



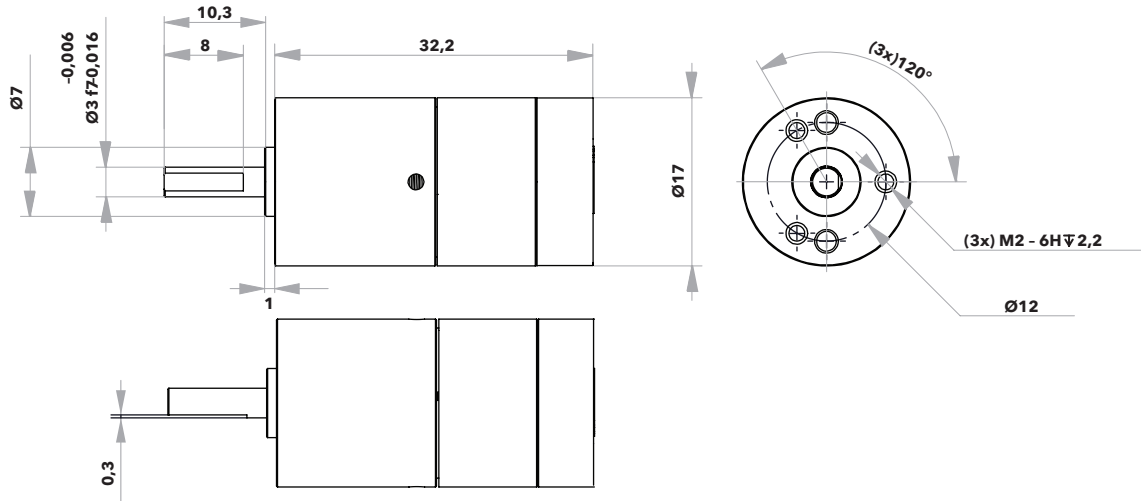
Technical specification LR17

Type	Standard (A)
<b>Diameter (mm)</b>	17
<b>Angular range (°)</b>	360
<b>Speed range (°/s)</b> @ Rhomb, no load, 20°C	0–265 (0–44 rpm)
<b>Step angle, full step (μrad)</b> @ Delta, no load, 20°C	1000
<b>Motor resolution, microstep (μrad)</b> 14 bits, 8192 microsteps	<0.1
<b>Built-in encoder</b>	Yes
<b>Encoder type</b>	Magnetic, absolute
<b>Encoder accuracy (mrad)</b>	2.0
<b>Encoder resolution (mrad)</b>	0.2
<b>Stall torque (mNm)</b>	30
<b>Holding Torque (mNm)</b>	>30
<b>Recommended operating range (mNm)</b>	0–15
<b>Operating voltage (V)</b>	42–48
<b>Power consumption (mW/Hz)</b>	3.5
<b>Shaft load, max. (N)</b> radial, 6.5 mm from mounting face	1
<b>Shaft load, max. (N)</b> axial	2
<b>Shaft press fit force, max. (N)</b>	5
<b>Weight (g)</b>	30
<b>Operating temperature (°C)</b>	-20 to +70
<b>Connector</b>	CviLux CI1116M-2VD0
<b>Material in motor housing</b>	Aluminium, stainless steel

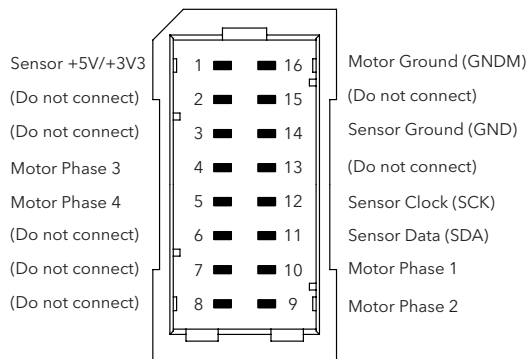
**Note:** All specifications are subject to change without notice. For more information, see [www.piezomotor.com](http://www.piezomotor.com).

## Main dimensions

LR17 - Standard



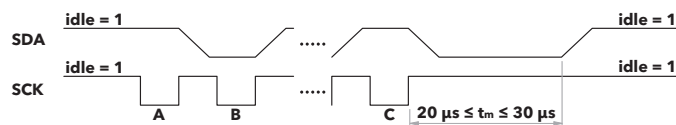
## Connection



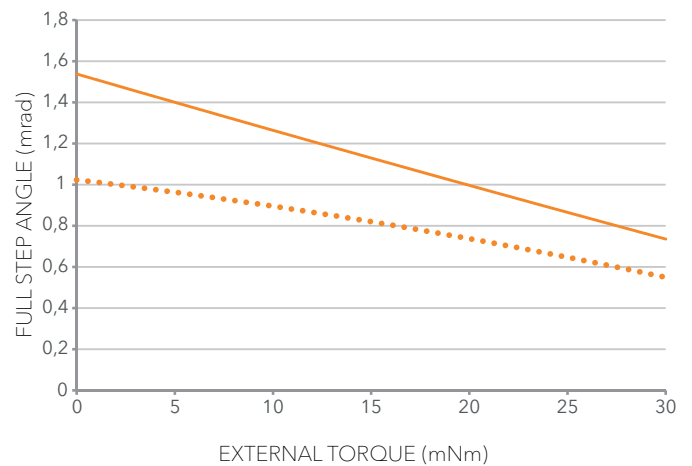
## Encoder information

The LR17 has an integrated magnetic absolute encoder. It gives 15-bit SSI data. SCK (Sensor Clock) and SDA (Sensor Data) are normally at high level (idle). When receiving a clock pulse from the controller, the LR17 will respond with position data. The SCK frequency should be 70-180 kHz. Data should be read shortly before the positive flank. The time-out between positive flanks is 20-30  $\mu$ s. The output data is 15 bits (msb first), followed by a stop bit. If SCK continues beyond the stop bit, there will be a second stop bit followed by repeated 15-bit data and a stop bit. A minimum of 120  $\mu$ s is needed after position readout to make sure that position data is refreshed. Reading position every 0.5 ms is the maximum recommended rate for continuous operation.

- 1st clock pulse, SDA stays idle until positive flank.
- 2nd clock pulse, SDA output is bit1 (msb).
- 16th clock pulse, SDA output is bit15 (lsb).



## Motor performance



- RHOMB
- DELTA

Motor performance with waveform Rhomb (filled) and waveform Delta (dotted). The full step angle is the average distance the drive disc rotates when the legs take one full step (i.e. for one waveform cycle).

**Note:** A standard deviation  $\sigma$  of 0.1 mrad should be taken into account. Typical values are given for 20°C.

## Motor speed at 20°C, no load

Waveform	Max freq. (Hz)	Speed range
Delta	3000	0-28 rpm (0-170°/s)
Rhomb		0-44 rpm (0-265°/s)