



Slimline stepper motors

6405

- Nominal Torque .. 1.6 mNm
- Weight 7 g
- Output shaft $\varnothing 1^{-0.003}/_{-0.013}$ mm

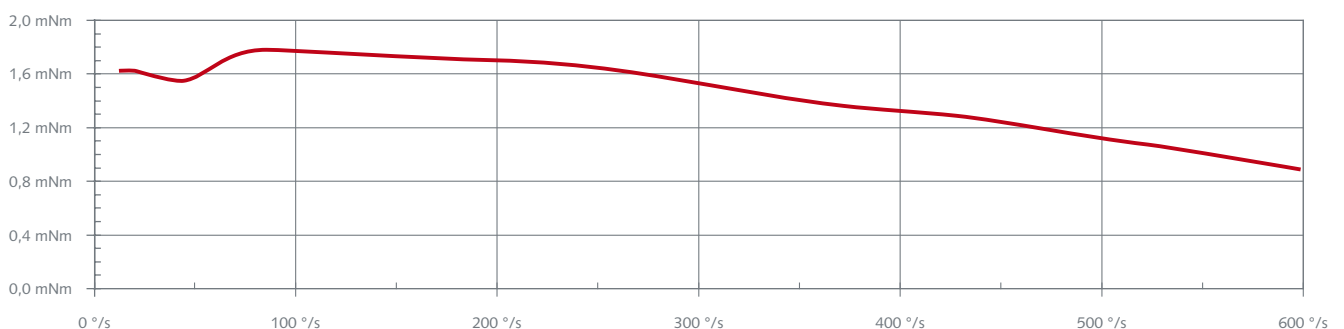
The 6405 Shafted stepper motor is a benchmark and the worldwide standard in instrument cluster applications.

► Technical data

Part N°	Position on PCB	Shaft length "L"	Internal stop	Contact pins length "h"
6405R200	Front Mount	8.15 mm	yes	2.28 mm
6405R201	Front Mount	10.75 mm	yes	2.28 mm
6405R300	Front Mount	8.15 mm	no	2.28 mm
6405R401	Rear Mount	16.275 mm	yes	2.28 mm
6405R404	Rear Mount	12.275 mm	yes	2.28 mm
6405R407	Rear Mount	16.275 mm	yes	3.14 mm

► Dynamic characteristics

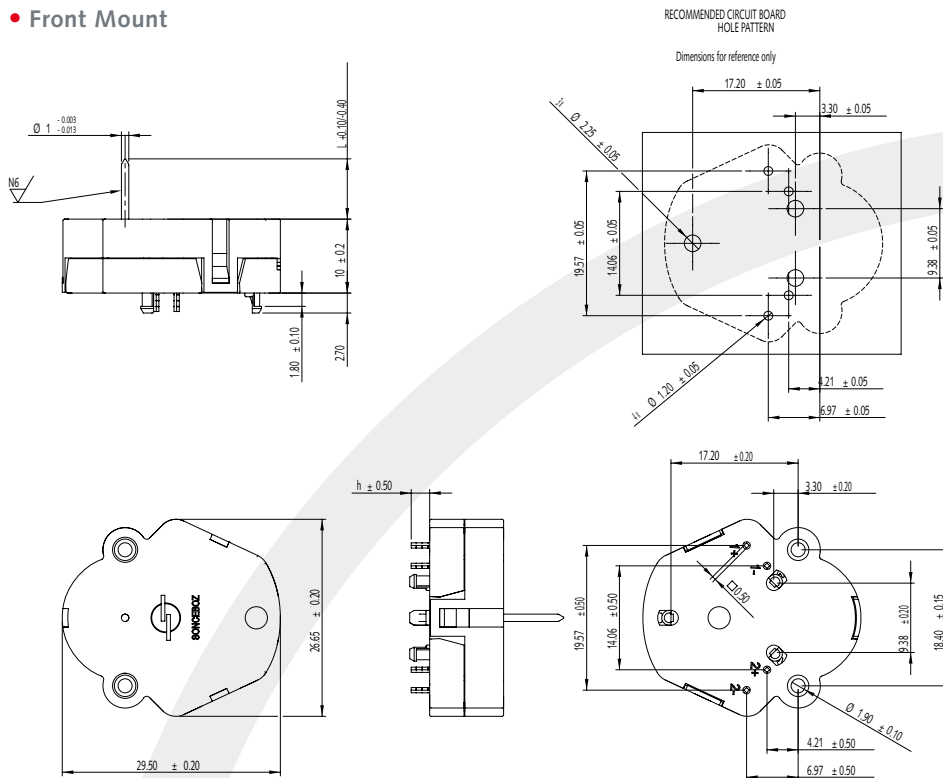
Dynamic torque at 22°C, coil voltage 5V, for motors driven in 1/6 micro-steps



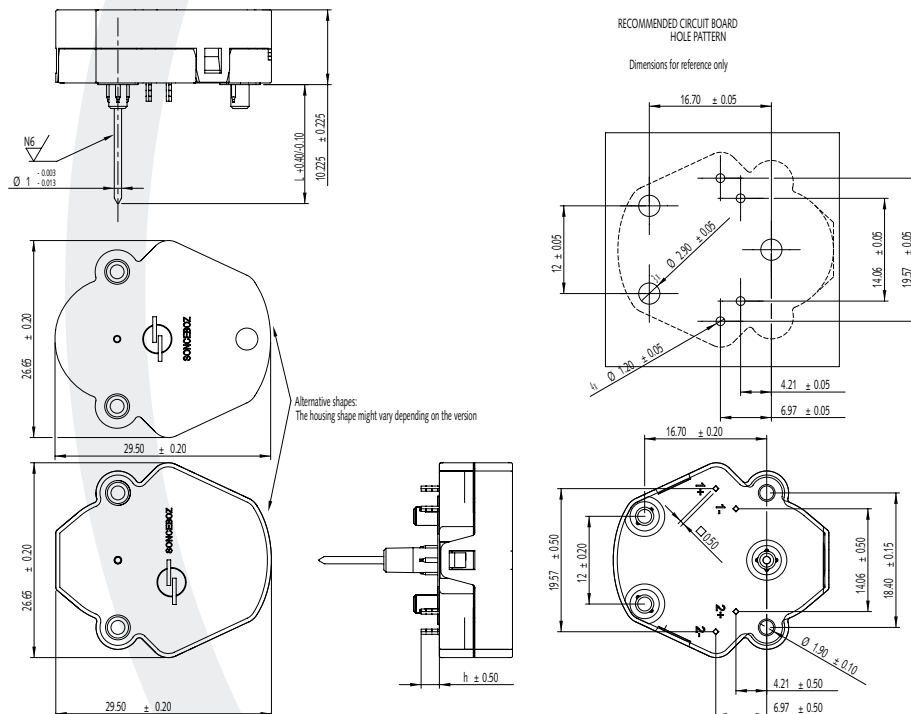
► Dimensions

Drawing not to scale. All dimensions in mm.

• Front Mount



• Rear Mount



Special requirements upon customer specifications. Right to change reserved. Patent protected.

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► Electrical / Mechanical Characteristics

Variables :

- Ambient temperature $T_a = 22^\circ \text{C}$
- Voltage at the coils $U = 5 \text{ V} \pm 0.1 \text{ V}$

Parameter	Min	Typical	Max	Unit
Rotor Step Angle	–	18	–	degree
Gear Ratio	–	1:36	–	–
Pole pairs rotor	–	5	–	degree
Step size degree in full step mode	–	0.5	–	degree
Step size degree with 6 micro steps	–	0.083	–	degree
Operating angle	300	310	–	degree
Operating Temperature	-40	–	105	$^\circ\text{C}$
Storage Temperature	-50	–	105	$^\circ\text{C}$
Soldering temperature (max 5 sec)	–	–	290	$^\circ\text{C}$
Operating voltage	4.5	–	7.5	V
Operating current	–	20	35	mA
Coil resistance	214	227	240	Ω
Coil Inductance	45	55	65	mH
Dynamic torque @ 200 degree / sec	1.2	1.6	–	mNm
Static torque	0.5	0.8	–	mNm
Holding torque (with current, 5 V)	–	3.6	–	mNm
Noise Level @ 200 degree / sec @ 5cm from the reference face, pre-test	–	26	35	dB(A)
Maximum speed	800	–	–	degree/s
Equivalent motor inertia at output	–	4.5 E-06	–	kg-m ²
Permissible forces on output shaft				
Axial force (with retention of the housing)	–	–	120	N
Radial force at 8 mm from front face of motor			12	N

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SONCEBOZ SA
 2605 Sonceboz - Switzerland
 Tel. +41(0) 32 488 11 11
 Fax +41(0) 32 488 11 00
 E-mail : info@sonceboz.com
 Internet : www.sonceboz.com

