

NEW

DC-Micromotors

Precious Metal Commutation

6,1 mNm

8,19 W

Series 1437 ... SXR

Values at 22°C and nominal voltage	1437 U	003 SXR	4,5 SXR	006 SXR	009 SXR	012 SXR	018 SXR	024 SXR	
Nominal voltage	U_N	3	4,5	6	9	12	18	24	V
Terminal resistance	R	0,583	1,19	2,25	4,76	7,97	19,1	37	Ω
Rotor inductance	L	36,6	78,8	147	315	529	1 260	2 460	μH
Efficiency, max.	η_{max}	78	78	78	78	78	78	78	%
No-load current, typ.	I_0	0,0731	0,0505	0,0366	0,0253	0,0198	0,0126	0,0088	A
No-load speed	n_0	7 320	7 490	7 320	7 490	7 720	7 490	7 140	min^{-1}
Stall torque	M_H	19,7	21,2	20,4	21,2	21,9	21,2	20,4	mNm
Rotor inertia	J	1,13	1,13	1,13	1,13	1,13	1,13	1,13	gcm^2
Friction torque	M_R	0,282	0,286	0,282	0,286	0,291	0,286	0,278	mNm
Torque constant	k_M	3,88	5,69	7,76	11,4	14,8	22,8	31,8	mNm/A
Speed constant	k_n	2 460	1 680	1 230	838	647	419	300	min^{-1}/V
Slope of n-M curve	$\Delta n/\Delta M$	370	351	357	351	350	351	349	$\text{min}^{-1}/\text{mNm}$
Thermal resistance:									
– winding to housing	R_{th1}	9,9							K/W
– housing to ambient (external plastic flange)	$R_{\text{th2 p}}$	25							K/W
– housing to ambient (external metal flange)	$R_{\text{th2 m}}$	3,3							K/W
Thermal time constant:									
– winding	τ_{w1}	11							s
– housing (external plastic flange)	$\tau_{w2 p}$	270							s
– housing (external metal flange)	$\tau_{w2 m}$	36							s
Operating temperature range:									
– motor		-30 ... +85							°C
– winding, max. permissible		+125							°C
Shaft bearings		sintered bearings				ball bearings, preloaded			
Shaft diameter		2				2			mm
Radial shaft load max.:									
– dynamic at 3 000 min^{-1} (4 mm from mounting face)		2				8			N
Axial shaft load max.:									
– dynamic at 3 000 min^{-1}		0,2				0,8			N
– static (shaft unsupported)		40				40			N
– static (shaft supported)		300				300			N
Shaft play, max.:									
– radial		0,03				0,015			mm
– axial		0,2				0			mm
Speed up to	n_{max}	10 000							min^{-1}
Number of pole pairs		1							
Mass		25,8							g
Housing material		steel, nickel plated							
Magnet material		NdFeB							
Rated values for continuous operation									
Rated torque	M_N	4,43	6,05	6,01	6,06	6,05	6,05	6,1	mNm
Rated current (thermal limit)	I_N	1,26	1,22	0,887	0,609	0,47	0,304	0,219	A
Rated speed	n_N	5 530	4 740	4 520	4 740	5 000	4 740	4 360	min^{-1}

Note: Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The $R_{\text{th2 p}}$ value has been reduced by 0%.

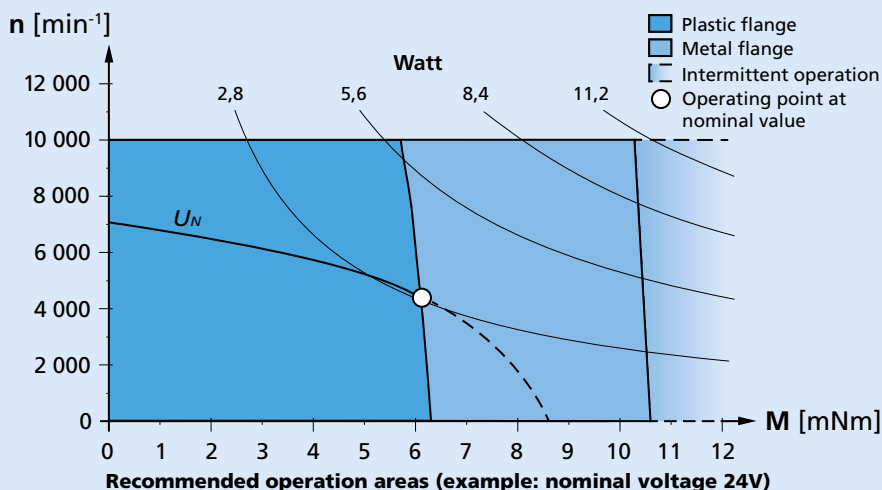
Note:

The diagram indicates the recommended speed in relation to the available torque at the output shaft for a given ambient temperature of 22°C.

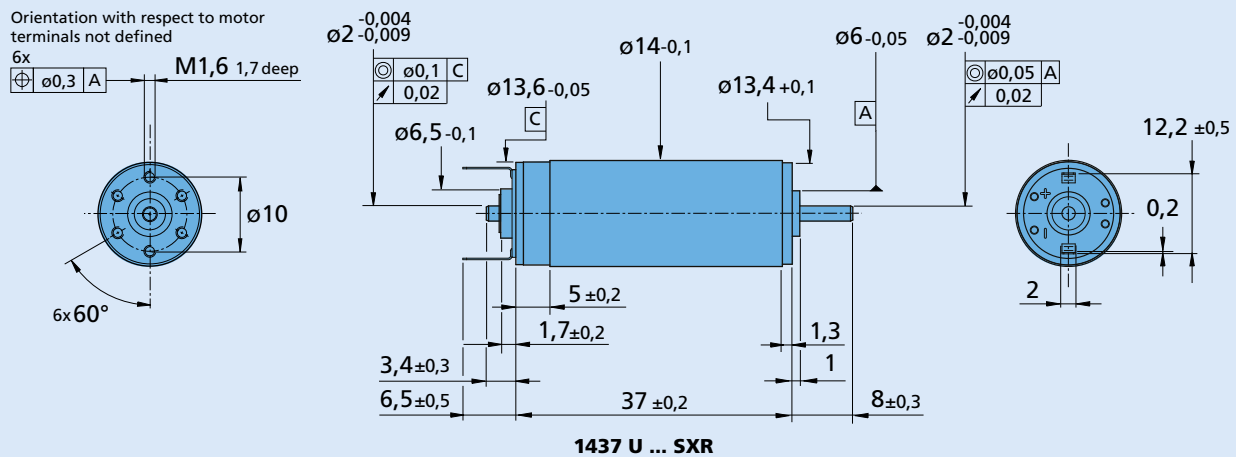
The diagram shows the motor in different conditions of thermal coupling, i.e. mounted respectively on a plastic flange and a metal flange.

The nominal voltage (U_N) curve shows, up to the thermal limit, the operating point at nominal voltage for the motor mounted on a plastic flange. Higher torque can be achieved by further reducing the thermal resistance.

Any points of operation above the curve at nominal voltage will require a higher operating voltage. Any points below the nominal voltage curve will require less voltage.



Dimensional drawing



Options

Example product designation: **1437U012SXR-7960**

Option	Type	Description
7931	Bearings	Motor with 2 preloaded ball bearings
7961	Temperature Range	Motor with 2 preloaded ball bearings, extended temperature range (-30°C...+125°C)
7962	Ambient Conditions	Motor with 2 preloaded ball bearings, for vacuum down to 10 ⁻⁵ Pa @22°C
7933	Bearings	Motor with reinforced sintered bearings (shaft press fit force, max. 60N)
7927	Shaft End	Motor front shaft $\varnothing 2$ mm, 6,5 mm long from motor front ¹⁾
7928	Shaft End	Motor front shaft $\varnothing 2$ mm, 8 mm long with single flat end of 5 mm
7925	Front-Flange	Additional front flange with 6x60° threaded holes, motor leads oriented at 0° vs flange front threads (90° CCW in case of terminals) ²⁾
7948	Front-Flange	Additional front flange with 4x90° threaded holes, motor leads / terminals oriented at 0° vs flange front threads ²⁾
7960	Electrical Interface	Motor terminals oriented radially outwards
7935	Leads	Motor with twin leads (PVC), length 50 mm, red (+) / black (-)
X7935	Leads	Motor with twin leads (PVC), length 100 mm, red (+) / black (-)
Y7935	Leads	Motor with twin leads (PVC), length 150 mm, red (+) / black (-)
Z7935	Leads	Motor with twin leads (PVC), length 300 mm, red (+) / black (-)
XX7935	Leads	Motor with twin leads (PVC), length 600 mm, red (+) / black (-)
7936	Leads	Motor with single leads (PTFE), length 150 mm, red (+) / black (-)
7937	Leads	Motor with twin leads (PVC), length 150 mm, red (+) / black (-) and connector PHOENIX 1012267
7938	Leads	Motor with twin leads (PVC), length 150 mm, red (+) / black (-) and connector AMP 179228-2

¹⁾ Front shaft, on request other lengths from 4 mm to 17 mm (standard step 1 mm); rear shaft, on request other lengths from 1 mm to 12 mm (standard step 1 mm)

²⁾ Dimensional drawing available on product website at faulhaber.com, other orientations available (in 15° steps CCW)

Product combination

Precision Gearheads / Lead Screws	Encoders	Drive Electronics	Cables / Accessories
14GPT 15A 15/5 15/5 S 15/8 16GPT	IEP3-4096	SC 1801 S SC 2804 S MC 3001 B MC 3001 P MC 3602 B MC 3603 S	To view our large range of accessory parts, please refer to the "Accessories" chapter.