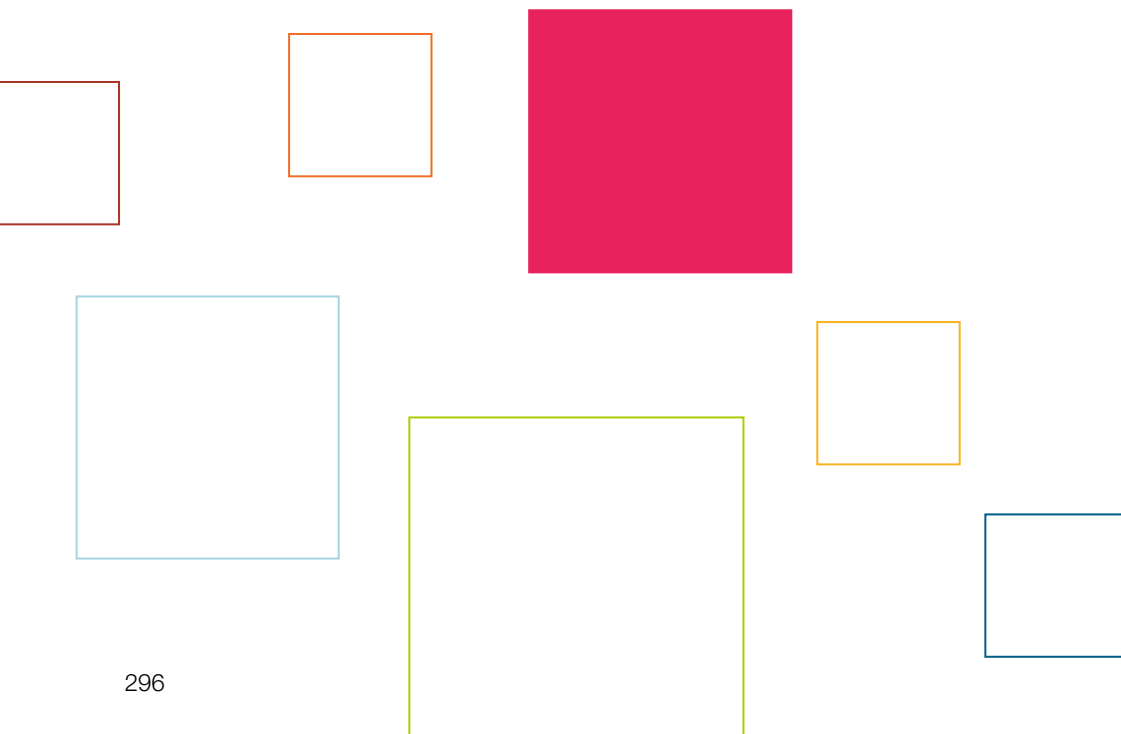


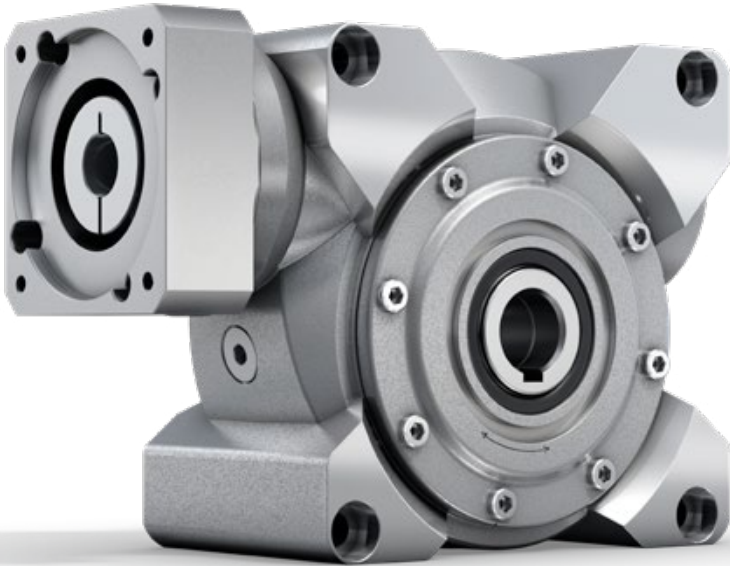
# alpha Value Line

## WORM GEARBOXES NVH / NVS

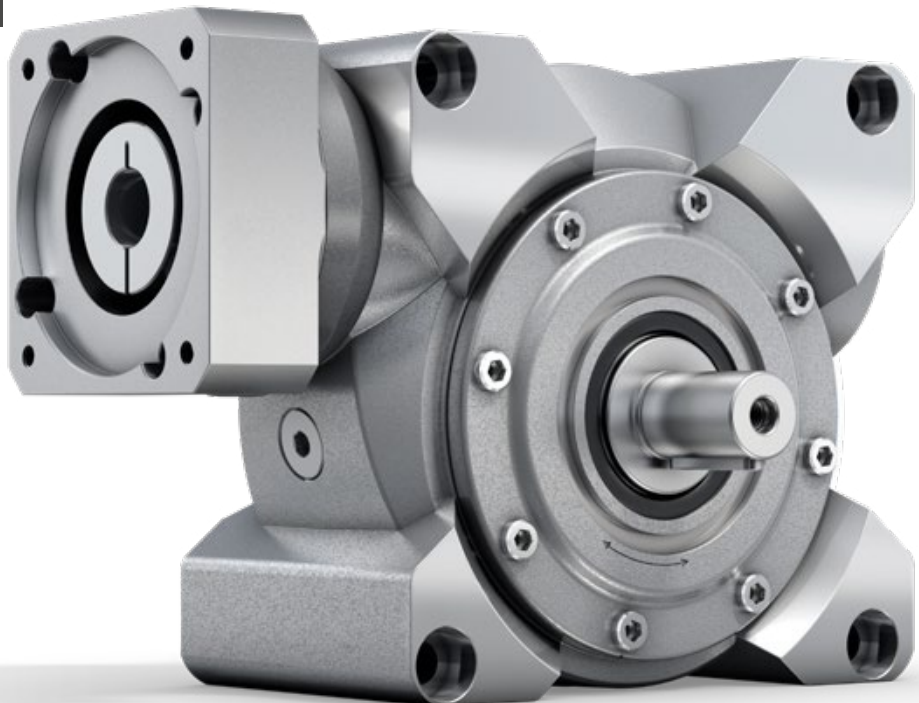
This product line is characterized by high power density, medium backlash over the entire service life, and supreme running smoothness. The gearboxes are also ideal for use in continuous operation thanks to their low temperature development.



NVH

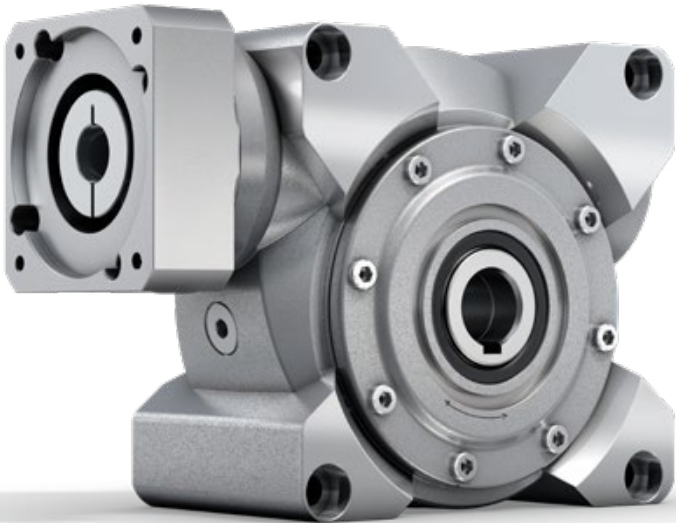


NVS



# NVH / NVS – We drive the Performance

NVH



The servo worm gearboxes with hollow shaft and output shaft impress with high power density combined with medium backlash. The V-Drive Value are especially suitable for economical applications in continuous operation.

## PRODUCT HIGHLIGHTS



### Strong performance

The V-Drive Value convinces with a strong performance in economical standard applications in cyclic and continuous operation.

High power density is achieved with medium backlash over the entire service life.



### No stick-slip effect

The stick-slip effect is not an issue in applications with the V-Drive Value thanks to the perfected hollow-flank toothing.



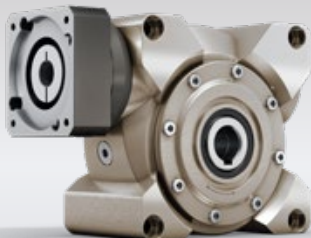
### High flexibility

In addition to the hollow shaft and shaft output shapes, the worm gearboxes are also available in a corrosion-resistant design.

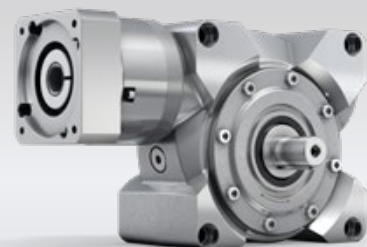


### Constant low backlash

Constant low backlash over the entire service life affords consistent high quality with high positioning accuracy.

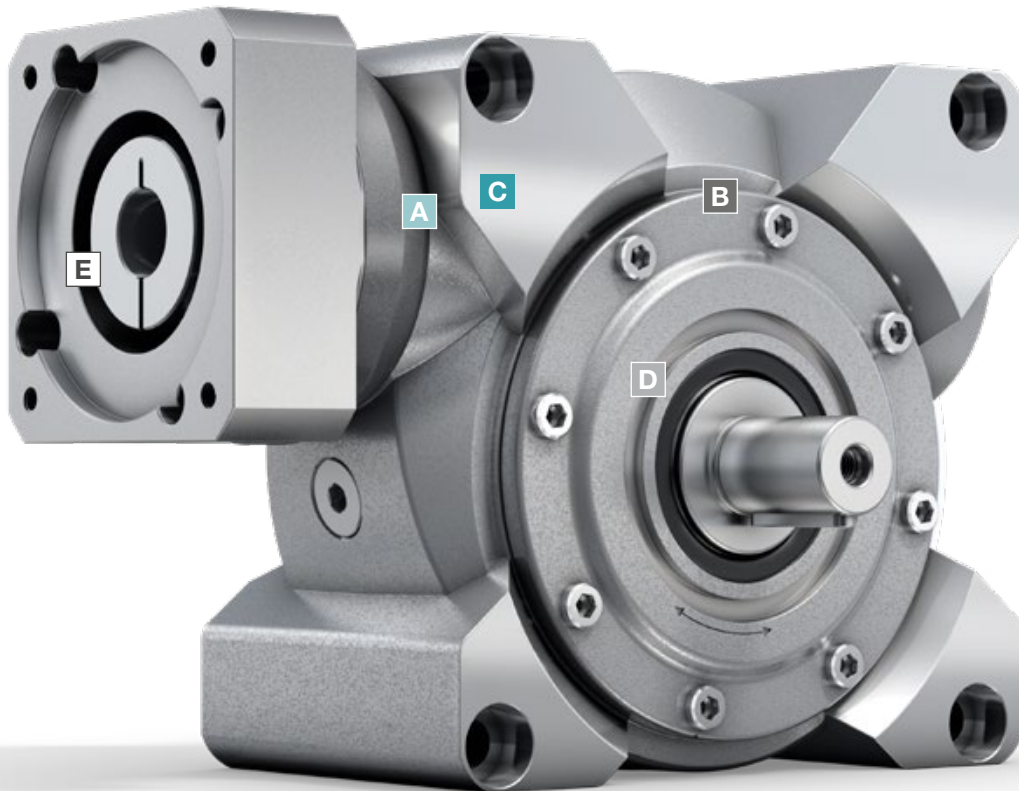


NVH – worm gearbox in corrosion-resistant design



NVS – worm gearbox with integrated planetary input stage

NVS



- A Radial shaft seal**
- Very long service life
  - Optimized for continuous operation

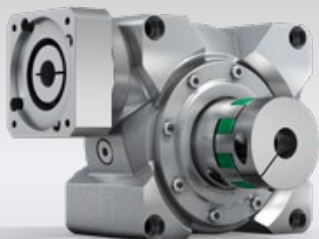
- B Hollow-flank toothing**
- Medium torsional backlash accuracy over the entire service life
  - High efficiency
  - High power density

- C Input bearing**
- Bearing package to absorb axial and radial forces
  - Very well suited to high input speeds

- D Output bearing**
- High overload capacity to absorb axial and radial forces

- E Metal bellows coupling**
- Completely backlash free
  - Lifetime durable and maintenance free
  - Easy assembly
  - Protects the motor through thermal linear expansion compensation

Worm Gearboxes  
Value Line



NVS – worm gearbox with elastomer coupling ELC



NVS – worm gearbox with rack and pinion

# NVH 040 MF 1-/2-stage

|  |             |                 | 1-stage             |                                       |      |      |      |      | 2-stage |      |      |      |      |      |      |      |      |
|--|-------------|-----------------|---------------------|---------------------------------------|------|------|------|------|---------|------|------|------|------|------|------|------|------|
| Ratio  | <i>i</i>    |                 | 4                   | 7                                     | 10   | 16   | 28   | 40   | 50      | 70   | 100  | 140  | 200  | 280  | 400  |      |      |
| Max. torque <sup>a) b)</sup><br>(at $n_1 = 500$ rpm)   | $T_{2a}$    | Nm              | 74                  | 82                                    | 91   | 94   | 98   | 91   | 91      | 82   | 91   | 98   | 91   | 98   | 91   |      |      |
|  |             | in.lb           | 655                 | 726                                   | 805  | 832  | 867  | 805  | 805     | 726  | 805  | 867  | 805  | 867  | 805  |      |      |
| Emergency stop torque <sup>a) b)</sup><br>(permitted 1000 times during the service life of the gearbox)              | $T_{2Not}$  | Nm              | 118                 | 126                                   | 125  | 129  | 134  | 122  | 125     | 126  | 125  | 134  | 122  | 134  | 122  |      |      |
|  |             | in.lb           | 1044                | 1115                                  | 1106 | 1142 | 1186 | 1080 | 1106    | 1115 | 1106 | 1186 | 1080 | 1186 | 1080 |      |      |
| Permitted average input speed <sup>d)</sup><br>(at 20 °C ambient temperature)  | $n_{1N}$    | rpm             | 4000                |                                       |      |      |      |      | 4400    |      |      |      |      |      |      |      |      |
| Max. input speed   | $n_{1Max}$  | rpm             | 6000                |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1 = 3000$ rpm and 20 °C gearbox temperature)                     | $T_{012}$   | Nm              | 0.8                 | 0.7                                   | 0.6  | 0.5  | 0.4  | 0.4  | 0.4     | 0.2  | 0.2  | 0.4  | 0.4  | 0.3  | 0.2  |      |      |
|  |             | in.lb           | 7.1                 | 6.2                                   | 5.3  | 4.4  | 3.5  | 3.5  | 3.5     | 1.8  | 1.8  | 3.5  | 3.5  | 2.7  | 1.8  |      |      |
| Max. backlash  | $j_t$       | arcmin          | ≤ 6                 |                                       |      |      |      |      | ≤ 7     |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>   | $C_{t21}$   | Nm/arcmin       | 4.5                 | 4.5                                   | 4.5  | 4.5  | 4.5  | 4.5  | 4.5     | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  |      |      |
|  |             | in.lb/arcmin    | 40                  | 40                                    | 40   | 40   | 40   | 40   | 40      | 40   | 40   | 40   | 40   | 40   | 40   |      |      |
| Max. axial force <sup>c)</sup>   | $F_{2AMax}$ | N               | 3000                |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
|  |             | lb <sub>f</sub> | 675                 |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>b)</sup>   | $F_{2OMax}$ | N               | 2400                |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
|  |             | lb <sub>f</sub> | 540                 |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Max. tilting moment  | $M_{2KMax}$ | Nm              | 205                 |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
|  |             | in.lb           | 1814                |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Efficiency at full load<br>(at $n_1 = 500$ rpm)  | $\eta$      | %               | 93                  | 90                                    | 88   | 82   | 73   | 67   | 86      | 88   | 86   | 71   | 65   | 71   | 65   |      |      |
| Service life   | $L_n$       | h               | > 20000             |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)   | <i>m</i>    | kg              | 5                   |                                       |      |      |      |      | 5.6     |      |      |      |      |      |      |      |      |
|  |             | lb <sub>m</sub> | 11.1                |                                       |      |      |      |      | 12      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex <sup>®</sup> ) | $L_{PA}$    | dB(A)           | < 54                |                                       |      |      |      |      | < 58    |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature   |             | °C              | +90                 |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
|  |             | °F              | +194                |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Ambient temperature  |             | °C              | -15 to +40          |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
|  |             | °F              | +5 to +104          |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Lubrication  |             |                 | Lubricated for life |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Direction of rotation  |             |                 | See drawing         |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Protection class   |             |                 | IP 65               |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Shrink disc<br>(Standard Version)  |             |                 | SD 024x050 S2       |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Max. torque<br>(without axial force)   | $T_{max}$   | Nm              | 250                 |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
|  |             | in.lb           | 2213                |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)   | C           | 14              | $J_1$               | kgcm <sup>2</sup>                     | 0.53 | 0.38 | 0.35 | 0.32 | 0.32    | 0.32 | 0.25 | 0.28 | 0.24 | 0.23 | 0.19 | 0.18 | 0.18 |
|  |             |                 |                     | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.47 | 0.34 | 0.31 | 0.28 | 0.28    | 0.34 | 0.22 | 0.25 | 0.21 | 0.2  | 0.17 | 0.16 | 0.16 |
| Clamping hub diameter [mm]   | E           | 19              | $J_1$               | kgcm <sup>2</sup>                     | 0.55 | 0.41 | 0.38 | 0.35 | 0.34    | 0.33 | 0.4  | 0.4  | 0.36 | 0.34 | 0.3  | 0.3  | 0.3  |
|  |             |                 |                     | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.49 | 0.36 | 0.34 | 0.31 | 0.3     | 0.29 | 0.35 | 0.35 | 0.32 | 0.30 | 0.27 | 0.27 | 0.27 |

Please use our sizing software cymex<sup>®</sup> for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> At max. 10 %  $F_{2OMax}$

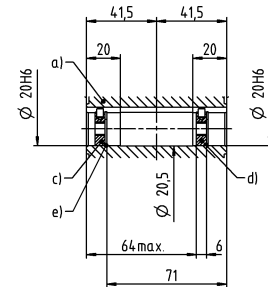
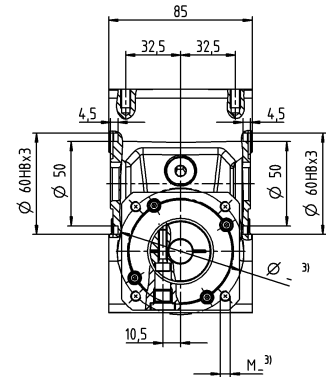
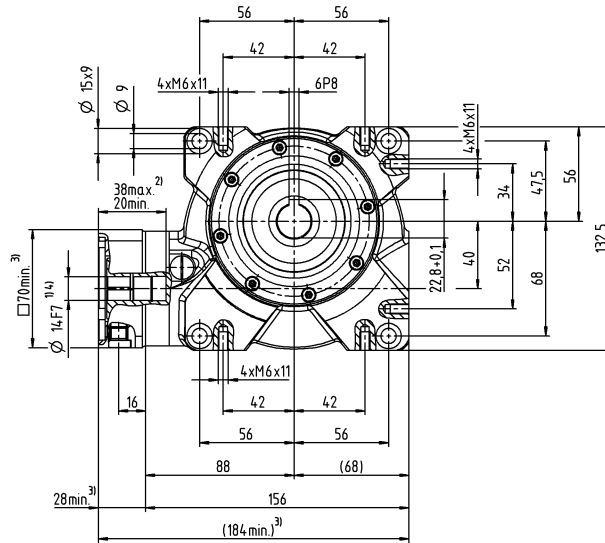
<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

# 1-stage

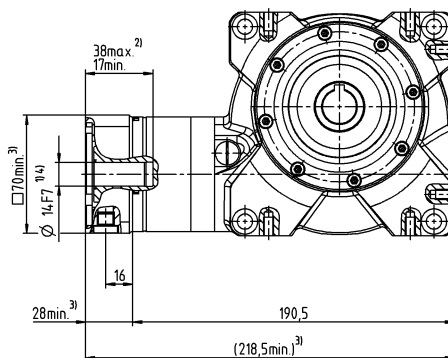
up to 14/19<sup>4)</sup> (C<sup>6)</sup>/E)  
clamping hub diameter



Motor shaft diameter [mm]

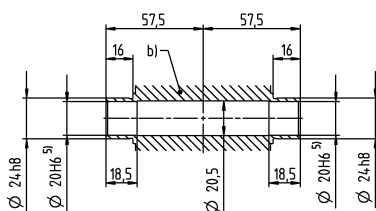
# 2-stage

up to 14/19<sup>4)</sup> (C<sup>6)</sup>/E)  
clamping hub diameter



## Other output variants

Hollow shaft interfaces on both sides



- a) Hollow shaft, keyed on both sides
- b) Hollow shaft interfaces on both sides
- c) End disc for screw M6 (on request)
- d) End disc as forcing washer for screw M8 (on request)
- e) Locking ring – DIN 472 (on request)

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

Non-tolerated dimensions are nominal dimensions

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

# NVH 050 MF 1-/2-stage

|  |              |                 | 1-stage             |                                       |      |      |      |      | 2-stage |      |      |      |      |      |      |      |      |
|--|--------------|-----------------|---------------------|---------------------------------------|------|------|------|------|---------|------|------|------|------|------|------|------|------|
| Ratio  | <i>i</i>     |                 | 4                   | 7                                     | 10   | 16   | 28   | 40   | 50      | 70   | 100  | 140  | 200  | 280  | 400  |      |      |
| Max. torque <sup>a) b)</sup><br>(at $n_1 = 500$ rpm)   | $T_{2a}$     | Nm              | 130                 | 150                                   | 153  | 157  | 167  | 141  | 153     | 150  | 153  | 167  | 141  | 167  | 141  |      |      |
|  |              | in.lb           | 1151                | 1328                                  | 1354 | 1389 | 1478 | 1248 | 1354    | 1328 | 1354 | 1478 | 1248 | 1478 | 1248 |      |      |
| Emergency stop torque <sup>a) b)</sup><br>(permitted 1000 times during the service life of the gearbox)              | $T_{2Not}$   | Nm              | 230                 | 242                                   | 242  | 250  | 262  | 236  | 242     | 242  | 242  | 262  | 236  | 262  | 236  |      |      |
|  |              | in.lb           | 2036                | 2142                                  | 2142 | 2213 | 2319 | 2089 | 2142    | 2142 | 2142 | 2319 | 2089 | 2319 | 2089 |      |      |
| Permitted average input speed <sup>d)</sup><br>(at 20 °C ambient temperature)  | $n_{1N}$     | rpm             | 4000                |                                       |      |      |      |      | 3500    |      |      |      |      |      |      |      |      |
| Max. input speed   | $n_{1Max}$   | rpm             | 6000                |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1 = 3000$ rpm and 20 °C gearbox temperature)                     | $T_{012}$    | Nm              | 2.3                 | 2.2                                   | 1.6  | 1.5  | 1.2  | 1.1  | 0.7     | 0.5  | 0.4  | 0.6  | 0.6  | 0.4  | 0.4  |      |      |
|  |              | in.lb           | 20.4                | 19.5                                  | 14.2 | 13.3 | 10.6 | 9.7  | 6.2     | 4.4  | 3.5  | 5.3  | 5.3  | 3.5  | 3.5  |      |      |
| Max. backlash  | $j_t$        | arcmin          | ≤ 6                 |                                       |      |      |      |      | ≤ 7     |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>   | $C_{t21}$    | Nm/arcmin       | 8                   | 8                                     | 8    | 8    | 8    | 8    | 8       | 8    | 8    | 8    | 8    | 8    | 8    |      |      |
|  |              | in.lb/arcmin    | 71                  | 71                                    | 71   | 71   | 71   | 71   | 71      | 71   | 71   | 71   | 71   | 71   | 71   |      |      |
| Max. axial force <sup>c)</sup>   | $F_{2AMax}$  | N               | 5000                |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
|  |              | lb <sub>f</sub> | 1125                |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>b)</sup>   | $F_{2QMMax}$ | N               | 3800                |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
|  |              | lb <sub>f</sub> | 855                 |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Max. tilting moment  | $M_{2KMMax}$ | Nm              | 409                 |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
|  |              | in.lb           | 3620                |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Efficiency at full load<br>(at $n_1 = 500$ rpm)  | $\eta$       | %               | 92                  | 89                                    | 86   | 82   | 72   | 64   | 84      | 87   | 84   | 70   | 62   | 70   | 62   |      |      |
| Service life   | $L_n$        | h               | > 20000             |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)   | $m$          | kg              | 8                   |                                       |      |      |      |      | 8.7     |      |      |      |      |      |      |      |      |
|  |              | lb <sub>m</sub> | 17.7                |                                       |      |      |      |      | 19      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex <sup>®</sup> ) | $L_{PA}$     | dB(A)           | ≤ 62                |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature   |              | °C              | +90                 |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
|  |              | °F              | +194                |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Ambient temperature  |              | °C              | -15 to +40          |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
|  |              | °F              | +5 to +104          |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Lubrication  |              |                 | Lubricated for life |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Direction of rotation  |              |                 | See drawing         |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Protection class   |              |                 | IP 65               |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Shrink disc<br>(Standard Version)  |              |                 | SD 030x060 S2V      |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Max. torque<br>(without axial force)   | $T_{max}$    | Nm              | 550                 |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
|  |              | in.lb           | 4868                |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)   | C            | 14              | $J_1$               | kgcm <sup>2</sup>                     | -    | -    | -    | -    | -       | -    | 0.8  | 0.8  | 0.8  | 0.7  | 0.7  | 0.7  | 0.7  |
|  |              |                 |                     | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | -    | -    | -    | -    | -       | -    | 0.71 | 0.71 | 0.71 | 0.62 | 0.62 | 0.62 | 0.62 |
| Clamping hub diameter [mm]   | E            | 19              | $J_1$               | kgcm <sup>2</sup>                     | 1.47 | 1.21 | 1.12 | 1.03 | 1       | 1.05 | 1.2  | 1.3  | 1.2  | 1.1  | 1.1  | 1.1  | 1.1  |
|  |              |                 |                     | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 1.3  | 1.07 | 0.99 | 0.91 | 0.89    | 0.93 | 1.06 | 1.15 | 1.06 | 0.97 | 0.97 | 0.97 | 0.97 |

Please use our sizing software cymex<sup>®</sup> for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> At max. 10 %  $F_{2QMax}$

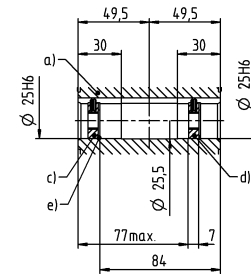
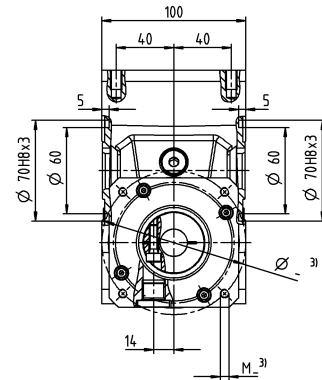
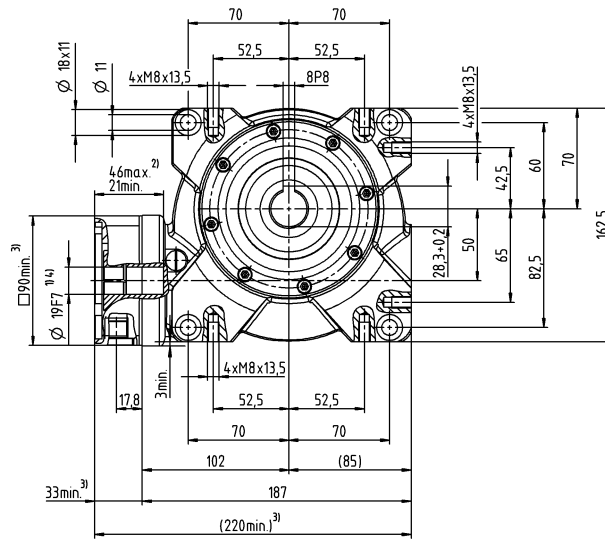
<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

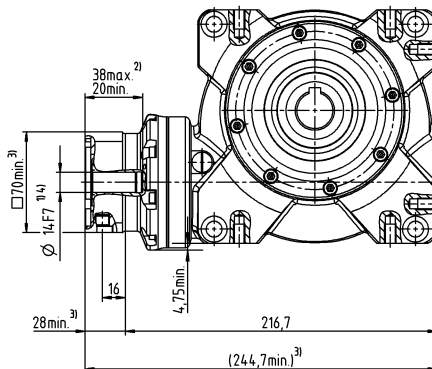
# 1-stage

up to 19<sup>4)</sup> (E<sup>6)</sup>  
clamping hub  
diameter



# 2-stage

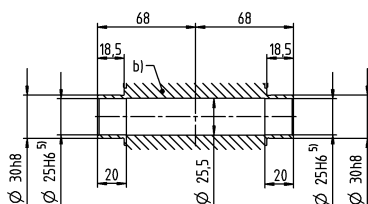
up to 14/19<sup>4)</sup> (C<sup>6)</sup>/E  
clamping hub  
diameter



Motor shaft diameter [mm]

## Other output variants

Hollow shaft interfaces on both sides



- a) Hollow shaft, keyed on both sides
- b) Hollow shaft interfaces on both sides
- c) End disc for screw M10 (on request)
- d) End disc as forcing washer for screw M12 (on request)
- e) Locking ring – DIN 472 (on request)

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

Non-tolerated dimensions are nominal dimensions

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



# NVH 063 MF 1-/2-stage

|  |             |                 | 1-stage                               |                                       |      |      |      |      | 2-stage |      |      |      |      |      |      |      |      |
|--|-------------|-----------------|---------------------------------------|---------------------------------------|------|------|------|------|---------|------|------|------|------|------|------|------|------|
| Ratio  | $i$         |                 | 4                                     | 7                                     | 10   | 16   | 28   | 40   | 50      | 70   | 100  | 140  | 200  | 280  | 400  |      |      |
| Max. torque <sup>a) b)</sup><br>(at $n_1 = 500$ rpm)   | $T_{2a}$    | Nm              | 250                                   | 303                                   | 319  | 331  | 365  | 321  | 319     | 303  | 319  | 365  | 321  | 365  | 321  |      |      |
|  |             | in.lb           | 2213                                  | 2682                                  | 2823 | 2929 | 3230 | 2841 | 2823    | 2682 | 2823 | 3230 | 2841 | 3230 | 2841 |      |      |
| Emergency stop torque <sup>a) b)</sup><br>(permitted 1000 times during the service life of the gearbox)              | $T_{2Not}$  | Nm              | 460                                   | 484                                   | 491  | 494  | 518  | 447  | 491     | 484  | 494  | 518  | 447  | 518  | 447  |      |      |
|  |             | in.lb           | 4071                                  | 4283                                  | 4345 | 4372 | 4584 | 3956 | 4345    | 4283 | 4372 | 4584 | 3956 | 4584 | 3956 |      |      |
| Permitted average input speed <sup>d)</sup><br>(at 20 °C ambient temperature)  | $n_{1N}$    | rpm             | 4000                                  |                                       |      |      |      |      | 3100    |      |      |      |      |      |      |      |      |
| Max. input speed   | $n_{1Max}$  | rpm             | 4500                                  |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1 = 3000$ rpm and 20 °C gearbox temperature)                     | $T_{012}$   | Nm              | 4.2                                   | 3.1                                   | 3    | 2.4  | 2.3  | 2.2  | 1.2     | 0.7  | 0.7  | 1.1  | 1.1  | 0.8  | 0.6  |      |      |
|  |             | in.lb           | 37.2                                  | 27.4                                  | 26.6 | 21.2 | 20.4 | 19.5 | 10.6    | 6.2  | 6.2  | 9.7  | 9.7  | 7.1  | 5.3  |      |      |
| Max. backlash  | $j_t$       | arcmin          | ≤ 6                                   |                                       |      |      |      |      | ≤ 7     |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>   | $C_{t21}$   | Nm/arcmin       | 28                                    | 28                                    | 28   | 28   | 28   | 28   | 28      | 28   | 28   | 28   | 28   | 28   | 28   |      |      |
|  |             | in.lb/arcmin    | 248                                   | 248                                   | 248  | 248  | 248  | 248  | 248     | 248  | 248  | 248  | 248  | 248  | 248  |      |      |
| Max. axial force <sup>c)</sup>   | $F_{2AMax}$ | N               | 8250                                  |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
|  |             | lb <sub>f</sub> | 1856                                  |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>b)</sup>   | $F_{2OMax}$ | N               | 6000                                  |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
|  |             | lb <sub>f</sub> | 1350                                  |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Max. tilting moment  | $M_{2KMax}$ | Nm              | 843                                   |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
|  |             | in.lb           | 7461                                  |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Efficiency at full load<br>(at $n_1 = 500$ rpm)  | $\eta$      | %               | 93                                    | 91                                    | 88   | 83   | 74   | 68   | 86      | 89   | 86   | 72   | 66   | 72   | 66   |      |      |
| Service life   | $L_n$       | h               | > 20000                               |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)   | $m$         | kg              | 13                                    |                                       |      |      |      |      | 13.7    |      |      |      |      |      |      |      |      |
|  |             | lb <sub>m</sub> | 28.7                                  |                                       |      |      |      |      | 30      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex <sup>®</sup> ) | $L_{PA}$    | dB(A)           | ≤ 64                                  |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature   |             | °C              | +90                                   |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
|  |             | °F              | +194                                  |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Ambient temperature  |             | °C              | -15 to +40                            |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
|  |             | °F              | +5 to +104                            |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Lubrication  |             |                 | Lubricated for life                   |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Direction of rotation  |             |                 | See drawing                           |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Protection class   |             |                 | IP 65                                 |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Shrink disc<br>(Standard Version)  |             |                 | SD 036x072 S2V                        |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Max. torque<br>(without axial force)   | $T_{max}$   | Nm              | 640                                   |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
|  |             | in.lb           | 5664                                  |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                                       | E           | 19              | $J_1$                                 | kgcm <sup>2</sup>                     | -    | -    | -    | -    | -       | -    | 2.6  | 2.8  | 2.5  | 2.4  | 2.4  | 2.4  | 2.3  |
|  |             |                 |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | -    | -    | -    | -    | -       | -    | 2.3  | 2.48 | 2.21 | 2.12 | 2.12 | 2.12 | 2.04 |
|  | G           | 24              | $J_1$                                 | kgcm <sup>2</sup>                     | -    | -    | -    | -    | -       | -    | 4.1  | 4.3  | 4.1  | 4    | 4    | 3.9  | 3.9  |
|  |             |                 |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | -    | -    | -    | -    | -       | -    | 3.63 | 3.81 | 3.63 | 3.54 | 3.54 | 3.45 | 3.45 |
| H  | 28          | $J_1$           | kgcm <sup>2</sup>                     | 4.8                                   | 3.89 | 3.65 | 3.56 | 3.52 | 3.47    | -    | -    | -    | -    | -    | -    | -    |      |
|  |             |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 4.25                                  | 3.44 | 3.23 | 3.15 | 3.12 | 3.07    | -    | -    | -    | -    | -    | -    | -    |      |

Please use our sizing software cymex<sup>®</sup> for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> At max. 10 %  $F_{2OMax}$

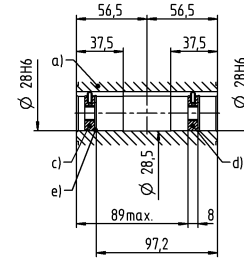
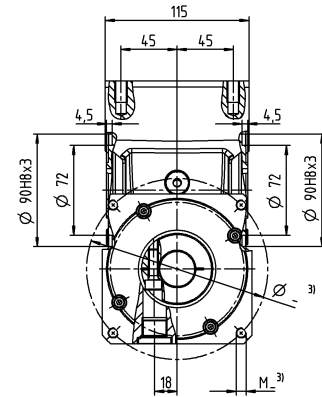
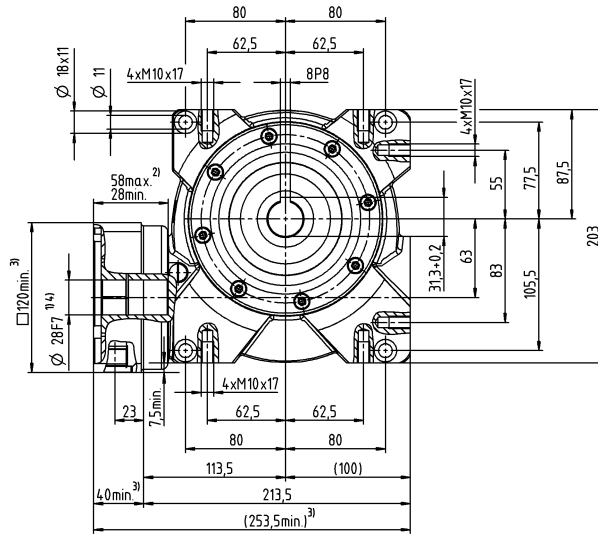
<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

# 1-stage

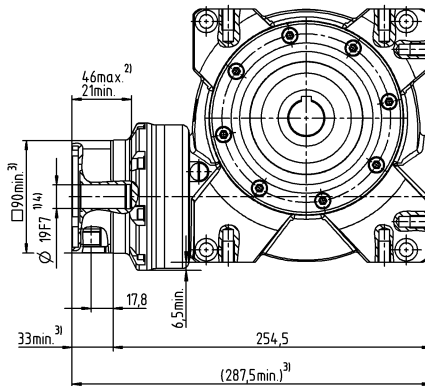
up to 28<sup>4)</sup> (H)<sup>6)</sup>  
clamping hub diameter



Motor shaft diameter [mm]

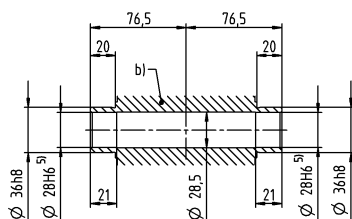
# 2-stage

up to 19/24<sup>4)</sup> (E<sup>6)</sup>/G)<sup>6)</sup>  
clamping hub diameter



## Other output variants

Hollow shaft interfaces on both sides



- a) Hollow shaft, keyed on both sides
- b) Hollow shaft interfaces on both sides
- c) End disc for screw M10 (on request)
- d) End disc as forcing washer for screw M12 (on request)
- e) Locking ring – DIN 472 (on request)

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

Non-tolerated dimensions are nominal dimensions

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

# NVS 040 MF 1-/2-stage

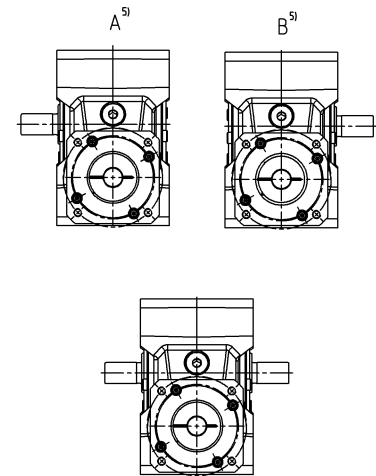
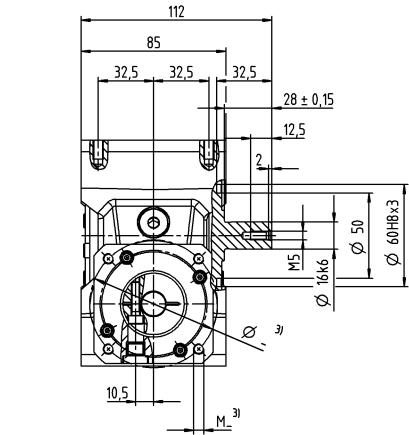
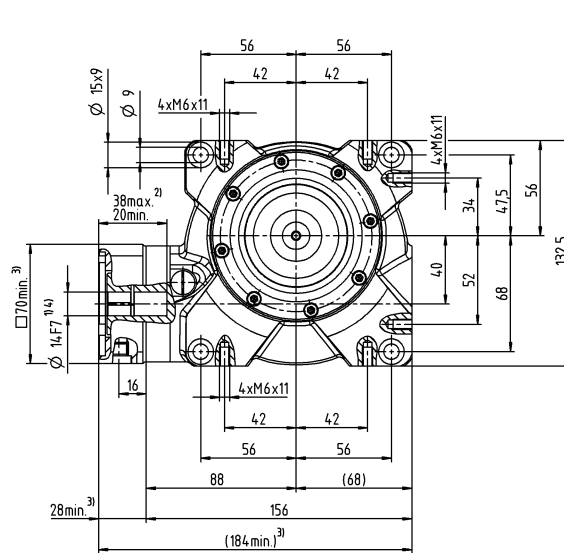
|  |              |                 | 1-stage                    |                                       |      |      |      |      | 2-stage |      |      |      |      |      |      |      |      |
|--|--------------|-----------------|----------------------------|---------------------------------------|------|------|------|------|---------|------|------|------|------|------|------|------|------|
| Ratio  | <i>i</i>     |                 | 4                          | 7                                     | 10   | 16   | 28   | 40   | 50      | 70   | 100  | 140  | 200  | 280  | 400  |      |      |
| Max. torque <sup>a) b) e)</sup><br>(at $n_1 = 500$ rpm)  | $T_{2a}$     | Nm              | 63                         | 73                                    | 87   | 89   | 96   | 84   | 91      | 82   | 91   | 98   | 91   | 98   | 91   |      |      |
|  |              | in.lb           | 558                        | 646                                   | 770  | 788  | 850  | 743  | 805     | 726  | 805  | 867  | 805  | 867  | 805  |      |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox)           | $T_{2Not}$   | Nm              | 118                        | 126                                   | 125  | 129  | 134  | 122  | 125     | 126  | 125  | 134  | 122  | 134  | 122  |      |      |
|  |              | in.lb           | 1044                       | 1115                                  | 1106 | 1142 | 1186 | 1080 | 1106    | 1115 | 1106 | 1186 | 1080 | 1186 | 1080 |      |      |
| Permitted average input speed <sup>d)</sup><br>(at 20 °C ambient temperature)  | $n_{1N}$     | rpm             | 4000                       |                                       |      |      |      |      | 4400    |      |      |      |      |      |      |      |      |
| Max. input speed   | $n_{1Max}$   | rpm             | 6000                       |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1 = 3000$ rpm and 20 °C gearbox temperature)                     | $T_{012}$    | Nm              | 0.8                        | 0.7                                   | 0.6  | 0.5  | 0.4  | 0.4  | 0.4     | 0.2  | 0.2  | 0.4  | 0.4  | 0.3  | 0.2  |      |      |
|  |              | in.lb           | 7.1                        | 6.2                                   | 5.3  | 4.4  | 3.5  | 3.5  | 3.5     | 1.8  | 1.8  | 3.5  | 3.5  | 2.7  | 1.8  |      |      |
| Max. backlash  | $j_t$        | arcmin          | ≤ 6                        |                                       |      |      |      |      | ≤ 7     |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>   | $C_{t21}$    | Nm/arcmin       | 4.5                        | 4.5                                   | 4.5  | 4.5  | 4.5  | 4.5  | 4.5     | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  |      |      |
|  |              | in.lb/arcmin    | 40                         | 40                                    | 40   | 40   | 40   | 40   | 40      | 40   | 40   | 40   | 40   | 40   | 40   |      |      |
| Max. axial force <sup>c)</sup>   | $F_{2AMax}$  | N               | 3000                       |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
|  |              | lb <sub>f</sub> | 675                        |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>b)</sup>   | $F_{2QMMax}$ | N               | 2400                       |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
|  |              | lb <sub>f</sub> | 540                        |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Max. tilting moment  | $M_{2KMMax}$ | Nm              | 205                        |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
|  |              | in.lb           | 1814                       |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Efficiency at full load<br>(at $n_1 = 500$ rpm)  | $\eta$       | %               | 93                         | 90                                    | 88   | 82   | 73   | 67   | 86      | 88   | 86   | 71   | 65   | 71   | 65   |      |      |
| Service life   | $L_n$        | h               | > 20000                    |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)   | <i>m</i>     | kg              | 5                          |                                       |      |      |      |      | 5.6     |      |      |      |      |      |      |      |      |
|  |              | lb <sub>m</sub> | 11.1                       |                                       |      |      |      |      | 12      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex <sup>®</sup> ) | $L_{PA}$     | dB(A)           | ≤ 54                       |                                       |      |      |      |      | ≤ 58    |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature   |              | °C              | +90                        |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
|  |              | °F              | +194                       |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Ambient temperature  |              | °C              | -15 to +40                 |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
|  |              | °F              | +5 to +104                 |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Lubrication  |              |                 | Lubricated for life        |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Direction of rotation  |              |                 | See drawing                |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Protection class   |              |                 | IP 65                      |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex <sup>®</sup> )                          |              |                 | ELC - 00060B - 016.000 - X |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side   |              | mm              | X = 016.000 - 032.000      |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)   | C            | 14              | $J_1$                      | kgcm <sup>2</sup>                     | 0.53 | 0.38 | 0.35 | 0.33 | 0.32    | 0.32 | 0.25 | 0.28 | 0.24 | 0.23 | 0.19 | 0.18 | 0.18 |
|  |              |                 |                            | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.47 | 0.34 | 0.31 | 0.29 | 0.28    | 0.28 | 0.22 | 0.25 | 0.21 | 0.2  | 0.17 | 0.16 | 0.16 |
| Clamping hub diameter [mm]   | E            | 19              | $J_1$                      | kgcm <sup>2</sup>                     | 0.55 | 0.41 | 0.38 | 0.35 | 0.34    | 0.34 | 0.36 | 0.4  | 0.36 | 0.34 | 0.3  | 0.3  | 0.3  |
|  |              |                 |                            | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.49 | 0.36 | 0.34 | 0.31 | 0.3     | 0.3  | 0.32 | 0.35 | 0.32 | 0.3  | 0.27 | 0.27 | 0.27 |

Please use our sizing software cymex<sup>®</sup> for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

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

# 1-stage

up to 14/19<sup>4)</sup> (C<sup>6)</sup>/E)  
clamping hub diameter

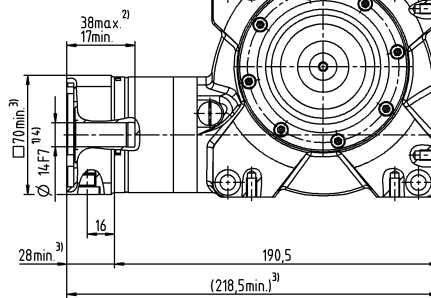


Optional dual-shaft output. Drawings available on request.  
Involute gearing is not possible.

Motor shaft diameter [mm]

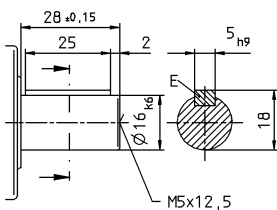
# 2-stage

up to 14/19<sup>4)</sup> (C<sup>6)</sup>/E)  
clamping hub diameter



## Other output variants

Shaft with key



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

Non-tolerated dimensions are nominal dimensions

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

# NVS 050 MF 1-/2-stage

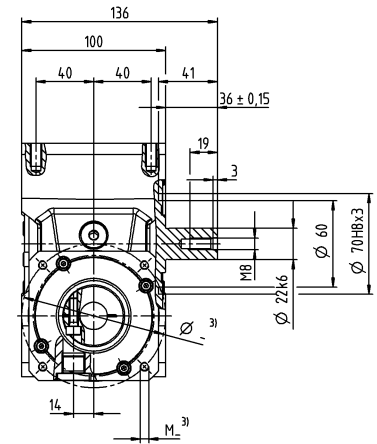
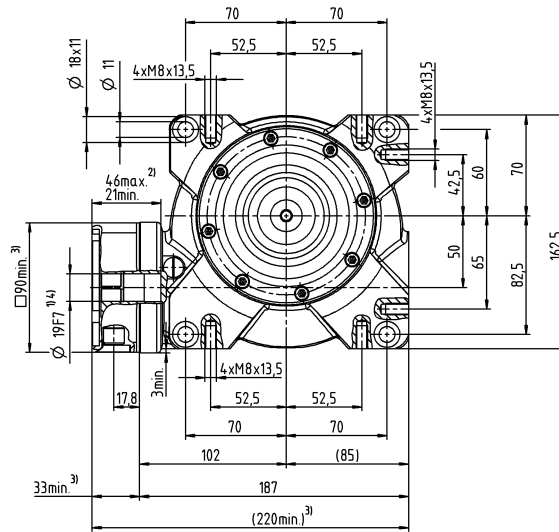
|  |              |                 | 1-stage                    |                                       |      |      |      |      | 2-stage |      |      |      |      |      |      |      |      |
|--|--------------|-----------------|----------------------------|---------------------------------------|------|------|------|------|---------|------|------|------|------|------|------|------|------|
| Ratio  | $i$          |                 | 4                          | 7                                     | 10   | 16   | 28   | 40   | 50      | 70   | 100  | 140  | 200  | 280  | 400  |      |      |
| Max. torque <sup>a) b) e)</sup><br>(at $n_1 = 500$ rpm)  | $T_{2a}$     | Nm              | 130                        | 150                                   | 153  | 157  | 167  | 141  | 153     | 150  | 153  | 167  | 141  | 167  | 141  |      |      |
|  |              | in.lb           | 1151                       | 1328                                  | 1354 | 1389 | 1478 | 1248 | 1354    | 1328 | 1354 | 1478 | 1248 | 1478 | 1248 |      |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox)           | $T_{2Not}$   | Nm              | 230                        | 242                                   | 242  | 250  | 262  | 236  | 242     | 242  | 242  | 262  | 236  | 262  | 236  |      |      |
|  |              | in.lb           | 2036                       | 2142                                  | 2142 | 2213 | 2319 | 2089 | 2142    | 2142 | 2142 | 2319 | 2089 | 2319 | 2089 |      |      |
| Permitted average input speed <sup>d)</sup><br>(at 20 °C ambient temperature)  | $n_{1N}$     | rpm             | 4000                       |                                       |      |      |      |      | 3500    |      |      |      |      |      |      |      |      |
| Max. input speed   | $n_{1Max}$   | rpm             | 6000                       |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1 = 3000$ rpm and 20 °C gearbox temperature)                     | $T_{012}$    | Nm              | 2.3                        | 2.2                                   | 1.6  | 1.5  | 1.2  | 1.1  | 0.7     | 0.5  | 0.4  | 0.6  | 0.6  | 0.4  | 0.4  |      |      |
|  |              | in.lb           | 20.4                       | 19.5                                  | 14.2 | 13.3 | 10.6 | 9.7  | 6.2     | 4.4  | 3.5  | 5.3  | 5.3  | 3.5  | 3.5  |      |      |
| Max. backlash  | $j_t$        | arcmin          | ≤ 6                        |                                       |      |      |      |      | ≤ 7     |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>   | $C_{t21}$    | Nm/arcmin       | 8                          | 8                                     | 8    | 8    | 8    | 8    | 8       | 8    | 8    | 8    | 8    | 8    | 8    |      |      |
|  |              | in.lb/arcmin    | 71                         | 71                                    | 71   | 71   | 71   | 71   | 71      | 71   | 71   | 71   | 71   | 71   | 71   |      |      |
| Max. axial force <sup>c)</sup>   | $F_{2AMax}$  | N               | 5000                       |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
|  |              | lb <sub>f</sub> | 1125                       |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>b)</sup>   | $F_{2QMMax}$ | N               | 3800                       |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
|  |              | lb <sub>f</sub> | 855                        |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Max. tilting moment  | $M_{2KMMax}$ | Nm              | 409                        |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
|  |              | in.lb           | 3620                       |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Efficiency at full load<br>(at $n_1 = 500$ rpm)  | $\eta$       | %               | 92                         | 89                                    | 86   | 82   | 72   | 64   | 84      | 87   | 84   | 70   | 62   | 70   | 62   |      |      |
| Service life   | $L_n$        | h               | > 20000                    |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)   | $m$          | kg              | 8                          |                                       |      |      |      |      | 8.7     |      |      |      |      |      |      |      |      |
|  |              | lb <sub>m</sub> | 17.7                       |                                       |      |      |      |      | 19      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex <sup>®</sup> ) | $L_{PA}$     | dB(A)           | ≤ 62                       |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature   |              | °C              | +90                        |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
|  |              | °F              | +194                       |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Ambient temperature  |              | °C              | -15 to +40                 |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
|  |              | °F              | +5 to +104                 |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Lubrication  |              |                 | Lubricated for life        |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Direction of rotation  |              |                 | See drawing                |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Protection class   |              |                 | IP 65                      |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex <sup>®</sup> )                          |              |                 | ELC - 00150B - 022.000 - X |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side   |              | mm              | X = 022.000 - 036.000      |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)   | C            | 14              | $J_1$                      | kgcm <sup>2</sup>                     | -    | -    | -    | -    | -       | -    | 0.8  | 0.8  | 0.8  | 0.7  | 0.7  | 0.7  | 0.7  |
|  |              |                 |                            | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | -    | -    | -    | -    | -       | -    | -    | 0.71 | 0.71 | 0.71 | 0.62 | 0.62 | 0.62 |
| Clamping hub diameter [mm]   | E            | 19              | $J_1$                      | kgcm <sup>2</sup>                     | 1.47 | 1.21 | 1.12 | 1.03 | 1       | 1.05 | 1.2  | 1.3  | 1.2  | 1.1  | 1.1  | 1.1  | 1.1  |
|  |              |                 |                            | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 1.3  | 1.07 | 0.99 | 0.91 | 0.89    | 0.93 | 1.06 | 1.15 | 1.06 | 0.97 | 0.97 | 0.97 | 0.97 |

Please use our sizing software cymex<sup>®</sup> for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

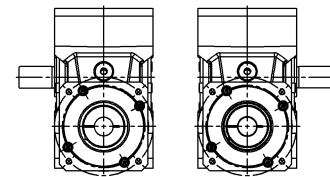
- <sup>a)</sup> At max. 10 %  $F_{2QMax}$
- <sup>b)</sup> Valid for standard clamping hub diameter
- <sup>c)</sup> Refers to center of the output shaft or flange
- <sup>d)</sup> Please reduce input speed at higher ambient temperatures
- <sup>e)</sup> Valid for: Smooth shaft

# 1-stage

up to 19<sup>4)</sup> (E<sup>6)</sup>  
clamping hub  
diameter

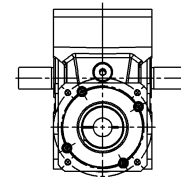
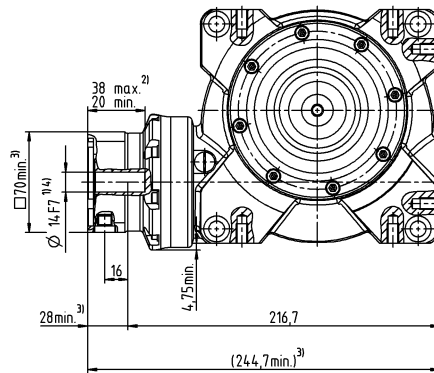


A<sup>5)</sup> B<sup>5)</sup>



# 2-stage

up to 14/19<sup>4)</sup> (C<sup>6)</sup>/E  
clamping hub  
diameter



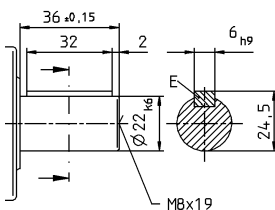
Motor shaft diameter [mm]

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

Worm Gearboxes  
Value Line

## Other output variants

Shaft with key



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

Non-tolerated dimensions are nominal dimensions

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

# NVS 063 MF 1-/2-stage

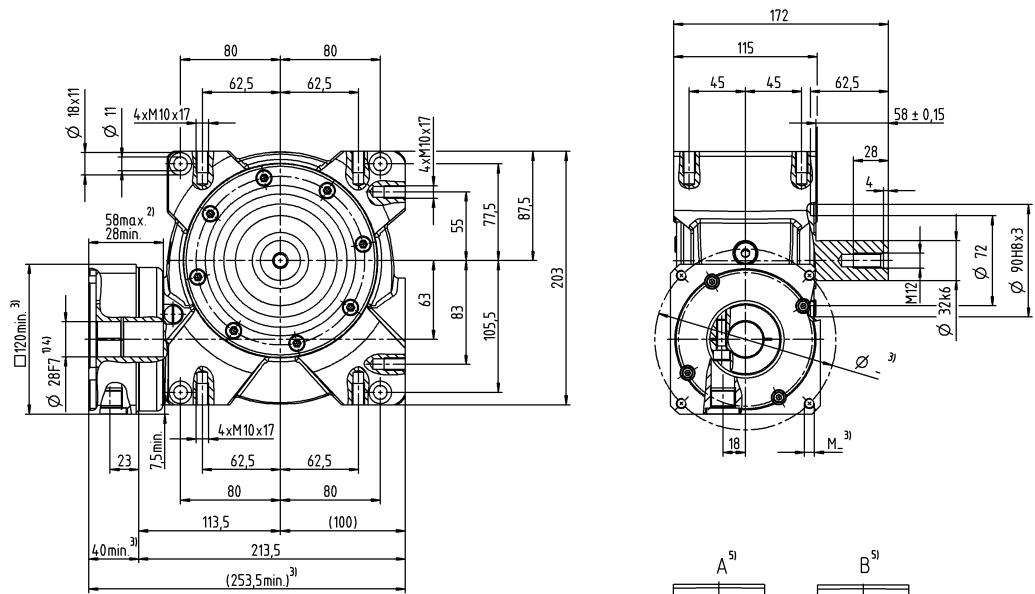
|  |             |                 | 1-stage                               |                                       |      |      |      |      | 2-stage |      |      |      |      |      |      |      |      |
|--|-------------|-----------------|---------------------------------------|---------------------------------------|------|------|------|------|---------|------|------|------|------|------|------|------|------|
| Ratio  | $i$         |                 | 4                                     | 7                                     | 10   | 16   | 28   | 40   | 50      | 70   | 100  | 140  | 200  | 280  | 400  |      |      |
| Max. torque <sup>a) b) e)</sup><br>(at $n_1 = 500$ rpm)  | $T_{2a}$    | Nm              | 250                                   | 303                                   | 319  | 331  | 365  | 321  | 319     | 303  | 319  | 365  | 321  | 365  | 321  |      |      |
|  |             | in.lb           | 2213                                  | 2682                                  | 2823 | 2929 | 3230 | 2841 | 2823    | 2682 | 2823 | 3230 | 2841 | 3230 | 2841 |      |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox)           | $T_{2Not}$  | Nm              | 460                                   | 484                                   | 491  | 494  | 518  | 447  | 491     | 484  | 494  | 518  | 447  | 518  | 447  |      |      |
|  |             | in.lb           | 4071                                  | 4283                                  | 4345 | 4372 | 4584 | 3956 | 4345    | 4283 | 4372 | 4584 | 3956 | 4584 | 3956 |      |      |
| Permitted average input speed <sup>d)</sup><br>(at 20 °C ambient temperature)  | $n_{1N}$    | rpm             | 4000                                  |                                       |      |      |      |      | 3100    |      |      |      |      |      |      |      |      |
| Max. input speed   | $n_{1Max}$  | rpm             | 4500                                  |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1 = 3000$ rpm and 20 °C gearbox temperature)                     | $T_{012}$   | Nm              | 4.2                                   | 3.1                                   | 3    | 2.4  | 2.3  | 2.2  | 1.2     | 0.7  | 0.7  | 1.1  | 1.1  | 0.8  | 0.6  |      |      |
|  |             | in.lb           | 37.2                                  | 27.4                                  | 26.6 | 21.2 | 20.4 | 19.5 | 10.6    | 6.2  | 6.2  | 9.7  | 9.7  | 7.1  | 5.3  |      |      |
| Max. backlash  | $j_t$       | arcmin          | ≤ 6                                   |                                       |      |      |      |      | ≤ 7     |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>   | $C_{t21}$   | Nm/arcmin       | 28                                    | 28                                    | 28   | 28   | 28   | 28   | 28      | 28   | 28   | 28   | 28   | 28   | 28   |      |      |
|  |             | in.lb/arcmin    | 248                                   | 248                                   | 248  | 248  | 248  | 248  | 248     | 248  | 248  | 248  | 248  | 248  | 248  |      |      |
| Max. axial force <sup>c)</sup>   | $F_{2AMax}$ | N               | 8250                                  |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
|  |             | lb <sub>f</sub> | 1856                                  |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>b)</sup>   | $F_{2OMax}$ | N               | 6000                                  |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
|  |             | lb <sub>f</sub> | 1350                                  |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Max. tilting moment  | $M_{2KMax}$ | Nm              | 843                                   |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
|  |             | in.lb           | 7461                                  |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Efficiency at full load<br>(at $n_1 = 500$ rpm)  | $\eta$      | %               | 93                                    | 91                                    | 88   | 83   | 74   | 68   | 86      | 89   | 86   | 72   | 66   | 72   | 66   |      |      |
| Service life   | $L_n$       | h               | > 20000                               |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)   | $m$         | kg              | 13                                    |                                       |      |      |      |      | 13.7    |      |      |      |      |      |      |      |      |
|  |             | lb <sub>m</sub> | 28.7                                  |                                       |      |      |      |      | 30      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex <sup>®</sup> ) | $L_{PA}$    | dB(A)           | ≤ 64                                  |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature   |             | °C              | +90                                   |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
|  |             | °F              | +194                                  |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Ambient temperature  |             | °C              | -15 to +40                            |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
|  |             | °F              | +5 to +104                            |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Lubrication  |             |                 | Lubricated for life                   |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Direction of rotation  |             |                 | See drawing                           |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Protection class   |             |                 | IP 65                                 |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex <sup>®</sup> )                          |             |                 | ELC - 00300B - 032.000 - X            |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side   |             | mm              | X = 032.000 - 045.000                 |                                       |      |      |      |      |         |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                                       | E           | 19              | $J_1$                                 | kgcm <sup>2</sup>                     | -    | -    | -    | -    | -       | -    | 2.6  | 2.8  | 2.50 | 2.4  | 2.4  | 2.4  | 2.3  |
|  |             |                 |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | -    | -    | -    | -    | -       | -    | 2.3  | 2.48 | 2.21 | 2.12 | 2.12 | 2.12 | 2.04 |
|  | G           | 24              | $J_1$                                 | kgcm <sup>2</sup>                     | -    | -    | -    | -    | -       | -    | 4.1  | 4.3  | 4.1  | 4    | 4    | 3.9  | 3.9  |
|  |             |                 |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | -    | -    | -    | -    | -       | -    | 3.63 | 3.81 | 3.63 | 3.54 | 3.54 | 3.45 | 3.45 |
| H  | 28          | $J_1$           | kgcm <sup>2</sup>                     | 4.8                                   | 3.89 | 3.65 | 3.56 | 3.52 | 3.47    | -    | -    | -    | -    | -    | -    | -    |      |
|  |             |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 4.25                                  | 3.44 | 3.23 | 3.15 | 3.12 | 3.07    | -    | -    | -    | -    | -    | -    | -    |      |

Please use our sizing software cymex<sup>®</sup> for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

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

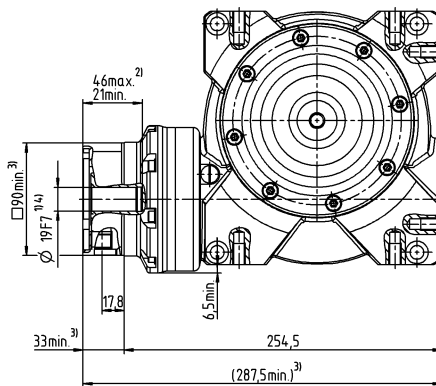
# 1-stage

up to 28<sup>4)</sup> (H)<sup>6)</sup>  
clamping hub  
diameter



# 2-stage

up to 19/24<sup>4)</sup> (E<sup>6)</sup>/G)  
clamping hub  
diameter

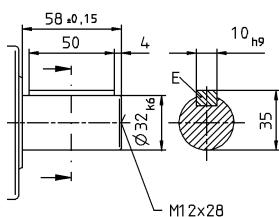


Motor shaft diameter [mm]

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

## Other output variants

Shaft with key



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

Non-tolerated dimensions are nominal dimensions

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