



## 4 Project Planning for Drives

### 4.1 Additional documentation

In addition to the information provided in this catalog, SEW-EURODRIVE offers extensive documentation on the complete subject area of electrical drive technology. This is primarily documentation from the "Drive Engineering – Practical Implementation" series. The current SEW-EURODRIVE documentation can be ordered or downloaded from the SEW-EURODRIVE homepage (<http://www.sew-eurodrive.com>).

#### ***Drive Engineering – Practical Implementation***

The publication "Drive Engineering – Practical Implementation – Drive Arrangements with SEW-EURODRIVE Gearmotors" features extensive information on characteristics, differentiating features and application areas of SEW drives. A comprehensive collection and assignment of the most important formulas for drive calculation and detailed examples for the most frequently used applications make this documentation an important tool for the project planner and an essential addition to the SEW-EURODRIVE product catalogs.



### 4.2 Drive selection data

#### 1.0 Machine on LSS (normally the driven machine)

Legend: [...] = fill in values  
[X] = make your selections by

##### 1.1 Field of application/industry [...]

##### 1.2 Application [...]

##### 1.3 Ambient temperature [°C] [...]

normal	min.	max.
<input type="text"/>	<input type="text"/>	<input type="text"/>

##### 1.4 Altitude [m] [...]

##### 1.5 Installation [X]

- very small enclosed rooms ( $v_a \leq 1\text{m/s}$ )  
 small rooms ( $v_a \geq 2\text{m/s}$ )  
 large rooms and halls ( $v_a \geq 3\text{m/s}$ )  
 open halls with roofs  
 outdoor, unprotected

##### 1.6 Ambient conditions [X]

- normal  
 dusty  
 moist  
 corrosive  
 dry

#### 2.0 Load characteristics

##### 2.1 Required speed $n_2$ [1/min] [...]

normal	min.	max.
<input type="text"/>	<input type="text"/>	<input type="text"/>

##### 2.2 Input power $P_{K1}$ [kW] [...]

normal	min.	max.
<input type="text"/>	<input type="text"/>	<input type="text"/>

##### 2.3 Output torque $M_{K2}$ [kNm] [...]

normal	min.	max.
<input type="text"/>	<input type="text"/>	<input type="text"/>

##### 2.4 Frequency of peak load ( $M_{K2 \text{ max.}}$ or $P_{K1 \text{ max.}}$ ) [...]

 per hour

##### 2.5 Number of starts per hour [...]

 starts

##### 2.6 Rotation direction under load (LSS) [X]

- clockwise (CW)  
 counter-clockwise (CCW)  
 both directions  
 reversible

##### 2.7 Operating period/day [X]

- $\leq 3$  hours  
 3 ... 10 hours  
  $> 10$  hours

##### 2.8 Backstop required in gear unit [X]

- No  
 Yes

##### 2.9 Exact load cycle attached [X]

- No  
 Yes

#### 3.0 Machine on HSS (normally the driving machine)

##### 3.1 Type: [X]

- AC motor     AC motor/inverter     DC motor  
 Hydraulic motor     Servomotor

##### 3.2 Motor power $P_M$ [kW] [...]

normal	min.	max.
<input type="text"/>	<input type="text"/>	<input type="text"/>

##### 3.3 Motor speed $n_M$ [1/min] [...]

normal	min.	max.
<input type="text"/>	<input type="text"/>	<input type="text"/>

##### 3.4 Motor torque $M_M$ [kNm] [...]

normal	min.	max.
<input type="text"/>	<input type="text"/>	<input type="text"/>

##### 3.5 Input speed $n_1$ [1/min] [...]

normal	min.	max.
<input type="text"/>	<input type="text"/>	<input type="text"/>

##### 3.6 If electric motor: [X] [...]

- IEC  
 NEMA

Motor size (IEC- or NEMA code):

##### 3.7 Mounting of motor [X] [...]

- B3  
 B5  
 V1  
 other:

#### 4.0 Gear unit requirements

##### 4.1 Gear Unit Type [X]

- Helical "P"  
 Bevel-helical "R"

##### 4.2 Gear unit design [X]

- Horizontal LSS "L"  
 Vertical LSS "V"  
 Upright mounted "E"

##### 4.3 Housing orientation\* [X]

- M1     M4  
 M2     M5  
 M3     M6

##### 4.4 Mounting surface\* [X]

- F1     F4  
 F2     F5  
 F3     F6

\*only to be filled in for non-standard

##### 4.5 Shaft position [X]

<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2
<input type="checkbox"/> 3	<input type="checkbox"/> 4	



**4.6 Service factor requirement  $F_{S\ min.}$  [X] [...]**

- on  Motor power  $P_M$  / motor torque  $M_M$   
 Gear unit operating power  $P_{K1}$  /  
 Operating torque  $M_{K1}$

**4.7 Bearing lifetime requirements  $L_{h\ min}$  [...]**

 hours

**4.8 Mounting of the gear unit [X]**

- Foot  
 Flange  
 Torque arm

**4.9 LSS connection to machine shaft of customer [X] [...]**

- Elastic coupling (claw or pin type)  
 Flexible coupling (gear or steel-disc type)  
 Rigid flange coupling  
 Barrel coupling  
 Chain sprocket  
 Pinion

- Hollow shaft - torque arm  
 Hollow shaft - foot mounted  
 Hollow shaft - flange mounted

other:

**4.10 Design of LSS gear unit [X] [...]**

Design LSS (if solid shaft)

- Solid shaft with keyway  
 Solid shaft without keyway  
 Solid shaft with spline DIN 5480

other:

Design LSS (if hollow shaft)

- Hollow shaft with keyway  
 Hollow shaft for shrink disc connection,  
 shrink disc included  
 Hollow shaft with spline DIN 5480

other:

**4.11 HSS connection to motor [X]**

- Customer installation  
 (foundation base frame)  
 Motor adapter with elastic coupling  
 Swing base/base frame  
 Motor bracket with V-belt drive  
 Motor scoop (sugar scoop)  
 other, see sketch

**4.12 LSS bearing support**

- 2 bearings, gear unit only transmits torque  
 1 bearing opposite to gear unit,  
 gear unit acts as one bearing support  
 1 bearing next to gear unit,  
 gear unit acts as one bearing support

**4.13 Load on LSS [X] [...]**

Axial load  $F_{A2}$  [kN]  normal  min.  max.

Radial load  $F_{R2}$  [kN]  normal  min.  max.

Distance from shaft shoulder [mm]  normal  min.  max.

Application angle of radial load [°]

or rotating

**4.14 Load on HSS [X] [...]**

Axial load  $F_{A1}$  [kN]  normal  min.  max.

Radial load  $F_{R1}$  [kN]  normal  min.  max.

Distance from shaft shoulder [mm]  normal  min.  max.

Application angle of radial load [°]

or rotating

**4.15 Electrical supply [X] [...]**

Mains supply  $U_{mains}$   AC 3-phase  AC 1-phase  DC  V  HZ

Auxiliary supply  $U_{aux}$   AC 3-phase  AC 1-phase  DC  V  HZ

Protection class  IP

- Explosion proof requirement  Yes  No

**4.16 Additional cooling (if required) [X]**

Fan  Allowed  Not allowed  
 Oil-air cooler    
 Oil-water cooler

Cooling water available  No  Yes

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#### 4.3 Project planning procedure

The following flow chart schematically shows the procedure for the project planning of an industrial gear unit.

