

HT23-553

NEMA 23 High Torque Step Motor



Product Features

- 2-phase hybrid step motor
- High torque design
- Standard NEMA 23 dimensions
- Optimized for high bus voltage



Product Description:

The HT23-553 two-phase stepper motor is designed for use with the STAC5 and STAC6 series of stepper drives and is suitable for a wide range of motion control applications. The motor is optimized for use with high bus-voltage drives and comes with an integral 10 ft shielded cable.

The HT23-553 step motor supersedes the HT23-549 step motor in 120 VAC applications with the STAC6 stepper drives.

The motor is terminated with 8 motor leads plus 1 ground lead making it easy to connect the motor to the drive depending on the drive voltage being used. For 120 VAC applications the motor leads must be connected in parallel. For 220 VAC applications the motor leads must be connected in series.

Available Part Numbers

Part No.	Details
HT23-553	Base, single shaft motor.
HT23-553D	Double shaft motor.
HT23-553D-ZAA	Motor with ZAA type optical encoder mounted to rear shaft and end bell of motor. Recommended for use with Applied Motion stepper drives to perform Stall Detection and Stall Prevention functions. 2,000 CPR (8,000 counts quadrature); A, B, and Z (index) channels; differential, line driver outputs. • Mating cable for use with Applied Motion drives (D-sub connector): 3004-195-10 • Mating cable with flying leads: 3004-257
HT23-553D-ZAC	Motor with ZAA type optical encoder (see above) mounted to rear shaft and end bell of motor. A metal cover with integral shielded cable is mounted over the encoder to protect the encoder from dust and debris.
HT23-553D-CAA	Motor with CAA type capacitive encoder mounted to rear shaft and end bell of motor. Recommended for use with Applied Motion stepper drives to perform Stall Detection and Stall Prevention functions. 2,000 CPR (8,000 counts quadrature); A, B, and Z (index) channels; differential, line driver outputs. • Mating cable for use with Applied Motion drives (D-sub connector): 3004-329-10 • Mating cable with flying leads: 3004-349-03

Specifications

Part Number:	HT23-553
Frame Size:	NEMA 23
Motor Type:	High torque
Part Number w/Double Shaft:	HT23-553D
Part Number w/Encoder:	HT23-553D-ZAA or HT23-553D-CAA
Part Number w/Encoder & Cover:	HT23-553D-ZAC
Motor Length:	2.17 inches
Number of Lead Wires:	8
Lead Wire Configuration:	shielded cable, no connector
Lead Wire/Cable Length:	10 feet inches
Lead Wire Gauge:	24 AWG
Unipolar Holding Torque:	118 oz-in
Bipolar Holding Torque:	167 oz-in
Step Angle:	1.8 deg
Bipolar Series Current:	0.71 A/phase
Bipolar Series Resistance:	14.4 Ohms/phase
Bipolar Series Inductance:	51.2 mH/phase
Bipolar Parallel Current:	1.41 A/phase
Bipolar Parallel Resistance:	3.6 Ohms/phase
Bipolar Parallel Inductance:	12.8 mH/phase
Unipolar Current:	1.00 A/phase
Unipolar Resistance:	7.2 Ohms/phase
Unipolar Inductance:	12.8 mH/phase
Rotor Inertia:	4.25E-03 oz-in-sec ²

Integral Gearhead:	No
Weight:	1.5 lbs
Storage Temperature:	-40 to 70 °C
Operating Temperature:	-20 to 50 °C
Insulation Class:	Class B (130 °C)
Shaft Run Out:	0.002 inch T.I.R. max
Radial Play:	0.001 inch max w/ 1.0 lb load
End Play:	0.003 inch max w/ 2.2 lb load
Perpendicularity:	0.004 inches
Concentricity:	0.003 inches

Downloads

Datasheet:	 StepMotorWiring-8-lead-cabled-solid.pdf
Product PDF - S3 Link:	http://s3.amazonaws.com/applied-motion-pdf/HT23-553.pdf
2D Drawing:	 HT23-553_RevG.pdf  HT23-553D-ZAA_RevA.pdf  HT23-553D-CAA_RevB.pdf
3D Drawing:	 23HT54D.igs  HT23-553D-CAA_STEP_7817.zip
Speed-Torque Curves:	 STAC5_speed-torque.pdf  STAC6_speed-torque.pdf

Products in the Series *Cabled Step Motors*

Part Number	Frame Size	Length	Holding Torque	Series Current	Parallel Current	Rotor Inertia
HT23-552	NEMA 23	1.71	84.4	0.71	1.41	1.70E-03
HT23-553	NEMA 23	2.17	167	0.71	1.41	4.25E-03
HT23-554	NEMA 23	3.05	255	0.71	1.41	6.80E-03
HT23-598C	NEMA 23	2.35	158	2.12	4.24	0.0036
HT23-601C	NEMA 23	3.20	269	2.12	4.24	6.51E-03
HT34-495	NEMA 34	3.11	555	2.15	4.30	2.27E-02
HT34-496	NEMA 34	4.63	1110	2.05	4.10	4.53E-02
HT34-497	NEMA 34	6.14	1694	2.55	5.10	6.80E-02
HT34-506C	NEMA 34	4.94	1260	2.8	5.6	0.0387
HT34-696	NEMA 34	4.59	1110	2.05	4.1	3.87E-02
HW23-598	NEMA 23	2.34	158	2.12	4.24	3.68E-03
HW23-601	NEMA 23	3.21	269	2.12	4.24	6.51E-03
HW23-753	NEMA 23	2.19	153	0.71	1.41	3.12E-03
HW23-754	NEMA 23	3.23	227	0.71	1.41	6.51E-03
HW24-108	NEMA 24	3.72	354	NA	4.0	1.27E-02
HW34-506	NEMA 34	5.0	1260	2.8	5.6	3.87E-02
HW34-696	NEMA 34	4.59	1062	2.03	4.06	3.87E-02