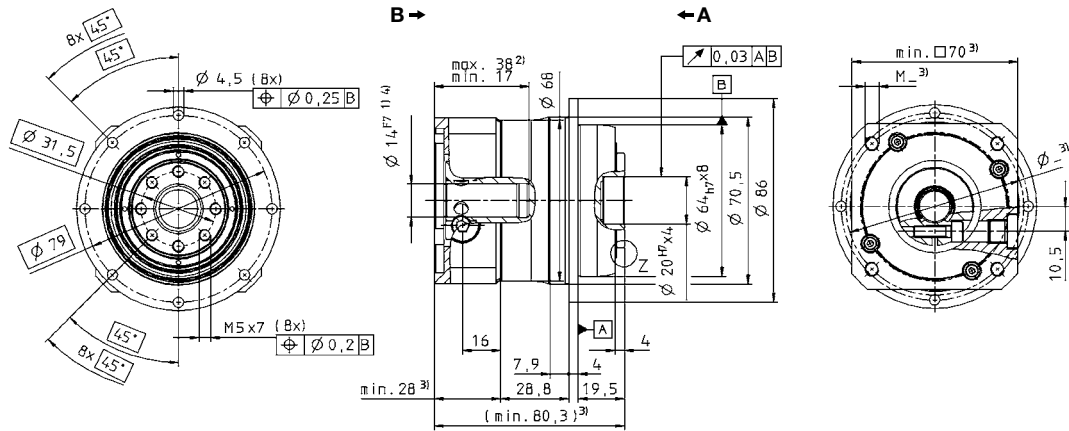
View A

View B

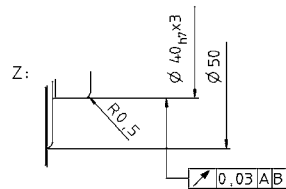
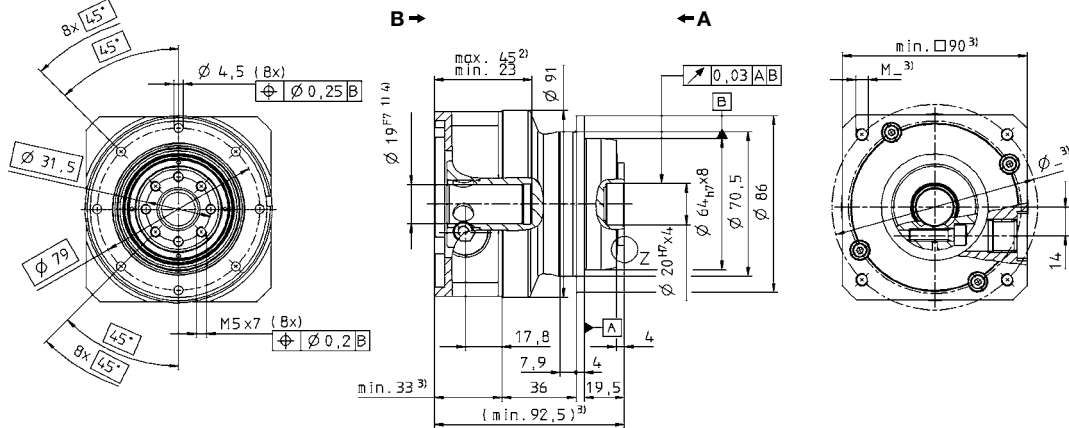
up to 11⁴⁾(B)
clamping hub
diameter



up to 14⁴⁾(C)
clamping hub
diameter



up to 19⁴⁾(E)
clamping hub
diameter



Non-tolerated dimensions ±1 mm

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

CAD data is available under www.wittenstein-alpha.com

Motor mounting according to operating manual

Planetary gearheads
High End

TP+

MF

TP+ 004 MF 2-stage

| | | | 2-stage | | | | | | | | | | | | | | |
|--|-------------|-----------------|--------------------------------------|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Ratio ^{a)} | <i>i</i> | | 16 | 20 | 21 | 25 | 28 | 31 | 35 | 40 | 50 | 61 | 70 | 91 | 100 | | |
| cymex®-optimized acceleration torque (please contact us regarding the design) | T_{2Bcym} | Nm | 60 | 60 | – | 62 | 60 | – | 62 | 62 | 62 | – | 60 | – | – | | |
| | | in.lb | 531 | 531 | – | 549 | 531 | – | 549 | 549 | 549 | – | 531 | – | – | | |
| Max. acceleration torque (max. 1000 cycles per hour) | T_{2B} | Nm | 55 | 55 | 40 | 55 | 55 | 40 | 55 | 55 | 55 | 45 | 55 | 32 | 35 | | |
| | | in.lb | 487 | 487 | 354 | 487 | 487 | 354 | 487 | 487 | 487 | 398 | 487 | 283 | 310 | | |
| Nominal output torque (with n_m) | T_{2N} | Nm | 40 | 40 | 30 | 40 | 40 | 30 | 40 | 40 | 40 | 30 | 40 | 15 | 18 | | |
| | | in.lb | 354 | 354 | 266 | 354 | 354 | 266 | 354 | 354 | 354 | 266 | 354 | 133 | 159 | | |
| Emergency stop torque (permitted 1000 times during the service life of the gearhead) | T_{2Not} | Nm | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | | |
| | | in.lb | 885 | 885 | 885 | 885 | 885 | 885 | 885 | 885 | 885 | 885 | 885 | 885 | 885 | | |
| Nominal input speed (with T_{2N} and 20 °C ambient temperature ^{b)}) | n_{1N} | rpm | 4000 | 4000 | 4000 | 4000 | 4000 | 4000 | 4000 | 4000 | 4800 | 5500 | 5500 | 5500 | 5500 | | |
| Max. input speed | n_{1Max} | rpm | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | | |
| Mean no load running torque (with $n_1=3000$ rpm and 20 °C gearhead temperature ^{c)}) | T_{012} | Nm | 0.55 | 0.45 | 0.45 | 0.45 | 0.35 | 0.35 | 0.30 | 0.25 | 0.25 | 0.20 | 0.20 | 0.20 | 0.20 | | |
| | | in.lb | 4.87 | 3.98 | 3.98 | 3.98 | 3.10 | 3.10 | 2.66 | 2.21 | 2.21 | 1.77 | 1.77 | 1.77 | 1.77 | | |
| Max. torsional backlash | j_t | arcmin | Standard ≤ 4 / Reduced ≤ 2 | | | | | | | | | | | | | | |
| Torsional rigidity ^{c)} | C_{t21} | Nm/ arcmin | 12 | 12 | 10 | 12 | 12 | 9 | 12 | 11 | 12 | 9 | 11 | 7 | 8 | | |
| | | in.lb/ arcmin | 106 | 106 | 89 | 106 | 106 | 80 | 106 | 97 | 106 | 80 | 97 | 62 | 71 | | |
| Tilting rigidity | C_{2K} | Nm/ arcmin | – | | | | | | | | | | | | | | |
| | | in.lb/ arcmin | – | | | | | | | | | | | | | | |
| Max. axial force ^{d)} | F_{2AMax} | N | 1630 | | | | | | | | | | | | | | |
| | | lb _f | 367 | | | | | | | | | | | | | | |
| Max. tilting moment | M_{2KMax} | Nm | 110 | | | | | | | | | | | | | | |
| | | in.lb | 974 | | | | | | | | | | | | | | |
| Efficiency at full load | η | % | 94 | | | | | | | | | | | | | | |
| Service life (For calculation, see the Chapter "Information") | L_h | h | > 20000 | | | | | | | | | | | | | | |
| Weight incl. standard adapter plate | m | kg | 1.5 | | | | | | | | | | | | | | |
| | | lb _m | 3.3 | | | | | | | | | | | | | | |
| Operating noise (with $i=100$ and $n_1=3000$ rpm no load) | L_{PA} | dB(A) | ≤ 58 | | | | | | | | | | | | | | |
| Max. permitted housing temperature | | °C | +90 | | | | | | | | | | | | | | |
| | | F | 194 | | | | | | | | | | | | | | |
| Ambient temperature | | °C | -15 to +40 | | | | | | | | | | | | | | |
| | | F | 5 to 104 | | | | | | | | | | | | | | |
| Lubrication | | | Lubricated for life | | | | | | | | | | | | | | |
| Paint | | | Blue RAL 5002 | | | | | | | | | | | | | | |
| Direction of rotation | | | Motor and gearhead same direction | | | | | | | | | | | | | | |
| Protection class | | | IP 65 | | | | | | | | | | | | | | |
| Moment of inertia (relates to the drive) Clamping hub diameter [mm] | B | 11 | J_1 | kgcm ² | 0.078 | 0.070 | 0.074 | 0.068 | 0.062 | 0.072 | 0.061 | 0.051 | 0.057 | 0.058 | 0.056 | 0.057 | 0.056 |
| | | | | 10 ⁻² in.lb.s ² | 0.069 | 0.062 | 0.066 | 0.060 | 0.054 | 0.064 | 0.054 | 0.051 | 0.050 | 0.051 | 0.050 | 0.051 | 0.050 |
| | C | 14 | J_1 | kgcm ² | 0.17 | 0.17 | 0.17 | 0.16 | 0.16 | 0.17 | 0.16 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 |
| | | | | 10 ⁻² in.lb.s ² | 0.15 | 0.15 | 0.15 | 0.14 | 0.14 | 0.15 | 0.14 | 0.14 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 |

Reduced mass moments of inertia available on request.

^{a)} Other ratios available on request

^{b)} For higher ambient temperatures, please reduce input speed

^{c)} Valid for clamping hub diameter of 11 mm

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

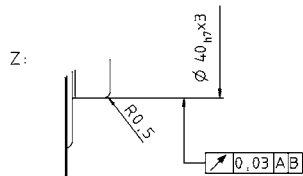
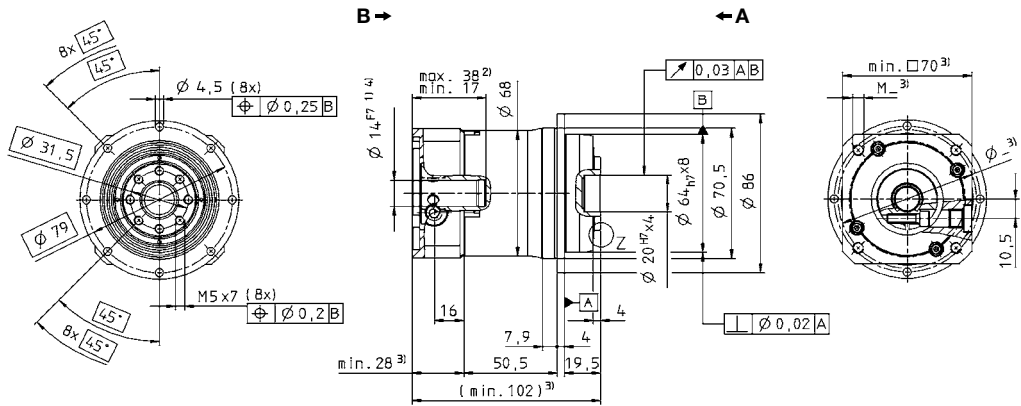
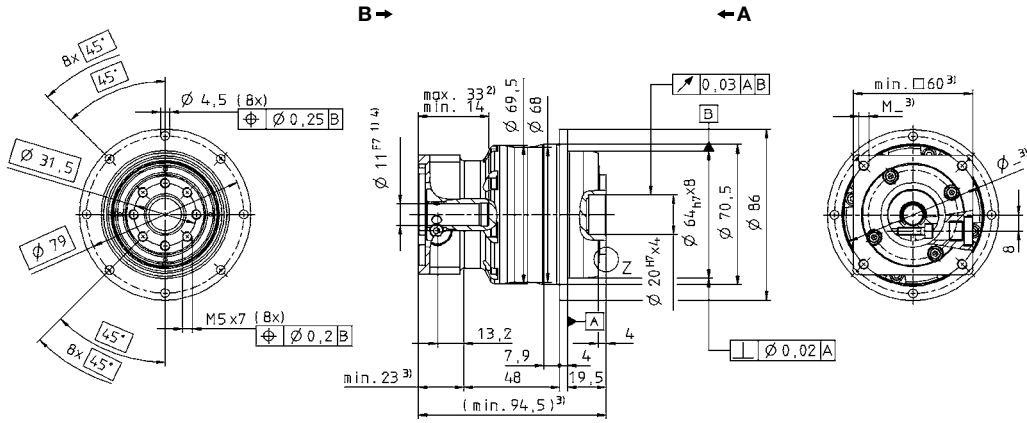
View A

View B

Motor shaft diameter [mm]

up to 11⁴⁾(B)
clamping hub diameter

up to 14⁴⁾(C)
clamping hub diameter



Planetary gearheads
High End

TP+

MF

Non-tolerated dimensions ± 1 mm

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

CAD data is available under www.wittenstein-alpha.com

Motor mounting according to operating manual

TP+ 010 MF 1-stage

| | | | | 1-stage | | | | |
|---|--------------|-----------------|--------------------------------------|---------------------------------------|------|------|------|------|
| Ratio ^{a)} | <i>i</i> | | 4 | 5 | 7 | 10 | | |
| cymex®-optimized acceleration torque (please contact us regarding the design) | T_{2Bcym} | Nm | 150 | 162 | 162 | - | | |
| | | in.lb | 1328 | 1434 | 1434 | - | | |
| Max. acceleration torque (max. 1000 cycles per hour) | T_{2B} | Nm | 143 | 143 | 143 | 105 | | |
| | | in.lb | 1266 | 1266 | 1266 | 929 | | |
| Nominal output torque (with n_n) | T_{2N} | Nm | 75 | 75 | 75 | 60 | | |
| | | in.lb | 664 | 664 | 664 | 531 | | |
| Emergency stop torque (permitted 1000 times during the service life of the gearhead) | T_{2Not} | Nm | 250 | 250 | 250 | 250 | | |
| | | in.lb | 2213 | 2213 | 2213 | 2213 | | |
| Nominal input speed (with T_{2N} and 20 °C ambient temperature) ^{b)} | n_{1N} | rpm | 2600 | 2900 | 3100 | 3100 | | |
| Max. input speed | n_{1Max} | rpm | 6000 | 6000 | 6000 | 6000 | | |
| Mean no load running torque (with $n_i=3000$ rpm and 20 °C gearhead temperature) ^{c)} | T_{012} | Nm | 1.6 | 1.3 | 1.0 | 0.7 | | |
| | | in.lb | 14.2 | 11.5 | 8.85 | 6.20 | | |
| Max. torsional backlash | j_t | arcmin | Standard ≤ 3 / Reduced ≤ 1 | | | | | |
| Torsional rigidity ^{c)} | C_{t21} | Nm/ arcmin | 32 | 33 | 30 | 23 | | |
| | | in.lb/ arcmin | 283 | 292 | 266 | 204 | | |
| Tilting rigidity | C_{2K} | Nm/ arcmin | 225 | | | | | |
| | | in.lb/ arcmin | 1991 | | | | | |
| Max. axial force ^{d)} | F_{2AMax} | N | 2150 | | | | | |
| | | lb _f | 484 | | | | | |
| Max. tilting moment | M_{2KMMax} | Nm | 270 | | | | | |
| | | in.lb | 2390 | | | | | |
| Efficiency at full load | η | % | 97 | | | | | |
| Service life (For calculation, see the Chapter "Information") | L_h | h | > 20000 | | | | | |
| Weight incl. standard adapter plate | m | kg | 3.8 | | | | | |
| | | lb _m | 8.4 | | | | | |
| Operating noise (with $i=10$ and $n_i=3000$ rpm no load) | L_{PA} | dB(A) | ≤ 59 | | | | | |
| Max. permitted housing temperature | | | °C | | | | | |
| | | | F | | | | | |
| Ambient temperature | | | °C | | | | | |
| | | | F | | | | | |
| Lubrication | | | Lubricated for life | | | | | |
| Paint | | | Blue RAL 5002 | | | | | |
| Direction of rotation | | | Motor and gearhead same direction | | | | | |
| Protection class | | | IP 65 | | | | | |
| Moment of inertia (relates to the drive) | C | 14 | J_1 | kgcm ² | 0.78 | 0.62 | 0.48 | 0.40 |
| | | | | 10 ⁻² in.lb.s ² | 0.69 | 0.55 | 0.42 | 0.35 |
| Clamping hub diameter [mm] | E | 19 | J_1 | kgcm ² | 0.95 | 0.79 | 0.64 | 0.57 |
| | | | | 10 ⁻² in.lb.s ² | 0.84 | 0.70 | 0.57 | 0.50 |
| | G | 24 | J_1 | kgcm ² | 2.32 | 2.16 | 2.02 | 1.94 |
| | | | | 10 ⁻² in.lb.s ² | 2.05 | 1.91 | 1.78 | 1.72 |

Reduced mass moments of inertia available on request.

^{a)} Other ratios available on request

^{b)} For higher ambient temperatures, please reduce input speed

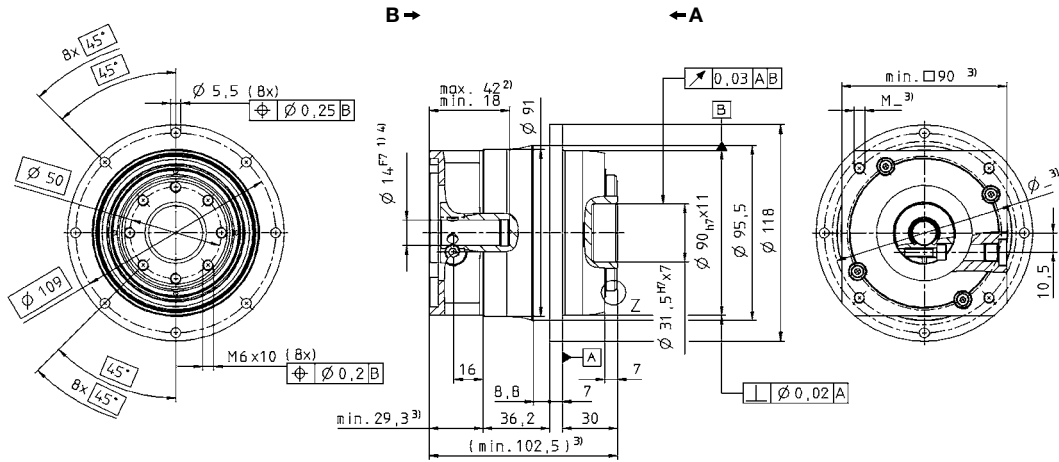
^{c)} Valid for clamping hub diameter of 19 mm

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

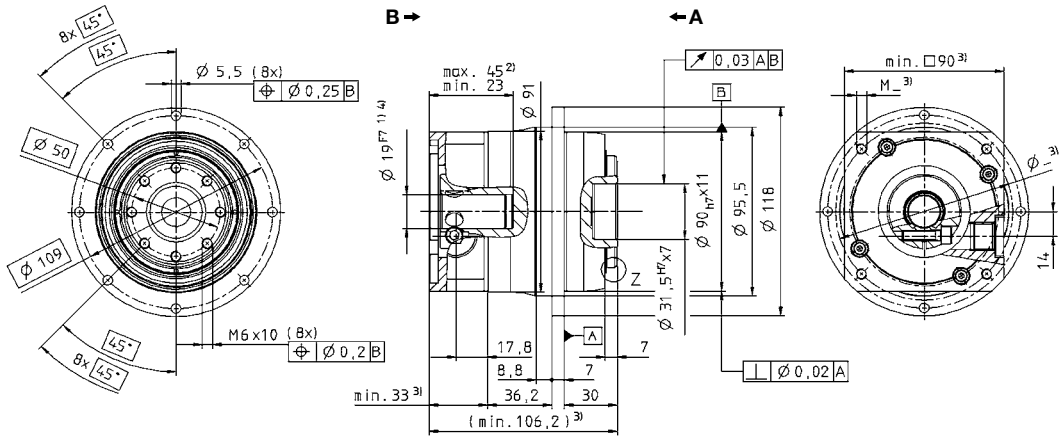
View A

View B

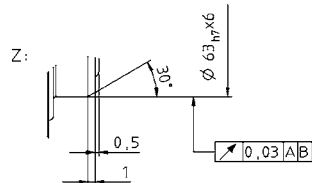
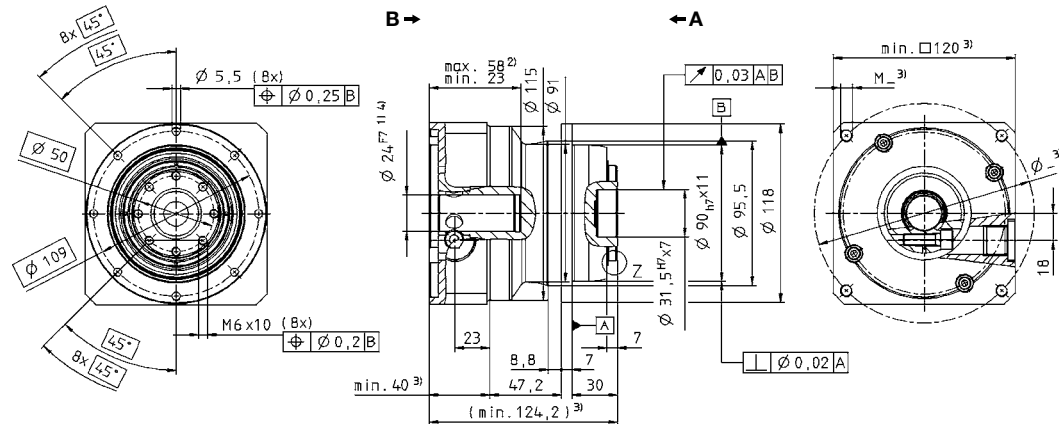
up to 14 ⁴⁾(C)
clamping hub diameter



up to 19 ⁴⁾(E)
clamping hub diameter



up to 24 ⁴⁾(G)
clamping hub diameter



Non-tolerated dimensions ± 1 mm

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

CAD data is available under www.wittenstein-alpha.com

Motor mounting according to operating manual

TP+ 010 MF 2-stage

| | | | 2-stage | | | | | | | | | | | | | | |
|---|-------------|-----------------|--------------------------------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio ^{a)} | <i>i</i> | | 16 | 20 | 21 | 25 | 28 | 31 | 35 | 40 | 50 | 61 | 70 | 91 | 100 | | |
| cymex®-optimized acceleration torque (please contact us regarding the design) | T_{2Bcym} | Nm | 162 | 162 | – | 162 | 162 | – | 162 | – | 162 | – | 162 | – | – | | |
| | | in.lb | 1434 | 1434 | – | 1434 | 1434 | – | 1434 | – | 1434 | – | 1434 | – | – | | |
| Max. acceleration torque (max. 1000 cycles per hour) | T_{2B} | Nm | 143 | 143 | 100 | 143 | 143 | 110 | 143 | 140 | 143 | 110 | 143 | 80 | 105 | | |
| | | in.lb | 1266 | 1266 | 885 | 1266 | 1266 | 974 | 1266 | 1239 | 1266 | 974 | 1266 | 708 | 929 | | |
| Nominal output torque (with n_m) | T_{2N} | Nm | 90 | 90 | 80 | 90 | 90 | 70 | 90 | 80 | 90 | 70 | 90 | 35 | 60 | | |
| | | in.lb | 797 | 797 | 708 | 797 | 797 | 620 | 797 | 708 | 797 | 620 | 797 | 310 | 531 | | |
| Emergency stop torque (permitted 1000 times during the service life of the gearhead) | T_{2Not} | Nm | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 | | |
| | | in.lb | 2213 | 2213 | 2213 | 2213 | 2213 | 2213 | 2213 | 2213 | 2213 | 2213 | 2213 | 2213 | 2213 | | |
| Nominal input speed (with T_{2N} and 20 °C ambient temperature) ^{b)} | n_{1N} | rpm | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | 3800 | 4500 | 4500 | 4500 | 4500 | | |
| Max. input speed | n_{1Max} | rpm | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | | |
| Mean no load running torque (with $n_1=3000$ rpm and 20 °C gearhead temperature) ^{c)} | T_{012} | Nm | 0.90 | 0.75 | 0.70 | 0.65 | 0.55 | 0.50 | 0.50 | 0.40 | 0.35 | 0.35 | 0.35 | 0.30 | 0.30 | | |
| | | in.lb | 7.97 | 6.64 | 6.20 | 5.75 | 4.87 | 4.43 | 4.43 | 3.54 | 3.10 | 3.10 | 3.10 | 2.66 | 2.66 | | |
| Max. torsional backlash | j_t | arcmin | Standard ≤ 3 / Reduced ≤ 1 | | | | | | | | | | | | | | |
| Torsional rigidity ^{c)} | C_{t21} | Nm/ arcmin | 32 | 32 | 26 | 32 | 31 | 24 | 32 | 30 | 30 | 24 | 28 | 21 | 22 | | |
| | | in.lb/ arcmin | 283 | 283 | 230 | 283 | 274 | 212 | 283 | 266 | 266 | 212 | 248 | 186 | 195 | | |
| Tilting rigidity | C_{2K} | Nm/ arcmin | 225 | | | | | | | | | | | | | | |
| | | in.lb/ arcmin | 1991 | | | | | | | | | | | | | | |
| Max. axial force ^{d)} | F_{2AMax} | N | 2150 | | | | | | | | | | | | | | |
| | | lb _f | 484 | | | | | | | | | | | | | | |
| Max. tilting moment | M_{2KMax} | Nm | 270 | | | | | | | | | | | | | | |
| | | in.lb | 2390 | | | | | | | | | | | | | | |
| Efficiency at full load | η | % | 94 | | | | | | | | | | | | | | |
| Service life (For calculation, see the Chapter "Information") | L_h | h | > 20000 | | | | | | | | | | | | | | |
| Weight incl. standard adapter plate | m | kg | 3.6 | | | | | | | | | | | | | | |
| | | lb _m | 8.0 | | | | | | | | | | | | | | |
| Operating noise (with $i=100$ and $n_1=3000$ rpm no load) | L_{PA} | dB(A) | ≤ 59 | | | | | | | | | | | | | | |
| Max. permitted housing temperature | | °C | +90 | | | | | | | | | | | | | | |
| | | F | 194 | | | | | | | | | | | | | | |
| Ambient temperature | | °C | -15 to +40 | | | | | | | | | | | | | | |
| | | F | 5 to 104 | | | | | | | | | | | | | | |
| Lubrication | | | Lubricated for life | | | | | | | | | | | | | | |
| Paint | | | Blue RAL 5002 | | | | | | | | | | | | | | |
| Direction of rotation | | | Motor and gearhead same direction | | | | | | | | | | | | | | |
| Protection class | | | IP 65 | | | | | | | | | | | | | | |
| Moment of inertia (relates to the drive) | B | 11 | J_1 | kgcm ² | 0.17 | 0.14 | 0.15 | 0.13 | 0.11 | 0.13 | 0.10 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | |
| | | | | 10 ⁻² in.lb.s ² | 0.15 | 0.12 | 0.13 | 0.12 | 0.10 | 0.12 | 0.09 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| Clamping hub diameter [mm] | C | 14 | J_1 | kgcm ² | 0.24 | 0.21 | 0.22 | 0.20 | 0.18 | 0.21 | 0.18 | 0.17 | 0.17 | 0.17 | 0.16 | 0.16 | 0.16 |
| | | | | 10 ⁻² in.lb.s ² | 0.21 | 0.19 | 0.19 | 0.19 | 0.16 | 0.18 | 0.16 | 0.15 | 0.15 | 0.15 | 0.15 | 0.14 | 0.15 |
| | E | 19 | J_1 | kgcm ² | 0.56 | 0.53 | 0.55 | 0.53 | 0.51 | 0.53 | 0.50 | 0.49 | 0.49 | 0.49 | 0.49 | 0.49 | |
| | | | | 10 ⁻² in.lb.s ² | 0.50 | 0.47 | 0.49 | 0.47 | 0.45 | 0.47 | 0.44 | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 |

Reduced mass moments of inertia available on request.

^{a)} Other ratios available on request

^{b)} For higher ambient temperatures, please reduce input speed

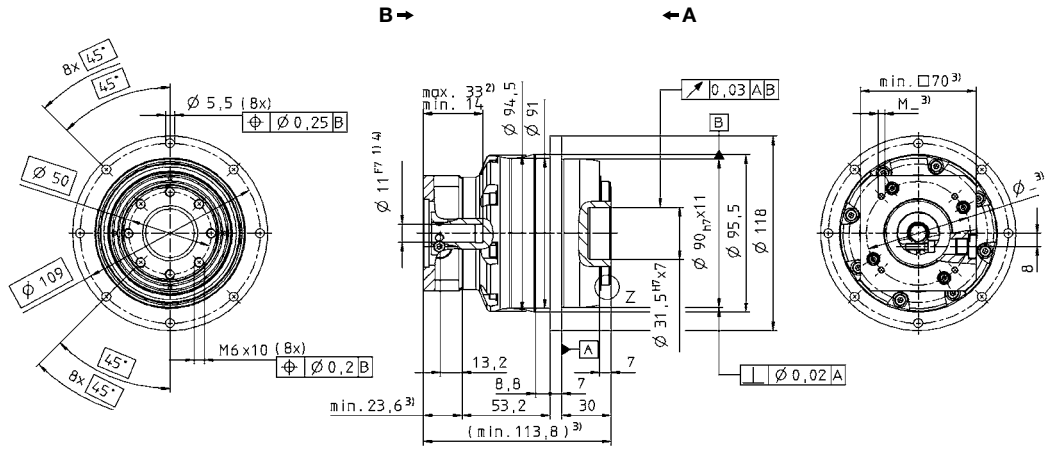
^{c)} Valid for clamping hub diameter of 14 mm

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

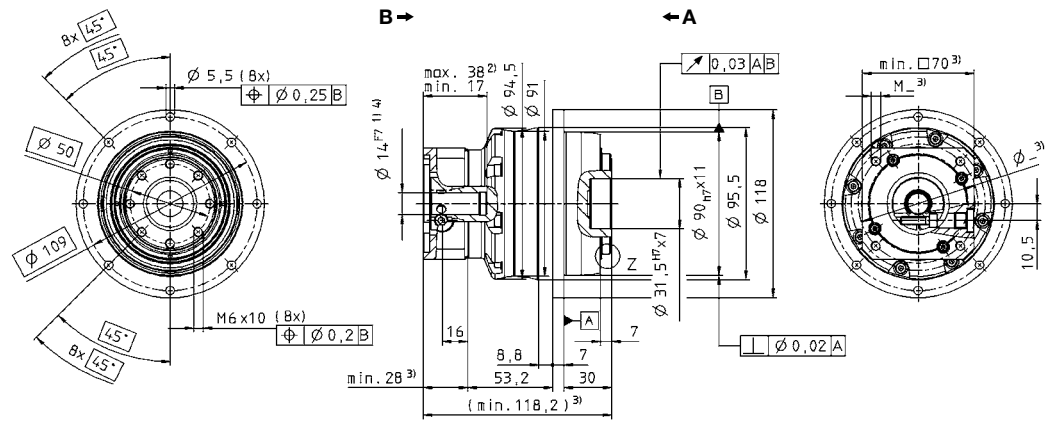
View A

View B

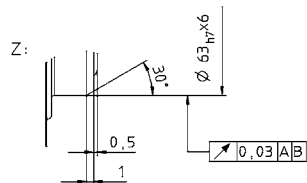
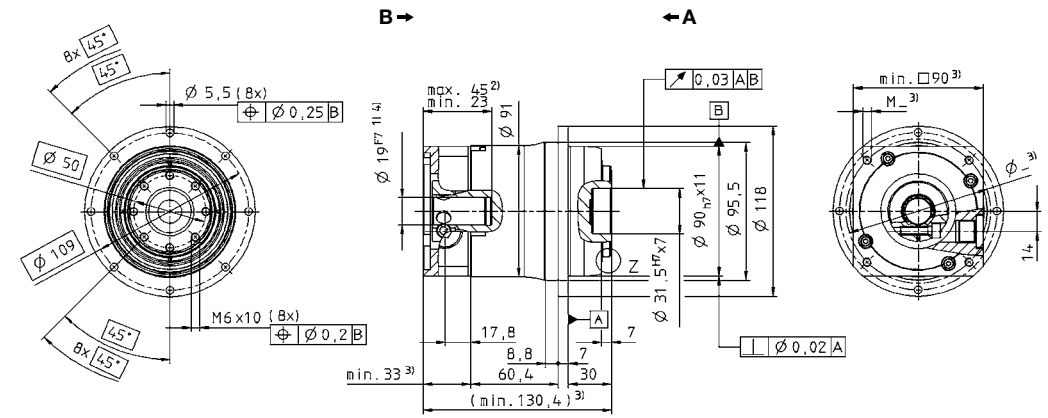
up to 11⁴⁾(B)
clamping hub
diameter



up to 14⁴⁾(C)
clamping hub
diameter



up to 19⁴⁾(E)
clamping hub
diameter



Non-tolerated dimensions ± 1 mm

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

CAD data is available under www.wittenstein-alpha.com

Motor mounting according to operating manual

TP+ 025 MF 1-stage

| | | | | 1-stage | | | | |
|---|--------------|-----------------|---------------------------------------|---------------------------------------|------|------|------|------|
| Ratio ^{a)} | | <i>i</i> | | 4 | 5 | 7 | 10 | |
| cymex®-optimized acceleration torque (please contact us regarding the design) | T_{2Bcym} | Nm | | 390 | 420 | 350 | 275 | |
| | | in.lb | | 3452 | 3717 | 3098 | 2434 | |
| Max. acceleration torque (max. 1000 cycles per hour) | T_{2B} | Nm | | 350 | 380 | 330 | 265 | |
| | | in.lb | | 3098 | 3363 | 2921 | 2345 | |
| Nominal output torque (with n_m) | T_{2N} | Nm | | 170 | 170 | 170 | 120 | |
| | | in.lb | | 1505 | 1505 | 1505 | 1062 | |
| Emergency stop torque (permitted 1000 times during the service life of the gearhead) | T_{2Not} | Nm | | 625 | 625 | 625 | 625 | |
| | | in.lb | | 5531 | 5531 | 5531 | 5531 | |
| Nominal input speed (with T_{2N} and 20 °C ambient temperature) ^{b)} | n_{1N} | rpm | | 2300 | 2500 | 2500 | 2500 | |
| Max. input speed | n_{1Max} | rpm | | 4500 | 4500 | 4500 | 4500 | |
| Mean no load running torque (with $n_f=3000$ rpm and 20 °C gearhead temperature) ^{c)} | T_{012} | Nm | | 3.3 | 2.7 | 2.0 | 1.4 | |
| | | in.lb | | 29.2 | 23.9 | 17.7 | 12.4 | |
| Max. torsional backlash | j_t | arcmin | | Standard ≤ 3 / Reduced ≤ 1 | | | | |
| Torsional rigidity ^{c)} | C_{t21} | Nm/ arcmin | | 80 | 86 | 76 | 62 | |
| | | in.lb/ arcmin | | 708 | 761 | 673 | 549 | |
| Tilting rigidity | C_{2K} | Nm/ arcmin | | 550 | | | | |
| | | in.lb/ arcmin | | 4868 | | | | |
| Max. axial force ^{d)} | F_{2AMax} | N | | 4150 | | | | |
| | | lb _f | | 934 | | | | |
| Max. tilting moment | M_{2KMMax} | Nm | | 440 | | | | |
| | | in.lb | | 3894 | | | | |
| Efficiency at full load | η | % | | 97 | | | | |
| Service life (For calculation, see the Chapter "Information") | L_h | h | | > 20000 | | | | |
| Weight incl. standard adapter plate | m | kg | | 6.5 | | | | |
| | | lb _m | | 14.4 | | | | |
| Operating noise (with $i=10$ and $n_f=3000$ rpm no load) | 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 | | | | |
| Paint | | | | Blue RAL 5002 | | | | |
| Direction of rotation | | | | Motor and gearhead same direction | | | | |
| Protection class | | | | IP 65 | | | | |
| Moment of inertia (relates to the drive) | E | 19 | J_1 | kgcm ² | 2.59 | 2.11 | 1.69 | 1.45 |
| | | | | 10 ⁻² in.lb.s ² | 2.29 | 1.87 | 1.50 | 1.28 |
| Clamping hub diameter [mm] | G | 24 | J_1 | kgcm ² | 3.28 | 2.80 | 2.38 | 2.14 |
| | | | | 10 ⁻² in.lb.s ² | 2.90 | 2.48 | 2.11 | 1.89 |
| | H | 28 | J_1 | kgcm ² | 2.89 | 2.41 | 1.99 | 1.75 |
| | | | | 10 ⁻² in.lb.s ² | 2.56 | 2.13 | 1.76 | 1.55 |
| K | 38 | J_1 | kgcm ² | 10.3 | 9.87 | 9.45 | 9.21 | |
| | | | 10 ⁻² in.lb.s ² | 9.11 | 8.73 | 8.36 | 8.15 | |

Reduced mass moments of inertia available on request.

^{a)} Other ratios available on request

^{b)} For higher ambient temperatures, please reduce input speed

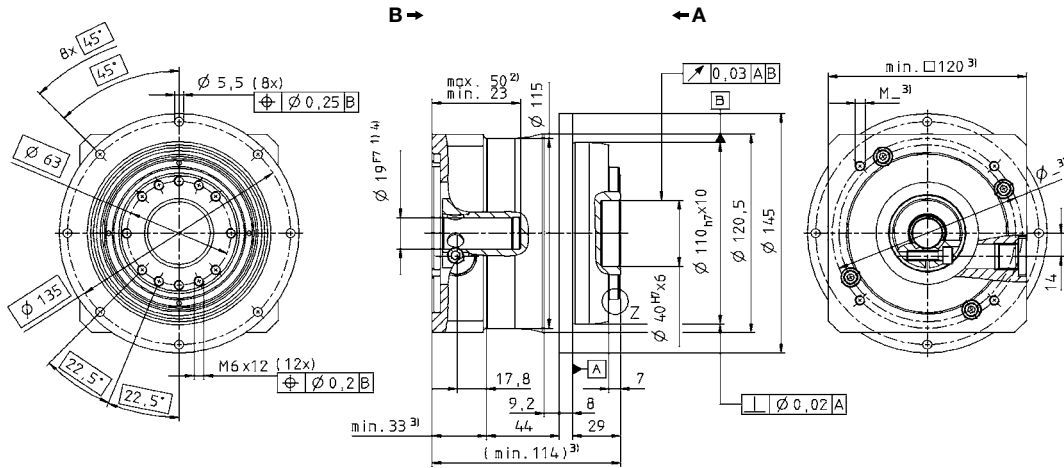
^{c)} Valid for clamping hub diameter of 24 and 28 mm

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

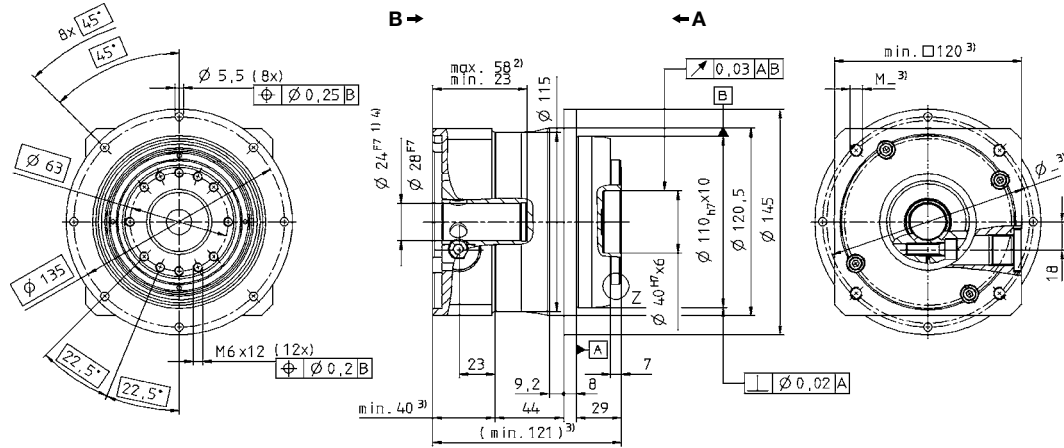
View A

View B

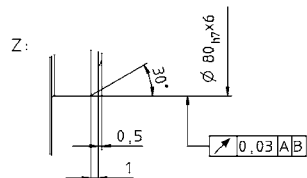
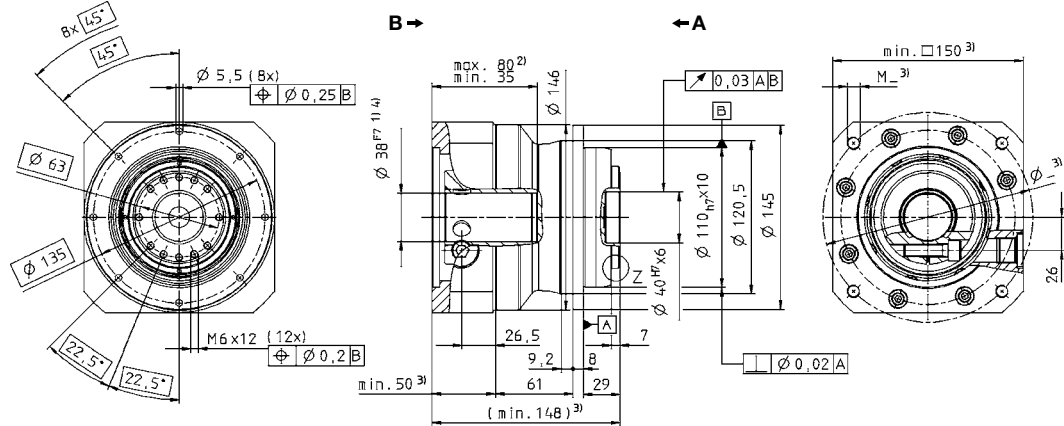
up to 19⁴⁾ (E)
clamping hub diameter



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



up to 38⁴⁾ (K)
clamping hub diameter



Non-tolerated dimensions ± 1 mm

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

CAD data is available under www.wittenstein-alpha.com

Motor mounting according to operating manual

Planetary gearheads
High End

TP+
MF

Motor shaft diameter [mm]

TP+ 025 MF 2-stage

| | | | 2-stage | | | | | | | | | | | | | | |
|--|-------------|-----------------|--------------------------------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio ^{a)} | <i>i</i> | | 16 | 20 | 21 | 25 | 28 | 31 | 35 | 40 | 50 | 61 | 70 | 91 | 100 | | |
| cymex®-optimized acceleration torque (please contact us regarding the design) | T_{2Bcym} | Nm | 390 | 390 | – | 420 | 390 | – | 420 | 390 | 420 | – | 350 | – | 275 | | |
| | | in.lb | 3452 | 3452 | – | 3717 | 3452 | – | 3717 | 3452 | 3717 | – | 3098 | – | 2434 | | |
| Max. acceleration torque (max. 1000 cycles per hour) | T_{2B} | Nm | 350 | 350 | 300 | 380 | 350 | 300 | 380 | 350 | 380 | 280 | 330 | 250 | 265 | | |
| | | in.lb | 3098 | 3098 | 2655 | 3363 | 3098 | 2655 | 3363 | 3098 | 3363 | 2478 | 2921 | 2213 | 2345 | | |
| Nominal output torque (with n_m) | T_{2N} | Nm | 200 | 210 | 170 | 200 | 210 | 190 | 220 | 200 | 220 | 170 | 200 | 100 | 120 | | |
| | | in.lb | 1770 | 1859 | 1505 | 1770 | 1859 | 1682 | 1947 | 1770 | 1947 | 1505 | 1770 | 885 | 1062 | | |
| Emergency stop torque (permitted 1000 times during the service life of the gearhead) | T_{2Not} | Nm | 625 | 625 | 625 | 625 | 625 | 625 | 625 | 625 | 625 | 625 | 625 | 625 | 625 | | |
| | | in.lb | 5531 | 5531 | 5531 | 5531 | 5531 | 5531 | 5531 | 5531 | 5531 | 5531 | 5531 | 5531 | 5531 | | |
| Nominal input speed (with T_{2N} and 20 °C ambient temperature ^{b)}) | n_{1N} | rpm | 2800 | 2800 | 2800 | 2800 | 2800 | 2800 | 2800 | 2800 | 3100 | 3500 | 3500 | 4200 | 4200 | | |
| Max. input speed | n_{1Max} | rpm | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | | |
| Mean no load running torque (with $n_1=3000$ rpm and 20 °C gearhead temperature ^{c)}) | T_{012} | Nm | 1.8 | 1.5 | 1.4 | 1.4 | 1.1 | 1.1 | 1.0 | 0.8 | 0.8 | 0.7 | 0.7 | 0.6 | 0.6 | | |
| | | in.lb | 15.9 | 13.3 | 12.4 | 12.4 | 9.7 | 9.7 | 8.9 | 7.1 | 7.1 | 6.2 | 6.2 | 5.3 | 5.3 | | |
| Max. torsional backlash | j_t | arcmin | Standard ≤ 3 / Reduced ≤ 1 | | | | | | | | | | | | | | |
| Torsional rigidity ^{c)} | C_{t21} | Nm/ arcmin | 81 | 81 | 70 | 83 | 80 | 54 | 82 | 76 | 80 | 61 | 71 | 55 | 60 | | |
| | | in.lb/ arcmin | 717 | 717 | 620 | 735 | 708 | 478 | 726 | 673 | 708 | 540 | 628 | 487 | 531 | | |
| Tilting rigidity | C_{2K} | Nm/ arcmin | 550 | | | | | | | | | | | | | | |
| | | in.lb/ arcmin | 4867 | | | | | | | | | | | | | | |
| Max. axial force ^{d)} | F_{2AMax} | N | 4150 | | | | | | | | | | | | | | |
| | | lb _f | 934 | | | | | | | | | | | | | | |
| Max. tilting moment | M_{2KMax} | Nm | 440 | | | | | | | | | | | | | | |
| | | in.lb | 3894 | | | | | | | | | | | | | | |
| Efficiency at full load | η | % | 94 | | | | | | | | | | | | | | |
| Service life (For calculation, see the Chapter "Information") | L_h | h | > 20000 | | | | | | | | | | | | | | |
| Weight incl. standard adapter plate | m | kg | 6.7 | | | | | | | | | | | | | | |
| | | lb _m | 14.8 | | | | | | | | | | | | | | |
| Operating noise (with $i=100$ and $n_1=3000$ rpm no load) | L_{PA} | dB(A) | ≤ 60 | | | | | | | | | | | | | | |
| Max. permitted housing temperature | | °C | +90 | | | | | | | | | | | | | | |
| | | F | 194 | | | | | | | | | | | | | | |
| Ambient temperature | | °C | -15 to +40 | | | | | | | | | | | | | | |
| | | F | 5 to 104 | | | | | | | | | | | | | | |
| Lubrication | | | Lubricated for life | | | | | | | | | | | | | | |
| Paint | | | Blue RAL 5002 | | | | | | | | | | | | | | |
| Direction of rotation | | | Motor and gearhead same direction | | | | | | | | | | | | | | |
| Protection class | | | IP 65 | | | | | | | | | | | | | | |
| Moment of inertia (relates to the drive) | C | 14 | J_1 | kgcm ² | 0.66 | 0.55 | 0.60 | 0.53 | 0.44 | 0.55 | 0.43 | 0.38 | 0.38 | 0.39 | 0.37 | 0.38 | 0.37 |
| | | | | 10 ⁻² in.lb.s ² | 0.59 | 0.49 | 0.51 | 0.47 | 0.39 | 0.49 | 0.38 | 0.34 | 0.33 | 0.35 | 0.33 | 0.34 | 0.33 |
| Clamping hub diameter [mm] | E | 19 | J_1 | kgcm ² | 0.83 | 0.71 | 0.77 | 0.69 | 0.61 | 0.72 | 0.60 | 0.55 | 0.54 | 0.55 | 0.54 | 0.54 | 0.54 |
| | | | | 10 ⁻² in.lb.s ² | 0.73 | 0.63 | 0.68 | 0.61 | 0.54 | 0.64 | 0.53 | 0.49 | 0.48 | 0.4 | 0.48 | 0.48 | 0.48 |
| | G | 24 | J_1 | kgcm ² | 2.20 | 2.08 | 2.14 | 2.06 | 1.98 | 2.09 | 1.97 | 1.92 | 1.92 | 1.92 | 1.91 | 1.92 | 1.91 |
| | | | | 10 ⁻² in.lb.s ² | 1.95 | 1.84 | 1.89 | 1.82 | 1.75 | 1.85 | 1.74 | 1.70 | 1.70 | 1.70 | 1.70 | 1.69 | 1.70 |

Reduced mass moments of inertia available on request.

^{a)} Other ratios available on request

^{b)} For higher ambient temperatures, please reduce input speed

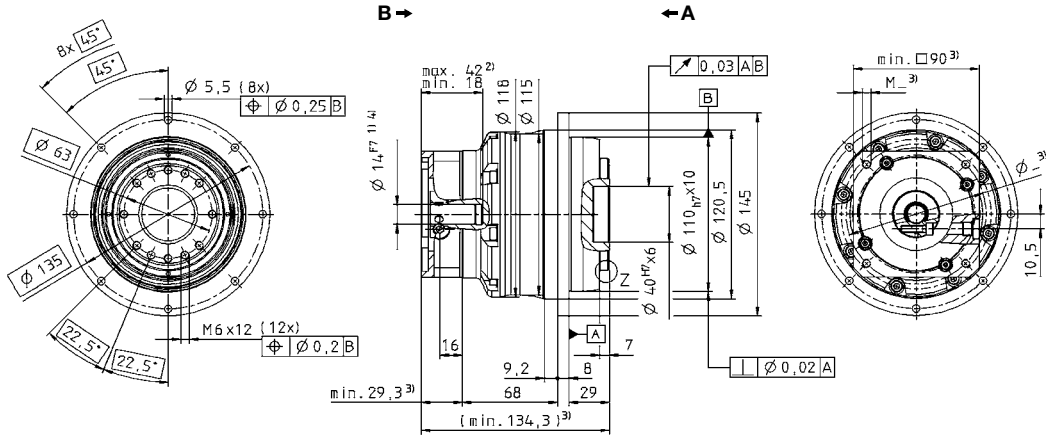
^{c)} Valid for clamping hub diameter of 19 mm

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

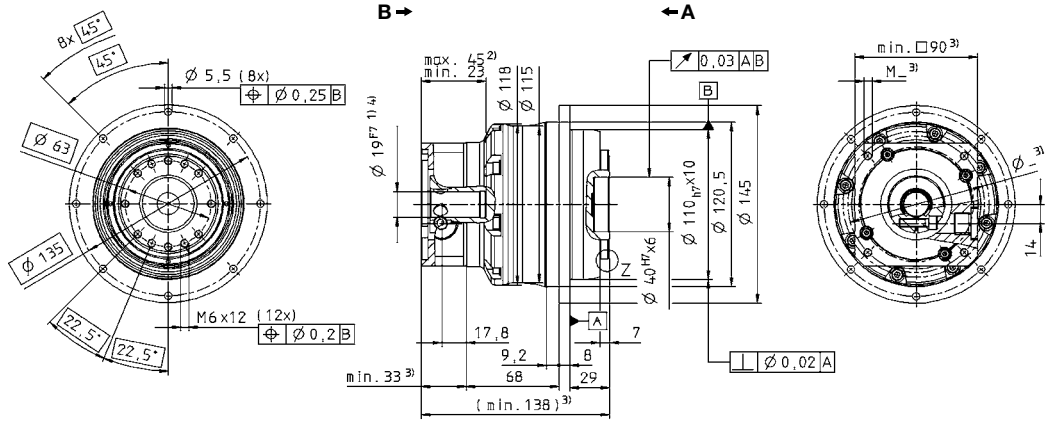
View A

View B

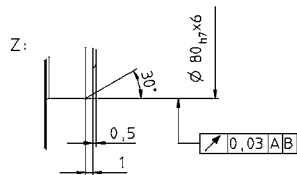
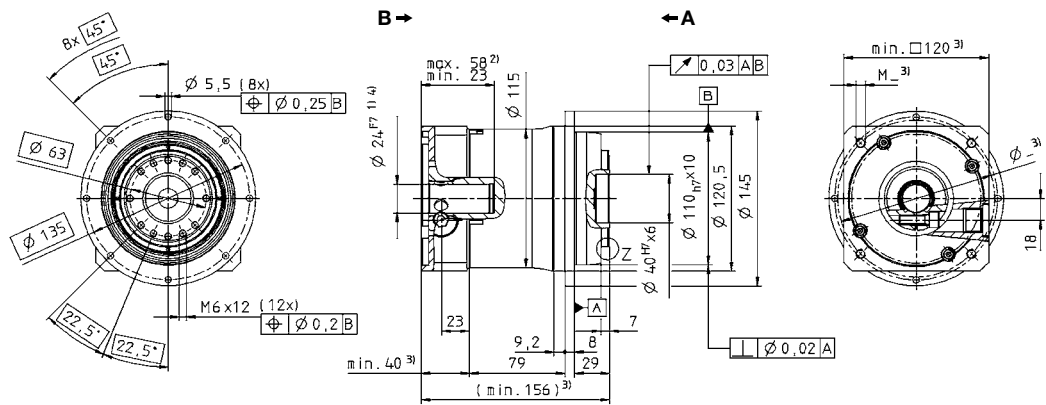
up to 14⁴⁾(C)
clamping hub
diameter



up to 19⁴⁾(E)
clamping hub
diameter



up to 24⁴⁾(G)
clamping hub
diameter



Non-tolerated dimensions ± 1 mm

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

CAD data is available under www.wittenstein-alpha.com

Motor mounting according to operating manual

TP+ 050 MF 1-stage

| | | | | 1-stage | | | | |
|---|--------------|-----------------|---------------------------------------|---------------------------------------|-------|-------|-------|------|
| Ratio ^{a)} | | <i>i</i> | | 4 | 5 | 7 | 10 | |
| cymex [®] -optimized acceleration torque (please contact us regarding the design) | T_{2Bcym} | Nm | | 750 | 800 | – | 600 | |
| | | in.lb | | 6638 | 7080 | – | 5310 | |
| Max. acceleration torque (max. 1000 cycles per hour) | T_{2B} | Nm | | 700 | 700 | 700 | 540 | |
| | | in.lb | | 6195 | 6195 | 6195 | 4779 | |
| Nominal output torque (with n_m) | T_{2N} | Nm | | 370 | 370 | 370 | 240 | |
| | | in.lb | | 3275 | 3275 | 3275 | 2124 | |
| Emergency stop torque (permitted 1000 times during the service life of the gearhead) | T_{2Not} | Nm | | 1250 | 1250 | 1250 | 1250 | |
| | | in.lb | | 11063 | 11063 | 11063 | 11063 | |
| Nominal input speed (with T_{2N} and 20 °C ambient temperature) ^{b)} | n_{1N} | rpm | | 1900 | 2000 | 2500 | 2500 | |
| Max. input speed | n_{1Max} | rpm | | 4000 | 4000 | 4000 | 4000 | |
| Mean no load running torque (with $n_f=3000$ rpm and 20 °C gearhead temperature) ^{c)} | T_{012} | Nm | | 8.1 | 6.6 | 4.8 | 3.5 | |
| | | in.lb | | 71.7 | 58.4 | 42.5 | 31.0 | |
| Max. torsional backlash | j_t | arcmin | | Standard ≤ 3 / Reduced ≤ 1 | | | | |
| Torsional rigidity ^{c)} | C_{t21} | Nm/ arcmin | | 190 | 187 | 159 | 123 | |
| | | in.lb/ arcmin | | 1682 | 1655 | 1407 | 1089 | |
| Tilting rigidity | C_{2K} | Nm/ arcmin | | 560 | | | | |
| | | in.lb/ arcmin | | 4956 | | | | |
| Max. axial force ^{d)} | F_{2AMax} | N | | 6130 | | | | |
| | | lb _f | | 1379 | | | | |
| Max. tilting moment | M_{2KMMax} | Nm | | 1335 | | | | |
| | | in.lb | | 11815 | | | | |
| Efficiency at full load | η | % | | 97 | | | | |
| Service life (For calculation, see the Chapter "Information") | L_h | h | | > 20000 | | | | |
| Weight incl. standard adapter plate | m | kg | | 14.0 | | | | |
| | | lb _m | | 30.9 | | | | |
| Operating noise (with $i=10$ and $n_f=3000$ rpm no load) | L_{PA} | dB(A) | | ≤ 65 | | | | |
| Max. permitted housing temperature | | °C | | +90 | | | | |
| | | F | | 194 | | | | |
| Ambient temperature | | °C | | -15 to +40 | | | | |
| | | F | | 5 to 104 | | | | |
| Lubrication | | | | Lubricated for life | | | | |
| Paint | | | | Blue RAL 5002 | | | | |
| Direction of rotation | | | | Motor and gearhead same direction | | | | |
| Protection class | | | | IP 65 | | | | |
| Moment of inertia (relates to the drive) | G | 24 | J_1 | kgcm ² | 9.47 | 7.85 | 6.39 | 5.54 |
| | | | | 10 ⁻² in.lb.s ² | 8.38 | 6.95 | 5.66 | 4.90 |
| Clamping hub diameter [mm] | I | 32 | J_1 | kgcm ² | 12.6 | 11.0 | 9.55 | 8.71 |
| | | | | 10 ⁻² in.lb.s ² | 11.1 | 9.74 | 8.45 | 7.70 |
| | K | 38 | J_1 | kgcm ² | 13.7 | 12.1 | 10.6 | 9.78 |
| | | | | 10 ⁻² in.lb.s ² | 12.1 | 10.7 | 9.38 | 8.65 |
| M | 48 | J_1 | kgcm ² | 28.3 | 26.7 | 25.3 | 24.4 | |
| | | | 10 ⁻² in.lb.s ² | 25.0 | 23.6 | 22.4 | 21.6 | |

Reduced mass moments of inertia available on request.

^{a)} Other ratios available on request

^{b)} For higher ambient temperatures, please reduce input speed

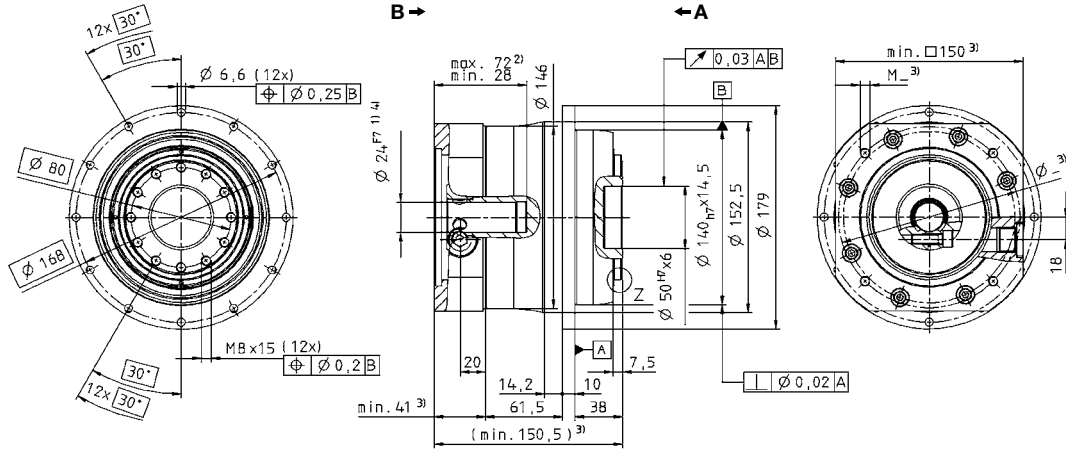
^{c)} Valid for clamping hub diameter of 32 and 38 mm

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

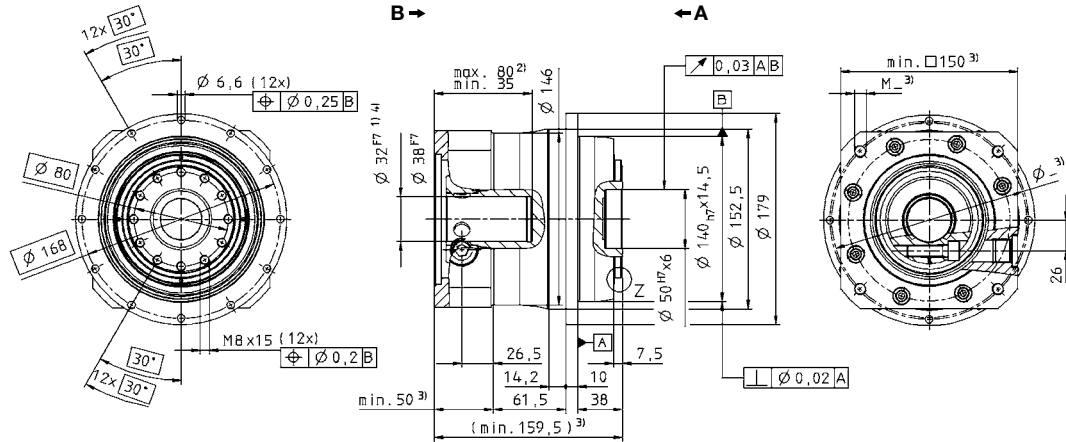
View A

View B

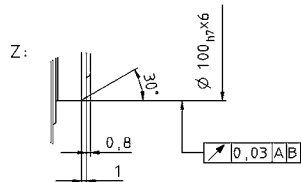
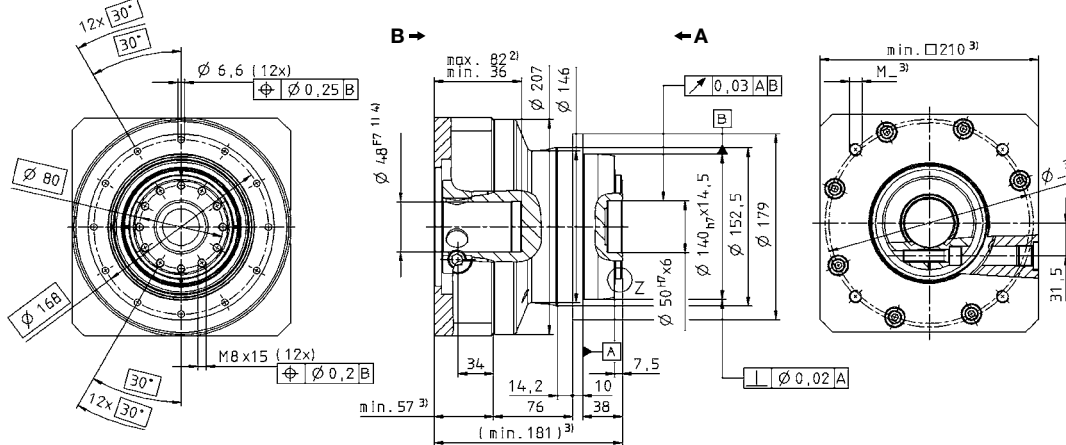
up to 24⁴⁾ (G)
clamping hub
diameter



up to 32/38⁴⁾ (L/K)
clamping hub
diameter



up to 48⁴⁾ (M)
clamping hub
diameter



Non-tolerated dimensions ± 1 mm

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

CAD data is available under www.wittenstein-alpha.com

Motor mounting according to operating manual

Motor shaft diameter [mm]

Planetary gearheads
High End

TP+

MF

TP+ 050 MF 2-stage

| | | | 2-stage | | | | | | | | | | | | | | |
|--|-------------|-----------------|--------------------------------------|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|
| Ratio ^{a)} | <i>i</i> | | 16 | 20 | 21 | 25 | 28 | 31 | 35 | 40 | 50 | 61 | 70 | 91 | 100 | | |
| cymex®-optimized acceleration torque (please contact us regarding the design) | T_{2Bcym} | Nm | 800 | 800 | – | 800 | 800 | – | 800 | 800 | 800 | – | – | – | 600 | | |
| | | in.lb | 7080 | 7080 | – | 7080 | 7080 | – | 7080 | 7080 | 7080 | – | – | – | 5310 | | |
| Max. acceleration torque (max. 1000 cycles per hour) | T_{2B} | Nm | 750 | 750 | 600 | 750 | 750 | 620 | 750 | 750 | 750 | 550 | 700 | 500 | 540 | | |
| | | in.lb | 6638 | 6638 | 5310 | 6638 | 6638 | 5487 | 6638 | 6638 | 6638 | 4868 | 6195 | 4425 | 4779 | | |
| Nominal output torque (with n_{2N}) | T_{2N} | Nm | 400 | 400 | 350 | 400 | 400 | 400 | 400 | 400 | 400 | 350 | 400 | 220 | 240 | | |
| | | in.lb | 3540 | 3540 | 3098 | 3540 | 3540 | 3540 | 3540 | 3540 | 3540 | 3098 | 3540 | 1947 | 2124 | | |
| Emergency stop torque (permitted 1000 times during the service life of the gearhead) | T_{2Not} | Nm | 1250 | 1250 | 1250 | 1250 | 1250 | 1250 | 1250 | 1250 | 1250 | 1250 | 1250 | 1250 | 1250 | | |
| | | in.lb | 11063 | 11063 | 11063 | 11063 | 11063 | 11063 | 11063 | 11063 | 11063 | 11063 | 11063 | 11063 | 11063 | | |
| Nominal input speed (with T_{2N} and 20 °C ambient temperature ^{b)}) | n_{1N} | rpm | 2900 | 2900 | 2900 | 2900 | 2900 | 2900 | 2900 | 2900 | 3200 | 3200 | 3200 | 3900 | 3900 | | |
| Max. input speed | n_{1Max} | rpm | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | | |
| Mean no load running torque (with $n_1=3000$ rpm and 20 °C gearhead temperature ^{c)}) | T_{012} | Nm | 4.2 | 3.4 | 3.3 | 3.1 | 2.5 | 2.4 | 2.3 | 1.8 | 1.7 | 1.5 | 1.5 | 1.4 | 1.3 | | |
| | | in.lb | 37.2 | 30.1 | 29.2 | 27.4 | 22.1 | 21.2 | 20.4 | 15.9 | 15.1 | 13.3 | 13.3 | 12.4 | 11.5 | | |
| Max. torsional backlash | j_t | arcmin | Standard ≤ 3 / Reduced ≤ 1 | | | | | | | | | | | | | | |
| Torsional rigidity ^{c)} | C_{t21} | Nm/ arcmin | 180 | 185 | 145 | 180 | 180 | 130 | 175 | 175 | 175 | 123 | 145 | 100 | 115 | | |
| | | in.lb/ arcmin | 1593 | 1637 | 1283 | 1593 | 1593 | 1151 | 1549 | 1549 | 1549 | 1089 | 1283 | 885 | 1018 | | |
| Tilting rigidity | C_{2K} | Nm/ arcmin | 560 | | | | | | | | | | | | | | |
| | | in.lb/ arcmin | 4956 | | | | | | | | | | | | | | |
| Max. axial force ^{d)} | F_{2AMax} | N | 6130 | | | | | | | | | | | | | | |
| | | lb _f | 1379 | | | | | | | | | | | | | | |
| Max. tilting moment | M_{2KMax} | Nm | 1335 | | | | | | | | | | | | | | |
| | | in.lb | 11815 | | | | | | | | | | | | | | |
| Efficiency at full load | η | % | 94 | | | | | | | | | | | | | | |
| Service life (For calculation, see the Chapter "Information") | L_h | h | > 20000 | | | | | | | | | | | | | | |
| Weight incl. standard adapter plate | m | kg | 14.1 | | | | | | | | | | | | | | |
| | | lb _m | 31.2 | | | | | | | | | | | | | | |
| Operating noise (with $i=100$ and $n_1=3000$ rpm no load) | L_{PA} | dB(A) | ≤ 63 | | | | | | | | | | | | | | |
| Max. permitted housing temperature | | °C | +90 | | | | | | | | | | | | | | |
| | | F | 194 | | | | | | | | | | | | | | |
| Ambient temperature | | °C | -15 to +40 | | | | | | | | | | | | | | |
| | | F | 5 to 104 | | | | | | | | | | | | | | |
| Lubrication | | | Lubricated for life | | | | | | | | | | | | | | |
| Paint | | | Blue RAL 5002 | | | | | | | | | | | | | | |
| Direction of rotation | | | Motor and gearhead same direction | | | | | | | | | | | | | | |
| Protection class | | | IP 65 | | | | | | | | | | | | | | |
| Moment of inertia (relates to the drive) | E | 19 | J_1 | kgcm ² | 2.53 | 2.07 | 2.30 | 2.01 | 1.67 | 2.12 | 1.64 | 1.44 | 1.42 | 1.46 | 1.41 | 1.43 | 1.40 |
| | | | | 10 ⁻² in.lb.s ² | 2.24 | 1.83 | 2.04 | 1.78 | 1.48 | 1.88 | 1.45 | 1.27 | 1.26 | 1.29 | 1.25 | 1.27 | 1.24 |
| Clamping hub diameter [mm] | G | 24 | J_1 | kgcm ² | 3.22 | 2.77 | 2.99 | 2.70 | 2.36 | 2.81 | 2.33 | 2.13 | 2.12 | 2.15 | 2.10 | 2.12 | 2.09 |
| | | | | 10 ⁻² in.lb.s ² | 2.85 | 2.45 | 2.65 | 2.39 | 2.09 | 2.49 | 2.06 | 1.89 | 1.88 | 1.90 | 1.86 | 1.88 | 1.85 |
| | K | 38 | J_1 | kgcm ² | 10.3 | 9.83 | 10.1 | 9.77 | 9.43 | 9.88 | 9.40 | 9.20 | 9.18 | 9.22 | 9.17 | 9.19 | 9.16 |
| | | | | 10 ⁻² in.lb.s ² | 9.11 | 8.70 | 8.94 | 8.64 | 8.35 | 8.74 | 8.32 | 8.14 | 8.12 | 8.16 | 8.12 | 8.13 | 8.11 |

Reduced mass moments of inertia available on request.

^{a)} Other ratios available on request

^{b)} For higher ambient temperatures, please reduce input speed

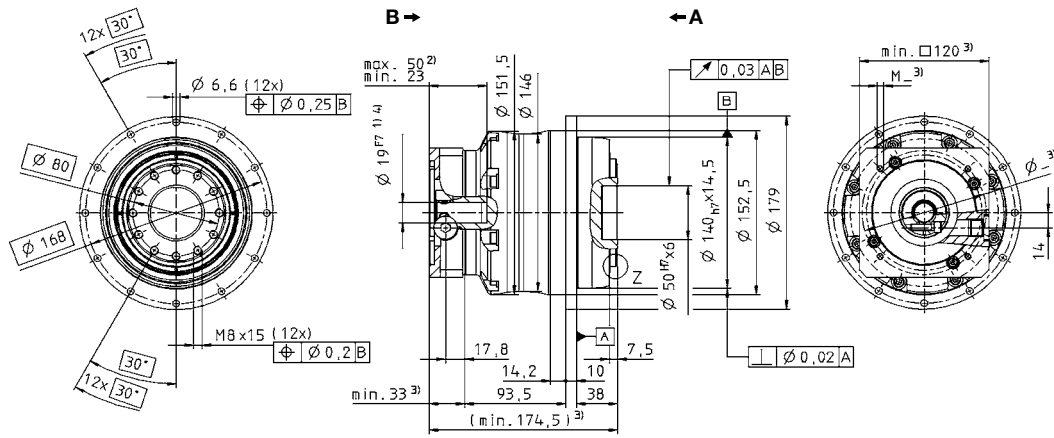
^{c)} Valid for clamping hub diameter of 24 mm

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

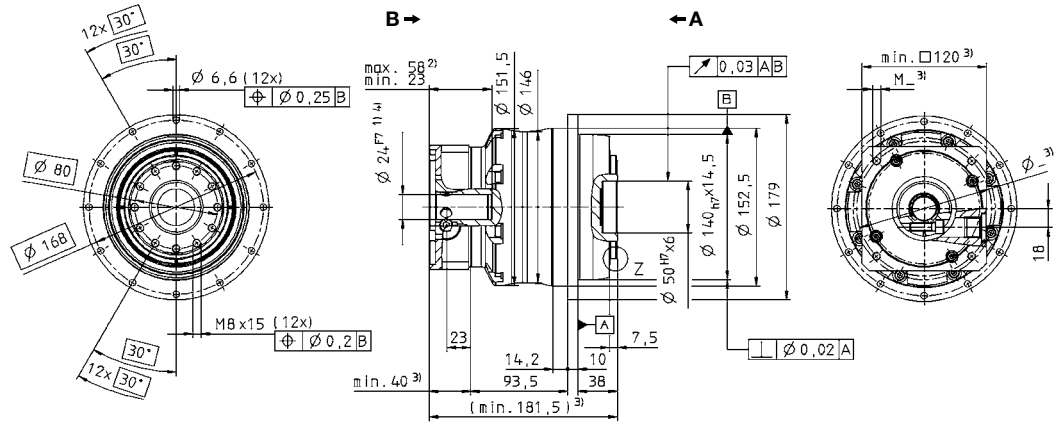
View A

View B

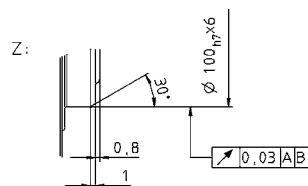
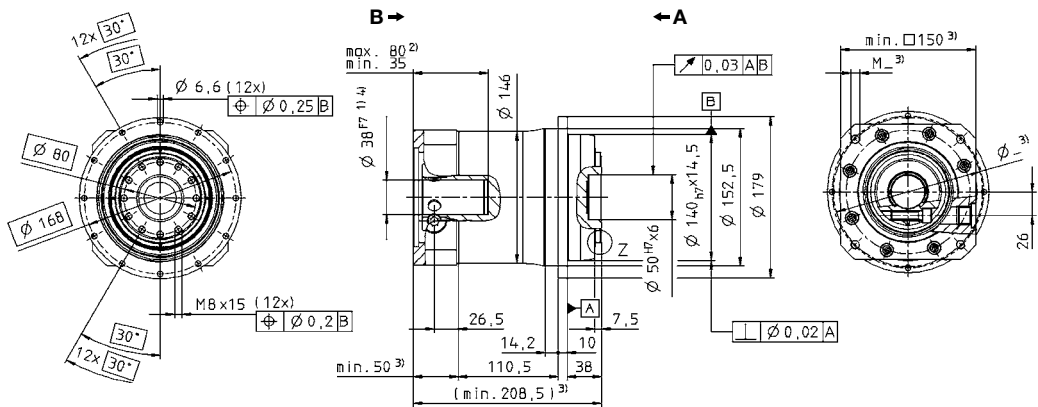
up to 19⁴⁾ (E)
clamping hub
diameter



up to 24⁴⁾ (G)
clamping hub
diameter



up to 38⁴⁾ (K)
clamping hub
diameter



Non-tolerated dimensions ± 1 mm

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

CAD data is available under www.wittenstein-alpha.com

Motor mounting according to operating manual

TP+ 110 MF 1-stage

| | | | | 1-stage | | | | |
|--|--------------|-----------------|-------|---------------------------------------|-------|-------|-------|------|
| Ratio ^{a)} | | <i>i</i> | | 4 | 5 | 7 | 10 | |
| cymex [®] -optimized acceleration torque (please contact us regarding the design) | T_{2Bcym} | Nm | | 1900 | 2000 | 1900 | 1500 | |
| | | in.lb | | 16815 | 17700 | 16815 | 13275 | |
| Max. acceleration torque (max. 1000 cycles per hour) | T_{2B} | Nm | | 1600 | 1600 | 1600 | 1400 | |
| | | in.lb | | 14160 | 14160 | 14160 | 12390 | |
| Nominal output torque (with n_m) | T_{2N} | Nm | | 700 | 750 | 750 | 750 | |
| | | in.lb | | 6195 | 6638 | 6638 | 6638 | |
| Emergency stop torque (permitted 1000 times during the service life of the gearhead) | T_{2Not} | Nm | | 2750 | 2750 | 2750 | 2750 | |
| | | in.lb | | 24338 | 24338 | 24338 | 24338 | |
| Nominal input speed (with T_{2N} and 20 °C ambient temperature ^{b)}) | n_{1N} | rpm | | 1400 | 1500 | 2000 | 2000 | |
| Max. input speed | n_{1Max} | rpm | | 3500 | 3500 | 3500 | 3500 | |
| Mean no load running torque (with $n_1=3000$ rpm and 20 °C gearhead temperature ^{c)}) | T_{012} | Nm | | 15.6 | 12.7 | 9.4 | 7.0 | |
| | | in.lb | | 138.1 | 112.4 | 83.2 | 62.0 | |
| Max. torsional backlash | j_t | arcmin | | Standard ≤ 3 / Reduced ≤ 1 | | | | |
| Torsional rigidity ^{c)} | C_{t21} | Nm/ arcmin | | 610 | 610 | 550 | 445 | |
| | | in.lb/ arcmin | | 5399 | 5399 | 4868 | 3938 | |
| Tilting rigidity | C_{2K} | Nm/ arcmin | | 1452 | | | | |
| | | in.lb/ arcmin | | 12850 | | | | |
| Max. axial force ^{d)} | F_{2AMax} | N | | 10050 | | | | |
| | | lb _f | | 2261 | | | | |
| Max. tilting moment | M_{2KMMax} | Nm | | 3280 | | | | |
| | | in.lb | | 29028 | | | | |
| Efficiency at full load | η | % | | 97 | | | | |
| Service life (For calculation, see the Chapter "Information") | L_h | h | | > 20000 | | | | |
| Weight incl. standard adapter plate | m | kg | | 30.0 | | | | |
| | | lb _m | | 66 | | | | |
| Operating noise (with $i=10$ and $n_1=3000$ rpm no load) | L_{PA} | dB(A) | | ≤ 66 | | | | |
| Max. permitted housing temperature | | °C | | +90 | | | | |
| | | F | | 194 | | | | |
| Ambient temperature | | °C | | -15 to +40 | | | | |
| | | F | | 5 to 104 | | | | |
| Lubrication | | | | Lubricated for life | | | | |
| Paint | | | | Blue RAL 5002 | | | | |
| Direction of rotation | | | | Motor and gearhead same direction | | | | |
| Protection class | | | | IP 65 | | | | |
| Moment of inertia (relates to the drive) | K | 38 | J_1 | kgcm ² | 44.5 | 34.6 | 25.5 | 20.6 |
| | | | | 10 ⁻² in.lb.s ² | 39.4 | 30.6 | 22.6 | 18.2 |
| Clamping hub diameter [mm] | M | 48 | J_1 | kgcm ² | 51.8 | 41.9 | 32.9 | 28.0 |
| | | | | 10 ⁻² in.lb.s ² | 45.8 | 37.1 | 29.1 | 24.8 |

Reduced mass moments of inertia available on request.

^{a)} Other ratios available on request

^{b)} For higher ambient temperatures, please reduce input speed

^{c)} Valid for clamping hub diameter of 48 mm

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

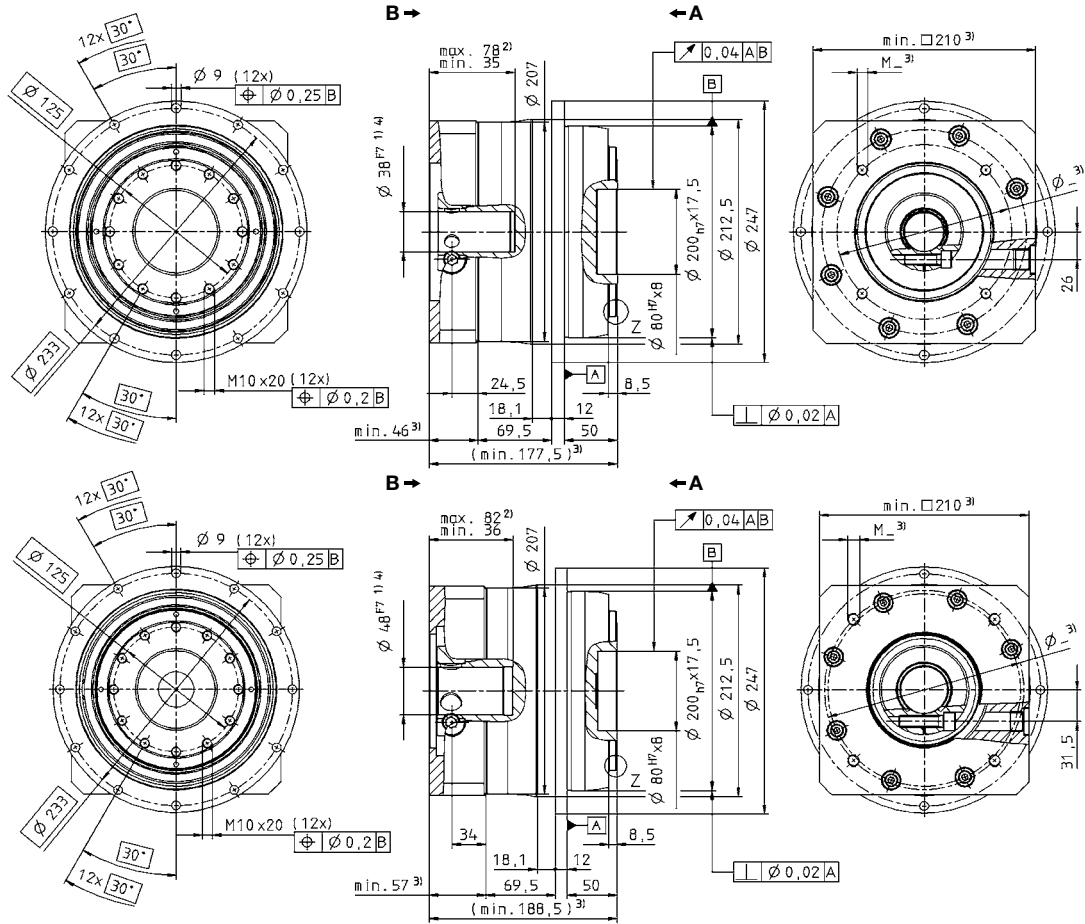
View A

View B

up to 38⁴⁾ (K)
clamping hub
diameter

Motor shaft diameter [mm]

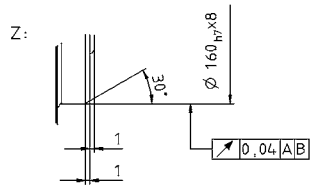
up to 48⁴⁾ (M)
clamping hub
diameter



Planetary gearheads
High End

TP+

MF



Non-tolerated dimensions ± 1 mm

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

CAD data is available under www.wittenstein-alpha.com

Motor mounting according to operating manual

TP+ 110 MF 2-stage

| | | 2-stage | | | | | | | | | | | | | | | |
|---|-------------|-----------------|---------------------------------------|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|
| Ratio ^{a)} | <i>i</i> | | 16 | 20 | 21 | 25 | 28 | 31 | 35 | 40 | 50 | 61 | 70 | 91 | 100 | | |
| cymex®-optimized acceleration torque (please contact us regarding the design) | T_{2Bcym} | Nm | 2000 | 2000 | – | 2000 | 2000 | – | 2000 | 1800 | 1800 | – | 1800 | – | 1500 | | |
| | | in.lb | 17700 | 17700 | – | 17700 | 17700 | – | 17700 | 15930 | 15930 | – | 15930 | – | 13275 | | |
| Max. acceleration torque (max. 1000 cycles per hour) | T_{2B} | Nm | 1600 | 1600 | 1400 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1400 | 1600 | 1300 | 1400 | | |
| | | in.lb | 14160 | 14160 | 12390 | 14160 | 14160 | 14160 | 14160 | 14160 | 14160 | 12390 | 14160 | 11505 | 12390 | | |
| Nominal output torque (with n_m) | T_{2N} | Nm | 980 | 980 | 850 | 1050 | 1050 | 1250 | 1250 | 850 | 1050 | 1100 | 900 | 700 | 800 | | |
| | | in.lb | 8673 | 8673 | 7523 | 9293 | 9293 | 11063 | 11063 | 7523 | 9293 | 9735 | 7965 | 6195 | 7080 | | |
| Emergency stop torque (permitted 1000 times during the service life of the gearhead) | T_{2Not} | Nm | 2750 | 2750 | 2750 | 2750 | 2750 | 2750 | 2750 | 2750 | 2750 | 2750 | 2750 | 2750 | 2750 | | |
| | | in.lb | 24338 | 24338 | 24338 | 24338 | 24338 | 24338 | 24338 | 24338 | 24338 | 24338 | 24338 | 24338 | 24338 | | |
| Nominal input speed (with T_{2N} and 20 °C ambient temperature) ^{b)} | n_{1N} | rpm | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2900 | 3200 | 3200 | 3400 | 3400 | | |
| Max. input speed ^{c)} | n_{1Max} | rpm | 4500 | 4500 | 4500 | 4500 | 4500 | 4500 | 4500 | 4500 | 4500 | 4500 | 4500 | 4500 | 4500 | | |
| Mean no load running torque (with $n_1=3000$ rpm and 20 °C gearhead temperature) ^{c)} | T_{012} | Nm | 6.9 | 5.6 | 5.5 | 5.0 | 4.1 | 3.9 | 3.7 | 3.0 | 2.7 | 2.5 | 2.4 | 2.2 | 2.2 | | |
| | | in.lb | 61.1 | 49.6 | 48.7 | 44.3 | 36.3 | 34.5 | 32.7 | 26.6 | 23.9 | 22.1 | 21.2 | 19.5 | 19.5 | | |
| Max. torsional backlash | j_t | arcmin | Standard ≤ 3 / Reduced ≤ 1 | | | | | | | | | | | | | | |
| Torsional rigidity ^{c)} | C_{t21} | Nm/ arcmin | 585 | 580 | 465 | 570 | 560 | 440 | 560 | 520 | 525 | 415 | 480 | 360 | 395 | | |
| | | in.lb/ arcmin | 5177 | 5133 | 4115 | 5045 | 4956 | 3894 | 4956 | 4602 | 4646 | 3673 | 4248 | 3186 | 3496 | | |
| Tilting rigidity | C_{2K} | Nm/ arcmin | 1452 | | | | | | | | | | | | | | |
| | | in.lb/ arcmin | 12850 | | | | | | | | | | | | | | |
| Max. axial force ^{d)} | F_{2AMax} | N | 10050 | | | | | | | | | | | | | | |
| | | lb _f | 2261 | | | | | | | | | | | | | | |
| Max. tilting moment | M_{2KMax} | Nm | 3280 | | | | | | | | | | | | | | |
| | | in.lb | 29028 | | | | | | | | | | | | | | |
| Efficiency at full load | η | % | 94 | | | | | | | | | | | | | | |
| Service life (For calculation, see the Chapter "Information") | L_h | h | > 20000 | | | | | | | | | | | | | | |
| Weight incl. standard adapter plate | m | kg | 34.0 | | | | | | | | | | | | | | |
| | | lb _m | 75.1 | | | | | | | | | | | | | | |
| Operating noise (with $i=100$ and $n_1=3000$ rpm no load) | L_{PA} | dB(A) | ≤ 66 | | | | | | | | | | | | | | |
| Max. permitted housing temperature | | °C | +90 | | | | | | | | | | | | | | |
| | | F | 194 | | | | | | | | | | | | | | |
| Ambient temperature | | °C | -15 to +40 | | | | | | | | | | | | | | |
| | | F | 5 to 104 | | | | | | | | | | | | | | |
| Lubrication | | | Lubricated for life | | | | | | | | | | | | | | |
| Paint | | | Blue RAL 5002 | | | | | | | | | | | | | | |
| Direction of rotation | | | Motor and gearhead same direction | | | | | | | | | | | | | | |
| Protection class | | | IP 65 | | | | | | | | | | | | | | |
| Moment of inertia (relates to the drive) | G | 24 | J_1 | kgcm ² | 8.51 | 8.21 | 8.98 | 7.82 | 6.57 | 8.09 | 6.37 | 5.63 | 5.54 | 5.63 | 5.44 | 5.50 | 5.39 |
| | | | | 10 ⁻² in.lb.s ² | 7.53 | 7.27 | 7.95 | 6.92 | 5.81 | 7.16 | 5.64 | 4.99 | 4.90 | 4.99 | 4.82 | 4.87 | 4.77 |
| Clamping hub diameter [mm] | I | 32 | J_1 | kgcm ² | 11.7 | 11.4 | 12.1 | 11.0 | 9.73 | 11.3 | 9.54 | 8.80 | 8.70 | 8.79 | 8.61 | 8.67 | 8.56 |
| | | | | 10 ⁻² in.lb.s ² | 10.3 | 10.1 | 10.7 | 9.72 | 8.61 | 9.96 | 8.44 | 7.78 | 7.70 | 7.78 | 7.62 | 7.67 | 7.57 |
| | K | 38 | J_1 | kgcm ² | 12.7 | 12.5 | 13.2 | 12.1 | 10.8 | 12.3 | 10.6 | 9.87 | 9.77 | 9.87 | 9.68 | 9.74 | 9.63 |
| | | | | 10 ⁻² in.lb.s ² | 11.3 | 11.0 | 11.7 | 10.7 | 9.6 | 10.9 | 9.39 | 8.73 | 8.65 | 8.73 | 8.56 | 8.62 | 8.52 |
| M | 48 | J_1 | kgcm ² | 27.4 | 27.1 | 27.8 | 26.7 | 25.4 | 26.9 | 25.3 | 24.5 | 24.4 | 24.5 | 24.3 | 24.4 | 24.3 | |
| | | | 10 ⁻² in.lb.s ² | 24.2 | 24.0 | 24.6 | 23.6 | 22.5 | 23.8 | 22.3 | 21.7 | 21.6 | 21.7 | 21.5 | 21.6 | 21.5 | |

Reduced mass moments of inertia available on request.

^{a)} Other ratios available on request

^{b)} For higher ambient temperatures, please reduce input speed

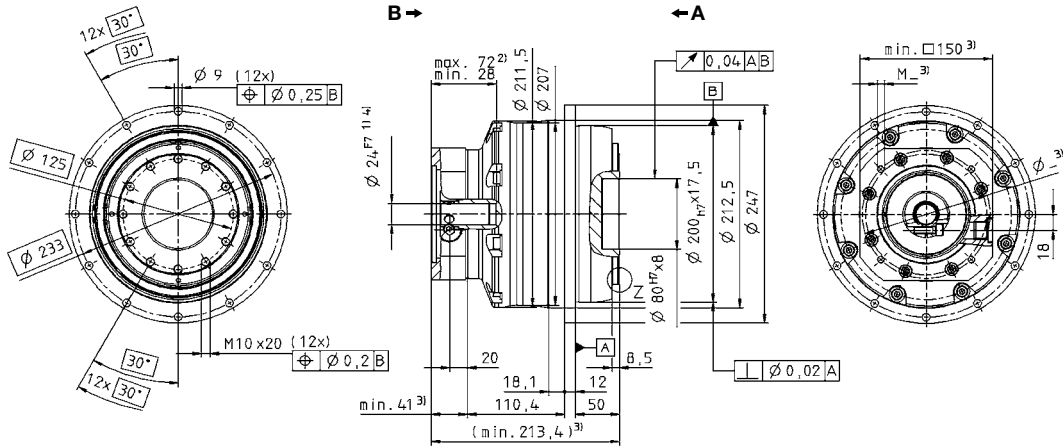
^{c)} Valid for clamping hub diameter of 32 and 38 mm

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

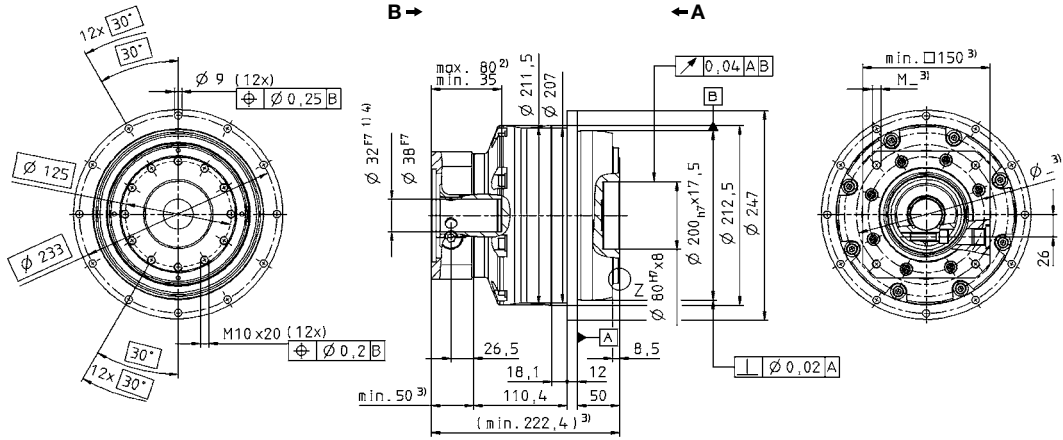
View A

View B

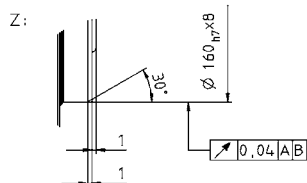
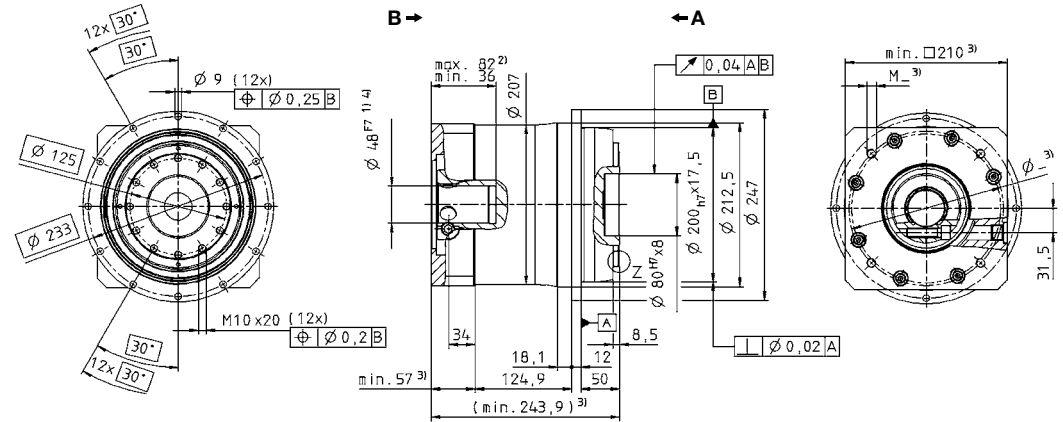
up to 24⁴⁾ (G)
clamping hub
diameter



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



up to 48⁴⁾ (M)
clamping hub
diameter



Non-tolerated dimensions ± 1 mm

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

CAD data is available under www.wittenstein-alpha.com

Motor mounting according to operating manual

Planetary gearheads
High End

TP+

MF

TP+ 300 MF 1/2-stage

| | | 1-stage | | | 2-stage | | | | | | | | | | | | |
|---|-------------|-----------------|--------------------------------------|--------------------------------------|---------|--------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|
| Ratio ^{a)} | <i>i</i> | 5 | 7 | 10 | 20 | 21 | 25 | 31 | 35 | 50 | 61 | 70 | 91 | 100 | | | |
| Max. acceleration torque (max. 1000 cycles per hour) | T_{2B} | Nm | 3500 | 3300 | 1900 | 3500 | 3400 | 3500 | 3500 | 3500 | 3000 | 2800 | 3300 | 2800 | 2800 | | |
| | | in.lb | 30975 | 29205 | 16815 | 30975 | 30090 | 30975 | 30975 | 30975 | 26550 | 24780 | 29205 | 24780 | 24780 | | |
| Nominal output torque (with n_{1N}) | T_{2N} | Nm | 2200 | 1800 | 1000 | 2300 | 2100 | 2400 | 2200 | 2500 | 1900 | 1600 | 1800 | 1600 | 1600 | | |
| | | in.lb | 19470 | 15930 | 8850 | 20355 | 18585 | 21240 | 19470 | 22125 | 16815 | 14160 | 15930 | 14160 | 14160 | | |
| Emergency stop torque (permitted 1000 times during the service life of the gearhead) | T_{2Not} | Nm | 8750 | 8750 | 8750 | 8750 | 8750 | 8750 | 8750 | 8750 | 8750 | 8750 | 8750 | 8750 | 8750 | | |
| | | in.lb | 77438 | 77438 | 77438 | 77438 | 77438 | 77438 | 77438 | 77438 | 77438 | 77438 | 77438 | 77438 | 77438 | | |
| Nominal input speed (with T_{2N} and 20 °C ambient temperature) ^{b)} | n_{1N} | rpm | 1000 | 1400 | 1700 | 2000 | 2000 | 2000 | 2000 | 2000 | 2300 | 2400 | 2400 | 2500 | 2500 | | |
| Max. input speed | n_{1Max} | rpm | 2500 | 2500 | 2500 | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | | |
| Mean no load running torque (with $n_1=2000$ rpm and 20 °C gearhead temperature) | T_{012} | Nm | 23 | 17 | 11 | 10 | 9,5 | 9,0 | 7,0 | 6,0 | 5,0 | 4,0 | 4,0 | 3,5 | 3,5 | | |
| | | in.lb | 204 | 150 | 97 | 89 | 84 | 80 | 62 | 53 | 44 | 35 | 35 | 31 | 31 | | |
| Max. torsional backlash | j_t | arcmin | Standard ≤ 3 / Reduced ≤ 1 | | | Standard ≤ 3 / Reduced ≤ 2 | | | | | | | | | | | |
| Torsional rigidity | C_{t21} | Nm/arcmin | 1000 | 900 | 700 | 850 | 800 | 950 | 750 | 900 | 800 | 700 | 800 | 600 | 650 | | |
| | | in.lb/arcmin | 8850 | 7965 | 6195 | 7523 | 7080 | 9408 | 6638 | 7965 | 7080 | 6195 | 7080 | 5310 | 5753 | | |
| Tilting rigidity | C_{2K} | Nm/arcmin | 5560 | | | | | | | | | | | | | | |
| | | in.lb/arcmin | 49206 | | | | | | | | | | | | | | |
| Max. axial force ^{c)} | F_{2AMax} | N | 33000 | | | | | | | | | | | | | | |
| | | lb _f | 7425 | | | | | | | | | | | | | | |
| Max. tilting moment | M_{2KMax} | Nm | 3900 | | | 5900 | | | | | | | | | | | |
| | | in.lb | 34515 | | | 52215 | | | | | | | | | | | |
| Efficiency at full load | η | % | 95 | | | 93 | | | | | | | | | | | |
| Service life (For calculation, see the Chapter "Information") | L_h | h | > 20000 | | | | | | | | | | | | | | |
| Weight incl. standard adapter plate | m | kg | 60 | | | 58.5 | | | | | | | | | | | |
| | | lb _m | 132.6 | | | 129.3 | | | | | | | | | | | |
| Operating noise (with $i=10$ and $n_1=2000$ rpm without load) | 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 | | | | | | | | | | | | | | |
| Paint | | | Blue RAL 5002 | | | | | | | | | | | | | | |
| Direction of rotation | | | Motor and gearhead same direction | | | | | | | | | | | | | | |
| Protection class | | | IP 65 | | | | | | | | | | | | | | |
| Moment of inertia (relates to the drive) | M | 48 | J_I | kgcm ² | - | - | - | 27.5 | 27.0 | 25.9 | 25.6 | 22.4 | 21.5 | 21.4 | 21.3 | 21.2 | 21.2 |
| | | | | 10 ² in.lb.s ² | - | - | - | 24.3 | 23.9 | 22.9 | 22.7 | 19.8 | 19.0 | 18.9 | 18.9 | 18.8 | 18.8 |
| Clamping hub diameter [mm] | N | 55 | J_I | kgcm ² | 82.6 | 61.2 | 49.5 | - | - | - | - | - | - | - | - | - | - |
| | | | | 10 ² in.lb.s ² | 73.1 | 54.2 | 43.8 | - | - | - | - | - | - | - | - | - | - |

Reduced mass moments of inertia available on request.

^{a)} Other ratios available on request

^{b)} For higher ambient temperatures, please reduce input speed

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

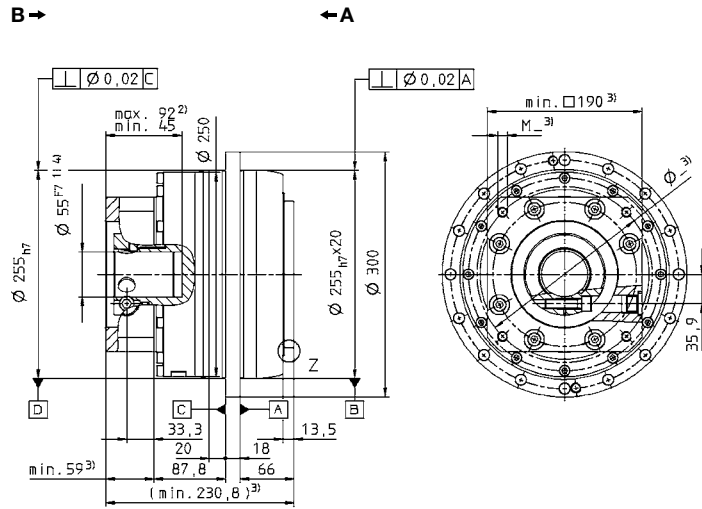
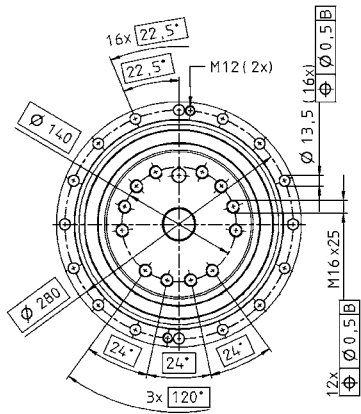
View A

View B

Motor shaft diameter [mm]

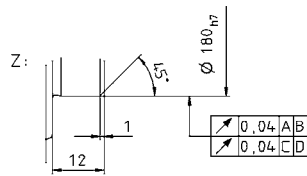
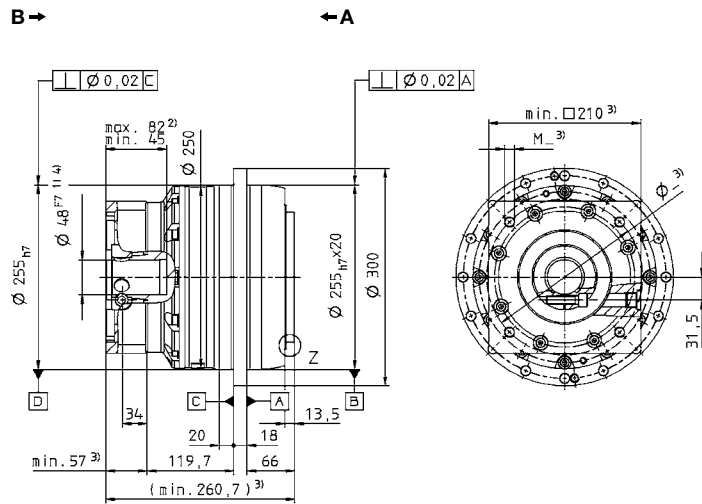
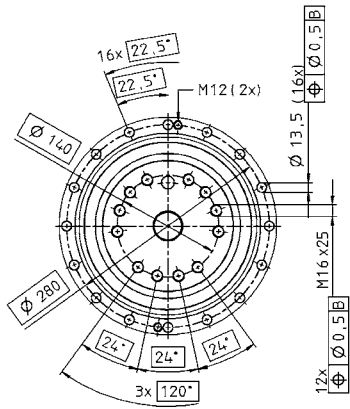
up to 55⁴⁾ (N)
clamping hub diameter

1-stage:



2-stage:

up to 48⁴⁾ (M)
clamping hub diameter



Non-tolerated dimensions $\pm 1,5$ mm

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

CAD data is available under www.wittenstein-alpha.com

Motor mounting according to operating manual

Planetary gearheads
High End

TP+
MF

TP+ 500 MF 1/2-stage

| | | 1-stage | | | 2-stage | | | | | | | | | | | | |
|---|-------------|-----------------|--------------------------------------|---------------------------------------|---------|--------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------|------|
| Ratio ^{a)} | <i>i</i> | 5 | 7 | 10 | 20 | 21 | 25 | 31 | 35 | 50 | 61 | 70 | 91 | 100 | | | |
| Max. acceleration torque (max. 1000 cycles per hour) | T_{2B} | Nm | 6000 | 5000 | 3400 | 6000 | 5000 | 6000 | 6000 | 6000 | 4500 | 4800 | 5000 | 4800 | 4800 | | |
| | | in.lb | 53100 | 44250 | 30090 | 53100 | 44250 | 53100 | 53100 | 53100 | 39825 | 42480 | 44250 | 42480 | 42480 | | |
| Nominal output torque (with n_m) | T_{2N} | Nm | 3250 | 2800 | 1700 | 3350 | 3200 | 3800 | 3700 | 3800 | 2900 | 2900 | 2800 | 2900 | 2900 | | |
| | | in.lb | 28763 | 24780 | 15045 | 29648 | 28320 | 33630 | 32745 | 33630 | 25665 | 25665 | 24780 | 25665 | 25665 | | |
| Emergency stop torque (permitted 1000 times during the service life of the gearhead) | T_{2Not} | Nm | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 | | |
| | | in.lb | 132750 | 132750 | 132750 | 132750 | 132750 | 132750 | 132750 | 132750 | 132750 | 132750 | 132750 | 132750 | 132750 | | |
| Nominal input speed (with T_{2N} and 20 °C ambient temperature) ^{b)} | n_{1N} | rpm | 900 | 1300 | 1500 | 1500 | 1500 | 1500 | 1500 | 2000 | 2100 | 2100 | 2200 | 2200 | | | |
| Max. input speed | n_{1Max} | rpm | 2500 | 2500 | 2500 | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | | | |
| Mean no load running torque (with $n_1=2000$ rpm and 20 °C gearhead temperature) | T_{012} | Nm | 30 | 22 | 14 | 13 | 12 | 10 | 8,0 | 7,0 | 6,0 | 5,0 | 5,0 | 4,5 | 4,5 | | |
| | | in.lb | 266 | 195 | 124 | 115 | 106 | 89 | 71 | 62 | 53 | 44 | 44 | 40 | 40 | | |
| Max. torsional backlash | j_t | arcmin | Standard ≤ 3 / Reduced ≤ 1 | | | Standard ≤ 3 / Reduced ≤ 2 | | | | | | | | | | | |
| Torsional rigidity | C_{t21} | Nm/arcmin | 1450 | 1300 | 1100 | 1400 | 1200 | 1450 | 1200 | 1400 | 1300 | 1100 | 1250 | 950 | 1050 | | |
| | | in.lb/arcmin | 12833 | 11505 | 9735 | 12390 | 10620 | 12833 | 10620 | 12390 | 11505 | 9735 | 11063 | 8401 | 9293 | | |
| Tilting rigidity | C_{2K} | Nm/arcmin | 9480 | | | | | | | | | | | | | | |
| | | in.lb/arcmin | 83898 | | | | | | | | | | | | | | |
| Max. axial force ^{c)} | F_{2AMax} | N | 50000 | | | | | | | | | | | | | | |
| | | lb _f | 11250 | | | | | | | | | | | | | | |
| Max. tilting moment | M_{2KMax} | Nm | 5500 | | | 8800 | | | | | | | | | | | |
| | | in.lb | 48675 | | | 77880 | | | | | | | | | | | |
| Efficiency at full load | η | % | 95 | | | 93 | | | | | | | | | | | |
| Service life (For calculation, see the Chapter "Information") | L_h | h | > 20000 | | | | | | | | | | | | | | |
| Weight incl. standard adapter plate | <i>m</i> | kg | 82 | | | 77.5 | | | | | | | | | | | |
| | | lb _m | 181.2 | | | 171.3 | | | | | | | | | | | |
| Operating noise (with $i=10$ and $n_1=2000$ rpm no load) | L_{PA} | dB(A) | ≤ 66 | | | | | | | | | | | | | | |
| Max. permitted housing temperature | | °C | +90 | | | | | | | | | | | | | | |
| | | F | 194 | | | | | | | | | | | | | | |
| Ambient temperature | | °C | -15 to +40 | | | | | | | | | | | | | | |
| | | F | 5 to 104 | | | | | | | | | | | | | | |
| Lubrication | | | Lubricated for life | | | | | | | | | | | | | | |
| Paint | | | Blue RAL 5002 | | | | | | | | | | | | | | |
| Direction of rotation | | | Motor and gearhead same direction | | | | | | | | | | | | | | |
| Protection class | | | IP 65 | | | | | | | | | | | | | | |
| Moment of inertia (relates to the drive) | M | 48 | J_1 | kgcm ² | - | - | - | 32.3 | 37.6 | 31.1 | 32.8 | 25.1 | 23.2 | 23.6 | 23.2 | 23.0 | 22.7 |
| | | | | 10 ⁻² in.lb.s ² | - | - | - | 28.6 | 33.3 | 27.5 | 29.0 | 22.2 | 20.5 | 20.9 | 20.5 | 20.4 | 20.1 |
| Clamping hub diameter [mm] | O | 60 | J_1 | kgcm ² | 175.5 | 137.0 | 115.8 | - | - | - | - | - | - | - | - | - | - |
| | | | | 10 ⁻¹ in.lb.s ² | 155.3 | 121.2 | 102.5 | - | - | - | - | - | - | - | - | - | - |

Reduced mass moments of inertia available on request.

^{a)} Other ratios available on request

^{b)} For higher ambient temperatures, please reduce input speed

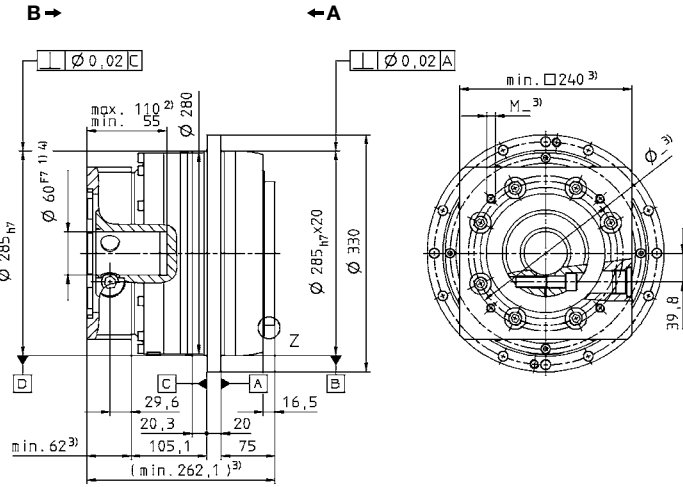
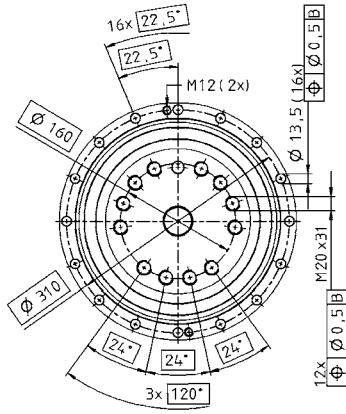
^{c)} Refers to center of the output shaft or flange

View A

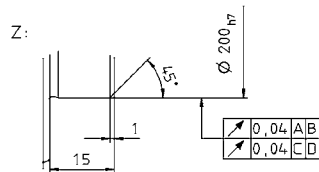
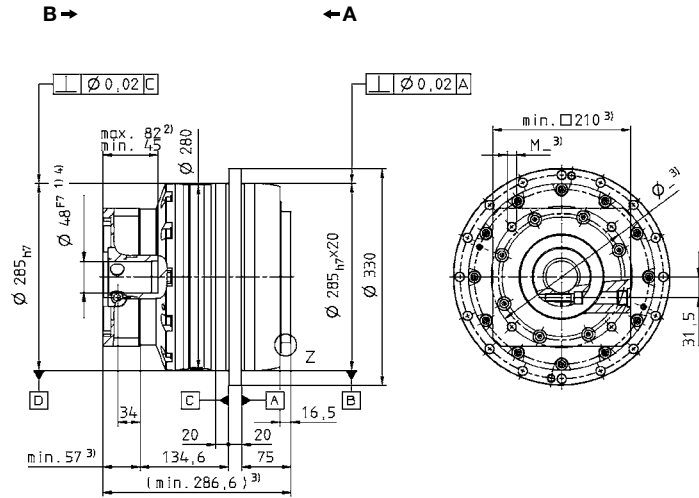
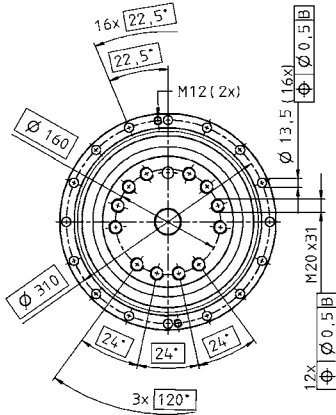
View B

Motor shaft diameter [mm]

1-stage:



2-stage:



up to 60⁴⁾ (O)
clamping hub
diameter

up to 48⁴⁾ (M)
clamping hub
diameter

Non-tolerated dimensions ±1,5 mm

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

CAD data is available under www.wittenstein-alpha.com

Motor mounting according to operating manual

Planetary gearheads
High End

TP+
MF

TP+ 010 MA HIGH TORQUE

| | | 2-stage | | | | 3-stage | | | | | | |
|---|-----------------------------------|-----------------|------------|--------------------------------------|------|---------|---------|------|------|------|------|------|
| Ratio ^{a)} | <i>i</i> | 22 | 27.5 | 38.5 | 55 | 88 | 110 | 154 | 220 | | | |
| Max. acceleration torque (max. 1000 cycles per hour) | T_{2B} | Nm | 230 | 230 | 230 | 230 | 230 | 230 | 230 | | | |
| | | in.lb | 2036 | 2036 | 2036 | 2036 | 2036 | 2036 | 2036 | | | |
| Nominal output torque (with n_m) | T_{2N} | Nm | 150 | 150 | 180 | 110 | 180 | 180 | 180 | | | |
| | | in.lb | 1328 | 1328 | 1593 | 974 | 1593 | 1593 | 1593 | | | |
| Emergency stop torque (permitted 1000 times during the service life of the gearhead) | T_{2Not} | Nm | 525 | 525 | 525 | 525 | 525 | 525 | 525 | | | |
| | | in.lb | 4646 | 4646 | 4646 | 4646 | 4646 | 4646 | 4646 | | | |
| Nominal input speed (with T_{2N} and 20 °C ambient temperature) ^{b)} | n_{1N} | rpm | 4000 | 4000 | 4000 | 4000 | 4500 | 4500 | 4500 | | | |
| Max. input speed | n_{1Max} | rpm | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | | | |
| Mean no load running torque (with $n_1=3000$ rpm and 20 °C gearhead temperature) ^{c)} | T_{012} | Nm | 0.60 | 0.50 | 0.45 | 0.35 | 0.35 | 0.35 | 0.30 | | | |
| | | in.lb | 5.30 | 4.40 | 4.00 | 3.10 | 3.10 | 3.10 | 2.70 | | | |
| Max. torsional backlash | j_t | arcmin | ≤ 1 | | | | ≤ 1 | | | | | |
| Torsional rigidity ^{c)} | C_{t21} | Nm/ arcmin | 43 | 43 | 43 | 42 | 42 | 42 | 42 | | | |
| | | in.lb/ arcmin | 381 | 381 | 381 | 372 | 372 | 372 | 372 | | | |
| Tilting rigidity | C_{2K} | Nm/ arcmin | 225 | | | | 225 | | | | | |
| | | in.lb/ arcmin | 1991 | | | | 1991 | | | | | |
| Max. axial force ^{d)} | F_{2AMax} | N | 2150 | | | | 2150 | | | | | |
| | | lb _f | 484 | | | | 484 | | | | | |
| Max. tilting moment | M_{2KMax} | Nm | 400 | | | | 400 | | | | | |
| | | in.lb | 3540 | | | | 3540 | | | | | |
| Efficiency at full load | η | % | 94 | | | | 92 | | | | | |
| Service life (For calculation, see the Chapter "Information") | L_h | h | > 20000 | | | | > 20000 | | | | | |
| Weight incl. standard adapter plate | <i>m</i> | kg | 3.2 | | | | 3.6 | | | | | |
| | | lb _m | 7.1 | | | | 8.0 | | | | | |
| Operating noise (with $n_1=3000$ rpm no load) | L_{PA} | dB(A) | ≤ 60 | | | | ≤ 60 | | | | | |
| Max. permitted housing temperature | °C | | +90 | | | | | | | | | |
| | F | | 194 | | | | | | | | | |
| Ambient temperature | °C | | -15 to +40 | | | | | | | | | |
| | F | | 5 to 104 | | | | | | | | | |
| Lubrication | Lubricated for life | | | | | | | | | | | |
| Paint | Blue RAL 5002 | | | | | | | | | | | |
| Direction of rotation | Motor and gearhead same direction | | | | | | | | | | | |
| Protection class | IP 65 | | | | | | | | | | | |
| Moment of inertia (relates to the drive) | C | 14 | J_I | kgcm ² | 0.21 | 0.18 | 0.16 | 0.14 | 0.16 | 0.15 | 0.14 | 0.13 |
| | | | | 10 ² in.lb.s ² | 0.19 | 0.16 | 0.14 | 0.12 | 0.14 | 0.13 | 0.12 | 0.12 |
| Clamping hub diameter [mm] | E | 19 | J_I | kgcm ² | 0.52 | 0.50 | 0.47 | 0.46 | - | - | - | - |
| | | | | 10 ² in.lb.s ² | 0.46 | 0.44 | 0.42 | 0.41 | - | - | - | - |

Reduced mass moments of inertia available on request.

^{a)} Other ratios available on request

^{b)} For higher ambient temperatures, please reduce input speed

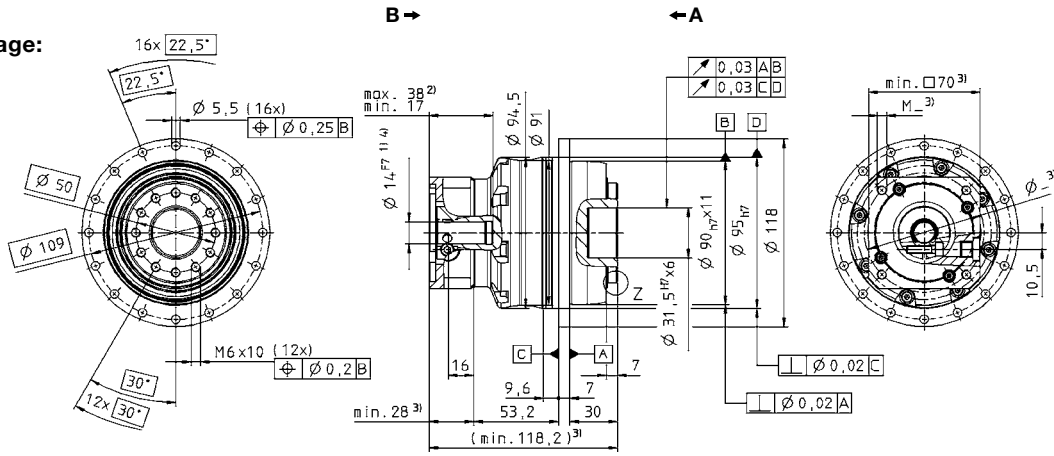
^{c)} Valid for clamping hub diameter of 14 mm

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

View A

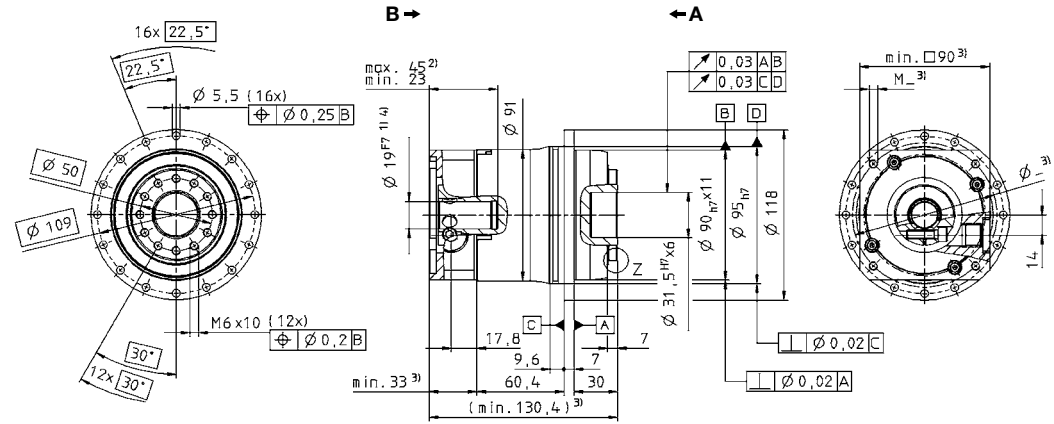
View B

2-stage:



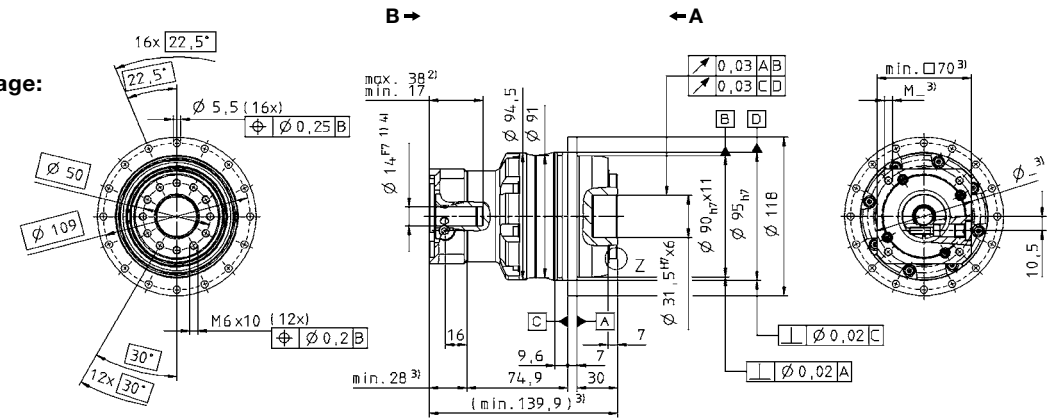
up to 14⁴⁾(C)
clamping hub
diameter

2-stage:

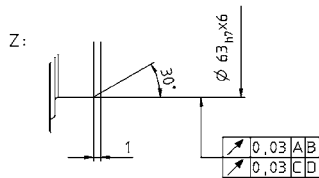


up to 19⁴⁾(E)
clamping hub
diameter

3-stage:



up to 14⁴⁾(C)
clamping hub
diameter



Non-tolerated dimensions ±1 mm

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

CAD data is available under www.wittenstein-alpha.com

Motor mounting according to operating manual

Motor shaft diameter [mm]

Planetary gearheads
High End

TP+

MA

TP+ 025 MA HIGH TORQUE

| | | 2-stage | | | | 3-stage | | | | | | | |
|---|-----------------------------------|-----------------|------------|---------------------------------------|-------|---------|---------|-------|-------|-------|-------|------|------|
| Ratio ^{a)} | <i>i</i> | | 22 | 27.5 | 38.5 | 55 | 66 | 88 | 110 | 154 | 220 | | |
| Max. acceleration torque (max. 1000 cycles per hour) | T_{2B} | Nm | 530 | 530 | 530 | 530 | 480 | 480 | 480 | 480 | 480 | | |
| | | in.lb | 4691 | 4691 | 4691 | 4691 | 4248 | 4248 | 4248 | 4248 | 4248 | | |
| Nominal output torque (with n_m) | T_{2N} | Nm | 320 | 350 | 375 | 375 | 260 | 260 | 260 | 260 | 260 | | |
| | | in.lb | 2832 | 3098 | 3319 | 3319 | 2301 | 2301 | 2301 | 2301 | 2301 | | |
| Emergency stop torque (permitted 1000 times during the service life of the gearhead) | T_{2Not} | Nm | 1200 | 1200 | 1200 | 1200 | 1200 | 1200 | 1200 | 1200 | 1200 | | |
| | | in.lb | 10620 | 10620 | 10620 | 10620 | 10620 | 10620 | 10620 | 10620 | 10620 | | |
| Nominal input speed (with T_{2N} and 20 °C ambient temperature) ^{b)} | n_{1N} | rpm | 3500 | 3500 | 3500 | 3500 | 4000 | 4000 | 4000 | 4000 | 4000 | | |
| Max. input speed | n_{1Max} | rpm | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | | |
| Mean no load running torque (with $n_1=3000$ rpm and 20 °C gearhead temperature) ^{c)} | T_{012} | Nm | 1.1 | 1.0 | 0.8 | 0.6 | 0.7 | 0.7 | 0.6 | 0.4 | 0.4 | | |
| | | in.lb | 9.7 | 8.9 | 7.1 | 5.3 | 6.2 | 6.2 | 5.3 | 3.5 | 3.5 | | |
| Max. torsional backlash | j_t | arcmin | ≤ 1 | | | | ≤ 1 | | | | | | |
| Torsional rigidity ^{c)} | C_{t21} | Nm/ arcmin | 105 | 105 | 105 | 100 | 95 | 95 | 95 | 95 | 95 | | |
| | | in.lb/ arcmin | 929 | 929 | 929 | 885 | 841 | 841 | 841 | 841 | 841 | | |
| Tilting rigidity | C_{2K} | Nm/ arcmin | 550 | | | | 550 | | | | | | |
| | | in.lb/ arcmin | 4868 | | | | 4868 | | | | | | |
| Max. axial force ^{d)} | F_{2AMax} | N | 4150 | | | | 4150 | | | | | | |
| | | lb _f | 934 | | | | 934 | | | | | | |
| Max. tilting moment | M_{2KMax} | Nm | 550 | | | | 550 | | | | | | |
| | | in.lb | 4868 | | | | 4868 | | | | | | |
| Efficiency at full load | η | % | 94 | | | | 92 | | | | | | |
| Service life (For calculation, see the Chapter "Information") | L_h | h | > 20000 | | | | > 20000 | | | | | | |
| Weight incl. standard adapter plate | <i>m</i> | kg | 5.6 | | | | 6.1 | | | | | | |
| | | lb _m | 12.4 | | | | 13.5 | | | | | | |
| Operating noise (with $n_1=3000$ rpm no load) | L_{PA} | dB(A) | ≤ 62 | | | | ≤ 62 | | | | | | |
| Max. permitted housing temperature | °C | | +90 | | | | | | | | | | |
| | F | | 194 | | | | | | | | | | |
| Ambient temperature | °C | | -15 to +40 | | | | | | | | | | |
| | F | | 5 to 104 | | | | | | | | | | |
| Lubrication | Lubricated for life | | | | | | | | | | | | |
| Paint | Blue RAL 5002 | | | | | | | | | | | | |
| Direction of rotation | Motor and gearhead same direction | | | | | | | | | | | | |
| Protection class | IP 65 | | | | | | | | | | | | |
| Moment of inertia (relates to the drive) | E | 19 | J_I | kgcm ² | 0.87 | 0.70 | 0.60 | 0.55 | 0.63 | 0.56 | 0.53 | 0.51 | 0.50 |
| | | | | 10 ⁻² in.lb.s ² | 0.77 | 0.62 | 0.53 | 0.49 | 0.56 | 0.50 | 0.47 | 0.45 | 0.44 |
| Clamping hub diameter [mm] | G | 24 | J_I | kgcm ² | 2.39 | 2.22 | 2.12 | 2.07 | - | - | - | - | - |
| | | | | 10 ⁻² in.lb.s ² | 2.12 | 1.96 | 1.88 | 1.83 | - | - | - | - | - |

Reduced mass moments of inertia available on request.

^{a)} Other ratios available on request

^{b)} For higher ambient temperatures, please reduce input speed

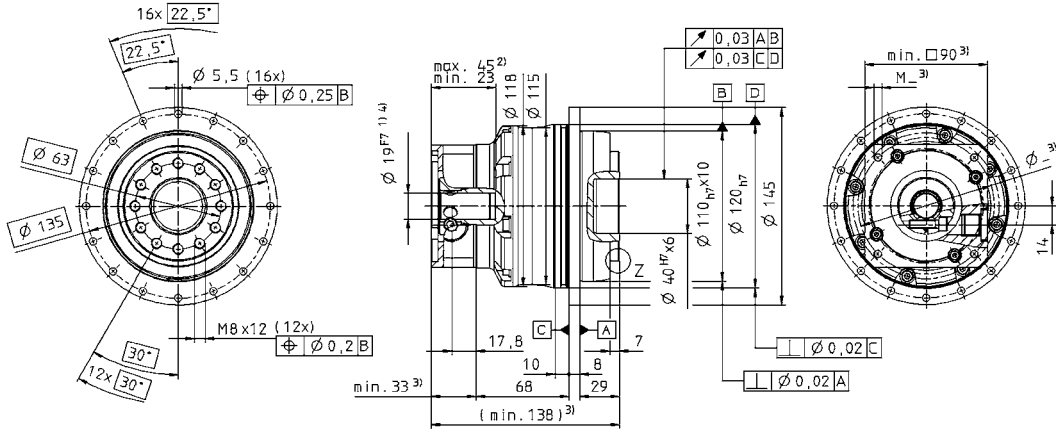
^{c)} Valid for clamping hub diameter of 19 mm

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

View A

View B

2-stage:

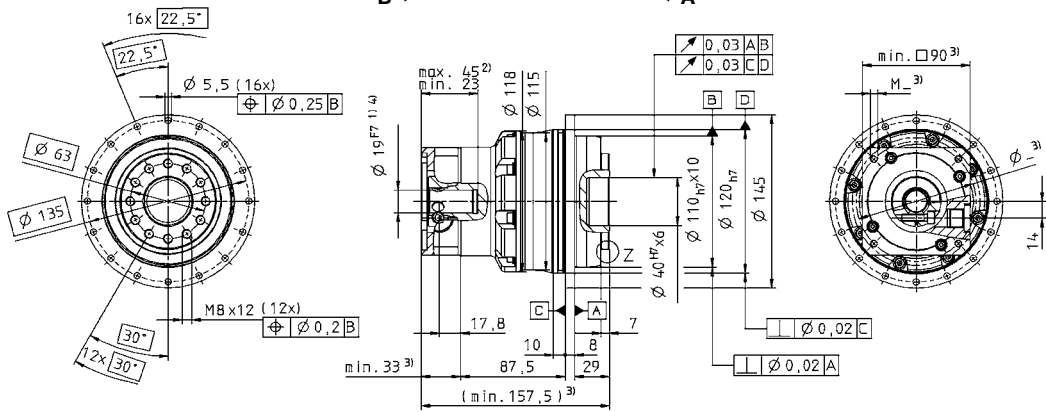


up to 19⁴⁾ (E)
clamping hub
diameter

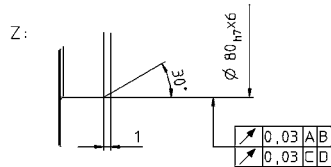
Motor shaft diameter [mm]

up to 24⁴⁾ (G)
clamping hub
diameter

3-stage:



up to 19⁴⁾ (E)
clamping hub
diameter



Non-tolerated dimensions ±1 mm

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

CAD data is available under www.wittenstein-alpha.com

Motor mounting according to operating manual

Planetary gearheads
High End

TP+

MA

TP+ 050 MA HIGH TORQUE

| | | 2-stage | | | | 3-stage | | | | | | | |
|---|-----------------------------------|-----------------|------------|--------------------------------------|-------|---------|---------|-------|-------|-------|-------|------|------|
| Ratio ^{a)} | <i>i</i> | | 22 | 27.5 | 38.5 | 55 | 66 | 88 | 110 | 154 | 220 | | |
| Max. acceleration torque (max. 1000 cycles per hour) | T_{2B} | Nm | 950 | 950 | 950 | 950 | 950 | 950 | 950 | 950 | 950 | | |
| | | in.lb | 8408 | 8408 | 8408 | 8408 | 8408 | 8408 | 8408 | 8408 | 8408 | | |
| Nominal output torque (with n_m) | T_{2N} | Nm | 575 | 600 | 650 | 675 | 675 | 675 | 675 | 675 | 675 | | |
| | | in.lb | 5089 | 5310 | 5753 | 5974 | 5974 | 5974 | 5974 | 5974 | 5974 | | |
| Emergency stop torque (permitted 1000 times during the service life of the gearhead) | T_{2Not} | Nm | 2375 | 2375 | 2375 | 2375 | 2375 | 2375 | 2375 | 2375 | 2375 | | |
| | | in.lb | 21019 | 21019 | 21019 | 21019 | 21019 | 21019 | 21019 | 21019 | 21019 | | |
| Nominal input speed (with T_{2N} and 20 °C ambient temperature) ^{b)} | n_{1N} | rpm | 3000 | 3000 | 3000 | 3000 | 3500 | 3500 | 3500 | 3500 | 3500 | | |
| Max. input speed | n_{1Max} | rpm | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | | |
| Mean no load running torque (with $n_1=3000$ rpm and 20 °C gearhead temperature) ^{c)} | T_{012} | Nm | 3.7 | 2.9 | 2.0 | 1.7 | 2.0 | 1.6 | 1.4 | 0.9 | 0.7 | | |
| | | in.lb | 32.7 | 25.7 | 17.7 | 15.0 | 17.7 | 14.2 | 12.4 | 8.0 | 6.2 | | |
| Max. torsional backlash | j_t | arcmin | ≤ 1 | | | | ≤ 1 | | | | | | |
| Torsional rigidity ^{c)} | C_{L21} | Nm/ arcmin | 220 | 220 | 220 | 220 | 205 | 205 | 205 | 205 | 205 | | |
| | | in.lb/ arcmin | 1947 | 1947 | 1947 | 1947 | 1814 | 1814 | 1814 | 1814 | 1814 | | |
| Tilting rigidity | C_{2K} | Nm/ arcmin | 560 | | | | 560 | | | | | | |
| | | in.lb/ arcmin | 4956 | | | | 4956 | | | | | | |
| Max. axial force ^{d)} | F_{2AMax} | N | 6130 | | | | 6130 | | | | | | |
| | | lb _f | 1379 | | | | 1379 | | | | | | |
| Max. tilting moment | M_{2KMax} | Nm | 1335 | | | | 1335 | | | | | | |
| | | in.lb | 11815 | | | | 11815 | | | | | | |
| Efficiency at full load | η | % | 94 | | | | 92 | | | | | | |
| Service life (For calculation, see the Chapter "Information") | L_h | h | > 20000 | | | | > 20000 | | | | | | |
| Weight incl. standard adapter plate | <i>m</i> | kg | 12.5 | | | | 13.4 | | | | | | |
| | | lb _m | 27.6 | | | | 29.6 | | | | | | |
| Operating noise (with $n_1=3000$ rpm no load) | L_{PA} | dB(A) | ≤ 64 | | | | ≤ 64 | | | | | | |
| Max. permitted housing temperature | °C | | +90 | | | | | | | | | | |
| | F | | 194 | | | | | | | | | | |
| Ambient temperature | °C | | -15 to +40 | | | | | | | | | | |
| | F | | 5 to 104 | | | | | | | | | | |
| Lubrication | Lubricated for life | | | | | | | | | | | | |
| Paint | Blue RAL 5002 | | | | | | | | | | | | |
| Direction of rotation | Motor and gearhead same direction | | | | | | | | | | | | |
| Protection class | IP 65 | | | | | | | | | | | | |
| Moment of inertia (relates to the drive) | G | 24 | J_1 | kgcm ² | 3.76 | 3.32 | 3.01 | 2.82 | 2.61 | 2.42 | 2.22 | 2.12 | 2.07 |
| | | | | 10 ³ in.lb.s ² | 3.33 | 2.94 | 2.66 | 2.50 | 2.31 | 2.14 | 1.96 | 1.88 | 1.83 |
| Clamping hub diameter [mm] | K | 38 | J_1 | kgcm ² | 10.7 | 10.3 | 9.92 | 9.73 | - | - | - | - | - |
| | | | | 10 ³ in.lb.s ² | 9.47 | 9.11 | 8.78 | 8.61 | - | - | - | - | - |

Reduced mass moments of inertia available on request.

^{a)} Other ratios available on request

^{b)} For higher ambient temperatures, please reduce input speed

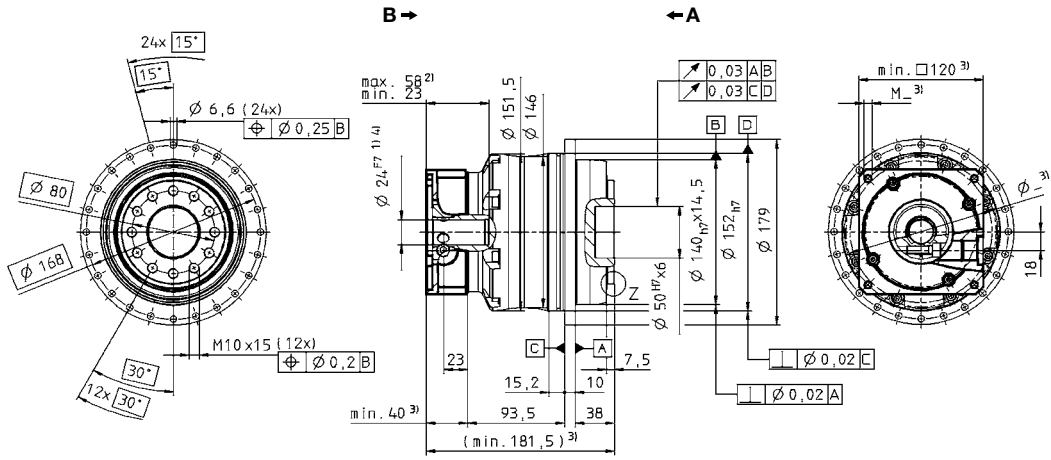
^{c)} Valid for clamping hub diameter of 24 mm

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

View A

View B

2-stage:

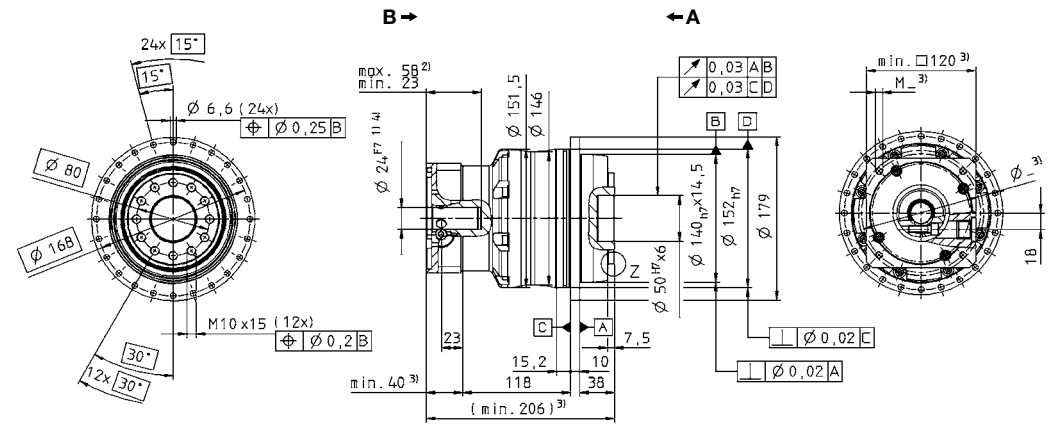


up to 24⁴⁾ (G)
clamping hub
diameter

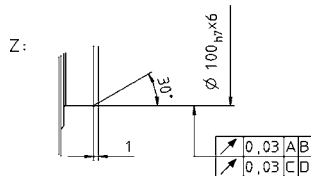
up to 38⁴⁾ (K)
clamping hub
diameter

Motor shaft diameter [mm]

3-stage:



up to 24⁴⁾ (G)
clamping hub
diameter



Non-tolerated dimensions ±1 mm

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

CAD data is available under www.wittenstein-alpha.com

Motor mounting according to operating manual

Planetary gearheads
High End

TP+

MA

TP+ 110 MA HIGH TORQUE

| | | 2-stage | | | | 3-stage | | | | | | | |
|---|-----------------------------------|-----------------|------------|--------------------------------------|-------|---------|---------|-------|-------|-------|-------|------|------|
| Ratio ^{a)} | <i>i</i> | | 22 | 27.5 | 38.5 | 55 | 66 | 88 | 110 | 154 | 220 | | |
| Max. acceleration torque (max. 1000 cycles per hour) | T_{2B} | Nm | 3100 | 3100 | 3100 | 2000 | 2600 | 2600 | 2600 | 2600 | 2600 | | |
| | | in.lb | 27435 | 27435 | 27435 | 17700 | 23010 | 23010 | 23010 | 23010 | 23010 | | |
| Nominal output torque (with n_m) | T_{2N} | Nm | 1570 | 1600 | 1650 | 1400 | 1600 | 1750 | 1750 | 1750 | 1750 | | |
| | | in.lb | 13895 | 14160 | 14603 | 12390 | 14160 | 15488 | 15488 | 15488 | 15488 | | |
| Emergency stop torque (permitted 1000 times during the service life of the gearhead) | T_{2Not} | Nm | 6500 | 6500 | 6500 | 6500 | 6500 | 6500 | 6500 | 6500 | 6500 | | |
| | | in.lb | 57525 | 57525 | 57525 | 57525 | 57525 | 57525 | 57525 | 57525 | 57525 | | |
| Nominal input speed (with T_{2N} and 20 °C ambient temperature) ^{b)} | n_{1N} | rpm | 2500 | 2500 | 2500 | 2500 | 3000 | 3000 | 3000 | 3000 | 3000 | | |
| Max. input speed | n_{1Max} | rpm | 4500 | 4500 | 4500 | 4500 | 4500 | 4500 | 4500 | 4500 | 4500 | | |
| Mean no load running torque (with $n_1=3000$ rpm and 20 °C gearhead temperature) ^{c)} | T_{012} | Nm | 8.0 | 5.5 | 4.5 | 4.0 | 5.0 | 4.0 | 3.5 | 2.0 | 1.8 | | |
| | | in.lb | 70.8 | 48.7 | 39.8 | 35.4 | 44.3 | 35.4 | 31.0 | 17.7 | 15.9 | | |
| Max. torsional backlash | j_t | arcmin | ≤ 1 | | | | ≤ 1 | | | | | | |
| Torsional rigidity ^{c)} | C_{t21} | Nm/ arcmin | 730 | 725 | 715 | 670 | 650 | 650 | 650 | 650 | 650 | | |
| | | in.lb/ arcmin | 6461 | 6416 | 6328 | 5930 | 5753 | 5753 | 5753 | 5753 | 5753 | | |
| Tilting rigidity | C_{2K} | Nm/ arcmin | 1452 | | | | 1452 | | | | | | |
| | | in.lb/ arcmin | 12850 | | | | 12850 | | | | | | |
| Max. axial force ^{d)} | F_{2AMax} | N | 10050 | | | | 10050 | | | | | | |
| | | lb _f | 2261 | | | | 2261 | | | | | | |
| Max. tilting moment | M_{2KMax} | Nm | 3280 | | | | 3280 | | | | | | |
| | | in.lb | 29028 | | | | 29028 | | | | | | |
| Efficiency at full load | η | % | 94 | | | | 92 | | | | | | |
| Service life (For calculation, see the Chapter "Information") | L_h | h | > 20000 | | | | > 20000 | | | | | | |
| Weight incl. standard adapter plate | <i>m</i> | kg | 33.1 | | | | 35.4 | | | | | | |
| | | lb _m | 73.2 | | | | 78.2 | | | | | | |
| Operating noise (with $n_1=3000$ rpm no load) | L_{PA} | dB(A) | ≤ 66 | | | | ≤ 66 | | | | | | |
| Max. permitted housing temperature | °C | | +90 | | | | | | | | | | |
| | F | | 194 | | | | | | | | | | |
| Ambient temperature | °C | | -15 to +40 | | | | | | | | | | |
| | F | | 5 to 104 | | | | | | | | | | |
| Lubrication | Lubricated for life | | | | | | | | | | | | |
| Paint | Blue RAL 5002 | | | | | | | | | | | | |
| Direction of rotation | Motor and gearhead same direction | | | | | | | | | | | | |
| Protection class | IP 65 | | | | | | | | | | | | |
| Moment of inertia (relates to the drive) | K | 38 | J_I | kgcm ² | 16.6 | 15.2 | 13.9 | 13.1 | 13.8 | 10.2 | 9.77 | 9.47 | 9.16 |
| | | | | 10 ² in.lb.s ² | 14.7 | 13.5 | 12.3 | 11.6 | 12.2 | 9.03 | 8.65 | 8.38 | 8.11 |
| Clamping hub diameter [mm] | M | 48 | J_I | kgcm ² | 31.4 | 29.9 | 28.7 | 28.0 | - | - | - | - | - |
| | | | | 10 ² in.lb.s ² | 27.8 | 26.5 | 25.4 | 24.8 | - | - | - | - | - |

Reduced mass moments of inertia available on request.

^{a)} Other ratios available on request

^{b)} For higher ambient temperatures, please reduce input speed

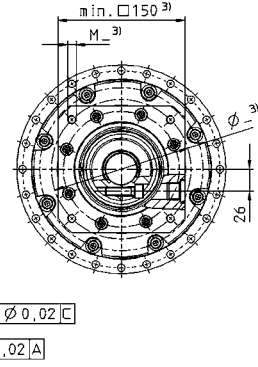
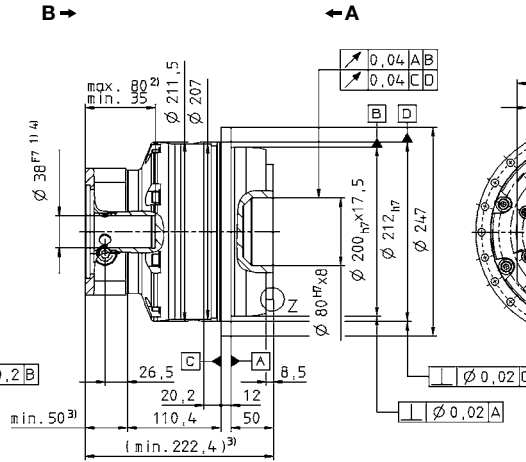
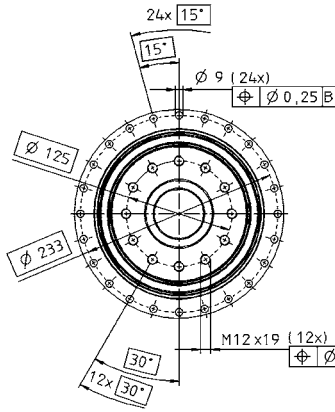
^{c)} Valid for clamping hub diameter of 38 mm

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

View A

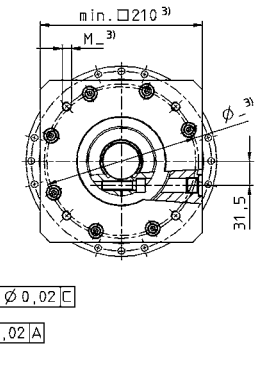
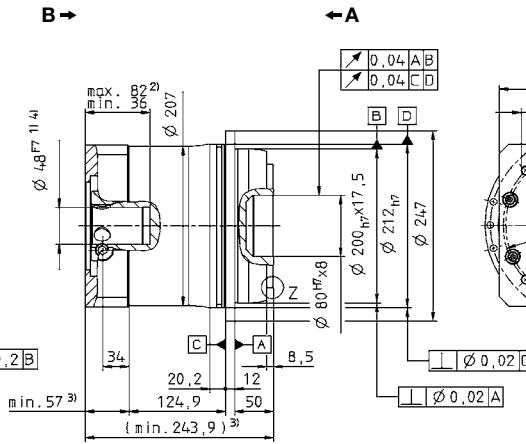
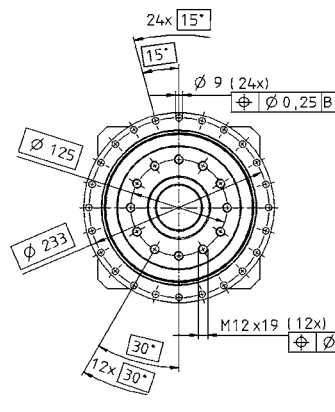
View B

2-stage:

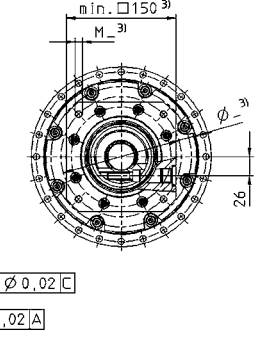
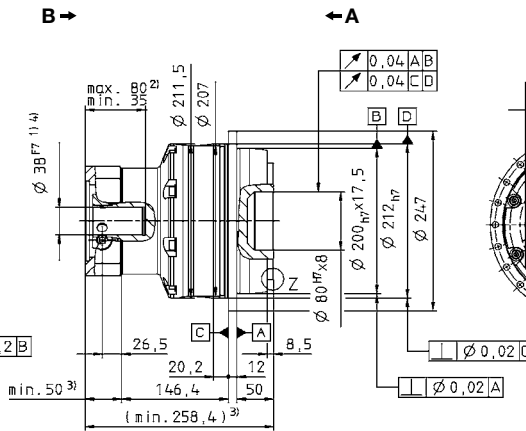
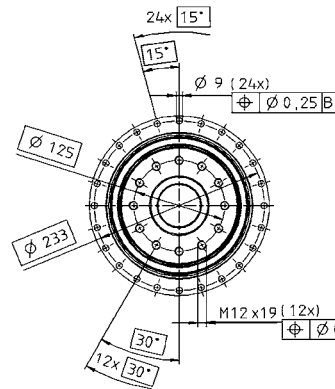


up to 38⁴⁾ (K)
clamping hub
diameter

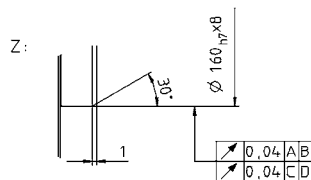
up to 48⁴⁾ (M)
clamping hub
diameter



3-stage:



up to 38⁴⁾ (K)
clamping hub
diameter



Non-tolerated dimensions ± 1 mm

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

CAD data is available under www.wittenstein-alpha.com

Motor mounting according to operating manual

TP+ 300 MA HIGH TORQUE

| | | | | 1-stage | | 2-stage | | | | | 3-stage | | | |
|---|-----------------------------------|-----------------|-------|---|-----------|--|--------|--------|-----------|--------|---------|--------|--------|--------|
| Ratio ^{a)} | | <i>i</i> | | 5.5 | 22 | 27.5 | 38.5 | 55 | 66 | 88 | 110 | 154 | 220 | |
| Max. acceleration torque (max. 1000 cycles per hour) | T_{2B} | Nm | | 4600 | 5500 | 5500 | 5500 | 3900 | 5500 | 5500 | 5500 | 5500 | 5500 | |
| | | in.lb | | 40714 | 48679 | 48679 | 48679 | 34518 | 48679 | 48679 | 48679 | 48679 | 48679 | 48679 |
| Nominal output torque (with n_m) | T_{2N} | Nm | | 2200 | 3500 | 3500 | 3500 | 2500 | 3500 | 3500 | 3500 | 3500 | 3500 | |
| | | in.lb | | 19472 | 30978 | 30978 | 30978 | 22127 | 30978 | 30978 | 30978 | 30978 | 30978 | 30978 |
| Emergency stop torque (permitted 1000 times during the service life of the gearhead) | T_{2Not} | Nm | | 8750 | 13250 | 13250 | 13250 | 13250 | 13250 | 13250 | 13250 | 13250 | 13250 | |
| | | in.lb | | 77445 | 117273 | 117273 | 117273 | 117273 | 117273 | 117273 | 117273 | 117273 | 117273 | 117273 |
| Nominal input speed (with T_{2N} and 20 °C ambient temperature) ^{b)} | n_{1N} | rpm | | 1000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | |
| Max. input speed | n_{1Max} | rpm | | 2500 | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | |
| Mean no load running torque (with $n_1=2000$ rpm and 20 °C gearhead temperature) | T_{012} | Nm | | 22 | 12 | 10 | 9,0 | 7,0 | 6,5 | 4,5 | 4,0 | 3,0 | 2,0 | |
| | | in.lb | | 195 | 106 | 89 | 80 | 62 | 58 | 40 | 35 | 27 | 18 | |
| Max. torsional backlash | j_t | arcmin | | Standard ≤ 2 / Reduced ≤ 1 | | Standard ≤ 3 / Reduced ≤ 1.5 | | | | | | | | |
| Torsional rigidity | C_{t21} | Nm/ arcmin | | 1400 | 1200 | 1200 | 1200 | 1200 | 1200 | 1200 | 1200 | 1200 | 1200 | |
| | | in.lb/ arcmin | | 12391 | 10621 | 10621 | 10621 | 10621 | 10621 | 10621 | 10621 | 10621 | 10621 | |
| 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 | 6500 | | | | | | | | | |
| | | in.lb | | 34518 | 57530 | | | | | | | | | |
| Efficiency at full load | η | % | | 95 | 93 | | | | | | | | | |
| Service life (For calculation, see "Technical Basics") | L_h | h | | > 20000 | | | | | | | | | | |
| Weight incl. standard adapter plate | <i>m</i> | kg | | 55 | 64 | | | | 67 | | | | | |
| | | lb _m | | 121.25 | 141.1 | | | | 147.7 | | | | | |
| Operating noise (with $n_1=2000$ rpm no load) | L_{PA} | dB(A) | | ≤ 68 | ≤ 67 | | | | ≤ 66 | | | | | |
| Max. permitted housing temperature | °C | | | +90 | | | | | | | | | | |
| | F | | | 194 | | | | | | | | | | |
| Ambient temperature | °C | | | -15 to +40 | | | | | | | | | | |
| | F | | | 5 to 104 | | | | | | | | | | |
| Lubrication | Lubricated for life | | | | | | | | | | | | | |
| Paint | Blue RAL 5002 | | | | | | | | | | | | | |
| Direction of rotation | Motor and gearhead same direction | | | | | | | | | | | | | |
| Protection class | IP 65 | | | | | | | | | | | | | |
| Moment of inertia (relates to the drive) | K | 38 | J_1 | kgcm ² | - | - | - | - | - | 16.6 | 12.9 | 11.6 | 10.3 | 9.50 |
| | | | | in.lb.s ² | - | - | - | - | - | 0.0147 | 0.0114 | 0.0103 | 0.0091 | 0.0084 |
| Clamping hub diameter [mm] | M | 48 | J_1 | kgcm ² | - | 30.8 | 27.6 | 24.9 | 23.0 | - | - | - | - | - |
| | | | | in.lb.s ² | - | 0.0273 | 0.0244 | 0.0220 | 0.0204 | - | - | - | - | - |
| | N | 55 | J_1 | kgcm ² | 129 | - | - | - | - | - | - | - | - | - |
| | | | | in.lb.s ² | 0.1142 | - | - | - | - | - | - | - | - | - |

Reduced mass moments of inertia available on request.

^{a)} Other ratios available on request

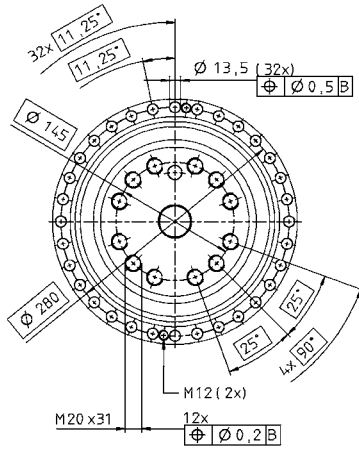
^{b)} For higher ambient temperatures, please reduce input speed

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

View A

View B

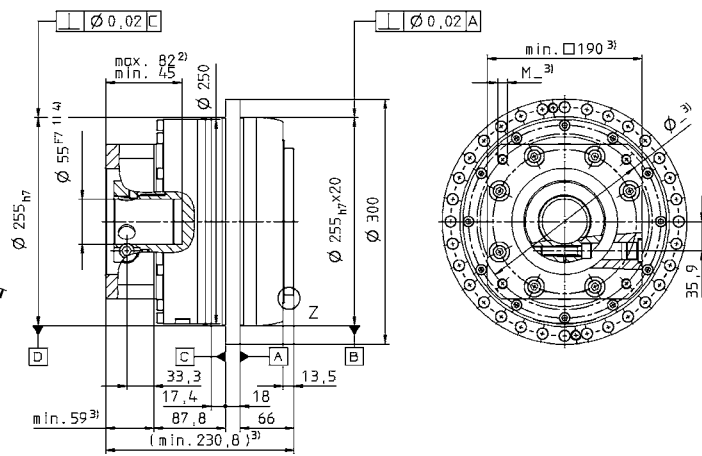
1-stage:



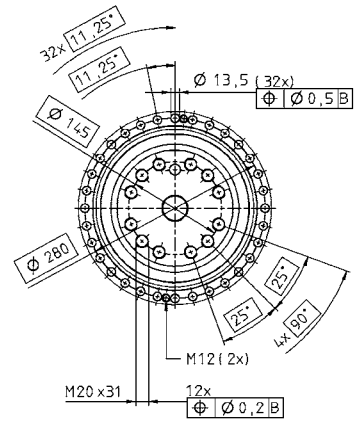
up to 55⁴⁾ (N)
clamping hub diameter

B →

← A



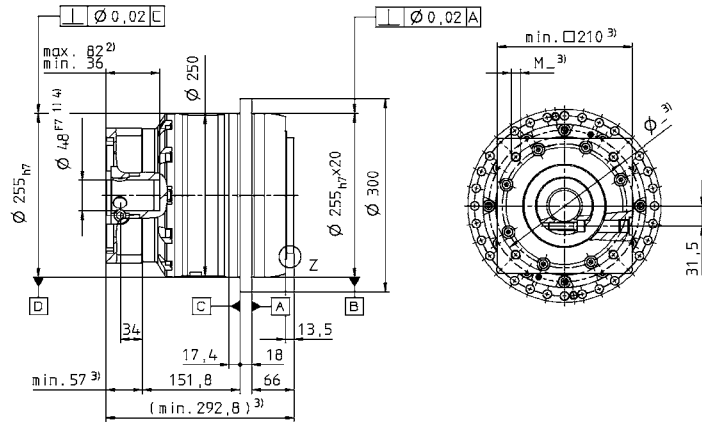
2-stage:



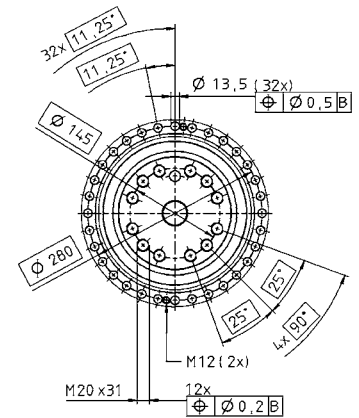
up to 48⁴⁾ (M)
clamping hub diameter

B →

← A



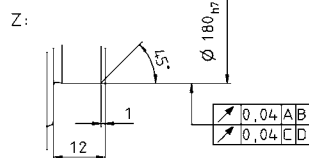
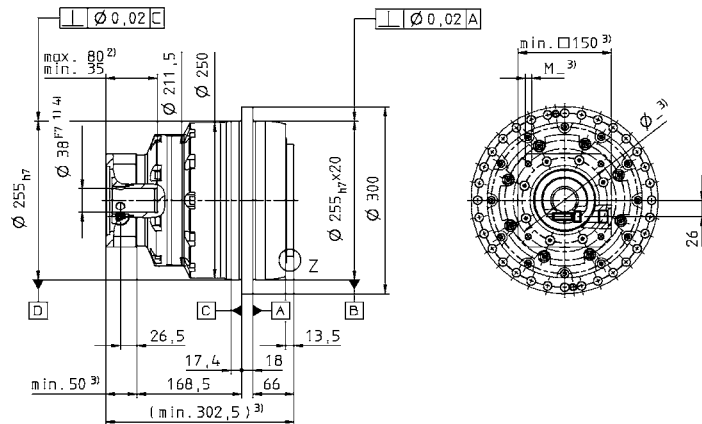
3-stage:



up to 38⁴⁾ (K)
clamping hub diameter

B →

← A



Non-tolerated dimensions ±1,5 mm

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

CAD data is available under www.wittenstein-alpha.com

Motor mounting according to operating manual

TP+ 500 MA HIGH TORQUE

| | | | | 1-stage | 2-stage | | | | 3-stage | | | | | |
|---|-----------------------------------|-----------------|-------|---|---------|--|--------|--------|-----------|--------|--------|--------|--------|--------|
| Ratio ^{a)} | | <i>i</i> | | 5.5 | 22 | 27.5 | 38.5 | 55 | 66 | 88 | 110 | 154 | 220 | |
| Max. acceleration torque (max. 1000 cycles per hour) | T_{2B} | Nm | | 8000 | 10000 | 10000 | 10000 | 7200 | 10000 | 10000 | 10000 | 10000 | 10000 | |
| | | in.lb | | 70806 | 88508 | 88508 | 88508 | 63726 | 88508 | 88508 | 88508 | 88508 | 88508 | 88508 |
| Nominal output torque (with n_m) | T_{2N} | Nm | | 3500 | 6000 | 4600 | 4600 | 4700 | 6000 | 6000 | 6000 | 6000 | 6000 | |
| | | in.lb | | 30978 | 53105 | 40714 | 40714 | 41599 | 53105 | 53105 | 53105 | 53105 | 53105 | 53105 |
| Emergency stop torque (permitted 1000 times during the service life of the gearhead) | T_{2Not} | Nm | | 15000 | 25000 | 25000 | 25000 | 25000 | 25000 | 25000 | 25000 | 25000 | 25000 | |
| | | in.lb | | 132762 | 221270 | 221270 | 221270 | 221270 | 221270 | 221270 | 221270 | 221270 | 221270 | 221270 |
| Nominal input speed (with T_{2N} and 20 °C ambient temperature) ^{b)} | n_{1N} | rpm | | 900 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | |
| Max. input speed | n_{1Max} | rpm | | 2500 | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | |
| Mean no load running torque (with $n_1=2000$ rpm and 20 °C gearhead temperature) | T_{012} | Nm | | 28 | 18 | 14 | 12 | 9.0 | 8.5 | 6.5 | 6.0 | 5.0 | 4.0 | |
| | | in.lb | | 248 | 159.3 | 124 | 106 | 80 | 75 | 58 | 53 | 44 | 35 | |
| Max. torsional backlash | j_t | arcmin | | Standard ≤ 2 / Reduced ≤ 1 | | Standard ≤ 3 / Reduced ≤ 1.5 | | | | | | | | |
| Torsional rigidity | C_{t21} | Nm/ arcmin | | 1650 | 2000 | 2000 | 1950 | 1900 | 1800 | 1800 | 1800 | 1800 | 1800 | |
| | | in.lb/ arcmin | | 14603 | 17700 | 17700 | 17258 | 16815 | 15930 | 15930 | 15930 | 15930 | 15930 | 15930 |
| 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 | | 6600 | 9500 | | | | | | | | | |
| | | in.lb | | 58415 | 84083 | | | | | | | | | |
| Efficiency at full load | η | % | | 95 | 93 | | | | | | | | | |
| Service life (For calculation, see "Technical Basics") | L_h | h | | > 20000 | | | | | | | | | | |
| Weight incl. standard adapter plate | <i>m</i> | kg | | 80 | | | | | 89 | | | | | |
| | | lb _m | | 176.4 | | | | | 196.2 | | | | | |
| Operating noise (with $n_1=2000$ rpm no load) | L_{PA} | dB(A) | | ≤ 68 | | | | | ≤ 67 | | | | | |
| Max. permitted housing temperature | | | °C | +90 | | | | | | | | | | |
| | | | F | 194 | | | | | | | | | | |
| Ambient temperature | | | °C | -15 to +40 | | | | | | | | | | |
| | | | F | 5 to 104 | | | | | | | | | | |
| Lubrication | Lubricated for life | | | | | | | | | | | | | |
| Paint | Blue RAL 5002 | | | | | | | | | | | | | |
| Direction of rotation | Motor and gearhead same direction | | | | | | | | | | | | | |
| Protection class | IP 65 | | | | | | | | | | | | | |
| Moment of inertia (relates to the drive) | M | 48 | J_I | kgcm ² | | 43.8 | 36.9 | 30.5 | 27.0 | 32.7 | 28.3 | 26.7 | 25.2 | 24.4 |
| | | | | in.lb.s ² | | 0.0388 | 0.0327 | 0.0270 | 0.0239 | 0.0289 | 0.0250 | 0.0236 | 0.0223 | 0.0216 |
| Clamping hub diameter [mm] | O | 60 | J_I | kgcm ² | 175 | | | | | | | | | |
| | | | | in.lb.s ² | 0.1549 | | | | | | | | | |

Reduced mass moments of inertia available on request.

^{a)} Other ratios available on request

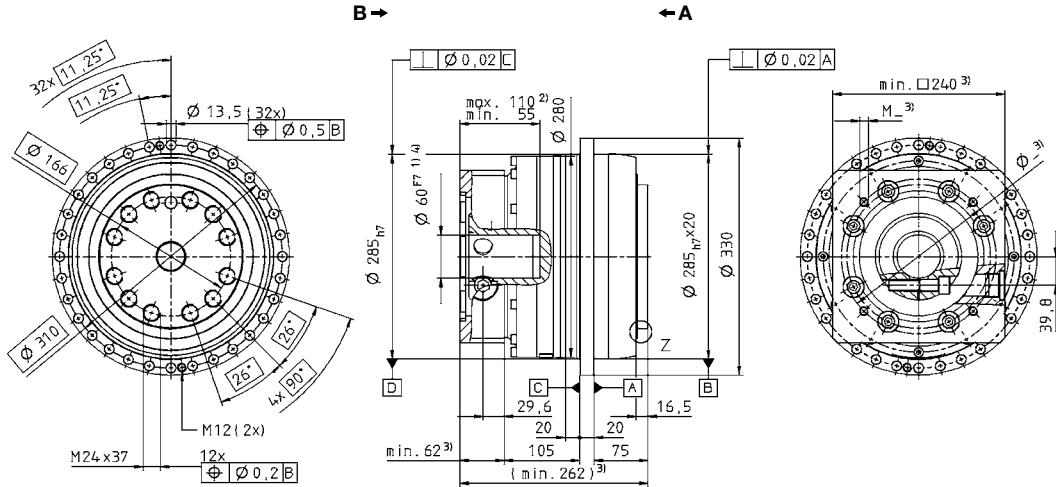
^{b)} For higher ambient temperatures, please reduce input speed

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

View A

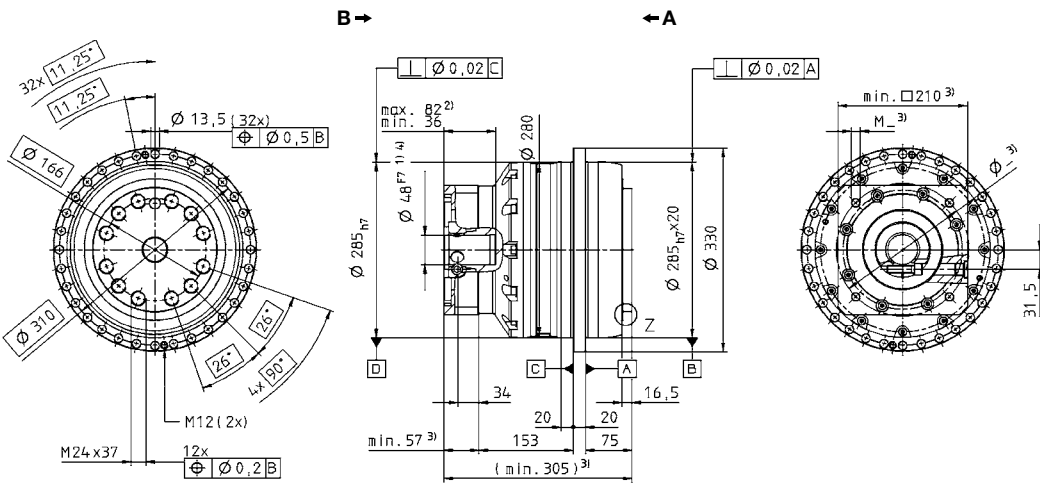
View B

1-stage:



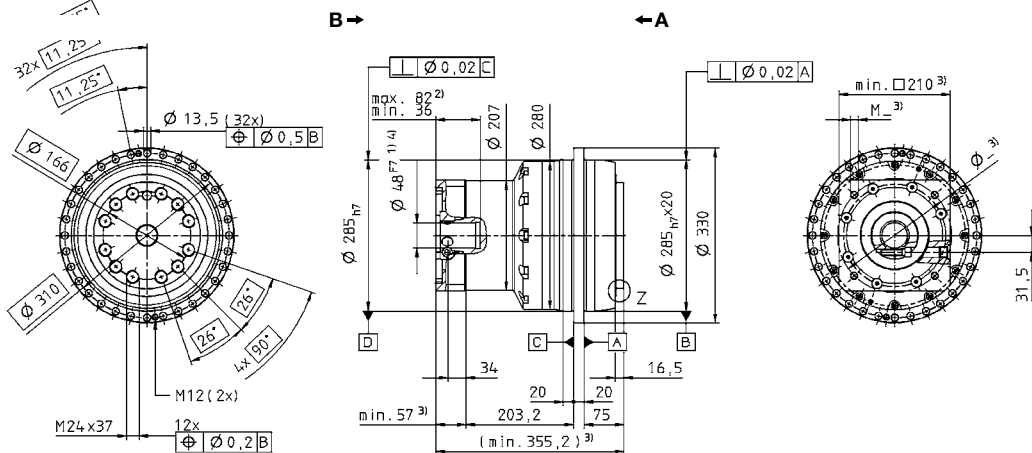
up to 60⁴⁾ (O)
clamping hub
diameter

2-stage:

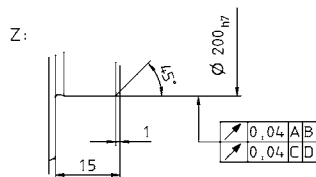


up to 48⁴⁾ (M)
clamping hub
diameter

3-stage:



up to 48⁴⁾ (M)
clamping hub
diameter



Non-tolerated dimensions ±1,5 mm

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

CAD data is available under www.wittenstein-alpha.com

Motor mounting according to operating manual