

# DC-Micromotor

## Graphite Commutation

42.7 mNm

For combination with:  
 Gearheads:  
 M42P  
 Encoders:  
 E4P-300, AMT 102, AMT 103

### Series M4870U

	M4870U		24GB	
1 Nominal voltage	$U_N$		24	Volt
2 Winding resistance	R	±15%	0.80	Ω
3 Output power	$P_{2 \text{ max.}}$		174.64	W
4 Efficiency	$\eta_{\text{ max.}}$		77	%
5 No-load speed	$n_o$	±10%	11,000	rpm
6 No-load current max.	$I_o$	±50%	0.45	A
7 Stall torque	$M_H$		615.67	mNm
8 Friction torque	$M_R$		9.24	mNm
9 Speed constant	$k_n$		465	rpm/V
10 Back-EMF constant	$k_E$		2.15	mV/rpm
11 Torque constant	$k_M$		20.52	mNm/A
12 Current constant	$k_I$		0.049	A/mNm
13 Slope of n-M curve	$\Delta n / \Delta M$		18	rpm/mNm
14 Rotor inductance	L		400	μH
15 Mechanical time constant	$\tau_m$		34	ms
16 Rotor inertia	J		180	gcm <sup>2</sup>
17 Angular acceleration	$\alpha_{\text{ max.}}$		34	·10 <sup>3</sup> rad/s <sup>2</sup>
18 Thermal resistance	$R_{\text{th} 1} / R_{\text{th} 2}$	6.3 / 7.3		°C/W
19 Thermal time constant	$\tau_{w1} / \tau_{w2}$	720 / 1,320		s
20 Operating temperature range:				
– motor		– 10 to + 50		°C
– rotor, max. permissible		+ 155		°C
21 Shaft bearing		ball bearings		
22 Shaft load max.:				
– with shaft diameter		4		mm
– radial at 3,000 rpm (3 mm from bearing)		8.8		N
– axial at 3,000 rpm		2		N
– axial at standstill (shaft supported)		785		N
23 Shaft play				
– radial (13 mm from motor face)	≤	0.04		mm
– axial	≤	0.05 to 0.5		mm
24 Housing material		steel, zinc plating (chrome free)		
25 Weight		370		g
26 Direction of rotation		counter clockwise, viewed from the front face		
27 Speed up to	$n_{e \text{ max.}}$		11,000	rpm
28 Torque up to	$M_{e \text{ max.}}$		42.680	mNm
29 Current up to (thermal limits)	$I_{e \text{ max.}}$		2.833	A

Orientation with respect to motor terminals not defined



