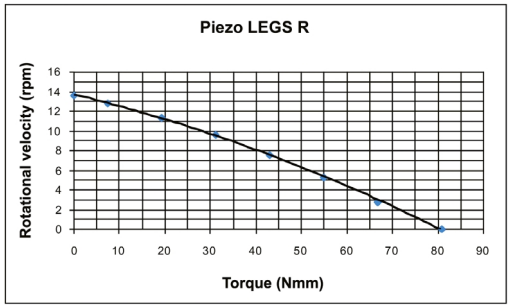
High torque & precision in a small package

The new Piezo LEGS™ rotating motor

The utilized walking principle gives the new rotating motor unique properties, like low and variable speed – from 20 rpm down to one revolution a week (or even lower) – without gear box – and a maximum torque of 80 Nmm (0.08 Nm). The resolution is less than one μ-radian or close to one ten millionth of a turn. Totally back-lash free.

The motor has also other advantages as an exceptionally long and maintenance free service life. There is no current draw in hold position and as the drive principle is friction based the motor will not be harmed if the rotation is blocked. The drive electronics for the motor can be made exceptionally simple and cost effective.

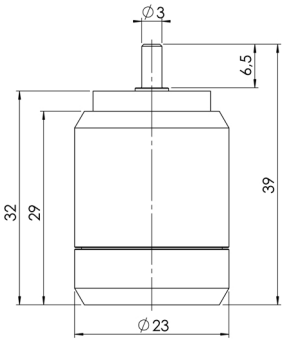
Just like PiezoMotor's linear Piezo LEGS motor the new rotating motor can easily be adapted for different applications and demands. What is presented here is just one example.



Motor performance for a drive frequency of 2100 Hz.

Piezo LEGS R – Rotating Piezo Motor data

Dimensions [mm] (L×D)	32×23	Phase voltage[3] [V]	0 to 42
Weight [g]	70	Resolution[4] [μrad]	1
Rotational velocity[1] [rpm]	13.5 (2100 Hz)	Maximum increment[5] [mrad]	0.35
Frequency range[1] [Hz]	0–3000	Phase capacitance[6] [nF]	645
Torque[2] [Nmm]	Stall torque 80 Holding torque ≥ 90	Power consumption[7] [mW/Hz]	7.5
		Temperature range [°C]	-20 to +70



Piezo LEGS R dimensions

1) The rotational velocity is given at no load. Absolute maximum drive frequency 3 kHz.
2) Torque ± 10%
3) The phase voltage is to be cycled between 0 to 42 V. Maximum allowed phase voltage is 48 V.
4) Dependant on phase voltage resolution (approximately 4 μrad/V).
5) Maximum ±10 % increment variations at no load.
6) Capacitance at 22 °C ± 5%. Capacitance at -20 °C approximately -20% and at 70 °C approximately +40%.
7) Dependant on drive electronics. The power consumption may be up to 70% lower using energy recovering electronics.

Specifications subject to change without prior notice.

PiezoMotor™

PiezoMotor Uppsala AB Sylveniusgatan 5D SE-754 50 Uppsala Sweden Tel +46 18 14 44 50 Fax +46 18 14 44 53 info@piezomotor.com www.piezomotor.com