DC-Micromotors

Graphite Commutation

40 mNm

34 W

Series 2657 ... CXR

Values at 22°C and nominal voltage		2657 W	012 CXR	018 CXR	024 CXR	030 CXR	036 CXR	048 CXR	
1	Nominal voltage	U_N	12	18	24	30	36	48	V
2	Terminal resistance	R	0,72	1,53	2,98	4,84	6,76	12,61	Ω
3	Efficiency, max.	$\eta_{max.}$	81	85	83	84	85	83	%
4	No-load speed	n_0	5 600	5 500	5 800	5 700	5 800	5 800	min⁻¹
5	No-load current, typ. (with shaft ø 4 mm)	I_0	0,104	0,067	0,052	0,041	0,035	0,026	A
6	Stall torque	M_H	306,7	347,3	302,9	300,7	306,9	283,1	mNm
7	Friction torque	M_R	2	2	2	2	2	2	mNm
8	Speed constant	k_n	494	321	247	196	165	122	min⁻¹/V
9	Back-EMF constant	k_E	2,024	3,113	4,05	5,11	6,07	8,205	mV/min⁻¹
10	Torque constant	k_M	19,33	29,73	38,67	48,84	58	78,35	mNm/A
11	Current constant	k_I	0,052	0,034	0,026	0,02	0,017	0,013	A/mNm
12	Slope of n-M curve	$\Delta n/\Delta M$	18,4	16,5	19	19,4	19,2	19,6	min⁻¹/mNm
13	Rotor inductance	L	90	214	365	579	816	1 500	µH
14	Mechanical time constant	τ_m	3,3	2,9	3,4	3,4	3,4	3,5	ms
15	Rotor inertia	J	17	17	17	17	17	17	gcm²
16	Angular acceleration	$\alpha_{max.}$	180	204	178	177	180	172	·10³rad/s²
17	Thermal resistance	R_{th1} / R_{th2}	4,4 / 12,6						K/W
18	Thermal time constant	τ_{w1} / τ_{w2}	28 / 810						s
19	Operating temperature range:								
	– motor		-30 ... +100						°C
	– winding, max. permissible		+125						°C
20	Shaft bearings		sintered bearings			ball bearings, preloaded			
21	Shaft load max.:		(standard)			(optional version)			
	– with shaft diameter		4			4			mm
	– radial at 3 000 min⁻¹ (3 mm from bearing)		10			20			N
	– axial at 3 000 min⁻¹		2			2			N
	– axial at standstill		50			20			N
22	Shaft play:								
	– radial	≤	0,03			0,015			mm
	– axial	≤	0,15			0			mm
23	Housing material		steel, zinc galvanized and passivated						
24	Mass		156						g
25	Direction of rotation		clockwise, viewed from the front face						
26	Speed up to	$n_{max.}$	7 000						min⁻¹
27	Number of pole pairs		1						
28	Magnet material		NdFeB						
Rated values for continuous operation									
29	Rated torque	M_N	39	43	40	40	40	40	mNm
30	Rated current (thermal limit)	I_N	2,4	1,7	1,2	0,97	0,82	0,61	A
31	Rated speed	n_N	5 040	5 020	5 110	5 050	5 140	5 050	min⁻¹

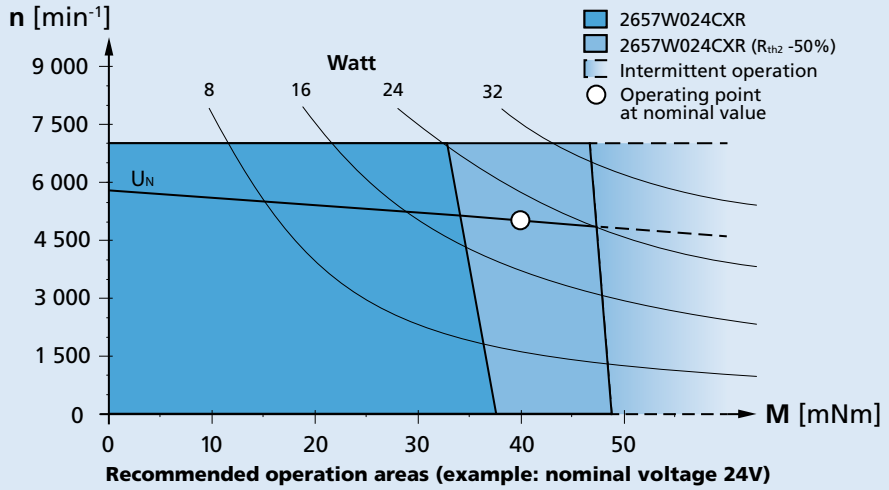
Note: Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The R_{th2} value has been reduced by 25%.

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 a completely insulated as well as thermally coupled condition (R_{th2} 50% reduced).

The nominal voltage (U_N) curve shows the operating point at nominal voltage in the insulated and thermally coupled condition. 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".

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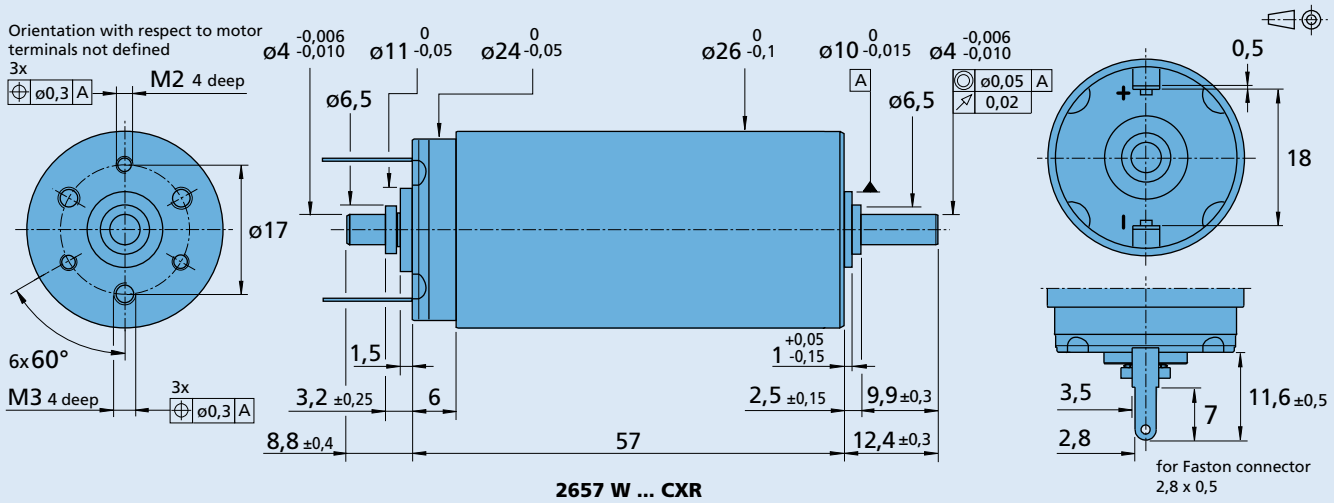
Dimensional drawing



2657 W ... CXR

Options

Example product designation: **2657W012CXR-275**

Option	Type	Description
U	Single Leads	For motors with single leads (PTFE), length 160 mm, red (+) / black (-)
158	Shaft end	No second shaft end
275	Ball bearings	Motor with 2 preloaded ball bearings.

Product combination

Precision Gearheads / Lead Screws	Encoders	Drive Electronics	Cables / Accessories
26A 26/1 26/1 R 30/1 30/1 S 32A BS22-1.5	IE3-1024 IE3-1024 L IERS3-500 IERS3-500 L IER3-10000 IER3-10000 L	SC 2402 P SC 2804 S SC 5004 P SC 5008 S MCDC 3003 P MCDC 3006 S MC 5004 P MC 5005 S	MBZ To view our large range of accessory parts, please refer to the “Accessories” chapter.

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

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Planetary Gearheads

4,5 Nm

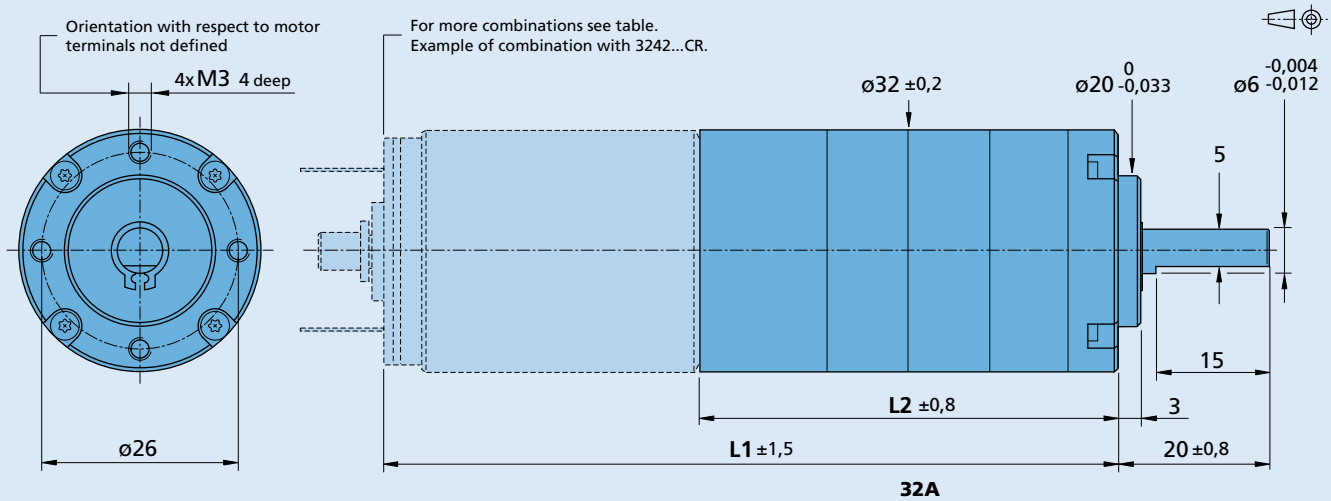
For combination with
DC-Micromotors
Brushless DC-Motors

Series 32A

	32A
Housing material	metal
Geartrain material	steel
Recommended max. input speed for:	
– continuous operation	3 000 min^{-1}
Backlash, at no-load	≤ 2 °
Bearings on output shaft	ball bearings
Shaft load, max.:	
– radial (10 mm from mounting face)	≤ 100 N
– axial	≤ 30 N
Shaft press fit force, max.	≤ 120 N
Shaft play	
– radial (10 mm from mounting face)	≤ 0,1 mm
– axial	≤ 0,3 mm
Operating temperature range	- 25 ... + 80 °C

Specifications					
Number of gear stages		**1**	**2**	**3**	**4**
Continuous torque	Nm	0,75	2,25	4,5	4,5
Intermittent torque	Nm	1	3	6	6
Mass without motor, ca.	g	150	195	240	290
Efficiency, max.	%	88	85	75	65
Direction of rotation, drive to output		=	=	=	=
Reduction ratio [1] (rounded)		**4:1** **7:1**	**14:1** **19:1** **25:1** **29:1** **46:1**	**68:1** **93:1** **124:1** **169:1** **236:1** **308:1**	**344:1** **626:1** **1 140:1** **2 076:1**
L2 [mm] = length without motor		37,8	47,3	56,8	66,4
L1 [mm] = length with motor	2642W...CR	79,8	89,3	98,8	108,4
	2642W...CXR	79,8	89,3	98,8	108,4
	2657W...CR	94,8	104,3	113,8	123,4
	2657W...CXR	94,8	104,3	113,8	123,4
	2668W...CR	105,8	115,3	124,8	134,4
	3242G...CR	79,8	89,3	98,8	108,4
	3257G...CR	94,8	104,3	113,8	123,4
	3272G...CR	109,8	119,3	128,8	138,4
	3242G...BX4	82,0	91,5	101,0	110,6
	3268G...BX4	108,0	117,5	127,0	136,6
	3274G...BP4	111,8	121,3	130,8	140,4

[1] The reduction ratios are rounded, the exact values are available on request or at www.faulhaber.com.



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