

# STRITORQUE®

HDD Servo Motors AB

## HDT 09J Data sheet

### Electrical data

Value	unit	Ma winding
Number of poles		10
Number of pole pairs		5
Inductance/Phase	mH	5.8
Resistance/Phase	Ohm	1.04
Resistance/Phase-phase	Ohm	2.08
Back EMF/Phase-Phase RMS	Vs/rad	0.41
Back EMF @ 1000 rpm	V	42
Torque constant (RMS)	Nm/A	0.71
Max rail voltage	V	750

For higher torques, see next page. The torque constant is defined as the back EMF; friction losses are ignored. Data are based on a small sample and not definitive.

### Mechanical data (resolver feedback)

Value	unit	HDT09J
		no brake
J	kgcm <sup>2</sup>	1.0
Mass	kg	2.3

### Holding brake

No brake is available for HDT motors at this time.

### Insulation class

The insulation system complies with the requirements of EEC LV Directive 73/23/EEC and 93/68/EEC. Test report E9911111E01.

### Protection class

HDD motors comply with the requirements for IP-65. IP-67 is available on request.

### Thermistor

Overheat protection consists of triple PTC thermistors (one on each phase).

R @ 25 C	100 to 350 Ohm
R @ 145 C	< 1650 Ohm
R @ 155 C	> 4 kOhm

### Motor name structure

Type	Flange size	Stator length	Winding	Feedback	Power connector	Brake	Shaft key	Options
HDT	09	J	- Ma	- A	- A	- A	- A	- AAA
<b>Type</b>	HDT = 10 pole shaft motor, HDD/ICM = 20 pole motors							
<b>Flange size</b>	Approximate in cm. 09 = 92 mm.							
<b>Stator length</b>	E (shortest), J, N, Q (longest).							
<b>Winding</b>	Ma suitable for 6000 rpm at rail voltage 560V Ja suitable for 6000 rpm at 180V							
<b>Feedback</b>	See the feedback list on <a href="http://www.hdd.se">www.hdd.se</a>							
<b>Power connector</b>	Many different pinouts available; see <a href="http://www.hdd.se">www.hdd.se</a>							
<b>Brake</b>	A = no brake, D = holding brake. Data see above.							
<b>Shaft key</b>	A = shaft with keyway (standard), B = shaft without keyway.							
<b>Options</b>	AAA = standard. For other options please contact HDD.							

### HDD Servo motors AB

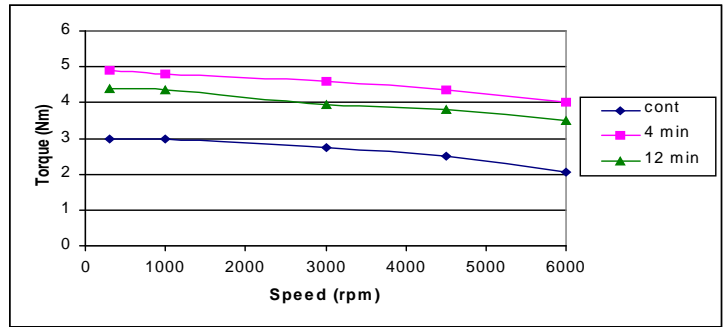
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**Torque** at 90°C max temp rise, in Nm

Speed	100%	25%, 4min	25%, 12min
300	3.0	4.9	4.4
1000	3.0	4.8	4.35
3000	2.75	4.6	3.95
4500	2.5	4.35	3.8
6000	2.05	4.0	3.5



**Current** at 90°C max temp rise, in Ampere rms

Speed	100%	25%, 4min	25%, 12min
300	4.7	8.1	7.1
1000	4.7	8.0	7.0
3000	4.5	7.8	6.6
4500	4.3	7.6	6.45
6000	4.1	7.45	6.4

Data were measured on an HDT 09J-Ma series motor mounted on a vertical 260 x 200 x 12 mm aluminum plate in free air, with a maximal winding temperature rise of 90°C and driven by a commercially available inverter. Data are given for continuous operation and two drive cycles: 1 min on and 3 min off, and 3 min on and 9 min off, respectively.

### Important note on peak torque and currents

HDT motors are capable of high peak torques. At very high peak torques the permitted pulse time is very limited as a high current in a very small motor causes rapid temperature rise in the copper winding. The protection thermistor will not react fast enough to protect the winding during high pulse loads.

### Maximum load on shaft at life expectancy 20,000 h (shaft motors only)

Maximal axial load (push): 350 N at 500 rpm, 100 N at 3000 rpm, 35 N at 6000 rpm. Maximal axial load (pull): 50 N at all speeds. Maximal radial load at zero axial load is given by the curves below. For special cases please contact HDD for calculations.

