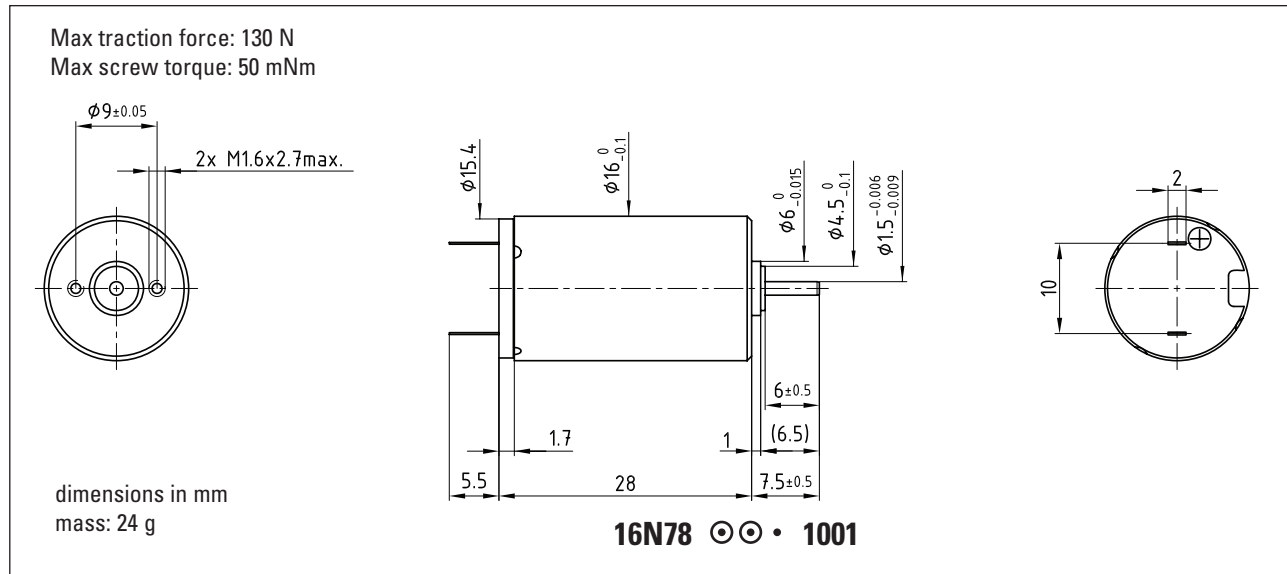


### Precious Metal Commutation System - 9 Segments

4 Watt

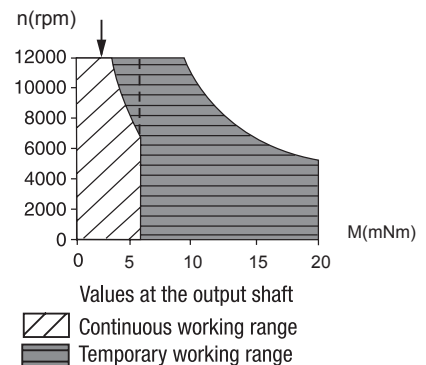


Winding Type	☉☉	135	212P	214E	212E	210E	208E
<b>Measured Values</b>							
Measuring voltage	V	1.5	6	9	12	18	24
No-load speed	rpm	9300	9300	8300	8400	9300	8200
Stall torque	mNm	11.5	12.2	12.4	12.4	12.0	11.0
Average No-load current	mA	60	14	10	5	5	3
Typical starting voltage	V	0.1	0.15	0.25	0.3	0.45	0.5
<b>Max. Recommended Values</b>							
Max. continuous current	A	4.00	1.03	0.65	0.49	0.34	0.23
Max. continuous torque	mNm	6.00	6.20	6.60	6.60	6.20	6.30
Max. angular acceleration	10 <sup>3</sup> rad/s <sup>2</sup>	220	237	212	220	207	214
<b>Intrinsic Parameters</b>							
Back-EMF constant	V/1000 rpm	0.16	0.64	1.08	1.42	1.93	2.90
Torque constant	mNm/A	1.5	6.1	10.3	13.6	18.4	27.7
Terminal resistance	Ohms	0.2	3.0	7.5	13.2	27.5	60.5
Motor regulation R/k <sup>2</sup>	10 <sup>3</sup> /Nms	89	81	71	71	81	79
Rotor inductance	mH	0.01	0.10	0.60	1.80	4.70	7.00
Rotor inertia	kgm <sup>2</sup> 10 <sup>-7</sup>	1.10	1.05	1.25	1.20	1.20	1.18
Mechanical time constant	ms	9.4	8.4	8.8	8.7	9.7	9.3

Executions			
		Single Shaft	With MR2
Gearbox	Page	16N78	16N98
B16	236	1005	1008
BA16	237	1005	1008
R16	238	1001	1007

- Thermal resistance : rotor-body 7°C/W  
body-ambient 28°C/W
- Thermal time constant – rotor/stator: 7s / 390s
- Max. rated coil temperature: 100°C (210°F)
- Recom. Ambient temperature range: -30°C to +85°C (-22°F to +185°F)
- Viscous damping constant: 0.04 x 10<sup>-6</sup> Nms
- Max axial static force for press-fit: 100N (with sleeve bearing only)
- End play: ≤ 150 µm  
Radial play: ≤ 30 µm  
Shaft runout: ≤ 10 µm
- Max. side load at 5mm from mounting face – sleeve bearings 1.5 N  
– ball bearings 3 N
- Motor fitted with sleeve bearings (ball bearings optional)

#### Max. Recommended Speed



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