

Selecting a Drive/Motor Combination

The following drive/motor combinations are available for the H-Series motors:

Motor	ULTRA 100	ULTRA 200	ULTRA Plus
H-2005-K-H00AA	1398-DDM-009	1398-DDM-010	1398-PDM-10
H-3007-N-H00AA	1398-DDM-009	1398-DDM-010	1398-PDM-10
H-3016-N-H00AA	1398-DDM-019	1398-DDM-020	1398-PDM-20
			1398-PDM-25
H-4030-M-H00AA	NA	1398-DDM-030	1398-PDM-30
H-4030-P-H00AA	1398-DDM-019	1398-DDM-020	1398-PDM-20
			1398-PDM-25
H-4050-P-H00AA	NA	1398-DDM-030	1398-PDM-30 ¹
		1398-DDM-075	1398-PDM-75
			1398-PDM-50
H-4075-R-H00AA	NA	1398-DDM-030	1398-PDM-30 ²
		1398-DDM-075	1398-PDM-75
			1398-PDM-50
H-6100-Q-H00AA	NA	1398-DDM-075	1398-PDM-75
			1398-PDM-50
H-6200-Q-H00AA	NA	1398-DDM-075	1398-PDM-75
			1398-PDM-100
H-6300-Q-H00AA	NA	1398-DDM-150	1398-PDM-150
H-8350-S-H00AA	NA	1398-DDM-150	1398-PDM-100
H-8500-S-H00AA	NA	1398-DDM-150	1398-PDM-150

¹ Peak torque is limited to 13.5 N-m (119.5 lb-in.).

² Peak torque is limited to 19.8 N-m (175.2 lb-in.).

H-Series Specifications

This section contains the mechanical, thermostat and winding specifications for the H-Series motor family, as well as the load force ratings and performance specifications for every combination of ULTRA series drives and H-Series motors. It also provides motor dimensions, connector pin and signal designations, and all motor and connector ordering information.

H-Series Mechanical Specifications

Specifications	Units	H-2005	H-3007	H-3016	H-4030-M	H-4030-P	H-4050
Rotor moment of inertia	kg-m ² (lb-in.-s ²)	0.000015 (0.000013)	0.000030 (0.00027)	0.000080 (0.00072)	0.00025 (0.0022)	0.00025 (0.0022)	0.00046 (0.0041)
Rotor moment of inertia (brake motors)	kg-m ² (lb-in.-s ²)	NA	0.000038 (0.00034)	0.000089 (0.00079)	0.00033 (0.0029)	0.00033 (0.0029)	0.00054 (0.0048)
Motor shipping weight	kg (lb)	2.7 (6.0)	3.2 (7.0)	4.7 (10.4)	7.3 (16.1)	7.3 (16.1)	10.9 (24.0)
Motor net weight	kg (lb)	2.2 (4.9)	2.6 (5.8)	4.1 (9.0)	6.8 (14.9)	6.8 (14.9)	9.7 (21.4)
Brake motor shipping weight	kg (lb)	NA	3.8 (8.4)	5.5 (12.1)	9.4 (20.7)	9.4 (20.7)	12.7 (28.0)
Brake motor net weight	kg (lb)	NA	3.4 (7.5)	4.9 (10.8)	8.8 (19.4)	8.8 (19.4)	11.8 (26.0)
Damping	N-m/kRPM (lb-in./kRPM)	0.007 (0.06)	0.010 (0.09)	0.014 (0.12)	0.034 (0.30)	0.034 (0.30)	0.045 (0.40)
Friction torque	N-m (lb-in.)	0.014 (0.12)	0.014 (0.12)	0.028 (0.25)	0.034 (0.30)	0.034 (0.30)	0.068 (0.60)
Maximum Operating Speed	rpm	6000	5000	5000	4000	4000	4000

Specifications	Units	H-4075	H-6100	H-6200	H-6300	H-8350	H-8500
Rotor moment of inertia	kg-m ² (lb-in.-s ²)	0.00068 (0.0060)	0.0014 (0.012)	0.0024 (0.021)	0.0034 (0.030)	0.0063 (0.056)	0.0094 (0.083)
Rotor moment of inertia (brake motors)	kg-m ² (lb-in.-s ²)	0.00076 (0.0067)	0.0017 (0.015)	0.0027 (0.024)	0.0037 (0.033)	0.0093 (0.082)	0.012 (0.109)
Motor shipping weight	kg (lb)	14.1 (31.1)	19.2 (42.3)	28.6 (63.0)	37.7 (83.1)	46.8 (103)	58.1 (128)
Motor net weight	kg (lb)	12.9 (28.4)	18.3 (40.4)	27.0 (59.4)	34.8 (76.8)	44.1 (97)	56.1 (123.6)
Brake motor shipping weight	kg (lb)	16.0 (35.3)	23.8 (52.5)	32.9 (72.5)	42.2 (93.0)	53.5 (118)	64.9 (143)
Brake motor net weight	kg (lb)	14.9 (32.8)	22.5 (49.5)	31.6 (69.5)	39.2 (86.4)	50.9 (112)	61.8 (136)
Damping	N-m/kRPM (lb-in./kRPM)	0.068 (0.60)	0.10 (0.90)	0.16 (1.4)	0.19 (1.7)	0.38 (3.4)	0.43 (3.8)

Specifications	Units	H-4075	H-6100	H-6200	H-6300	H-8350	H-8500
Friction torque	N-m (lb-in.)	0.14 (1.2)	0.14 (1.2)	0.24 (2.1)	0.36 (3.2)	0.32 (2.8)	0.40 (3.5)
Maximum Operating Speed	rpm	3000	3000	3000	3000	2000	2000

H-Series Winding Specifications

Specifications	Units	H-2005	H-3007	H-3016	H-4030-M	H-4030-P	H-4050
Sine wave K_T torque Constant at 25°C ¹	N-m/A (lb-in./A)	0.13 (1.2)	0.28 (2.5)	0.28 (2.5)	0.25 (2.2)	0.50 (4.4)	0.50 (4.4)
Square wave K_T torque Constant at 25°C ²	N-m/A (lb-in./A)	0.14 (1.3)	0.31 (2.7)	0.31 (2.7)	0.27 (2.4)	0.54 (4.8)	0.54 (4.8)
K_E voltage constant ³	V/kRPM	16	34	34	30	60	60
Winding resistance Phase to phase at 25°C	Ohm	2.6	6.6	1.3	0.5	2.0	0.69
Winding inductance Phase to phase	mH	4.1	12	3.4	1.9	9.0	3.3
Thermal resistance ⁴	°C/Watt	1.5	1.2	0.89	0.79	0.79	0.57
Poles		4	6	6	6	6	6

Specifications	Units	H-4075	H-6100	H-6200	H-6300	H-8350	H-8500
Sine wave K_T torque Constant at 25°C ¹	N-m/A (lb-in./A)	0.74 (6.6)	0.68 (6.0)	0.66 (5.8)	0.70 (6.2)	0.86 (7.6)	0.92 (8.2)
Square wave K_T torque Constant at 25°C ²	N-m/A (lb-in./A)	0.81 (7.2)	0.74 (6.6)	0.72 (6.4)	0.77 (6.8)	0.94 (8.3)	1.0 (9.0)
K_E voltage constant ³	V/kRPM	90	82	80	85	104	112
Winding resistance Phase to phase at 25°C	Ohm	0.90	0.49	0.18	0.12	0.13	0.10
Winding inductance Phase to phase	mH	5.4	4.4	2.2	1.2	2.5	2.4
Thermal resistance ⁴	°C/Watt	0.48	0.34	0.31	0.24	0.23	0.21
Poles		6	8	8	8	8	8

¹ Peak value of per phase sine wave amps.

² Peak value of per phase square wave amps

³ Peak value of sinusoidal phase to phase volts

⁴ At 125°C winding temperature, in a 40°C ambient; motors 3007, 3016 mounted 0.25 in. x 10 in. x 10 in.; motors 4030, 4050, 4075 mounted on 0.5 in. x 12 in. x 12 in.; motors 6100, 6200, 6300, 8350, 8500 mounted on 1 in. x 12 in. x 12 in. aluminum heat sink.

Dimen- sions	AB	AH ³	AJ	AK	BB ⁴	BE	BF	EP	L	L with brake	P	S	U	XD
Motor Models	mm (in.)	mm (in.)	mm (in.)	mm (in.)	mm (in.)	mm (in.)	mm (in.)	mm (in.)	mm (in.)	mm (in.)	mm (in.)	mm x mm (in. x in.)	mm (in.)	mm (in.)
H-2005	75 (2.95)	23 (0.93)	75 (2.95)	60 ¹ (2.36)	2.4 (0.09)	15.2 (0.60)	5.8 (0.23)	12 (0.47)	197 (7.7)	NA	80 (3.15)	4 x 4 (0.16 x 0.16)	11 ² (0.43)	18 (0.71)
H-3007	75 (2.95)	30 (1.18)	100 (3.94)	80 ¹ (3.15)	3 (0.12)	10.9 (0.43)	7 (0.28)	15 (0.59)	172 (6.77)	211 (8.31)	89 (3.50)	5 x 5 (0.20 x 0.20)	14 ² (0.55)	20 (0.79)
H-3016	75 (2.95)	30 (1.18)	100 (3.94)	80 ¹ (3.15)	3 (0.12)	10.9 (0.43)	7 (0.28)	15 (0.59)	233 (8.77)	262 (10.31)	89 (3.50)	5 x 5 (0.20 x 0.20)	14 ² (0.55)	20 (0.79)
H-4030	76 (3.00)	50 (1.97)	145 (5.71)	110 ⁵ (4.33)	3 (0.12)	15.5 (0.61)	10 (0.39)	20 (0.79)	213 (8.39)	266 (10.47)	121 (4.76)	6 x 6 (0.24 x 0.24)	19 ⁶ (0.75)	40 (1.57)
H-4050	76 (3.00)	50 (1.97)	145 (5.71)	110 ⁵ (4.33)	3 (0.12)	15.5 (0.61)	10 (0.39)	20 (0.79)	264 (10.39)	317 (12.48)	121 (4.76)	6 x 6 (0.24 x 0.24)	19 ⁶ (0.75)	40 (1.57)
H-4075	76 (3.00)	50 (1.97)	145 (5.71)	110 ⁵ (4.33)	3 (0.12)	15.5 (0.61)	10 (0.39)	20 (0.79)	315 (12.40)	368 (14.49)	121 (4.76)	6 x 6 (0.24 x 0.24)	19 ⁶ (0.75)	40 (1.57)
H-6100	101 (4.00)	80 (3.15)	200 (7.87)	114.3 ⁵ (4.50)	4 (0.16)	21.3 (0.84)	13.5 (0.53)	38 (1.50)	277 (10.91)	330 (12.99)	178 (7.01)	10 x 8 (0.39 x 0.31)	35 ⁷ (1.38)	60 (2.36)
H-6200	101 (4.00)	80 (3.15)	200 (7.87)	114.3 ⁵ (4.50)	4 (0.16)	21.3 (0.84)	13.5 (0.53)	38 (1.50)	353 (13.90)	406 (15.98)	178 (7.01)	10 x 8 (0.39 x 0.31)	35 ⁷ (1.38)	60 (2.36)
H-6300	101 (4.00)	80 (3.15)	200 (7.87)	114.3 ⁵ (4.50)	4 (0.16)	21.3 (0.84)	13.5 (0.53)	38 (1.50)	429 (16.89)	442 (17.40)	178 (7.01)	10 x 8 (0.39 x 0.31)	35 ⁷ (1.38)	60 (2.36)
H-8350	112 (4.41)	85 (3.35)	265 (10.43)	230 ⁸ (9.06)	4 (0.16)	22.4 (0.88)	15 (0.59)	45 (1.77)	375 (14.76)	478 (18.82)	241 (9.49)	12 x 8 (0.41 x 0.31)	42 ⁷ (1.65)	60 (2.36)
H-8500	112 (4.41)	85 (3.35)	265 (10.43)	230 ⁸ (9.06)	4 (0.16)	22.4 (0.88)	15 (0.59)	45 (1.77)	426 (16.77)	529 (20.83)	241 (9.49)	12 x 8 (0.41 x 0.31)	42 ⁷ (1.65)	60 (2.36)

¹ Tolerance is -0.0012 in. (-0.03 mm).

² Tolerance is -0.0004 in. (-0.01 mm).

³ Tolerance is ±0.0196 in. (±0.5 mm).

⁴ Tolerance is ±0.0079 in. (±0.2 mm).

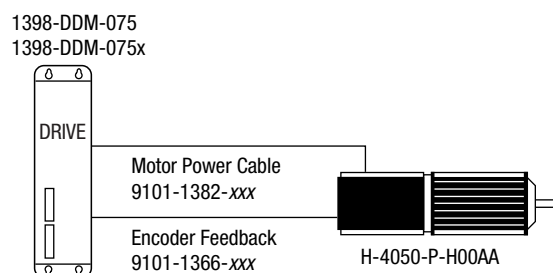
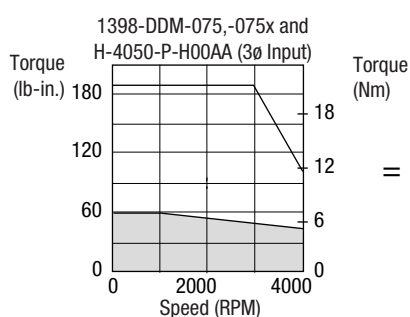
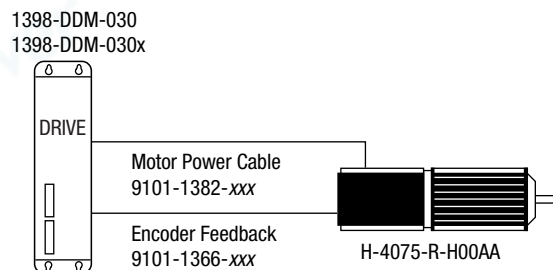
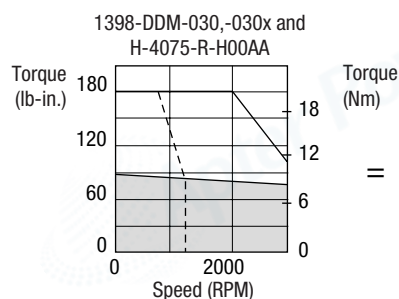
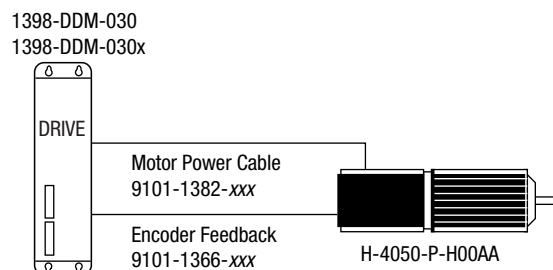
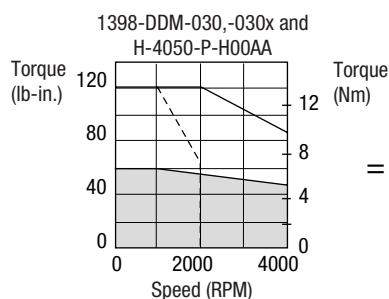
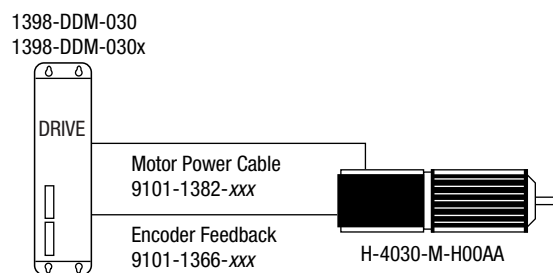
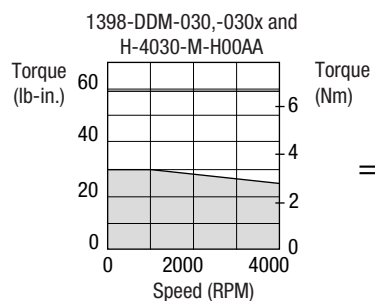
⁵ Tolerance is -0.0014 in. (-0.035 mm).

⁶ Tolerance is -0.0051 in. (-0.013 mm).

⁷ Tolerance is -0.0006 in. (-0.16 mm).

⁸ Tolerance is -0.0181 in. (-0.46 mm).

ULTRA Servo Drives with H-Series Motors



System speed-torque characteristics

Drive module input voltage = 230V AC RMS

* Last three digits select standard cable lengths of:

10 ft (3.0 m)-010; 25 ft (7.7 m)-025; 50 ft (15.0 m)-050; 75 ft (23.0 m)-075; 100 ft (31 m)-100

Note: Serial interface cables for use with the ULTRA 100 drives cannot exceed 50 ft.

- = Intermittent operating region
- = Continuous operating region
- = Drive operation with 115V AC RMS input voltage