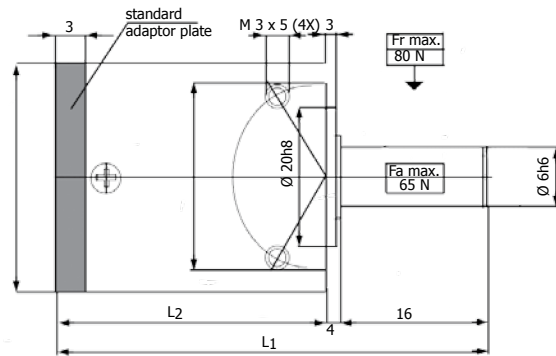


| RATIOS | | |
|---------|---------|---------|
| 1-Stage | 2-Stage | 3-Stage |
| 4:1 | 16:1 | 64:1 |
| 5:1 | 20:1 | 80:1 |
| 7:1 | 28:1 | 112:1 |
| | 35:1 | 140:1 |
| | 49:1 | 196:1 |
| | | 245:1 |
| | | 343:1 |

| TECHNICAL DATA | | 1-STAGE | 2-STAGE | 3-STAGE |
|----------------|----|---------|---------|---------|
| Gearbox weight | kg | 0.050 | 0.075 | 0.100 |
| Dimension L1 | mm | 38 | 45 | 52 |
| Dimension L2 | mm | 23 | 30 | 37 |

Actual ratios are rounded to the nearest integer

| PARAMETER | | 1-STAGE | 2-STAGE | 3-STAGE |
|---|----------------------------|------------|------------|------------|
| Rated Torque in Nm (S1) | Type Standard | 0.1 | 0.5 | 1.5 |
| Rated Torque in Nm (S1) | Type R Reduced | 0.1 | 0.5 | 1.5 |
| Emergency Stop torque in Nm | | 0.2 | 1 | 3 |
| Rated Torque in Nm (S5) | Type S Low Backlash | - | - | - |
| Rated Torque in Nm (S5) | Type V Heavy Duty | 0.2 | 1 | - |
| Emergency Stop torque in Nm | | 0.4 | 1.5 | 3 |
| Efficiency at full load | % | 96 | 90 | 85 |
| Average mass inertia at drive | kgcm ² | 0.008 | 0.006 | 0.004 |
| No-Load backlash Type Standard | arcmin ≤ | 20 | 35 | 50 |
| No-load backlash Type V Heavy Duty | arcmin ≤ | 20 | 35 | - |
| No-load backlash Type R Reduced | arcmin ≤ | 10 | 20 | 30 |
| No-load backlash Type S Low Backlash | arcmin ≤ | - | - | - |
| Torsional stiffness | Nm/arcmin | 0.19 | 0.21 | 0.20 |
| Rated speed at drive | min ¹ ≤ | 6,000 | 6,000 | 6,000 |
| Max. rated speed at drive | min ¹ ≤ | 10,000 | 10,000 | 10,000 |
| Temperature range | °C | -30 to +90 | -30 to +90 | -30 to +90 |
| Protection class | IP | 44 | 44 | 44 |
| Service life | h | ~10,000 | ~10,000 | ~10,000 |



SPECIFICATIONS

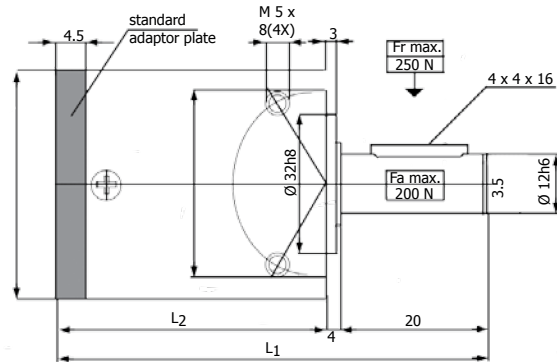
| 1-Stage | 2-Stage | 3-Stage |
|---------|---------|---------|
| *2:1 | *9:1 | 64:1 |
| 4:1 | 12:1 | 72:1 |
| 5:1 | 16:1 | 81:1 |
| 6:1 | 18:1 | 100:1 |
| 8:1 | 21:1 | 130:1 |
| | 25:1 | 144:1 |
| | 29:1 | 176:1 |
| | 32:1 | 200:1 |
| | 36:1 | 225:1 |
| | 42:1 | 256:1 |
| | 50:1 | 288:1 |
| | 64:1 | 333:1 |
| | | 400:1 |
| | | 512:1 |

* Type Standard only

Actual ratios are rounded to the nearest integer

| TECHNICAL DATA | | 1-STAGE | 2-STAGE | 3-STAGE |
|----------------|----|---------|---------|---------|
| Gearbox weight | kg | 0.135 | 0.180 | 0.250 |
| Dimension L1 | mm | 52 | 61 | 70 |
| Dimension L2 | mm | 32 | 41 | 50 |

| PARAMETER | | 1-STAGE | 2-STAGE | 3-STAGE |
|---|----------------------------|------------|------------|------------|
| Rated Torque in Nm (S1) | Type Standard | 0.4 | 2 | 6 |
| Rated Torque in Nm (S1) | Type R Reduced | 0.4 | 2 | 6 |
| Emergency Stop torque in Nm | | 0.8 | 4 | 12 |
| Rated Torque in Nm (S5) | Type S Low Backlash | 0.8 | 4 | 6 |
| Rated Torque in Nm (S5) | Type V Heavy Duty | 0.8 | 4 | - |
| Emergency Stop torque in Nm | | 1.6 | 6 | 12 |
| Efficiency at full load | % | 96 | 90 | 85 |
| Average mass inertia at drive | kgcm ² | 0.015 | 0.012 | 0.011 |
| No-Load backlash Type Standard | arcmin ≤ | 20 | 35 | 50 |
| No-load backlash Type V Heavy Duty | arcmin ≤ | 20 | 35 | - |
| No-load backlash Type R Reduced | arcmin ≤ | 10 | 20 | 30 |
| No-load backlash Type S Low Backlash | arcmin ≤ | 6 | 10 | 15 |
| Torsional stiffness | Nm/arcmin | 0.3 | 0.32 | 0.3 |
| Rated speed at drive | min ¹ ≤ | 5,000 | 5,000 | 5,000 |
| Max. rated speed at drive | min ¹ ≤ | 8,000 | 8,000 | 8,000 |
| Temperature range | °C | -30 to +90 | -30 to +90 | -30 to +90 |
| Protection class | IP | 54 | 54 | 54 |
| Service life | h | ~10,000 | ~10,000 | ~10,000 |



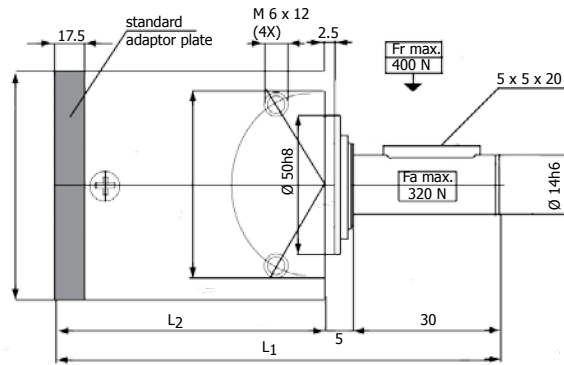
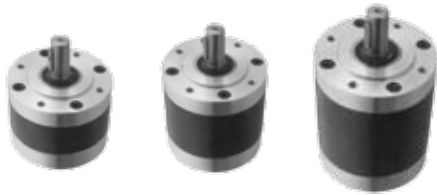
| RATIOS | | |
|---------|---------|---------|
| 1-Stage | 2-Stage | 3-Stage |
| *2:1 | *9:1 | 64:1 |
| 4:1 | 12:1 | 72:1 |
| 5:1 | 16:1 | 81:1 |
| 6:1 | 18:1 | 100:1 |
| 8:1 | 21:1 | 130:1 |
| | 25:1 | 144:1 |
| | 29:1 | 176:1 |
| | 32:1 | 200:1 |
| | 36:1 | 225:1 |
| | 42:1 | 256:1 |
| | 50:1 | 288:1 |
| | 64:1 | 333:1 |
| | | 400:1 |
| | | 512:1 |

* Type Standard only

Actual ratios are rounded to the nearest integer

| TECHNICAL DATA | | 1-STAGE | 2-STAGE | 3-STAGE |
|----------------|----|---------|---------|---------|
| Gearbox weight | kg | 0.475 | 0.600 | 0.725 |
| Dimension L1 | mm | 69.5 | 84 | 98.5 |
| Dimension L2 | mm | 45.5 | 60 | 74.5 |

| PARAMETER | | 1-STAGE | 2-STAGE | 3-STAGE |
|---|----------------------------|------------|------------|------------|
| Rated Torque in Nm (S1) | Type Standard | 1.5 | 10 | 30 |
| Rated Torque in Nm (S1) | Type R Reduced | 1.5 | 10 | 30 |
| Emergency Stop torque in Nm | | 3 | 20 | 60 |
| Rated Torque in Nm (S5) | Type S Low Backlash | 3 | 20 | 30 |
| Rated Torque in Nm (S5) | Type V Heavy Duty | 3 | 20 | - |
| Emergency Stop torque in Nm | | 6 | 30 | 60 |
| Efficiency at full load | % | 96 | 90 | 85 |
| Average mass inertia at drive | kgcm ² | 0.060 | 0.055 | 0.050 |
| No-Load backlash Type Standard | arcmin ≤ | 20 | 35 | 50 |
| No-load backlash Type V Heavy Duty | arcmin ≤ | 20 | 35 | - |
| No-load backlash Type R Reduced | arcmin ≤ | 10 | 20 | 30 |
| No-load backlash Type S Low Backlash | arcmin ≤ | 6 | 10 | 15 |
| Torsional stiffness | Nm/arcmin | 1.2 | 1.3 | 1.35 |
| Rated speed at drive | min ¹ ≤ | 5,000 | 5,000 | 5,000 |
| Max. rated speed at drive | min ¹ ≤ | 8,000 | 8,000 | 8,000 |
| Temperature range | °C | -30 to +90 | -30 to +90 | -30 to +90 |
| Protection class | IP | 54 | 54 | 54 |
| Service life | h | ~10,000 | ~10,000 | ~10,000 |



| RATIOS | | |
|---------|---------|---------|
| 1-Stage | 2-Stage | 3-Stage |
| *2:1 | *9:1 | 64:1 |
| 4:1 | 12:1 | 72:1 |
| 5:1 | 16:1 | 81:1 |
| 6:1 | 18:1 | 100:1 |
| 8:1 | 21:1 | 130:1 |
| | 25:1 | 144:1 |
| | 29:1 | 176:1 |
| | 32:1 | 200:1 |
| | 36:1 | 225:1 |
| | 42:1 | 256:1 |
| | 50:1 | 288:1 |
| | 64:1 | 333:1 |
| | | 400:1 |
| | | 512:1 |

* Type Standard only

Actual ratios are rounded to the nearest integer

| TECHNICAL DATA | | 1-STAGE | 2-STAGE | 3-STAGE |
|----------------|----|---------|---------|---------|
| Gearbox weight | kg | 0.475 | 0.600 | 0.725 |
| Dimension L1 | mm | 69.5 | 84 | 98.5 |
| Dimension L2 | mm | 45.5 | 60 | 74.5 |

| PARAMETER | | 1-STAGE | 2-STAGE | 3-STAGE |
|---|----------------------------|------------|------------|------------|
| Rated Torque in Nm (S1) | Type Standard | 3 | 15 | 38 |
| Rated Torque in Nm (S1) | Type R Reduced | 3 | 15 | 38 |
| Emergency Stop torque in Nm | | 6 | 30 | 75 |
| Rated Torque in Nm (S5) | Type S Low Backlash | 6 | 30 | 38 |
| Rated Torque in Nm (S5) | Type V Heavy Duty | 6 | 30 | - |
| Emergency Stop torque in Nm | | 12 | 38 | 75 |
| Efficiency at full load | % | 96 | 90 | 85 |
| Average mass inertia at drive | kgcm ² | 0.060 | 0.055 | 0.050 |
| No-Load backlash Type Standard | arcmin ≤ | 20 | 35 | 50 |
| No-load backlash Type V Heavy Duty | arcmin ≤ | 20 | 35 | - |
| No-load backlash Type R Reduced | arcmin ≤ | 10 | 20 | 30 |
| No-load backlash Type S Low Backlash | arcmin ≤ | 6 | 10 | 15 |
| Torsional stiffness | Nm/arcmin | 1.2 | 1.3 | 1.35 |
| Rated speed at drive | min ¹ ≤ | 5,000 | 5,000 | 5,000 |
| Max. rated speed at drive | min ¹ ≤ | 8,000 | 8,000 | 8,000 |
| Temperature range | °C | -30 to +90 | -30 to +90 | -30 to +90 |
| Protection class | IP | 54 | 54 | 54 |
| Service life | h | ~10,000 | ~10,000 | ~10,000 |