

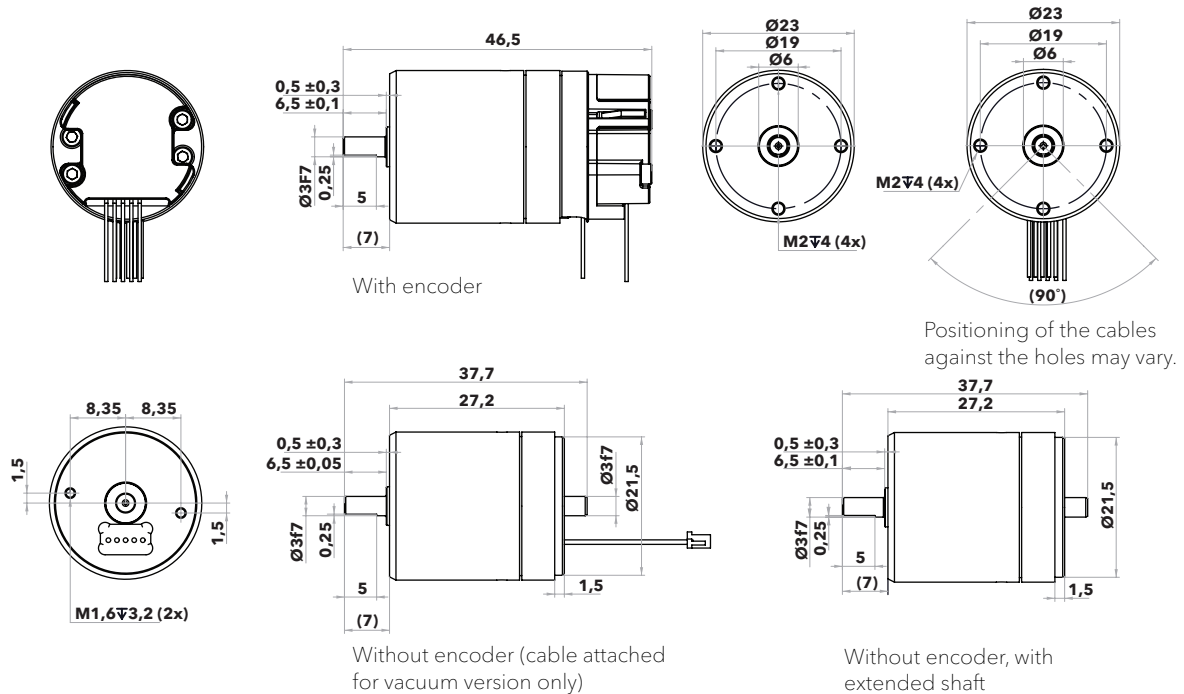


## Technical specification LR23-50

| Type  | Non-magnetic (C)  | Non-magnetic (C), extended shaft | Non-magnetic (C), encoder        | Non-magnetic vacuum (D)       | Non-magnetic vacuum (D), ext. shaft |
|---|-------------------|----------------------------------|----------------------------------|-------------------------------|-------------------------------------|
| <b>Diameter (mm)</b>  | 23                |                                  |                                  |                               |                                     |
| <b>Angular range (°)</b>  | 360               |                                  |                                  |                               |                                     |
| <b>Speed range (°/s)</b><br>@ Rhomb, no load, 20°C                    | 0-160 (0-27 rpm)  |                                  |                                  |                               |                                     |
| <b>Step angle, full step (μrad)</b><br>@ Delta, no load, 20°C         | 550               |                                  |                                  |                               |                                     |
| <b>Motor resolution, microstep (μrad)</b><br>14 bits, 8192 microsteps | <0.1              |                                  |                                  |                               |                                     |
| <b>Built-in encoder</b>   | No                | No                               | Yes                              | No                            | No                                  |
| <b>Encoder type</b>   | N/A               | N/A                              | Optical quadrature               | N/A                           | N/A                                 |
| <b>Encoder resolution (mrad)</b>                                      | N/A               | N/A                              | 0.4                              | N/A                           | N/A                                 |
| <b>Stall torque (mNm)</b>   | 50                |                                  |                                  |                               |                                     |
| <b>Holding Torque (mNm)</b>   | >50               |                                  |                                  |                               |                                     |
| <b>Recommended operating range (mNm)</b>                              | 0-25              |                                  |                                  |                               |                                     |
| <b>Operating voltage (V)</b>  | 42-48             |                                  |                                  |                               |                                     |
| <b>Power consumption (mW/Hz)</b>                                      | 7                 |                                  |                                  |                               |                                     |
| <b>Shaft load, max. (N)</b><br>radial, 6,5 mm from mounting surface   | 5                 |                                  |                                  |                               |                                     |
| <b>Shaft load, max. (N)</b><br>axial                                  | 2                 |                                  |                                  |                               |                                     |
| <b>Shaft press fit force, max. (N)</b>                                | 5                 |                                  |                                  |                               |                                     |
| <b>Weight (g)</b>   | 65                | 68                               | 80                               | 65                            | 70                                  |
| <b>Operating temperature (°C)</b>                                     | -20 to +70        |                                  |                                  |                               |                                     |
| <b>Connector</b>  | JST BM05B-SRSS-TB | JST BM05B-SRSS-TB                | Cable attached, driver-dependent | Soldered cable w. JST 05SR-3S | Soldered cable w. JST 05SR-3S       |
| <b>Material in motor housing</b>                                      | Non-magnetic      |                                  |                                  |                               |                                     |

**Main dimensions**

LR23-50

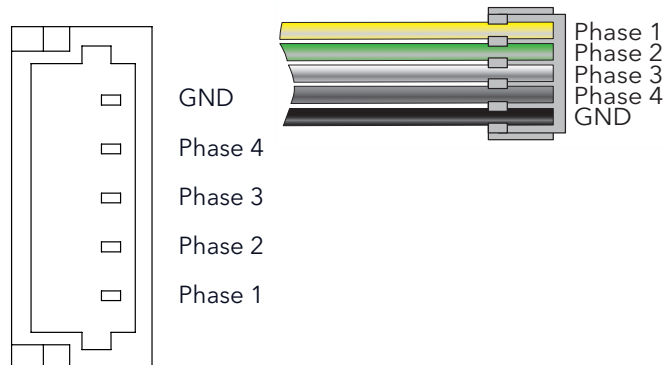
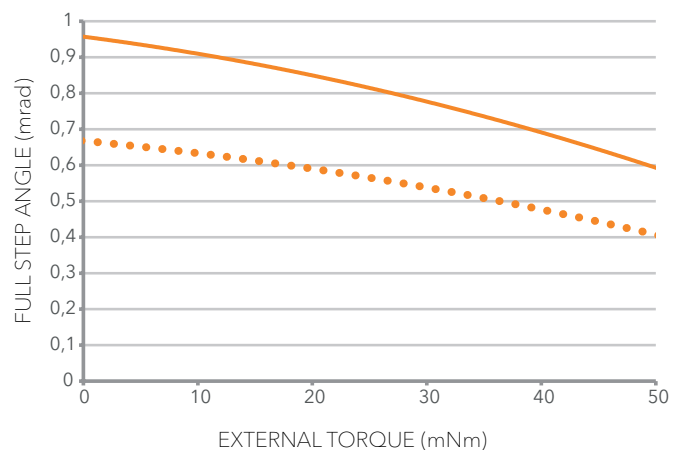

**LR23-50 mNm product portfolio**

- with encoder
- without encoder
- without encoder and with extended shaft

The LR23-50 replaces the previous model LR50.

**Motor speed at 20°C, no load**

| Waveform | Max freq. (Hz) | Speed range         |
|----------|----------------|---------------------|
| Delta    | 3000           | 0-19 rpm (0-114°/s) |
| Rhomb    |                | 0-27 rpm (0-160°/s) |

**Connection**

**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.

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