

dimensions in mm
mass: 125 g

28L28 00 • 49

28L28 00 • 164

Winding Type

00

-219P

-219

-416E

-413E

-410E

Measured Values

Measuring voltage	V	6.0	12.0	24.0	28.0	36.0
No-load speed	rpm	5300	5300	5600	5300	5000
Stall torque	mNm (oz-in)	43 (6.08)	43 (6.11)	50 (7.08)	42 (5.96)	34 (4.87)
Average No-load current	mA	44.0	22.0	11.0	8.8	6.6
Typical starting voltage	V	0.05	0.10	0.15	0.20	0.40

Max. Recommended Values

Max. continuous current	A	1.50	0.95	0.53	0.40	0.28
Max. continuous torque	mNm (oz-in)	15.2 (2.20)	19.9 (2.82)	21.0 (2.97)	19.7 (2.78)	18.3 (2.58)
Max. angular acceleration	10 ³ rad/s ²	77	77	48	58	67

Intrinsic Parameters

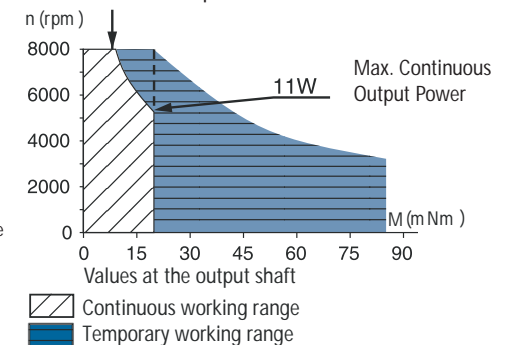
Back-EMF constant	V/1000 rpm	1.12	2.24	4.26	5.20	7.1
Torque constant	mNm/A (oz-in/A)	10.7 (1.51)	21.4 (3.03)	40.7 (5.76)	49.7 (7.03)	67.8 (9.60)
Terminal resistance	ohm	1.49	5.95	19.5	33.0	71.0
Motor regulation R/k ²	10 ³ /Nms	13	13	12	13	15
Rotor inductance	mH	0.10	0.50	2.40	3.20	7.1
Rotor inertia	kgm ² 10 ⁻⁷	10.40	10.40	17.50	13.50	11.00
Mechanical time constant	ms	14	14	21	18	17

Executions

		Single Shaft	Double Shaft for E9
Gearbox	Page	26L28	28L18
R22	105	164	317
M22	106	164	317
RG1/8	107	49	315
RG1/9	108	49	315
R32	111	49	315
K38	112	49	315
K40	110	49	315
L10	115	49	315

- Thermal resistance: rotor-body 5 °C/W
body-ambient 12 °C/W
- Thermal time constant - rotor / stator: 20 s / 760 s
- 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: 0.5 x 10⁻⁶ Nms
- Max. axial static force for press-fit : 150 N
- End play: <150 µm
Radial play: <18 µm
Shaft runout: <10 µm
- Max. side load at 5 mm from mounting face
- sleeve bearings 6 N
- ball bearings 8 N
- Motor fitted with sleeve bearings (ball bearings optional)

Max. Recommended Speed



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