

Selection

For entire PowerGear range

Performance P [kW] at n_1 [min^{-1}]
 $(P_1 \approx P_2 \text{ at } \eta \geq 98 \%)$
 Ratio i
 Speed $n_1, n_2 = n_1/i$
 Output torque T_2 [Nm] = $9550 \cdot \frac{P_2}{n_2}$



Existing output torque $T_{2N\text{exist.}} \leq$ permissible output torque $T_{2N\text{perm.}}$



Maximum existing acceleration torque $T_{2B\text{exist.}} \leq$ maximum permissible acceleration torque $T_{2B\text{perm.}}$
 or up to 10 start-ups per minute



Maximum existing acceleration torque $T_{2B\text{exist.}} \leq$ maximum permissible nominal torque $T_{2N\text{perm.}}$
 or up to 60 start-ups per minute
 Maximum values for start-ups between 10 and 60 start-ups are interpolated



Existing speed $n_{1\text{exist.}} \leq$ nominal speed n_{1N}
 In cases of higher speeds, please contact us as modifications will be necessary
 (pressure lubrication etc., see options on page 18).



Existing performance $P_{\text{exist.}} \leq$ thermal performance limit P_{therm} (20 °C, 100 % duty cycle)
 The thermal performance limit varies inline with different ambient temperatures and duty cycles. Please use the factors in the table below as guide values. If the existing performance reaches or exceeds the thermal performance, please contact us as modifications will be necessary (additional cooling, see options on page 18).



Radial and axial load of the shafts \leq maximum permissible values $F_{1R\text{max}}, F_{2R\text{max}}, F_{1A\text{max}}, F_{2A\text{max}}$
 These are guide values, dependent on additional loads. Upon request we calculate these values individually.

Factors for the thermal performance limit:

Duty cycle (dc) [%]	100	80	60	40	20
Factor	1.0	1.2	1.4	1.6	1.8
Ambient temperature [°C]	10	20	30	40	50
Factor	1.2	1.0	0.87	0.75	0.62

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Calculation example:

Given: $n_1 = 1448 \text{ min}^{-1}$
 $n_2 = 362 \text{ min}^{-1}$
 $P = 7.5 \text{ kW}$
 $dc = 100\%$
Ambient temperature: 20°C

Selection: $i = \frac{n_1}{n_2} \quad i = \frac{1448 \text{ min}^{-1}}{362 \text{ min}^{-1}} = 4$

$$T_2 = 9550 \cdot \frac{P}{n_2} = 9550 \cdot \frac{7.5 \text{ kW}}{362 \text{ min}^{-1}} = 197.86 \text{ Nm}$$

→ Gearbox P140 4:1

$$\begin{aligned} T_{2\text{Nexist.}} &= 197.86 \text{ Nm} \leq T_{2\text{Nperm.}} = 224 \text{ Nm} \\ n_{1\text{exist.}} &= 1448 \text{ min}^{-1} \leq n_{1\text{N}} = 2000 \text{ min}^{-1} \\ P_{\text{exist.}} &= 7.5 \text{ kW} \leq P_{\text{therm}} = 9.2 \text{ kW} \end{aligned}$$

Selected: P140L 4:1

Installation positions/Mounting positions

