



## **HSM and NSM Replacement Motors**



*Helping you build a better machine, **faster.***

## NSM and HSM Replacement motors now available

In order to allow users of the recently discontinued HSM and NSM motors to continue to support their existing products with new replacement motor, Danaher Motion is providing replacement motors using current technology but designed to be installed in the place of discontinued motors without requiring mechanical or connecting cable modifications. This brochure is a reference to selecting the proper new motor to replace an existing NSM or HSM motors. Also, included in this brochure is a cross reference to similar Rockwell Automation® H and N series motors.

## New motor features include

- Same shaft diameter and length
- Same front flange dimension including bolt hole pattern and mounting bolt size
- Motor mounted feedback and power connectors are the same type and pin out as original motors allowing easy connection to existing motor cables (Existing feedback cable must contain hall signal connections)
- Fully supported for DSM and DSA Centurion® including new motor files available at [www.gicontrols.com](http://www.gicontrols.com) for easy installation and startup. (replacement motors not compatible with DS family of amplifiers)
- Motor torque output per input current similar to original motors for most replacement motors (See attached Charts). No loss in speed or torque when replacement motors are applied to existing drive hardware.
- IP65, UL and CE
- Integral 24VDC motor brake available with all motors (90VDC powered brake also available on all HSM replacement motors)
- Same line/rev encoder available on all motors allowing for motor replacement without change application program. (5000 line/rev also available on NSM replacement motors)
- Based on new motor design allowing for long term support and replacement availability
- Supported as standard motor with MMC SmartDrive®.

HSM Series Replacement Motors

H Series		HSM Replacement		Continuous Stall Torque		Continuous Stall Current			Kt (Torque Constant)		DC Resistance		Inductance		Rotor Inertia		Motor Length	
GLMC Model #	Rockwell Model #	Model #	Part #	H-Series	Replacement	H-Series	Replacement		H-Series	Replacement	H-Series	Replacement	H-Series	Replacement	H-Series	Replacement	H-Series	Replacement
				In-lbs (Nm)		Amps (Peak)		In-lbs/Amp (Nm/Amp) Peak		Ohms (L-L)		m-H (L-L)		lb-in-s <sup>2</sup> (Kg m <sup>2</sup> )		in (mm)		
HSM205	H-2005-K-H00AA	HSM205-REP	M.3000.0371	5(.56)	6.7(.75)	5	5.93		0.81(0.1)	1.153(.132)	2.6	2.09	4.1	2.9	.00013(.000015)	.000128(.00001446)	7.7(197)	6.96(176.8)
HSM307	H-3007-N-H00AA	HSM307-REP	M.3000.0372	7(.79)	14.1(1.6)	3.5	5.65		1.95(0.22)	2.5(.28)	6.6	2.29	12	10.3	.00027(.00003)	.00039(.000044)	6.77(172)	5.008(127.2)
HSM307B24	H-3007-N-H04AA	HSM307-REP-B24	M.3000.0384												.0034(.000038)	.000480(.000054)	8.31(211)	6.368(161.7)
HSM307B90	H-3007-N-H01AA	HSM307-REP-B90	M.3000.0394															
HSM320	H-3016-N-H00AA	HSM320-REP	M.3000.0373	20(2.26)	27.6(3.12)	9.5	11.17		1.95(0.22)	2.5(.28)	1.3	.866	3.4	4.7	.00072(.00008)	.00069(.0000779)	8.77(223)	6.008(152.6)
HSM320B24	H-3016-N-H04AA	HSM320-REP-B24	M.3000.0385												.00079(.000089)	.00078(.000088)	10.31(262)	7.368(187.1)
HSM320B90	H-3016-N-H01AA	HSM-320-REP-B90	M.3000.0395															
HSM430	H-4030-P-H00AA	HSM430-REP	M.3000.0374	30(3.39)	50.4(5.7)	8	12		3.36(0.38)	4.25(.47)	2	2	9	6.3	.0022(.00025)	.0024(.000271)	8.39(213)	5.998(152)
HSM430B24	H-4030-P-H04AA	HSM430-REP-B24	M.3000.0386												.0029(.00033)	.00276(.000311)	10.47(266)	7.908(201)
HSM430B90	H-4030-P-H01AA	HSM430-REP-B90	M.3000.0396															
HSM460	H-4050-P-H00AA	HSM460-REP	M.3000.0375	60(6.78)	71.3(8.06)	16	17.1		3.36(0.38)	4.19(.47)	0.69	0.49	3.3	4.2	.0041(.00046)	.0036(.000406)	10.39(264)	6.998(178)
HSM460B24	H-4050-P-H04AA	HSM460-REP-B24	M.3000.0387												.0048(.00054)	.00396(.000447)	12.48(317)	8.908(226)
HSM460B90	H-4050-P-H01AA	HSM460-REP-B90	M.3000.0397															
HSM490	H-4075-R-H00AA	HSM490-REP	M.3000.0376	88(9.9)	87.1(9.84)	17	13.15		5.04(0.57)	6.65(.75)	.9	.86	5.4	6.8	.006(.00068)	.0046(.0005198)	12.4(315)	7.998(203)
HSM490B24	H-4075-R-H04AA	HSM490-REP-B24	M.3000.0388												.0067(.00076)	.00496(.00056)	14.49(368)	9.908(252)
HSM490B90	H-4075-R-H01AA	HSM490-REP-B90	M.3000.0398															
HSM610	H-6100-Q-H00AA	HSM610-REP	M.3000.0377	110(12.4)	171.8(19.42)	23	27.43		4.6(0.52)	6.3(.710)	.49	.26	4.4	4.8	.012(.0014)	.013(.001469)	10.91(277)	9.031(229.4)
HSM610B24	H-6100-Q-H04AA	HSM610-REP-B24	M.3000.0389												.015(.0017)	.01398(.00168)	12.99(330)	11.061(280.9)
HSM610B90	H-6100-Q-H01AA	HSM610-REP-B90	M.3000.0399															
HSM620	H-6200-Q-H00AA	HSM620-REP	M.3000.0378	216(24.4)	229.7(25.96)	45	27.0074		4.51(0.51)	6.23(.702)	.18	.162	2.2	3.3	.021(.0024)	.019(.0025)	13.9(353)	11.031(280.2)
HSM620B24	H-6200-Q-H04AA	HSM620-REP-B24	M.3000.0390												.024(.0027)	.01998(.00226)	15.98(406)	13.061(331.7)
HSM620B90	H-6200-Q-H01AA	HSM-620-REP-B90	M.3000.0400															
HSM630	H-6300-Q-H00AA	HSM630-REP	M.3000.0379	300(33.9)	297.8(33.66)	65	47.8		4.78(0.54)	6.2(.7)	.12	.107	1.2	2.3	.03(.0034)	.023(.002599)	16.89(429)	13.031(331)
HSM630B24	H-6300-Q-H04AA	HSM630-REP-B24	M.3000.0391												.033(.0037)	.02398(.00271)	17.4(482)	15.061
HSM630B90	H-6300-Q-H01AA	HSM630-REP-B90	M.3000.0401															
HSM835	H-8350-S-H00AA	HSM835-REP	M.3000.0380	350(39.55)	418.5(47.29)	54	51.18		5.66(0.64)	8.21(.92)	.13	.108	2.5	2.5	.56(.0063)	.0555(.00627)	14.76(375)	10.979(279)
HSM835B24	H-8350-S-H04AA	HSM835-REP-B24	M.3000.0392												.082(.0093)	.5844(.0066)	18.82(478)	14.479(368)
HSM835B90	H-8350-S-H01AA	HSM835-REP-B90	M.3000.0402															
HSM845	H-8500-S-H00AA	HSM845-REP	M.3000.0381	450(50.85)	535.8(60.54)	70	65.32		6.28(0.71)	8.25(.93)	.1	.07	2.4	1.8	.083(.0094)	.0685(.00774)	16.77(426)	12.979(330)
HSM845B24	H-8500-S-H04AA	HSM845-REP-B24	M.3000.0393												.109(.012)	.7144(.00807)	20.83(529)	16.479(419)
HSM845B90	H-8500-S-H01AA	HSM845-REP-B90	M.3000.0403															

NSM Series Replacement Motors

N Series		NSM Replacement		Continuous Stall Torque		Continuous Stall Current		Kt (Torque Constant)		DC Resistance		Inductance		Rotor Inertia		Motor Length		
GLMC Model #	Rockwell Model #	Model #	Part #	N-Series	Replacement	N-Series	Replacement	N-Series	Replacement	N-Series	Replacement	N-Series	Replacement	N-Series	Replacement	N-Series	Replacement	
				In-lbs (Nm)		Amps (Peak)		In-lbs/Amp (Nm/Amp) Peak		Ohms (P-P)		m-H (P-P)		lb-in-s <sup>2</sup> (Kg m <sup>2</sup> )		in (mm)		
NSM2302	N2302-1-F00AA	NSM2302-REP	M.3000.0346	1.7 (.2)	4.3	2.7	6.4		.73(.08)	.82(0.0924)	3.2	1.47	4.2	2.3	.00008 (.000009)	.000097 (.000011)	4.6 (116.8)	6.05 (153.7)
NSM2302B24	N2302-1-F04AA	NSM-2302-REP-B24	M.3000.0355												.00009 (.000012)	.000122 (.000138)		7.25 (184.2)
NSM2304	N2304-1-F00AA	NSM2304-REP	M.3000.0347	4.4 (.5)	5 (.56)	3.2	2.7		1.6(.18)	1.84(.208)	5.9	8.4	8.8	11.6	.00009 (.000010)	.000097 (.000011)	6.1 (154.9)	6.05 (153.7)
NSM2304B24	N2304-1-F04AA	NSM-2304-REP-B24	M.3000.0356												.00011 (.000012)	.000122 (.000138)		7.25 (184.2)
NSM3406	N3406-2-H00AA	NSM3406-REP	M.3000.0348	6.8(.8)	14 (1.6)	5	2.6		1.5(.17)	1.83(.207)	2.24	.81	6.1	2.3	.00044 (.000049)	.000615 (.0000693)	5.8 (147.3)	6.69 (170.9)
NSM3406 E5000	N3406-2-K00AA	NSM3406-REP-E5000	M.3000.0364												.00048 (.000054)	.000765 (.0000707)		7.50 (190.5)
NSM3406B24	N3406-2-H04AA	NSM-3406-REP-B24	M.3000.0357															
NSM3412	N3412-2-H00AA	NSM3412-REP	M.3000.0349	13.8(1.6)	30(3.4)	5.2	8.9		3(.34)	3(.34)	2.68	1.02	8.3	3.4	.00081 (.000092)	.00099 (.000116)	6.80 (172.7)	8.19 (208.1)
NSM3412 E5000	N3412-2-K00AA	NSM3412-REP-E5000	M.3000.0365												.00086 (.000097)	.00114 (.000128)		8.5 (215.9)
NSM3412B24	N3412-2-H04AA	NSM-3412-REP-B24	M.3000.0358															
NSM4214	N4214-2-H00AA	NSM4214-REP	M.3000.0350	18(2.0)	54(6.1)	6	14.1		3.6(.41)	3.6(.41)	2.8	.33	11.0	2.6	.00156 (.000177)	.00351 (.00039)	6.87 (174.5)	8.61 (218.7)
NSM4214 E5000	N4214-2-K00AA	NSM4214-REP-E5000	M.3000.0366												.0016 (.000179)	.00391 (.00043)		8.67 (220.2)
NSM4214B24	N4214-2-H04AA	NSM-4214-REP-B24	M.3000.0359															
NSM4220	N4220-2-H00AA	NSM4220-REP	M.3000.0351	26(2.9)	54 (6.1)	11	21		2.5(.28)	2.5(.28)	.77	.16	2.9	1.2	.00219 (.000247)	.00351 (.00039)	7.87 (199.9)	8.61 (218.7)
NSM4220 E5000	N4220-2-K00AA	NSM4220-REP-E5000	M.3000.0367												.00223 (.000250)	.00391 (.00043)		9.67 (245.6)
NSM4220B24	N4220-2-H04AA	NSM-4220-REP-B24	M.3000.0360															
NSM5630	N5630-2-H00AA	NSM5630-REP	M.3000.0352	34(3.8)	54 (6.1)	11	14.4		3.5(.38)	3.68(.42)	.89	.33	4.3	2.6	.00506 (.000572)	.00582 (.00065)	7.84 (199.2)	8.61 (218.7)
NSM5630 E5000	N5630-2-K00AA	NSM5630-REP-E5000	M.3000.0368												.0052 (.000584)	.00623 (.00070)		10.04 (255.1)
NSM5630B24	N5630-2-H04AA	NSM-5630-REP-B24	M.3000.0361															
NSM5637	N5637-2-H00AA	NSM5637-REP	M.3000.0353	46.0 (5.2)	54 (6.1)	11.5	12.0		4.4(.5)	4.53(.51)	1.0	.50	5.2	3.8	.00613 (.000692)	.00582 (.00065)	8.84 (224.6)	8.61 (218.7)
NSM5637 E5000	N5637-2-K00AA	NSM5637-REP-E5000	M.3000.0369												.00626 (.000703)	.00623 (.00070)		11.04 (280.5)
NSM5637B24	N5637-2-H04AA	NSM-5637-REP-B24	M.3000.0362															
NSM5647	N5647-2-H00AA	NSM5647-REP	M.3000.0354	53.1 (6.0)	83 (9.3)	10.5	14.1		5.57(0.64)	5.57(0.64)	1.23	.419	7.0	2.8	.00706 (.000798)	.00776 (.000871)	9.84 (250.1)	11.11 (282.2)
NSM5647 E5000	N5647-2-K00AA	NSM5647-REP-E5000	M.3000.0370												.0072 (.000808)	.00817 (.000918)		12.04 (306.0)
NSM5647B24	N5647-2-H04AA	NSM-5647-REP-B24	M.3000.0363															

### Updated Drive Electronics Available with MMC SmartDrive

- \* Replaces DSA with no cable changes
- \* Replaces DSM with feedback cable change
- \* Motors already programmed in interface software for easy startup
- \* Available to 24KW in analog control model (Similar to DSA/DSM)
- \* Available in all sizes in digital control model

### HSM-Rep SmartDrive Combinations

Motor Model No	Part No	Cont Current Peak	230 VAC Amplifier	460 VAC Amplifier (wired for 230VAC)
HSM205-REP	M.3000.0371	5.93	MMC-SD-2.0-230	MMC-SD-4.0-460
HSM307-REP	M.3000.0372	5.65	MMC-SD-2.0-230	MMC-SD-4.0-460
HSM307-REP-B24	M.3000.0384	5.65	MMC-SD-2.0-230	MMC-SD-4.0-460
HSM307-REP-B90	M.3000.0394	5.65	MMC-SD-2.0-230	MMC-SD-4.0-460
HSM320-REP	M.3000.0373	11.17	N/A	MMC-SD-6.0-460
HSM320-REP-B24	M.3000.0385	11.17	N/A	MMC-SD-6.0-460
HSM-320-REP-B90	M.3000.0395	11.17	N/A	MMC-SD-6.0-460
HSM430-REP	M.3000.0374	12	N/A	MMC-SD-6.0-460
HSM430-REP-B24	M.3000.0386	12	N/A	MMC-SD-6.0-460
HSM430-REP-B90	M.3000.0396	12	N/A	MMC-SD-6.0-460
HSM460-REP	M.3000.0375	17.1	N/A	MMC-SD-8.0-460
HSM460-REP-B24	M.3000.0387	17.1	N/A	MMC-SD-8.0-460
HSM460-REP-B90	M.3000.0397	17.1	N/A	MMC-SD-8.0-460
HSM490-REP	M.3000.0376	13.15	N/A	MMC-SD-6.0-460
HSM490-REP-B24	M.3000.0388	13.15	N/A	MMC-SD-6.0-460
HSM490-REP-B90	M.3000.0398	13.15	N/A	MMC-SD-6.0-460
HSM610-REP	M.3000.0377	27.43	N/A	MMC-SD-12.0-460
HSM610-REP-B24	M.3000.0389	27.43	N/A	MMC-SD-12.0-460
HSM610-REP-B90	M.3000.0399	27.43	N/A	MMC-SD-12.0-460
HSM620-REP	M.3000.0378	27.0074	N/A	MMC-SD-12.0-460
HSM620-REP-B24	M.3000.0390	27.0074	N/A	MMC-SD-12.0-460
HSM-620-REP-B90	M.3000.0400	27.0074	N/A	MMC-SD-12.0-460
HSM630-REP	M.3000.0379	51.18	N/A	MMC-SD-24.0-460
HSM630-REP-B24	M.3000.0391	51.18	N/A	MMC-SD-24.0-460
HSM630-REP-B90	M.3000.0401	51.18	N/A	MMC-SD-24.0-460
HSM835-REP	M.3000.0380	51.18	N/A	MMC-SD-24.0-460
HSM835-REP-B24	M.3000.0392	51.18	N/A	MMC-SD-24.0-460
HSM835-REP-B90	M.3000.0402	51.18	N/A	MMC-SD-24.0-460
HSM845-REP	M.3000.0381	65.32	N/A	MMC-SD-30.0-460-D
HSM845-REP-B24	M.3000.0393	65.32	N/A	MMC-SD-30.0-460-D
HSM845-REP-B90	M.3000.0403	65.32	N/A	MMC-SD-30.0-460-D

### NSM-Rep SmartDrive Combinations

Motor Model No	Part No	Cont Current Peak	230 VAC Amplifier	460 VAC Amplifier (wired for 230VAC)
NSM2302-REP	M.3000.0346	3.4	MMC-SD-1.0-230	MMC-SD-2.4-460
NSM-2302-REP-B24	M.3000.0355	3.4	MMC-SD-1.0-230	MMC-SD-2.4-460
NSM2304-REP	M.3000.0347	1.8	MMC-SD-0.5-230	MMC-SD-1.3-460
NSM-2304-REP-B24	M.3000.0356	1.8	MMC-SD-0.5-230	MMC-SD-1.3-460
NSM3406-REP	M.3000.0348	4	MMC-SD-1.0-230	MMC-SD-2.4-460
NSM-3406-REP-B24	M.3000.0357	4	MMC-SD-1.0-230	MMC-SD-2.4-460
NSM3412-REP	M.3000.0349	6.3	MMC-SD-2.0-230	MMC-SD-4.0-460
NSM-3412-REP-B24	M.3000.0358	6.3	MMC-SD-2.0-230	MMC-SD-4.0-460
NSM4214-REP	M.3000.0350	10	N/A	MMC-SD-6.0-460
NSM-4214-REP-B24	M.3000.0359	10	N/A	MMC-SD-6.0-460
NSM4220-REP	M.3000.0351	14.1	N/A	MMC-SD-8.0-460
NSM-4220-REP-B24	M.3000.0360	14.1	N/A	MMC-SD-8.0-460
NSM5630-REP	M.3000.0352	10	N/A	MMC-SD-6.0-460
NSM-5630-REP-B24	M.3000.0361	10	N/A	MMC-SD-6.0-460
NSM5637-REP	M.3000.0353	8.1	MMC-SD-2.0-230	MMC-SD-4.0-460
NSM-5637-REP-B24	M.3000.0362	8.1	MMC-SD-2.0-230	MMC-SD-4.0-460
NSM5647-REP	M.3000.0354	6.2	MMC-SD-2.0-230	MMC-SD-4.0-460
NSM-5647-REP-B24	M.3000.0363	6.2	MMC-SD-2.0-230	MMC-SD-4.0-460

### SmartDrive Amplifiers

DRIVE MODEL	Part No	DRIVE MODEL	Part No
MMC-SD-0.5-230	M.1302.5090	MMC-SD-0.5-230-D	M.3000.0461
MMC-SD-1.0-230	M.1302.5091	MMC-SD-1.0-230-D	M.3000.0462
MMC-SD-2.0-230	M.1302.5092	MMC-SD-2.0-230-D	M.3000.0463
MMC-SD-1.3-460	M.1302.5093	MMC-SD-1.3-460-D	M.3000.0464
MMC-SD-2.4-460	M.1302.5094	MMC-SD-2.4-460-D	M.3000.0465
MMC-SD-4.0-460	M.1302.5095	MMC-SD-4.0-460-D	M.3000.0466
MMC-SD-6.0-460	M.1302.5096	MMC-SD-6.0-460-D	M.3000.0467
MMC-SD-8.0-460	M.1302.5097	MMC-SD-8.0-460-D	M.3000.0468
MMC-SD-12.0-460	M.1302.5098	MMC-SD-12.0-460-D	M.3000.0469
MMC-SD-16.0-460	M.1302.5099	MMC-SD-16.0-460-D	M.3000.0470
MMC-SD-24.0-460	M.1302.5100	MMC-SD-24.0-460-D	M.3000.0471
		MMC-SD-30.0-460-D	M.3000.0021
		MMC-SD-42.0-460-D	M.3000.0022
		MMC-SD-51.0-460-D	M.3000.0023
		MMC-SD-65.0-460-D	M.3000.0024

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