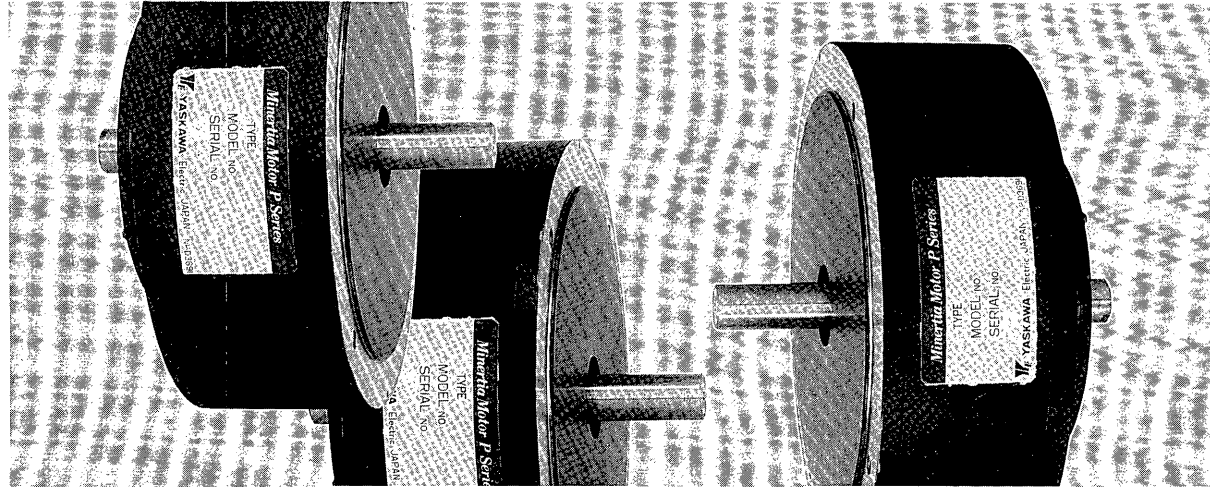


MINERTIA MOTOR P Series

SMALL SIZE DC SERVOMOTORS

TYPE P09, P12



YASKAWA



Minertia Motors P Series are disc-armature DC motors. The principle of disc armature DC motors was developed by SEA in France. They feature epoch-making armature construction: "flat" armature.

In 1964, Yaskawa made technological breakthroughs and gained success in manufacturing the highly-reliable, highly-durable armatures of stabilized performance in quantity. P Series motors incorporating these armatures have been widely used throughout the world for general industrial applications including robots, X-Y tables and computer peripherals.

FEATURES

- Strong permanent alnico magnets
- Quick response and accurate positioning
- Very low ripples and no cogging
- Compatible with conventional flat armature motors
- Ferrite type also available
- Available with analog tachometers and optical encoders
- Fast-reacting service centers in U.S.A. for maintenance and repair service
- Quality control testing performed on a 100% basis



984-26

The Deming Application Prize Medal
Awarded to Yaskawa in 1984 for
Exceptional Achievement in Industrial
Performance

RATINGS AND SPECIFICATIONS

Specifications	Motor Type	P09S	P12S	P12H
Peak Rated Torque	N·m	1.80	4.53	6.28
Rated Torque	N·m	0.36	0.90	1.26
Torque Constant	N·m/A	0.0463	0.110	0.170
Armature Winding Resistance (at 25°C)	Ω	0.65	0.61	0.61
Armature Inductance	mH	< 0.1	< 0.1	< 0.1
Peak Current	A	39.5	41	37.1
Voltage Constant	V/1000rpm	4.85	11.55	17.80
Viscous Damping Coefficient	N·m/(r/min)	7.06×10^{-6}	2.25×10^{-5}	4.03×10^{-5}
Friction Torque	N·m	0.0155	0.0245	0.0245
Inertia	$\text{kg} \cdot \text{m}^2 \times 10^{-4}$	0.38	1.42	1.44
Mechanical Time Constant	millisec	11.3	7.0	3.0
Electrical Time Constant	millisec	< 0.15	< 0.16	< 0.16
Power Rate	kW/sec	3.4	5.8	10.7
Torque Inertia Ratio	rad/sec ²	9400	6400	8900
Thermal Resistance	deg C/watt	1.3	1.27	1.27
Max Allowable Armature Temperature	°C	150	150	150
Rated Speed	r/min	3000	3000	3000
Max Safe Operating Speed	r/min	4000	4000	4000

The data in the above table is obtained under the following conditions.

Time Rating: Continuous

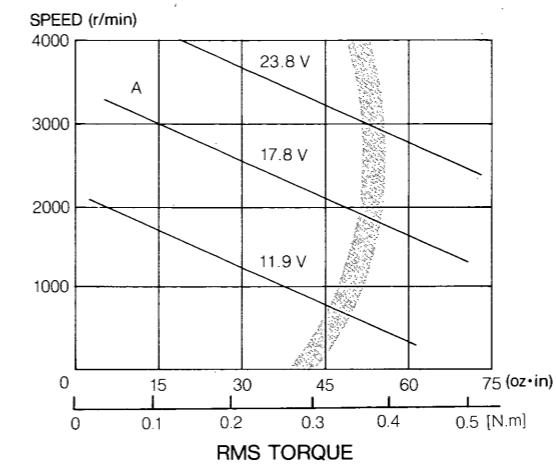
Dielectric Strength: 500 VAC

Enclosure: Totally-enclosed self-cooled type

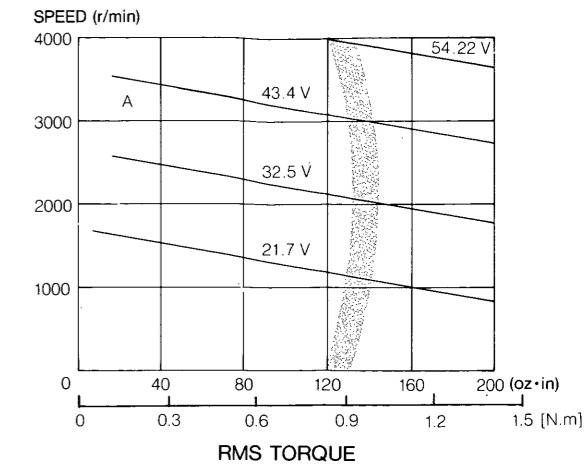
Ambient Temperature: -10°C to 25°C

SPEED-TORQUE CHARACTERISTICS

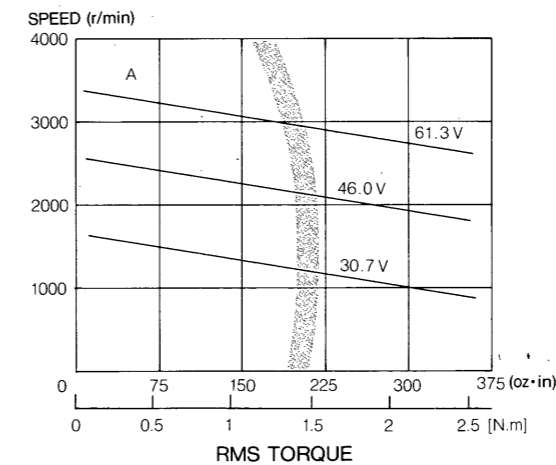
TYPE P09S



TYPE P12S



TYPE P12H



A: Area of safe continuous operation without air cooling.
Note: Curves are for motors mounted on 8" × 16" × 3/8" heat sinks and armature temperature of 125°C.

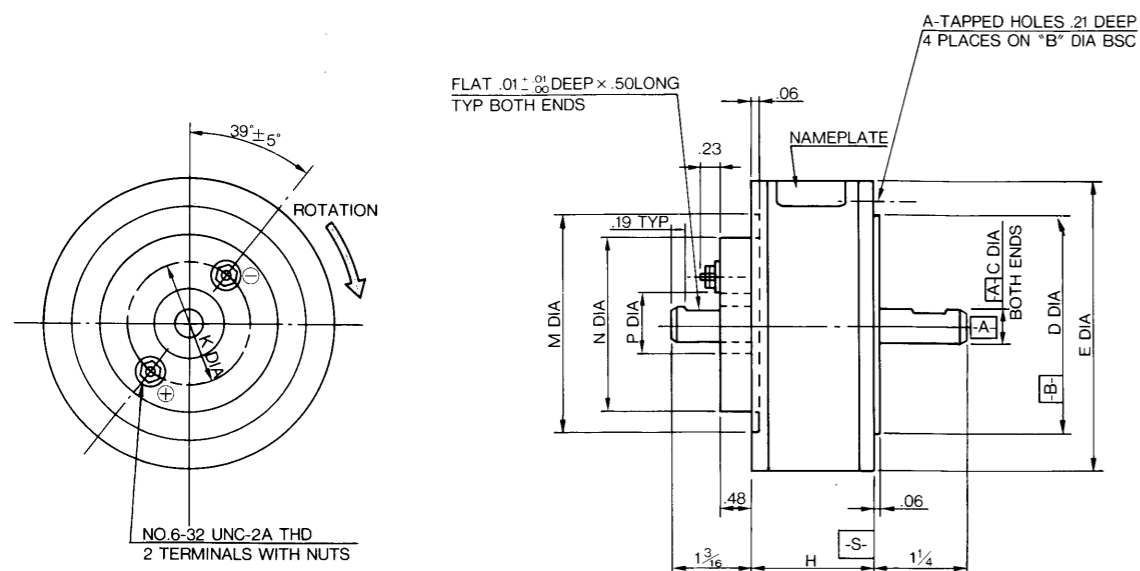
ORDERING INFORMATION

- Application
- Type
- Ratings: output, voltage, current, torque, speed
- Environmental conditions: ambient temperature, location
- Others to be specified

MINERTIA MOTOR P Series

Type P09, P12

DIMENSIONS in inches



Motor Type	"A" Tap	B ±.005	C +.0000 -.0005	D +.000 -.002	E ±.01	H	K
P09S	No. 8-32UNC-2B	3.656	.4995	3.311	4.37	1.752	1.850
P12S	No. 10-32UNF-2B	4.875	.4995	4.500	5.50	1.876	2.382
P12H	No. 10-32UNF-2B	4.875	.4995	4.500	5.50	2.067	2.382

M +.002 -.000	N	P	Approx Weight lb
3.311	2.60	1.339	4.1
4.500	3.31	1.654	6.8
4.500	3.31	1.654	7.9

Note:

- Shaft dia [-A-] runout not to exceed 0.001 inch per inch.
- Pilot dia [-B-] concentric to [-A-] within 0.003 inch T.I.R.
- Mounting surface [-S-] perpendicular to [-A-] within 0.005" for Type P09S; 0.007" for Types P12S and P12H.
- Shaft end play 0.001" max under a thrust in the direction shown of: 10 lb for Types P09S, P12S and P12H.
- Maximum pure radial load, 1" from surface "S": 25 lb for Type P09S; 60 lb for Types P12S and P12H, at rated speed.
- Maximum pure axial load is 11 lb for Type P09S; 55 lb for Types P12S and P12H.
- Screw terminals are standard.

MINERTIA MOTOR P Series

SMALL SIZE DC SERVOMOTORS
TYPE P09, P12

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