NEW

FAULHABER

DC-Micromotors

Graphite Commutation

6,91 mNm

7,91 W

Series 1437 ... GXR

Values at 22°C and nominal voltage	1437 U	4,5 GXR	006 GXR	009 GXR	012 GXR	018 GXR	024 GXR	
Nominal voltage	U_N	4,5	6	9	12	18	24	V
Terminal resistance	R	1,19	2,25	4,76	7,97	19,1	37	Ω
Rotor inductance	L	78,8	147	315	529	1 260	2 460	µH
Efficiency, max.	$\eta_{max.}$	65	67	70	71	72	72	%
No-load current, typ.	I_0	0,0685	0,0504	0,0351	0,0276	0,0178	0,0125	A
No-load speed	n_0	6 630	6 680	7 040	7 370	7 260	6 970	min⁻¹
Stall torque	M_H	18,7	18,6	19,9	20,9	20,5	19,8	mNm
Rotor inertia	J	1,13	1,13	1,13	1,13	1,13	1,13	gcm²
Friction torque	M_R	0,387	0,388	0,397	0,404	0,401	0,395	mNm
Torque constant	k_M	5,69	7,76	11,4	14,8	22,8	31,8	mNm/A
Speed constant	k_n	1 680	1 230	838	647	419	300	min⁻¹/V
Slope of n-M curve	$\Delta n/\Delta M$	351	357	351	350	351	349	min⁻¹/mNm
Thermal resistance:								
– winding to housing	R_{th1}	9,9						K/W
– housing to ambient (external plastic flange)	$R_{th2\,p}$	25						K/W
– housing to ambient (external metal flange)	$R_{th2\,m}$	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 ... +100						°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		26,3						g
Housing material		steel, nickel plated						
Magnet material		NdFeB						
Rated values for continuous operation								
Rated torque	M_N	6,17	6,58	6,73	6,77	6,83	6,91	mNm
Rated current (thermal limit)	I_N	1,26	0,999	0,697	0,542	0,354	0,256	A
Rated speed	n_N	3 670	3 250	3 630	3 970	3 790	3 460	min⁻¹

Note: Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The $R_{th2\,p}$ value has been reduced by 25%.

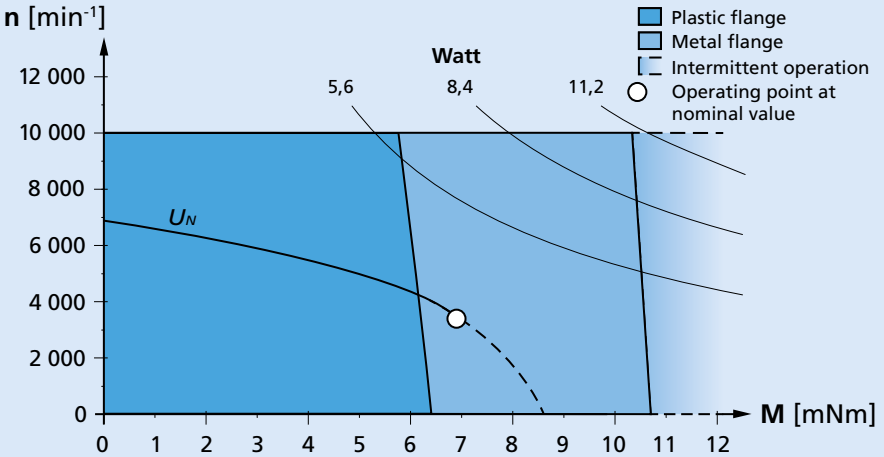
Note:

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.

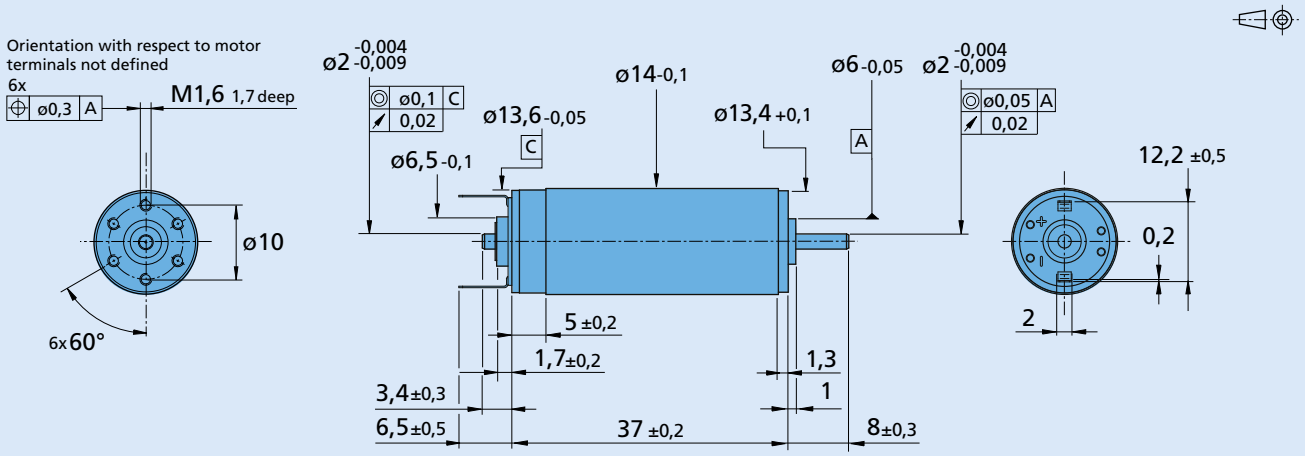
Any points of operation above the curve at nominal voltage will require a higher operating voltage. Any points below the nominal voltage curve will require less voltage.



Recommended operation areas (example: nominal voltage 24V)

For notes on technical data and lifetime performance refer to "Technical Information".

Dimensional drawing



1437 U ... GXR

Options

Example product designation: **1437U012GXR-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)
7933	Bearings	Motor with reinforced sintered bearings (shaft press fit force, max. 60N)
7927	Shaft End	Motor front shaft ø2 mm, 6,5 mm long from motor front [1]
7928	Shaft End	Motor front shaft ø2 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.