

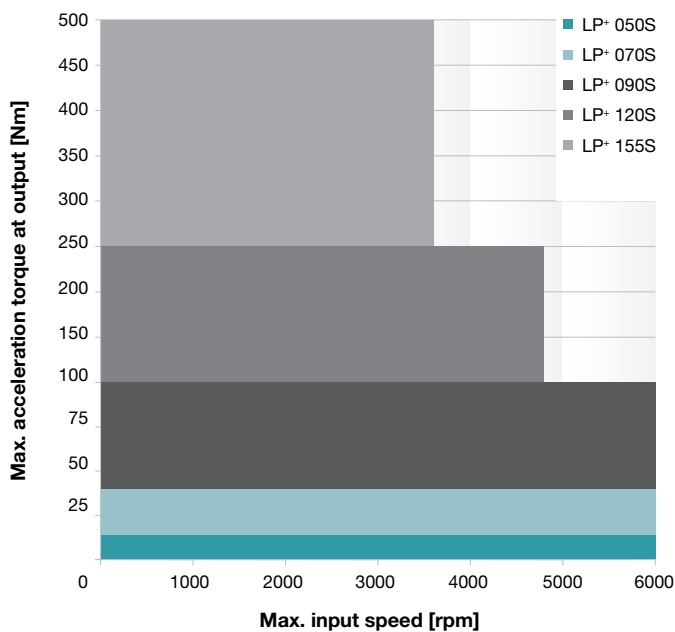
LP+/LPB+ Generation 3 – Economical multitalent

Low backlash planetary gearheads with output shaft or output flange. The LP+/LPB+ Generation 3 gearhead series combines maximum quality with economical precision. The LPB+ Generation 3 is especially suitable for compact belt drives.

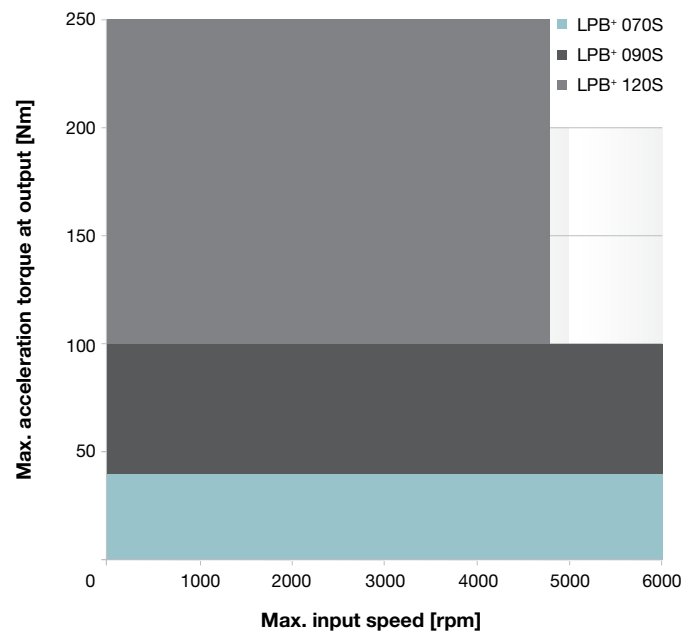


Quick size selection

LP+ Generation 3 MF (example for $i = 5$)
For applications in cyclic operation ($DC \leq 60\%$)
or in continuous operation ($DC \geq 60\%$)



LPB+ Generation 3 MF (example for $i = 5$)
For applications in cyclic operation ($DC \leq 60\%$)
or in continuous operation ($DC \geq 60\%$)



Versions and Applications

| Features | LP+ Generation 3 MF version page 132 | LPB+ Generation 3 MF version page 142 |
|----------------------|---|--|
| Power density | •• | •• |
| Positioning accuracy | • | •• |
| High input speeds | •• | •• |
| Torsional rigidity | • | •• |
| Space-saving design | •• | ••• |

Product features

| Ratios ^{c)} | | 3 – 100 | 3 – 100 |
|--|----------|---------|---------|
| Torsional backlash [arcmin] ^{c)} | Standard | ≤ 8 | ≤ 8 |
| | Reduced | – | – |
| Output type | | | |
| Smooth output shaft | | • | |
| Keywayed output shaft | | • | |
| Output flange | | | • |
| Input type | | | |
| Motor mounted version | | • | • |
| Type | | | |
| Food-grade lubrication ^{a) b)} | | • | • |
| Accessories | | | |
| Coupling | | • | |
| Rack | | • | |
| Pinion | | • | |
| Belt pulley | | | • |
| B5 flange | | • | |

^{a)} Power reduction: technical data available upon request ^{b)} Please contact WITTENSTEIN alpha ^{c)} In relation to reference sizes

Planetary gearheads
General



LP+ 050 MF 1/2-stage

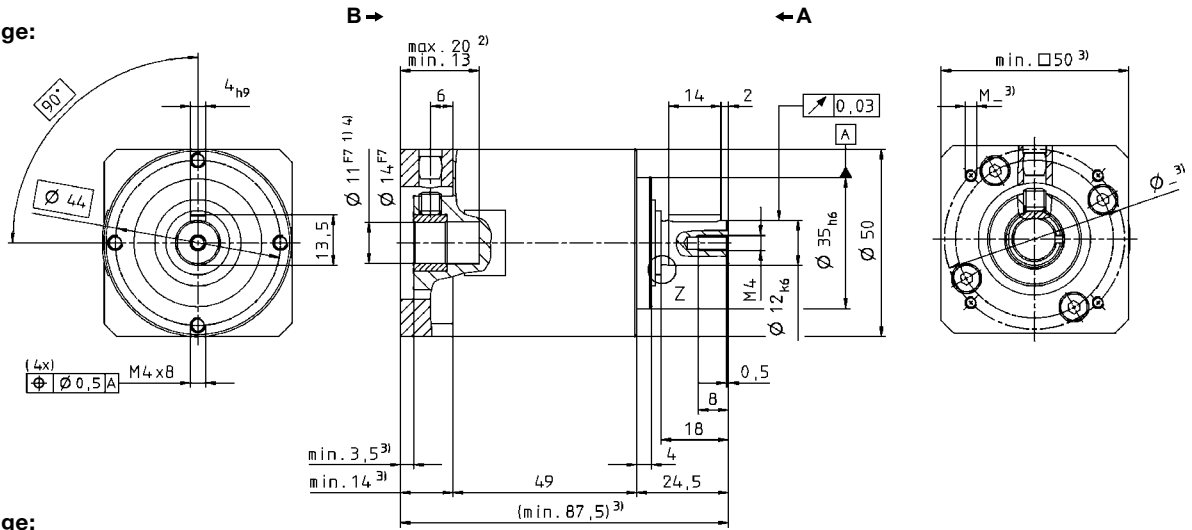
| | | | 1-stage | | | | 2-stage | | | | | | | |
|---|-----------------------------------|-----------------|------------|---------------------------------------|------|------|---------|------|------|------|------|------|------|------|
| Ratio ^{a)} | <i>i</i> | | 4 | 5 | 7 | 10 | 16 | 20 | 25 | 35 | 50 | 70 | 100 | |
| Max. acceleration torque (max. 1000 cycles per hour) | T_{2B} | Nm | 13 | 14 | 14 | 13 | 13 | 13 | 14 | 14 | 14 | 14 | 13 | |
| | | in.lb | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | |
| Nominal output torque (with n_m) | T_{2N} | Nm | 6 | 6.5 | 6.5 | 6 | 6 | 6 | 6.5 | 6.5 | 6.5 | 6.5 | 6 | |
| | | in.lb | 53 | 58 | 58 | 53 | 53 | 53 | 58 | 58 | 58 | 58 | 53 | |
| Emergency stop torque (permitted 1000 times during the service life of the gearhead) | T_{2Not} | Nm | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | |
| | | in.lb | 230 | 230 | 230 | 230 | 230 | 230 | 230 | 230 | 230 | 230 | 230 | |
| Nominal input speed (with T_{2N} and 20°C ambient temperature) ^{b)} | n_{1N} | rpm | 4000 | 4000 | 4000 | 4000 | 4000 | 4000 | 4000 | 4000 | 4000 | 4000 | 4000 | |
| Max. input speed | n_{1Max} | rpm | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | |
| Mean no load running torque (with $n_1=3000$ rpm and 20°C gearhead temperature) | T_{012} | Nm | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | |
| | | in.lb | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | |
| Max. torsional backlash | j_t | arcmin | ≤ 10 | | | | ≤ 13 | | | | | | | |
| Torsional rigidity | C_{t21} | Nm/ arcmin | 1.5 | 1.2 | 1.2 | 0.9 | 1.5 | 1.5 | 1.2 | 1.2 | 1.2 | 1.2 | 0.9 | |
| | | in.lb/ arcmin | 13 | 11 | 11 | 8 | 13 | 13 | 11 | 11 | 11 | 11 | 8 | |
| Max. axial force ^{c)} | F_{2AMax} | N | 700 | | | | 700 | | | | | | | |
| | | lb _f | 160 | | | | 160 | | | | | | | |
| Max. radial force ^{c)} | F_{2RMax} | N | 650 | | | | 650 | | | | | | | |
| | | lb _f | 150 | | | | 150 | | | | | | | |
| Efficiency at full load | η | % | 97 | | | | 95 | | | | | | | |
| Service life (For calculation, see the Chapter "Information") | L_n | h | > 20000 | | | | > 20000 | | | | | | | |
| Weight incl. standard adapter plate | <i>m</i> | kg | 0.75 | | | | 0.95 | | | | | | | |
| | | lb _m | 1.7 | | | | 2.1 | | | | | | | |
| Operating noise for $i=10$ and $n_1=3000$ rpm without load | L_{PA} | dB(A) | ≤ 62 | | | | | | | | | | | |
| Max. permitted housing temperature | °C | | +90 | | | | | | | | | | | |
| | F | | 194 | | | | | | | | | | | |
| Ambient temperature | °C | | -15 to +40 | | | | | | | | | | | |
| | F | | 5 to 104 | | | | | | | | | | | |
| Lubrication | Lubricated for life | | | | | | | | | | | | | |
| Paint | Blue RAL 5002 | | | | | | | | | | | | | |
| Direction of rotation | Motor and gearhead same direction | | | | | | | | | | | | | |
| Protection class | IP 64 | | | | | | | | | | | | | |
| Moment of inertia (relates to the drive) | B | 11 | J_1 | kgcm ² | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| | | | | 10 ⁻³ in.lb.s ² | 0.05 | 0.04 | 0.04 | 0.04 | 0.05 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| Clamping hub diameter (mm) | C | 14 | J_1 | kgcm ² | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| | | | | 10 ⁻³ in.lb.s ² | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |

^{a)} Other ratios are available on request: $i = 40$

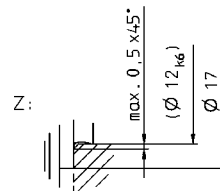
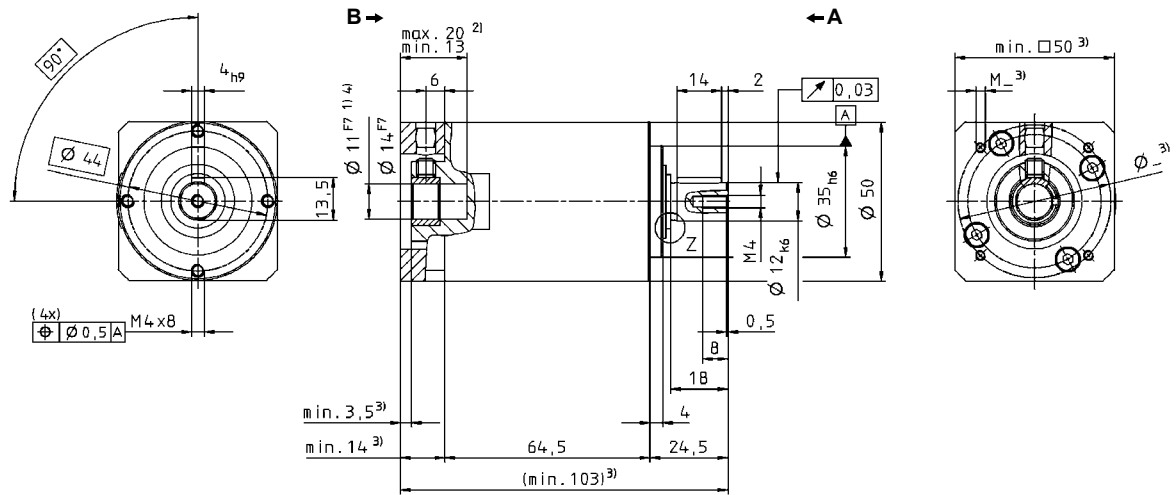
^{b)} For higher ambient temperatures, please reduce input speed

^{c)} Refers to center of the output shaft, if $n_2 = 100$ rpm

LP+ 1-stage:



LP+ 2-stage:



Non-tolerated dimensions ±1mm

- 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. Motor shaft diameters up to 14mm available – please contact WITTENSTEIN alpha

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

Motor mounting according to operating manual

LP+ 070 MF 1/2-stage

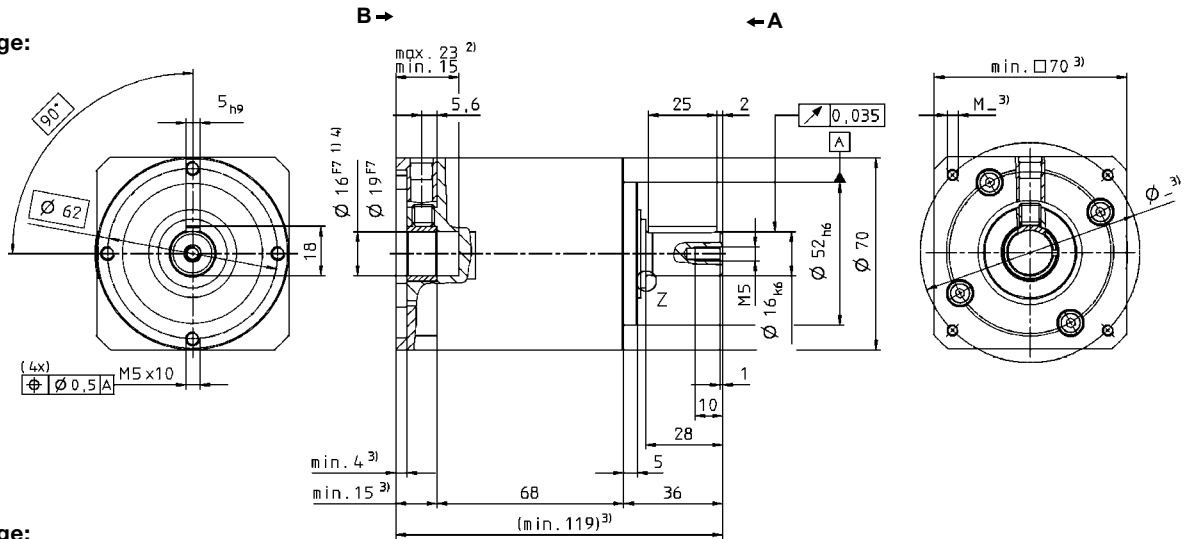
| | | | 1-stage | | | | | 2-stage | | | | | | | | | | |
|---|-------------|-----------------|-----------------------------------|---------------------------------------|------|------|------|---------|------|------|------|------|------|------|------|------|------|-----|
| Ratio ^{a)} | <i>i</i> | | 3 | 4 | 5 | 7 | 10 | 9 | 12 | 16 | 20 | 25 | 30 | 40 | 50 | 70 | 100 | |
| Max. acceleration torque (max. 1000 cycles per hour) | T_{2B} | Nm | 55 | 42 | 40 | 40 | 37 | 55 | 55 | 42 | 42 | 40 | 55 | 42 | 40 | 40 | 37 | |
| | | in.lb | 490 | 370 | 350 | 350 | 330 | 490 | 490 | 370 | 370 | 350 | 490 | 370 | 350 | 350 | 350 | 330 |
| Nominal output torque (with n_m) | T_{2N} | Nm | 29 | 22 | 21 | 21 | 19 | 29 | 29 | 22 | 22 | 21 | 29 | 22 | 21 | 21 | 19 | |
| | | in.lb | 260 | 190 | 190 | 190 | 170 | 260 | 260 | 190 | 190 | 190 | 260 | 190 | 190 | 190 | 170 | |
| Emergency stop torque (permitted 1000 times during the service life of the gearhead) | T_{2Not} | Nm | 65 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | |
| | | in.lb | 580 | 660 | 660 | 660 | 660 | 660 | 660 | 660 | 660 | 660 | 660 | 660 | 660 | 660 | 660 | |
| Nominal input speed (with T_{2N} and 20°C ambient temperature) ^{b)} | n_{1N} | rpm | 3700 | 3700 | 3700 | 3700 | 3700 | 3700 | 3700 | 3700 | 3700 | 3700 | 3700 | 3700 | 3700 | 3700 | 3700 | |
| Max. input speed | n_{1Max} | rpm | 6000 | 6000 | 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) | T_{012} | Nm | 0.3 | 0.3 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | |
| | | in.lb | 2.7 | 2.2 | 1.8 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | |
| Max. torsional backlash | j_t | arcmin | ≤ 8 | | | | | ≤ 10 | | | | | | | | | | |
| Torsional rigidity | C_{t21} | Nm/ arcmin | 4 | 4 | 3.3 | 3.3 | 2.8 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 3.3 | 3.3 | 3.3 | 2.8 | |
| | | in.lb/ arcmin | 35 | 35 | 29 | 29 | 25 | 35 | 35 | 35 | 35 | 35 | 35 | 29 | 29 | 29 | 25 | |
| Max. axial force ^{c)} | F_{2AMax} | N | 1550 | | | | | 1550 | | | | | | | | | | |
| | | lb _f | 349 | | | | | 349 | | | | | | | | | | |
| Max. radial force ^{c)} | F_{2RMax} | N | 1450 | | | | | 1450 | | | | | | | | | | |
| | | lb _f | 326 | | | | | 326 | | | | | | | | | | |
| Efficiency at full load | η | % | 97 | | | | | 95 | | | | | | | | | | |
| Service life (For calculation, see the Chapter "Information") | L_n | h | > 20000 | | | | | > 20000 | | | | | | | | | | |
| Weight incl. standard adapter plate | <i>m</i> | kg | 2.0 | | | | | 2.4 | | | | | | | | | | |
| | | lb _m | 4.4 | | | | | 5.3 | | | | | | | | | | |
| Operating noise for $i=10$ and $n_1 = 3000$ 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 64 | | | | | | | | | | | | | | | |
| Moment of inertia (relates to the drive) | D | 16 | J_I | kgcm ² | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| | | | | 10 ⁻³ in.lb.s ² | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Clamping hub diameter (mm) | E | 19 | J_I | kgcm ² | 0.6 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | |
| | | | | 10 ⁻³ in.lb.s ² | 0.5 | 0.5 | 0.5 | 0.4 | 0.4 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.4 | 0.5 | 0.4 | 0.4 |

^{a)} Other ratios are available on request: $i = 15, 21, 28$ and 35 .

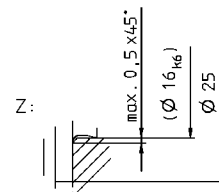
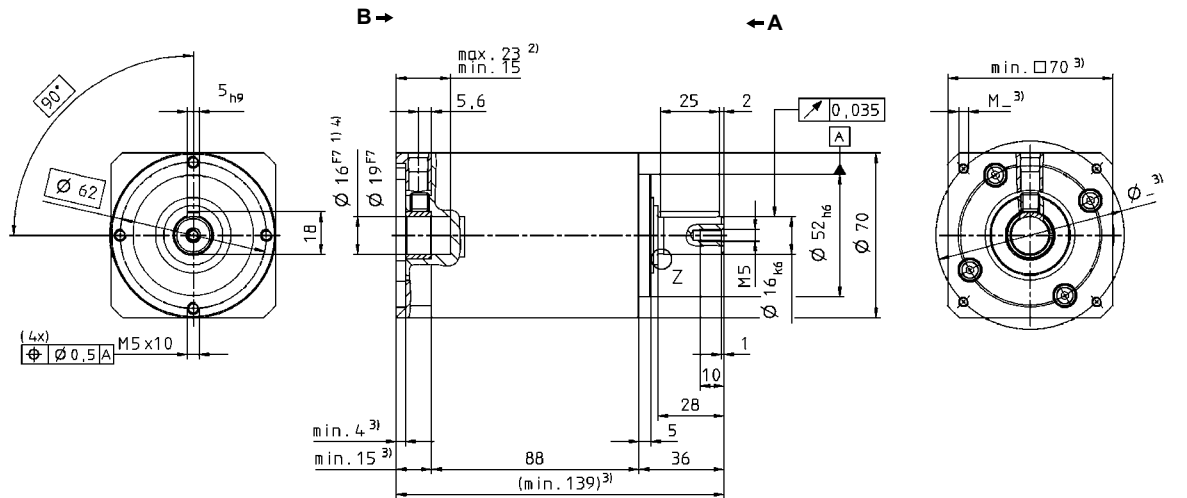
^{b)} For higher ambient temperatures, please reduce input speed

^{c)} Refers to center of the output shaft, if $n_2 = 100$ rpm

LP+ 1-stage:



LP+ 2-stage:



Non-tolerated dimensions ±1mm

- 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. Motor shaft diameters up to 19mm available – please contact WITTENSTEIN alpha

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

Motor mounting according to operating manual

LP+ 090 MF 1/2-stage

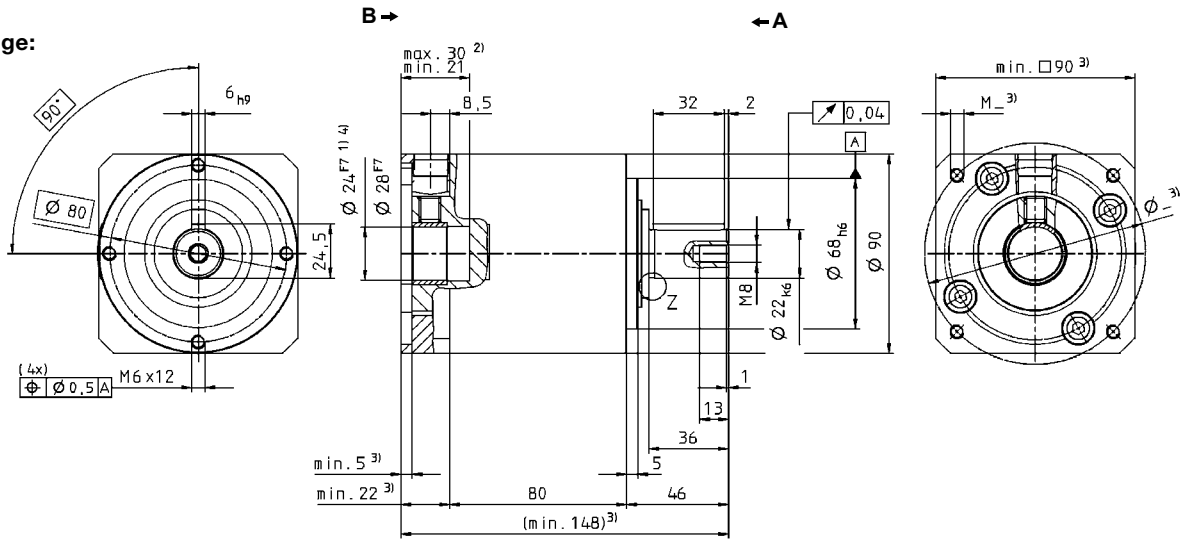
| | | | 1-stage | | | | | 2-stage | | | | | | | | | | |
|---|-------------|-----------------|-----------------------------------|---------------------------------------|------|------|------|---------|------|------|------|------|------|------|------|------|------|-----|
| Ratio ^{a)} | <i>i</i> | | 3 | 4 | 5 | 7 | 10 | 9 | 12 | 16 | 20 | 25 | 30 | 40 | 50 | 70 | 100 | |
| Max. acceleration torque (max. 1000 cycles per hour) | T_{2B} | Nm | 125 | 115 | 100 | 100 | 90 | 125 | 125 | 115 | 115 | 100 | 125 | 115 | 100 | 100 | 90 | |
| | | in.lb | 1110 | 1020 | 890 | 890 | 800 | 1110 | 1110 | 1020 | 1020 | 890 | 1110 | 1020 | 890 | 890 | 800 | |
| Nominal output torque (with n_m) | T_{2N} | Nm | 63 | 58 | 50 | 50 | 45 | 63 | 63 | 58 | 58 | 50 | 63 | 58 | 50 | 50 | 45 | |
| | | in.lb | 560 | 510 | 440 | 440 | 400 | 560 | 560 | 510 | 510 | 440 | 560 | 510 | 440 | 440 | 400 | |
| Emergency stop torque (permitted 1000 times during the service life of the gearhead) | T_{2Not} | Nm | 185 | 190 | 190 | 190 | 190 | 190 | 190 | 190 | 190 | 190 | 190 | 190 | 190 | 190 | 190 | |
| | | in.lb | 1640 | 1680 | 1680 | 1680 | 1680 | 1680 | 1680 | 1680 | 1680 | 1680 | 1680 | 1680 | 1680 | 1680 | 1680 | |
| Nominal input speed (with T_{2N} and 20°C ambient temperature) ^{b)} | n_{1N} | rpm | 3400 | 3400 | 3400 | 3400 | 3400 | 3400 | 3400 | 3400 | 3400 | 3400 | 3400 | 3400 | 3400 | 3400 | 3400 | |
| Max. input speed | n_{1Max} | rpm | 6000 | 6000 | 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) | T_{012} | Nm | 0.6 | 0.6 | 0.5 | 0.4 | 0.4 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | |
| | | in.lb | 5.3 | 4.9 | 4.4 | 3.5 | 3.4 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 | 2.2 | 2.2 | |
| Max. torsional backlash | j_t | arcmin | ≤ 8 | | | | | ≤ 10 | | | | | | | | | | |
| Torsional rigidity | C_{t21} | Nm/arcmin | 12 | 12 | 9.5 | 9.5 | 8.5 | 12 | 12 | 12 | 12 | 9.5 | 9.5 | 12 | 9.5 | 9.5 | 8.5 | |
| | | in.lb/arcmin | 106 | 106 | 84 | 84 | 75 | 106 | 106 | 106 | 106 | 84 | 84 | 106 | 84 | 84 | 75 | |
| Max. axial force ^{c)} | F_{2AMax} | N | 1900 | | | | | 1900 | | | | | | | | | | |
| | | lb _f | 430 | | | | | 430 | | | | | | | | | | |
| Max. radial force ^{c)} | F_{2RMax} | N | 2400 | | | | | 2400 | | | | | | | | | | |
| | | lb _f | 540 | | | | | 540 | | | | | | | | | | |
| Efficiency at full load | η | % | 97 | | | | | 95 | | | | | | | | | | |
| Service life (For calculation, see the Chapter "Information") | L_n | h | > 20000 | | | | | > 20000 | | | | | | | | | | |
| Weight incl. standard adapter plate | <i>m</i> | kg | 4.0 | | | | | 5.0 | | | | | | | | | | |
| | | lb _m | 8.8 | | | | | 11 | | | | | | | | | | |
| Operating noise for $i=10$ and $n_1=3000$ rpm without 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 64 | | | | | | | | | | | | | | | |
| Moment of inertia (relates to the drive) | G | 24 | J_I | kgcm ² | 1.8 | 1.6 | 1.6 | 1.5 | 1.4 | 1.5 | 1.5 | 1.6 | 1.6 | 1.5 | 1.5 | 1.4 | 1.4 | 1.4 |
| | | | | 10 ⁻³ in.lb.s ² | 1.6 | 1.4 | 1.4 | 1.3 | 1.3 | 1.3 | 1.3 | 1.4 | 1.4 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 |
| Clamping hub diameter (mm) | H | 28 | J_I | kgcm ² | 2.1 | 1.9 | 1.9 | 1.8 | 1.7 | 1.8 | 1.8 | 1.9 | 1.9 | 1.8 | 1.8 | 1.7 | 1.7 | 1.7 |
| | | | | 10 ⁻³ in.lb.s ² | 1.9 | 1.7 | 1.6 | 1.6 | 1.5 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.5 | 1.5 | 1.5 |

^{a)} Other ratios are available on request: $i = 15, 21, 28$ and 35 .

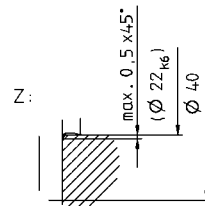
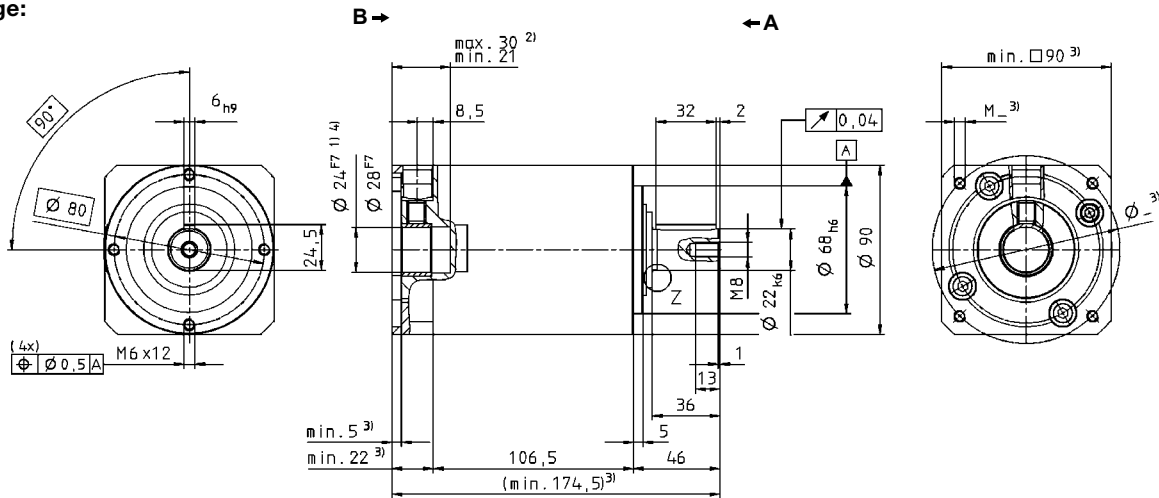
^{b)} For higher ambient temperatures, please reduce input speed

^{c)} Refers to center of the output shaft, if $n_2 = 100$ rpm

LP+ 1-stage:



LP+ 2-stage:



Non-tolerated dimensions $\pm 1\text{mm}$

- 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. Motor shaft diameters up to 28mm available – please contact WITTENSTEIN alpha

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

Motor mounting according to operating manual

LP+ 120 MF 1/2-stage

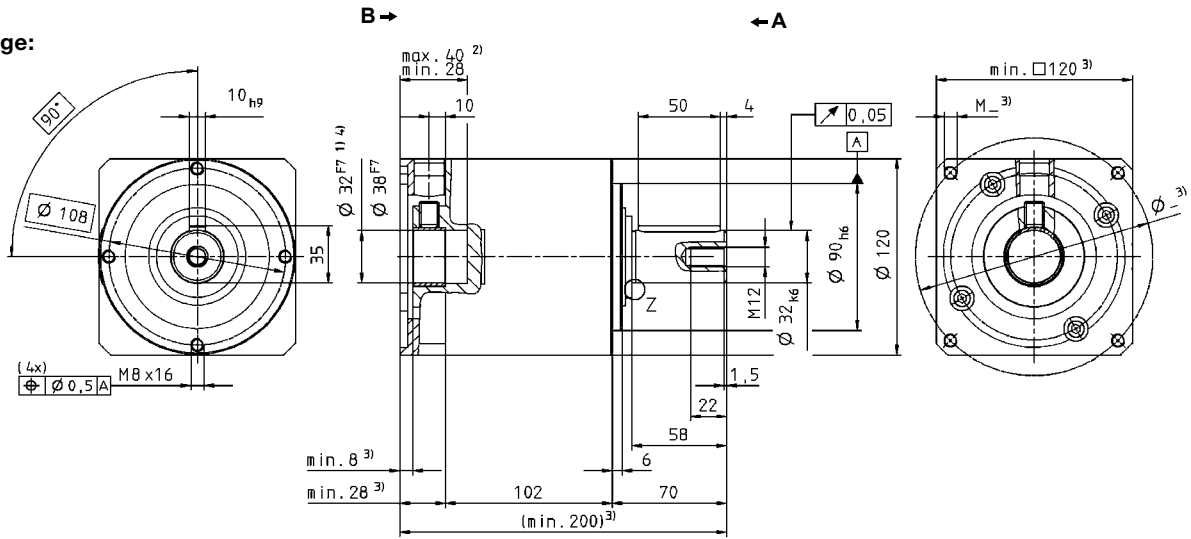
| | | | 1-stage | | | | | 2-stage | | | | | | | | | | |
|---|-------------|-----------------|-----------------------------------|---------------------------------------|------|------|------|---------|------|------|------|------|------|------|------|------|------|-----|
| Ratio ^{a)} | <i>i</i> | | 3 | 4 | 5 | 7 | 10 | 9 | 12 | 16 | 20 | 25 | 30 | 40 | 50 | 70 | 100 | |
| Max. acceleration torque (max. 1000 cycles per hour) | T_{2B} | Nm | 305 | 305 | 250 | 250 | 220 | 305 | 305 | 305 | 305 | 250 | 305 | 305 | 250 | 250 | 220 | |
| | | in.lb | 2700 | 2700 | 2210 | 2210 | 1950 | 2700 | 2700 | 2700 | 2700 | 2210 | 2700 | 2700 | 2210 | 2210 | 1950 | |
| Nominal output torque (with n_m) | T_{2N} | Nm | 155 | 155 | 125 | 125 | 110 | 155 | 155 | 155 | 155 | 125 | 155 | 155 | 125 | 125 | 110 | |
| | | in.lb | 1370 | 1370 | 1110 | 1110 | 970 | 1370 | 1370 | 1370 | 1370 | 1110 | 1370 | 1370 | 1110 | 1110 | 970 | |
| Emergency stop torque (permitted 1000 times during the service life of the gearhead) | T_{2Not} | Nm | 400 | 480 | 480 | 480 | 480 | 480 | 480 | 480 | 480 | 480 | 480 | 480 | 480 | 480 | 480 | |
| | | in.lb | 3540 | 4250 | 4250 | 4250 | 4250 | 4250 | 4250 | 4250 | 4250 | 4250 | 4250 | 4250 | 4250 | 4250 | 4250 | |
| Nominal input speed (with T_{2N} and 20°C ambient temperature) ^{b)} | n_{1N} | rpm | 2600 | 2600 | 2600 | 2600 | 2600 | 2600 | 2600 | 2600 | 2600 | 2600 | 2600 | 2600 | 2600 | 2600 | 2600 | |
| Max. input speed | n_{1Max} | rpm | 4800 | 4800 | 4800 | 4800 | 4800 | 4800 | 4800 | 4800 | 4800 | 4800 | 4800 | 4800 | 4800 | 4800 | 4800 | |
| Mean no load running torque (with $n_1=3000$ rpm and 20°C gearhead temperature) | T_{012} | Nm | 1.1 | 1.0 | 0.9 | 0.8 | 0.8 | 0.6 | 0.6 | 0.6 | 0.5 | 0.5 | 0.4 | 0.5 | 0.4 | 0.4 | 0.4 | |
| | | in.lb | 9.7 | 8.9 | 8.0 | 7.1 | 7.1 | 5.3 | 5.3 | 4.9 | 4.4 | 4.4 | 3.5 | 4.4 | 3.5 | 3.5 | 3.5 | |
| Max. torsional backlash | j_t | arcmin | ≤ 8 | | | | | ≤ 10 | | | | | | | | | | |
| Torsional rigidity | C_{t21} | Nm/arcmin | 30 | 30 | 25 | 25 | 22 | 30 | 30 | 30 | 30 | 25 | 25 | 30 | 25 | 25 | 22 | |
| | | in.lb/arcmin | 270 | 270 | 220 | 220 | 190 | 270 | 270 | 270 | 270 | 220 | 220 | 270 | 220 | 220 | 190 | |
| Max. axial force ^{c)} | F_{2AMax} | N | 4000 | | | | | 4000 | | | | | | | | | | |
| | | lb _f | 900 | | | | | 900 | | | | | | | | | | |
| Max. radial force ^{c)} | F_{2RMax} | N | 4600 | | | | | 4600 | | | | | | | | | | |
| | | lb _f | 1035 | | | | | 1035 | | | | | | | | | | |
| Efficiency at full load | η | % | 97 | | | | | 95 | | | | | | | | | | |
| Service life (For calculation, see the Chapter "Information") | L_n | h | > 20000 | | | | | > 20000 | | | | | | | | | | |
| Weight incl. standard adapter plate | <i>m</i> | kg | 8.6 | | | | | 11.0 | | | | | | | | | | |
| | | lb _m | 19.0 | | | | | 24.3 | | | | | | | | | | |
| Operating noise for $i=10$ and $n_1=3000$ rpm without load | L_{PA} | dB(A) | ≤ 68 | | | | | | | | | | | | | | | |
| 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 64 | | | | | | | | | | | | | | | |
| Moment of inertia (relates to the drive) | I | 32 | J_I | kgcm ² | 6.9 | 5.9 | 5.6 | 5.2 | 5.1 | 5.4 | 5.4 | 5.5 | 5.5 | 5.3 | 5.3 | 5.0 | 5.0 | 5.0 |
| | | | | 10 ⁻³ in.lb.s ² | 6.1 | 5.3 | 4.9 | 4.6 | 4.5 | 4.7 | 4.7 | 4.9 | 4.9 | 4.7 | 4.7 | 4.4 | 4.4 | 4.4 |
| Clamping hub diameter (mm) | K | 38 | J_I | kgcm ² | 7.8 | 6.8 | 6.4 | 6.1 | 5.9 | 6.2 | 6.2 | 6.4 | 6.4 | 6.2 | 6.2 | 5.9 | 5.9 | 5.9 |
| | | | | 10 ⁻³ in.lb.s ² | 6.9 | 6.0 | 5.7 | 5.4 | 5.2 | 5.5 | 5.5 | 5.7 | 5.7 | 5.5 | 5.5 | 5.2 | 5.2 | 5.2 |

^{a)} Other ratios are available on request: $i = 15, 21, 28$ and 35 .

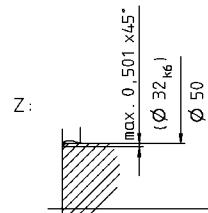
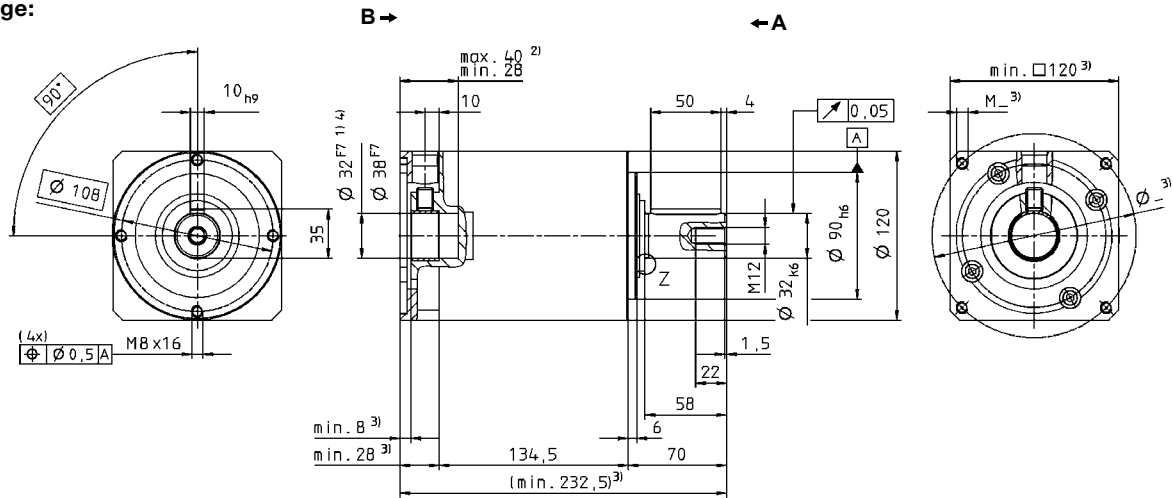
^{b)} For higher ambient temperatures, please reduce input speed

^{c)} Refers to center of the output shaft, if $n_2 = 100$ rpm

LP+ 1-stage:



LP+ 2-stage:



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. Motor shaft diameters up to 38mm available – please contact WITTENSTEIN alpha

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

Motor mounting according to operating manual

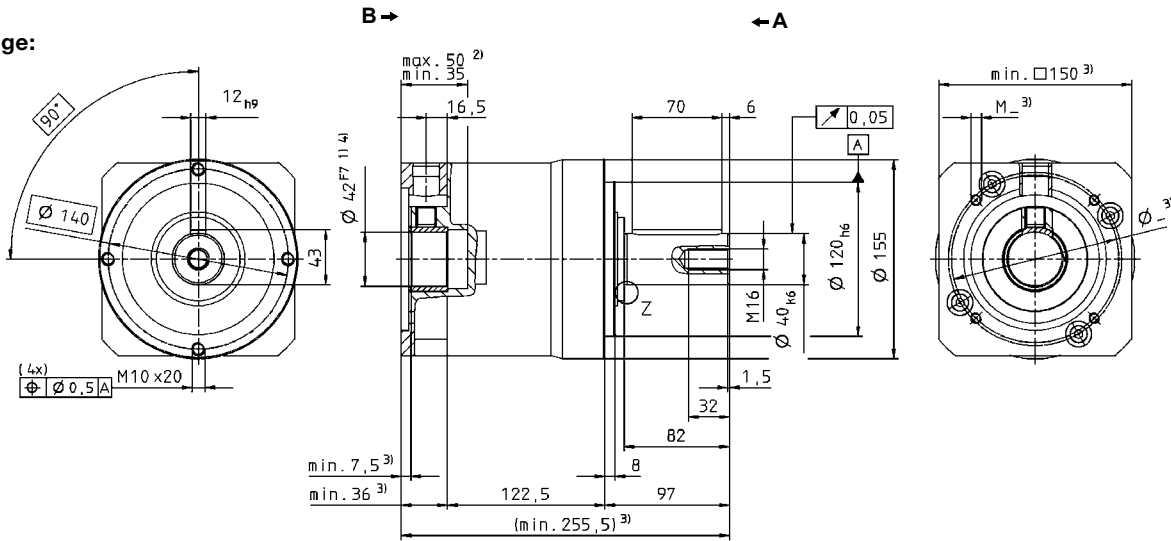
LP+ 155 MF 1/2-stage

| | | | 1-stage | | 2-stage | | | | |
|---|-----------------------------------|-----------------|---------|---------------------------------------|---------|---------|------|-----|-----|
| Ratio | <i>i</i> | | 5 | 10 | 25 | 50 | 100 | | |
| Max. acceleration torque (max. 1000 cycles per hour) | T_{2B} | Nm | 500 | 400 | 500 | 500 | 400 | | |
| | | in.lb | 4430 | 3540 | 4430 | 4430 | 3540 | | |
| Nominal output torque (with n_m) | T_{2N} | Nm | 350 | 200 | 350 | 350 | 200 | | |
| | | in.lb | 3100 | 1770 | 3100 | 3100 | 1770 | | |
| Emergency stop torque (permitted 1000 times during the service life of the gearhead) | T_{2Not} | Nm | 1000 | 1000 | 1000 | 1000 | 1000 | | |
| | | in.lb | 8850 | 8850 | 8850 | 8850 | 8850 | | |
| Nominal input speed (with T_{2N} and 20°C ambient temperature) ^{a)} | n_{1N} | rpm | 2000 | 2000 | 2000 | 2000 | 2000 | | |
| Max. input speed | n_{1Max} | rpm | 3600 | 3600 | 3600 | 3600 | 3600 | | |
| Mean no load running torque (with $n_1=3000$ rpm and 20°C gearhead temperature) | T_{012} | Nm | 2.8 | 2.5 | 1.0 | 0.8 | 0.7 | | |
| | | in.lb | 25 | 22 | 8.9 | 7.1 | 6.2 | | |
| Max. torsional backlash | j_t | arcmin | ≤ 8 | | ≤ 10 | | | | |
| Torsional rigidity | C_{t21} | Nm/ arcmin | 55 | 44 | 55 | 55 | 44 | | |
| | | in.lb/ arcmin | 490 | 390 | 490 | 490 | 390 | | |
| Max. axial force ^{b)} | F_{2AMax} | N | 6000 | | | 6000 | | | |
| | | lb _f | 1350 | | | 1350 | | | |
| Max. radial force ^{b)} | F_{2RMax} | N | 7500 | | | 7500 | | | |
| | | lb _f | 1690 | | | 1690 | | | |
| Efficiency at full load | η | % | 97 | | | 95 | | | |
| Service life (For calculation, see the Chapter "Information") | L_n | h | > 20000 | | | > 20000 | | | |
| Weight incl. standard adapter plate | <i>m</i> | kg | 17 | | | 21 | | | |
| | | lb _m | 38 | | | 46 | | | |
| Operating noise for $i=10$ and $n_1=3000$ rpm without load | L_{PA} | dB(A) | ≤ 69 | | | | | | |
| 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 64 | | | | | | | | |
| Moment of inertia (relates to the drive) | L | 42 | J_1 | kgcm ² | 17 | 16 | – | – | – |
| | | | | 10 ⁻³ in.lb.s ² | 15 | 14 | – | – | – |
| Clamping hub diameter (mm) | I | 32 | J_1 | kgcm ² | – | – | 5.4 | 5.0 | 5.0 |
| | | | | 10 ⁻³ in.lb.s ² | – | – | 4.8 | 4.4 | 4.4 |
| | K | 38 | J_1 | kgcm ² | – | – | 6.3 | 5.9 | 5.9 |
| | | | | 10 ⁻³ in.lb.s ² | – | – | 5.5 | 5.2 | 5.2 |

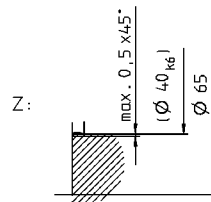
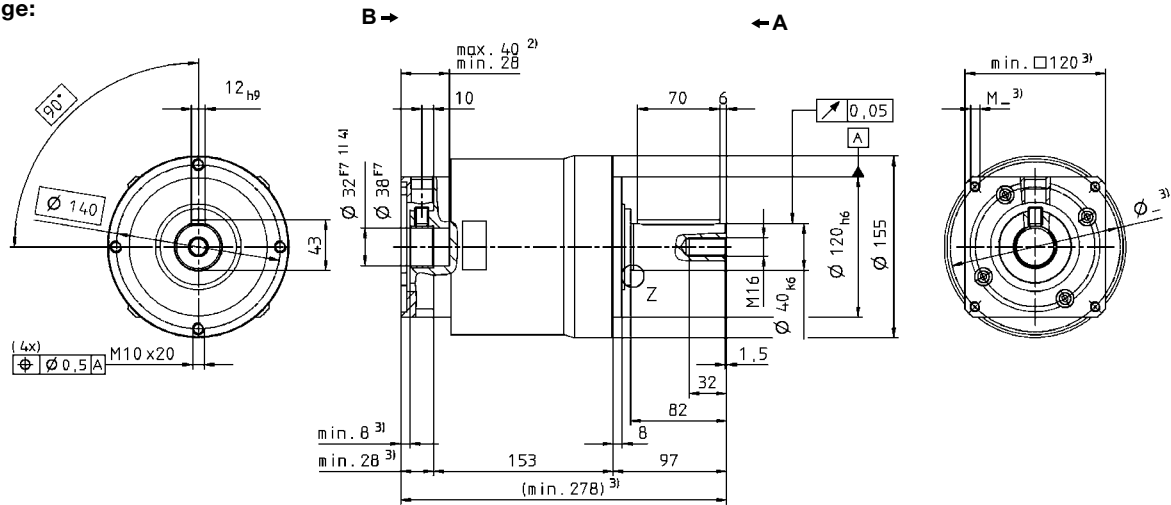
^{a)} For higher ambient temperatures, please reduce input speed

^{b)} Refers to center of the output shaft, if $n_2 = 100$ rpm

LP+ 1-stage:





LP+ 2-stage:



Non-tolerated dimensions $\pm 1\text{mm}$

- 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.
LP+ 2-stage: Motor shaft diameters up to 38mm available – please contact WITTENSTEIN alpha

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

 Motor mounting according to operating manual

LPB+ 070 MF 1/2-stage

| | | | 1-stage | | | | | 2-stage | | | | | | | | | |
|---|-----------------------------------|-----------------|---------|---------------------------------------|------|------|---------|---------|------|------|------|------|------|------|------|------|------|
| Ratio ^{d)} | <i>i</i> | | 3 | 4 | 5 | 7 | 10 | 9 | 12 | 16 | 20 | 25 | 30 | 40 | 50 | 70 | 100 |
| Max. acceleration torque (max. 1000 cycles per hour) | T_{2B} | Nm | 55 | 42 | 40 | 40 | 37 | 55 | 55 | 42 | 42 | 40 | 55 | 42 | 40 | 40 | 37 |
| | | in.lb | 490 | 370 | 350 | 350 | 330 | 490 | 490 | 370 | 370 | 350 | 490 | 370 | 350 | 350 | 350 |
| Nominal output torque (with n_m) | T_{2N} | Nm | 29 | 22 | 21 | 21 | 19 | 29 | 29 | 22 | 22 | 21 | 29 | 22 | 21 | 21 | 19 |
| | | in.lb | 260 | 190 | 190 | 190 | 170 | 260 | 260 | 190 | 190 | 190 | 260 | 190 | 190 | 190 | 170 |
| Emergency stop torque (permitted 1000 times during the service life of the gearhead) | T_{2Not} | Nm | 65 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| | | in.lb | 580 | 660 | 660 | 660 | 660 | 660 | 660 | 660 | 660 | 660 | 660 | 660 | 660 | 660 | 660 |
| Nominal input speed (with T_{2N} and 20°C ambient temperature) ^{a)} | n_{1N} rpm | | 3700 | 3700 | 3700 | 3700 | 3700 | 3700 | 3700 | 3700 | 3700 | 3700 | 3700 | 3700 | 3700 | 3700 | 3700 |
| Max. input speed | n_{1Max} rpm | | 6000 | 6000 | 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) | T_{012} | Nm | 0.3 | 0.3 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| | | in.lb | 2.7 | 2.2 | 1.8 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 |
| Max. torsional backlash | j_t arcmin | | ≤ 8 | | | | | ≤ 10 | | | | | | | | | |
| Torsional rigidity | C_{d21} | Nm/arcmin | 6.4 | 6.4 | 4.8 | 4.8 | 3.8 | 6.4 | 6.4 | 6.4 | 6.4 | 4.8 | 6.4 | 6.4 | 4.8 | 4.8 | 4.8 |
| | | in.lb/arcmin | 55 | 55 | 40 | 40 | 35 | 55 | 55 | 55 | 55 | 40 | 55 | 55 | 40 | 40 | 35 |
| Max. axial force ^{b)} | F_{2AMax} | N | 1550 | | | | | 1550 | | | | | | | | | |
| | | lb _f | 350 | | | | | 350 | | | | | | | | | |
| Max. radial force ^{c)} | F_{2RMax} | N | 3000 | | | | | 3000 | | | | | | | | | |
| | | lb _f | 680 | | | | | 680 | | | | | | | | | |
| Efficiency at full load | η % | 97 | | | | | 95 | | | | | | | | | | |
| Service life (For calculation, see the Chapter "Information") | L_n h | > 20000 | | | | | > 20000 | | | | | | | | | | |
| Weight incl. standard adapter plate | <i>m</i> | kg | 1.6 | | | | | 2 | | | | | | | | | |
| | | lb _m | 3.5 | | | | | 4.4 | | | | | | | | | |
| Operating noise for $i=10$ and $n_1=3000$ 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 64 | | | | | | | | | | | | | | | | |
| Moment of inertia (relates to the drive) | D | 16 | J_I | kgcm ² | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| | | | | 10 ⁻³ in.lb.s ² | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Clamping hub diameter (mm) | E | 19 | J_I | kgcm ² | 0.6 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | |
| | | | | 10 ⁻³ in.lb.s ² | 0.5 | 0.5 | 0.5 | 0.4 | 0.4 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.4 | 0.4 |

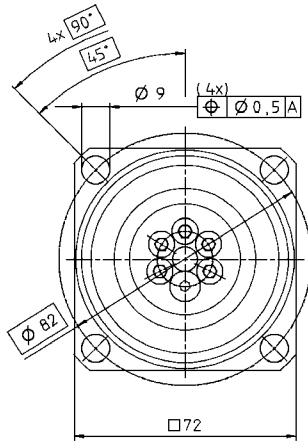
^{a)} For higher ambient temperatures, please reduce input speed

^{b)} Based on the center of the output flange at $n_2 = 100$ rpm

^{c)} With mounted PLPB+ belt pulley and 100 rpm

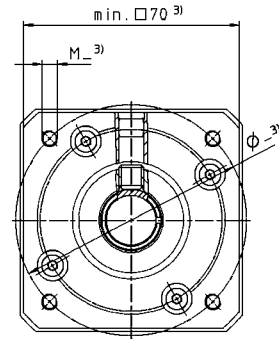
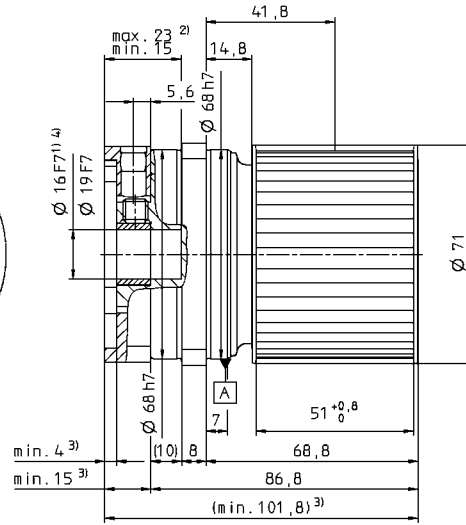
^{d)} Other ratios are available on request: $i = 15, 21, 28$ and 35 .

LPB+ 1-stage:

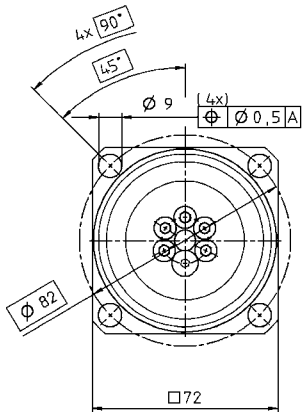


B →

← A

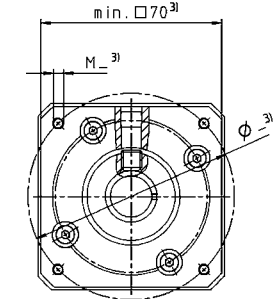
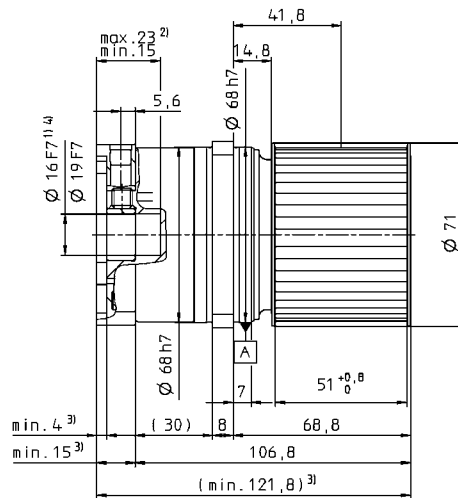


LPB+ 2-stage:



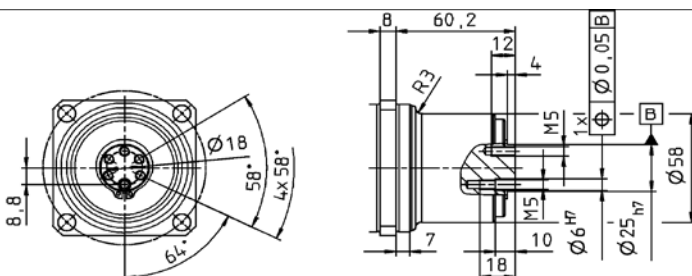
B →

← A



Supplement: Belt pulley PLPB+ 070 Profile AT5-0
 delivery – please order separately)

Illustration: Output flange without belt pulley



| Belt Pulley PLPB+ 070 Profile AT5-0 | | | |
|-------------------------------------|---------|-------------------|------|
| Pitch | p | mm | 5 |
| Number of teeth | z | | 43 |
| Circumference | $z * p$ | mm/rotation | 215 |
| Inertia | J | kgcm ² | 3.86 |
| Mass | m | kg | 0.48 |

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. Motor shaft diameters up to 19mm available – please contact WITTENSTEIN alpha

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

Motor mounting according to operating manual

LPB+ 090 MF 1/2-stage

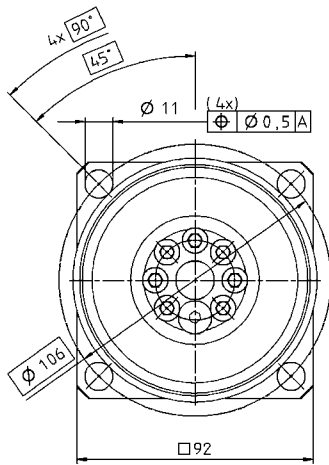
| | | | 1-stage | | | | | 2-stage | | | | | | | | | | |
|---|-----------------------------------|-----------------|---------|---------------------------------------|------|------|---------|---------|------|------|------|------|------|------|------|------|------|-----|
| Ratio ^{d)} | <i>i</i> | | 3 | 4 | 5 | 7 | 10 | 9 | 12 | 16 | 20 | 25 | 30 | 40 | 50 | 70 | 100 | |
| Max. acceleration torque (max. 1000 cycles per hour) | T_{2B} | Nm | 125 | 115 | 100 | 100 | 90 | 125 | 125 | 115 | 115 | 100 | 125 | 115 | 100 | 100 | 90 | |
| | | in.lb | 1110 | 1020 | 890 | 890 | 800 | 1110 | 1110 | 1020 | 1020 | 890 | 1110 | 1020 | 890 | 890 | 800 | |
| Nominal output torque (with n_m) | T_{2N} | Nm | 63 | 58 | 50 | 50 | 45 | 63 | 63 | 58 | 58 | 50 | 63 | 58 | 50 | 50 | 45 | |
| | | in.lb | 560 | 510 | 440 | 440 | 400 | 560 | 560 | 510 | 510 | 440 | 560 | 510 | 440 | 440 | 400 | |
| Emergency stop torque (permitted 1000 times during the service life of the gearhead) | T_{2Not} | Nm | 185 | 190 | 190 | 190 | 190 | 190 | 190 | 190 | 190 | 190 | 190 | 190 | 190 | 190 | 190 | |
| | | in.lb | 1640 | 1680 | 1680 | 1680 | 1680 | 1680 | 1680 | 1680 | 1680 | 1680 | 1680 | 1680 | 1680 | 1680 | 1680 | |
| Nominal input speed (with T_{2N} and 20°C ambient temperature) ^{a)} | n_{1N} rpm | | 3400 | 3400 | 3400 | 3400 | 3400 | 3400 | 3400 | 3400 | 3400 | 3400 | 3400 | 3400 | 3400 | 3400 | 3400 | |
| Max. input speed | n_{1Max} rpm | | 6000 | 6000 | 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) | T_{012} | Nm | 0.6 | 0.6 | 0.5 | 0.4 | 0.4 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | |
| | | in.lb | 5.3 | 4.9 | 4.4 | 3.5 | 3.4 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 | 2.2 | 2.2 | |
| Max. torsional backlash | j_t arcmin | | ≤ 8 | | | | | ≤ 10 | | | | | | | | | | |
| Torsional rigidity | C_{d21} | Nm/arcmin | 20 | 20 | 14 | 14 | 12 | 20 | 20 | 20 | 20 | 14 | 20 | 20 | 14 | 14 | 12 | |
| | | in.lb/arcmin | 180 | 180 | 120 | 120 | 110 | 180 | 180 | 180 | 180 | 120 | 180 | 180 | 120 | 120 | 110 | |
| Max. axial force ^{b)} | F_{2AMax} | N | 1900 | | | | | 1900 | | | | | | | | | | |
| | | lb _f | 430 | | | | | 430 | | | | | | | | | | |
| Max. radial force ^{c)} | F_{2RMax} | N | 4300 | | | | | 4300 | | | | | | | | | | |
| | | lb _f | 970 | | | | | 970 | | | | | | | | | | |
| Efficiency at full load | η % | 97 | | | | | 95 | | | | | | | | | | | |
| Service life (For calculation, see the Chapter "Information") | L_n h | > 20000 | | | | | > 20000 | | | | | | | | | | | |
| Weight incl. standard adapter plate | <i>m</i> | kg | 3.3 | | | | | 4.3 | | | | | | | | | | |
| | | lb _m | 7.3 | | | | | 10 | | | | | | | | | | |
| Operating noise for $i=10$ and $n_1=3000$ rpm without 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 64 | | | | | | | | | | | | | | | | | |
| Moment of inertia (relates to the drive) | G | 24 | J_I | kgcm ² | 1.8 | 1.6 | 1.5 | 1.5 | 1.4 | 1.5 | 1.5 | 1.6 | 1.6 | 1.5 | 1.5 | 1.4 | 1.4 | 1.4 |
| | | | | 10 ⁻³ in.lb.s ² | 1.6 | 1.4 | 1.4 | 1.3 | 1.3 | 1.3 | 1.3 | 1.4 | 1.4 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 |
| Clamping hub diameter (mm) | H | 28 | J_I | kgcm ² | 2 | 1.9 | 1.8 | 1.8 | 1.7 | 1.8 | 1.8 | 1.9 | 1.9 | 1.8 | 1.8 | 1.7 | 1.7 | 1.7 |
| | | | | 10 ⁻³ in.lb.s ² | 1.9 | 1.7 | 1.6 | 1.6 | 1.5 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.5 | 1.5 | 1.5 |

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

^{b)} Based on the center of the output flange at $n_2 = 100$ rpm

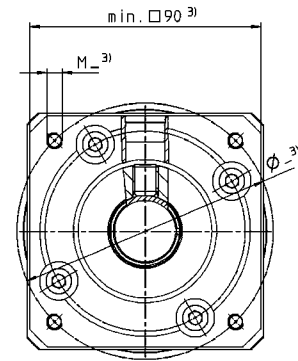
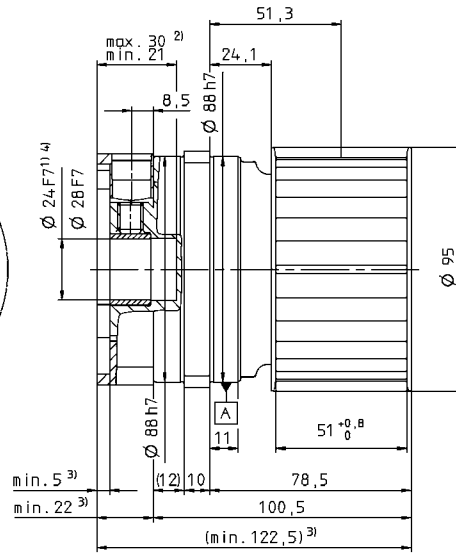
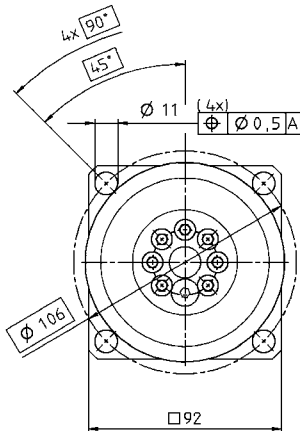
^{c)} With mounted PLPB+ belt pulley and 100 rpm

^{d)} Other ratios are available on request: $i = 15, 21, 28$ and 35 .

LPB⁺ 1-stage:

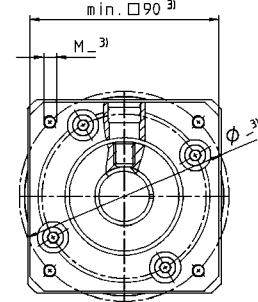
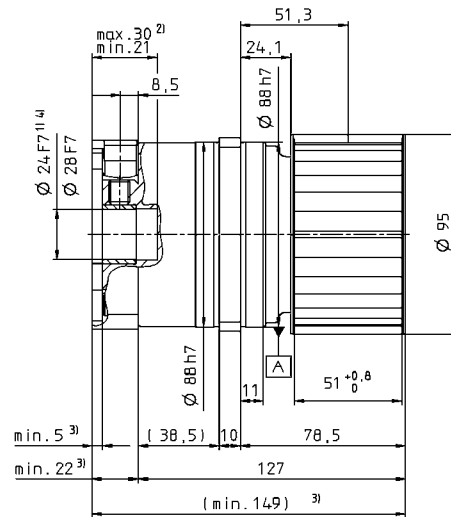
B →

← A

LPB⁺ 2-stage:

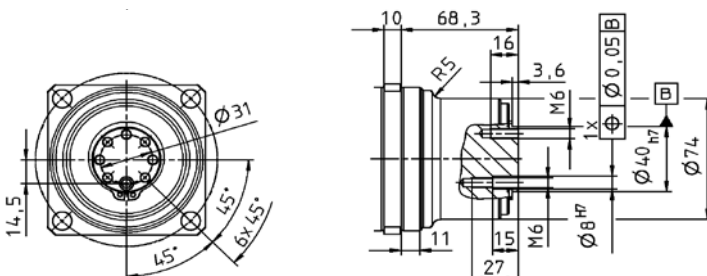
B →

← A



Supplement: Belt pulley PLPB⁺ (not included in the scope of delivery – please order separately)

Illustration: Output flange without belt pulley



| Belt Pulley PLPB ⁺ 090 Profile AT10-0 | | | |
|--|-------------|-------------------|-------|
| Pitch | p | mm | 10 |
| Number of teeth | z | | 28 |
| Circumference | $z \cdot p$ | mm/rotation | 280 |
| Inertia | J | kgcm ² | 10.95 |
| Mass | m | kg | 0.82 |

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. Motor shaft diameters up to 28mm available – please contact WITTENSTEIN alpha

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

Motor mounting according to operating manual

LPB+ 120 MF 1/2-stage

| | | | 1-stage | | | | | 2-stage | | | | | | | | | | |
|---|-----------------------------------|-----------------|---------|---------------------------------------|------|------|---------|---------|------|------|------|------|------|------|------|------|------|-----|
| Ratio ^{d)} | <i>i</i> | | 3 | 4 | 5 | 7 | 10 | 9 | 12 | 16 | 20 | 25 | 30 | 40 | 50 | 70 | 100 | |
| Max. acceleration torque (max. 1000 cycles per hour) | T_{2B} | Nm | 305 | 305 | 250 | 250 | 220 | 305 | 305 | 305 | 305 | 250 | 305 | 305 | 250 | 250 | 220 | |
| | | in.lb | 2700 | 2700 | 2210 | 2210 | 1950 | 2700 | 2700 | 2700 | 2700 | 2210 | 2700 | 2700 | 2210 | 2210 | 1950 | |
| Nominal output torque (with n_m) | T_{2N} | Nm | 155 | 155 | 125 | 125 | 110 | 155 | 155 | 155 | 155 | 125 | 155 | 155 | 125 | 125 | 110 | |
| | | in.lb | 1370 | 1370 | 1110 | 1110 | 970 | 1370 | 1370 | 1370 | 1370 | 1110 | 1370 | 1370 | 1110 | 1110 | 970 | |
| Emergency stop torque (permitted 1000 times during the service life of the gearhead) | T_{2Not} | Nm | 400 | 480 | 480 | 480 | 480 | 480 | 480 | 480 | 480 | 480 | 480 | 480 | 480 | 480 | 480 | |
| | | in.lb | 3540 | 4250 | 4250 | 4250 | 4250 | 4250 | 4250 | 4250 | 4250 | 4250 | 4250 | 4250 | 4250 | 4250 | 4250 | |
| Nominal input speed (with T_{2N} and 20°C ambient temperature) ^{a)} | n_{1N} rpm | | 2600 | 2600 | 2600 | 2600 | 2600 | 2600 | 2600 | 2600 | 2600 | 2600 | 2600 | 2600 | 2600 | 2600 | 2600 | |
| Max. input speed | n_{1Max} rpm | | 4800 | 4800 | 4800 | 4800 | 4800 | 4800 | 4800 | 4800 | 4800 | 4800 | 4800 | 4800 | 4800 | 4800 | 4800 | |
| Mean no load running torque (with $n_1=3000$ rpm and 20°C gearhead temperature) | T_{012} | Nm | 1.1 | 1.0 | 0.9 | 0.8 | 0.8 | 0.6 | 0.6 | 0.6 | 0.5 | 0.5 | 0.4 | 0.5 | 0.4 | 0.4 | 0.4 | |
| | | in.lb | 9.7 | 8.9 | 8.0 | 7.1 | 7.1 | 5.3 | 5.3 | 4.9 | 4.4 | 4.4 | 3.5 | 4.4 | 3.5 | 3.5 | 3.5 | |
| Max. torsional backlash | j_t arcmin | | ≤ 8 | | | | | ≤ 10 | | | | | | | | | | |
| Torsional rigidity | C_{d21} | Nm/arcmin | 47 | 47 | 36 | 36 | 30 | 47 | 47 | 47 | 47 | 36 | 47 | 47 | 36 | 36 | 30 | |
| | | in.lb/arcmin | 420 | 420 | 320 | 320 | 270 | 420 | 420 | 420 | 420 | 320 | 420 | 420 | 320 | 320 | 270 | |
| Max. axial force ^{b)} | F_{2AMax} | N | 4000 | | | | | 4000 | | | | | | | | | | |
| | | lb _f | 900 | | | | | 900 | | | | | | | | | | |
| Max. radial force ^{c)} | F_{2RMax} | N | 9500 | | | | | 9500 | | | | | | | | | | |
| | | lb _f | 2140 | | | | | 2140 | | | | | | | | | | |
| Efficiency at full load | η % | 97 | | | | | 95 | | | | | | | | | | | |
| Service life (For calculation, see the Chapter "Information") | L_n h | > 20000 | | | | | > 20000 | | | | | | | | | | | |
| Weight incl. standard adapter plate | <i>m</i> | kg | 7.3 | | | | | 9.7 | | | | | | | | | | |
| | | lb _m | 16 | | | | | 21 | | | | | | | | | | |
| Operating noise for $i=10$ and $n_1=3000$ rpm without load | L_{PA} dB(A) | ≤ 68 | | | | | | | | | | | | | | | | |
| 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 64 | | | | | | | | | | | | | | | | | |
| Moment of inertia (relates to the drive) | <i>I</i> | 32 | J_I | kgcm ² | 6.8 | 5.9 | 5.6 | 5.2 | 5.1 | 5.4 | 5.4 | 5.5 | 5.5 | 5.3 | 5.3 | 5.0 | 5.0 | 5.0 |
| | | | | 10 ⁻³ in.lb.s ² | 6.1 | 5.2 | 4.9 | 4.6 | 4.5 | 4.7 | 4.7 | 4.9 | 4.9 | 4.7 | 4.7 | 4.4 | 4.4 | 4.4 |
| Clamping hub diameter (mm) | <i>K</i> | 38 | J_I | kgcm ² | 7.7 | 6.8 | 6.4 | 6.1 | 5.9 | 6.2 | 6.2 | 6.4 | 6.4 | 6.2 | 6.2 | 5.9 | 5.9 | 5.9 |
| | | | | 10 ⁻³ in.lb.s ² | 6.8 | 6.0 | 5.7 | 5.4 | 5.2 | 5.5 | 5.5 | 5.7 | 5.7 | 5.5 | 5.5 | 5.2 | 5.2 | 5.2 |

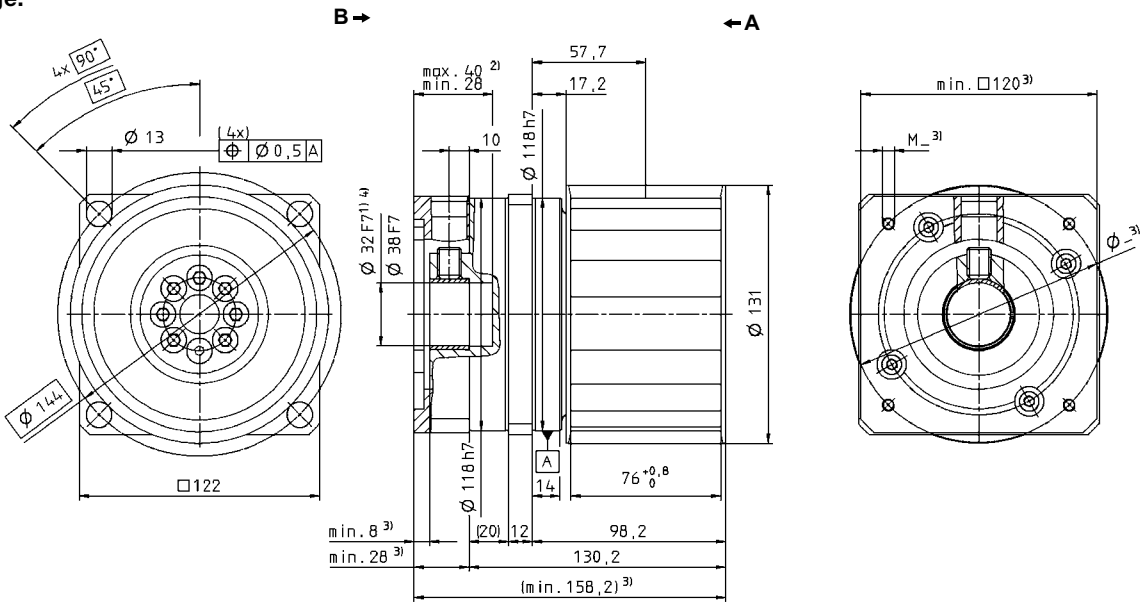
^{a)} For higher ambient temperatures, please reduce input speed

^{b)} Based on the center of the output flange at $n_2 = 100$ rpm

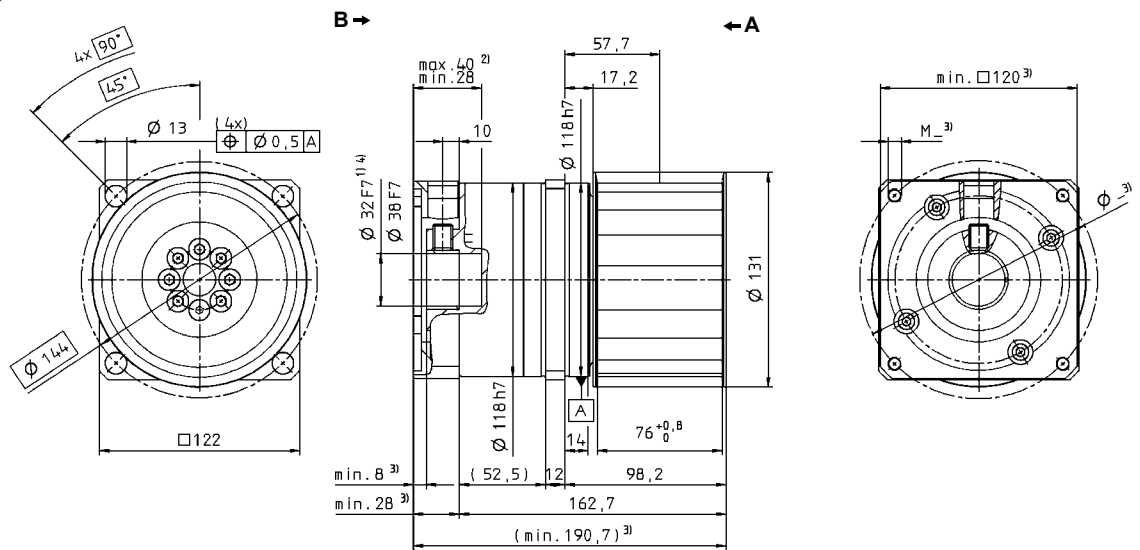
^{c)} With mounted PLPB+ belt pulley and 100 rpm

^{d)} Other ratios are available on request: $i = 28$.

LPB⁺ 1-stage:

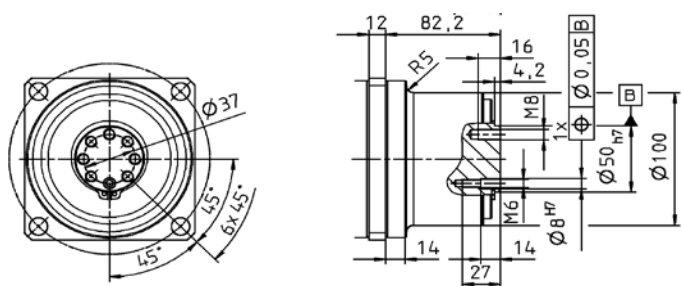


LPB⁺ 2-stage:



Supplement: Belt pulley PLPB⁺ (not included in the scope of delivery – please order separately)

Illustration: Output flange without belt pulley



| Belt Pulley PLPB ⁺ 120 Profile AT20-0 | | | |
|--|--------------|-------------------|-------|
| Pitch | <i>p</i> | mm | 20 |
| Number of teeth | <i>z</i> | | 19 |
| Circumference | <i>z * p</i> | mm/rotation | 380 |
| Inertia | <i>J</i> | kgcm ² | 50.62 |
| Mass | <i>m</i> | kg | 2.61 |

- Non-tolerated dimensions ±1mm
- 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. Motor shaft diameters up to 38mm available – please contact WITTENSTEIN alpha

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

Motor mounting according to operating manual

Planetary gearheads
General

LPB⁺
Generation 3