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	$kgcm^2$	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 termistors (one on each phase).

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

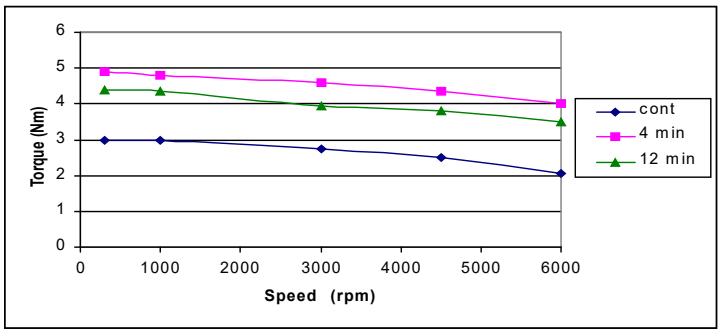
Motor name structure

Type	Flange size	Stator length	Winding	Feedback	Power connector	Brake	Shaft key	Options
HDT	09	J	- Ma	- A	- A	- A	- A	- AAA

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

Torque at 90ºC 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 90ºC 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 90ºC and driven by a commercially available inverter. Data aregiven 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.