

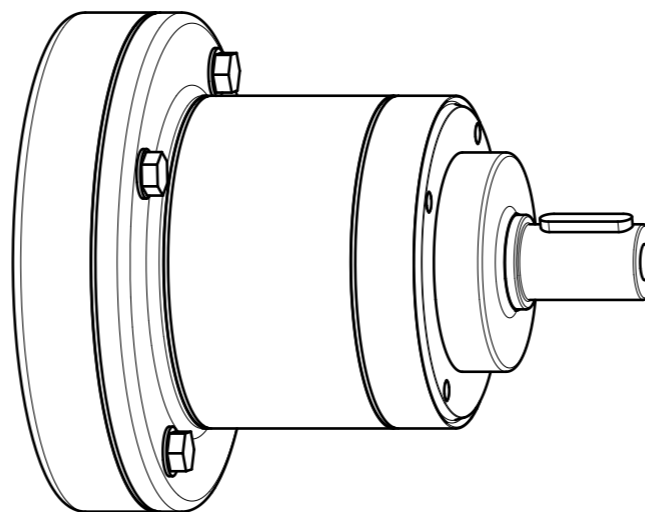
**Materials / Surfaces:**

Input flange: Stainless steel 1.4404 / electropolished  
 Housing: Stainless steel 1.4404 / electropolished  
 Output flange: Stainless steel 1.4404 / electropolished  
 Feather key: Stainless steel 1.4401 / bare  
 Output shaft: Stainless steel 1.4404 / bare


**Hints:**

Please pay attention to the operating and mounting instructions.  
 Subject to modifications.

Variables on the drawing are dependent upon the motor.  
 The given dimensions are exemplary.



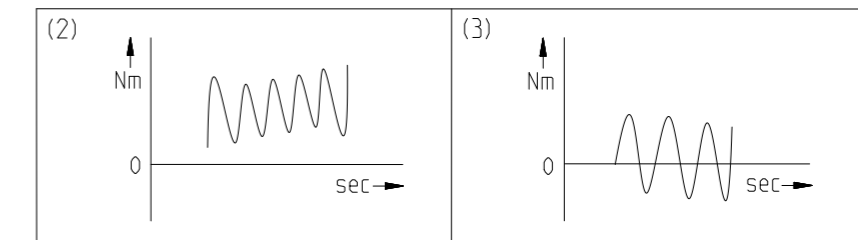
----- Electropolished

|   |   |        |           |
|---|---|--------|-----------|
|  | Scale: 3:5  | DIN A3 | ISO       |
|   | Revision status: A from: 11/2021                          |        |           |
| General tolerance<br>DIN ISO 2768-cL  | HLAE090-aii-SFSA3SE-Z(D20)<br>/(L20)/(D21)/(D22)/B14/(G3) |        |           |
| Neugart GmbH<br>Keltenstr. 16<br>D-77971 Kippenheim                                   |   |        | Sheet 1/2 |

| General gearbox data  | Character           | Unit |   |
|---|---------------------|------|---|
| Planetary gearbox - gearing type  | -                   | -    | Straight teeth  |
| Rotation direction  | -                   | -    | Input and output in the same direction                    |
| Number of stages  | p                   | -    | 1-stage   |
| Output shaft bearing  | -                   | -    | Deep groove ball bearing                                  |
| Service life (L10h)   | $t_L$               | h    | 30.000  |
| Max. operating temperature  | $T_{min} / T_{max}$ | °C   | -25 / +90   |
| Protection class  | -                   | -    | IP 69K  |
| Lubrication (lifetime lubrication)  | -                   | -    | Food grade lubrication (Klübersynth UH1 14-222)           |
| Installation position   | -                   | -    | Any   |
| Max. bending moment based on the gearbox input flange (for motor weight) (1)        | $M_b$               | Nm   | 16  |
| Motor shaft concentricity / Coaxiality and axial runout Motor flange                | -                   | mm   | 0,04 / 0,08 (Measuring methods according to DIN EN 50347) |
| Required motor shaft tolerance  | -                   | -    | j6; k6  |
| Min. permissible motor shaft length   | $L_{20 min}$        | mm   | 29  |
| Reference operating mode  | -                   | -    | S1  |
| Reference operating factor  | $K_A$               | -    | 1   |
| Reference speed   | $n_2$               | rpm  | 100   |
| Reference ambient temperature   | $T_{Amb}$           | °C   | 20  |
| Radial force for output bearing based on shaft center after L10h=20,000h with Fa=0N | $F_r 20.000h$       | N    | 900   |
| Axial force for output bearing based on gearbox axis after L10h=20,000h with Fr=0N  | $F_a 20.000h$       | N    | 1500  |
| Radial force for output bearing based on shaft center after L10h=30,000h with Fa=0N | $F_r 30.000h$       | N    | 600   |
| Axial force for output bearing based on gearbox axis after L10h=30,000h with Fr=0N  | $F_a 30.000h$       | N    | 1000  |
| Maximum radial force based on shaft center and T2=0Nm                               | $F_r Max$           | N    | 1250  |
| Maximum axial force based on gearbox axis and T2=0Nm                                | $F_a Max$           | N    | 1600  |

$$(1) \text{ Max. motor weight* in kg} = \frac{0,2 \times M_b}{\text{motor length in m}}$$

- \* with symmetrically distributed motor weight
- \* with horizontal and stationary mounting



| Ratio-dependent gearbox data  | Character       | Unit              |      |       |       |       |       |       |
|---|-----------------|-------------------|------|-------|-------|-------|-------|-------|
| Ratio   | aii             | -                 | 3    | 4     | 5     | 7     | 8     | 10    |
| Nominal output torque No alternating torque (2)   | $T_{2N}$        | Nm                | 85   | 87    | 82    | 65    | 50    | 38    |
| Nominal output torque Alternating torque permitted for 10,000,000 load changes (3)                | $T_{2N 10Mio}$  | Nm                | 35   | 35    | 35    | 35    | 35    | 35    |
| Nominal output torque Alternating torque permitted for 100,000,000 load changes (3)               | $T_{2N 100Mio}$ | Nm                | 27   | 27    | 27    | 27    | 27    | 27    |
| Max. output torque for 30,000 output shaft rotations (2)  | $T_{2max}$      | Nm                | 136  | 140   | 131   | 104   | 80    | 61    |
| Emergency stop torque permitted 1000 times  | $T_{2Stop}$     | Nm                | 170  | 174   | 164   | 130   | 100   | 76    |
| Average idle torque for $n_1=3,000$ rpm and 20 °C gearbox temperature                             | $T_0$           | Nm                | 0,75 | 0,6   | 0,45  | 0,35  | 0,3   | 0,25  |
| Average thermal input speed at 50% T2N, S1, and T_Amb Operating temperature may not be exceeded!  | $n_{1N 50\%}$   | rpm               | 2700 | 3000  | 3400  | 3500  | 3500  | 3500  |
| Average thermal input speed at 100% T2N, S1, and T_Amb Operating temperature may not be exceeded! | $n_{1N 100\%}$  | rpm               | 1900 | 2150  | 2500  | 3350  | 3500  | 3500  |
| Max. mechanical input speed Operating temperature may not be exceeded!                            | $n_1 Limit$     | rpm               | 7000 | 7000  | 7000  | 7000  | 7000  | 7000  |
| Torsional backlash based on output shaft  | $j_t$           | arcmin            | < 7  | < 7   | < 7   | < 7   | < 7   | < 7   |
| Torsional stiffness based on output shaft   | $c_g$           | Nm/arcmin         | 6,6  | 8,2   | 8,3   | 7,3   | 7,2   | 6,8   |
| Efficiency at T2N, gearbox temperature 70 °C and $n_1=1,000$ rpm                                  | $\eta$          | %                 | 98   | 98    | 98    | 97    | 97    | 96    |
| Running noise at $n_1=3,000$ rpm without load at a distance of 1m                                 | $Q_g$           | dB(A)             | 60   | 60    | 60    | 60    | 60    | 60    |
| Gearbox weight  | $m_G$           | kg                | 4,7  | 4,7   | 4,7   | 4,7   | 4,7   | 4,8   |
| Mass moment of inertia based on clamping system diameter input                                    | J               | kgcm <sup>2</sup> | 0,77 | 0,866 | 0,814 | 0,773 | 0,764 | 0,753 |

Subject to modifications.



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/(L20)/(D21)/(D22)/B14/(G3)

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Revision status: A from: 11/2021