

# Selection Data for Limitorque MX Actuators

60 Hz – 230V<sup>4</sup>, 380V<sup>9</sup>, 460V, 575V • 50 Hz – 380V<sup>6</sup>, 400V, 415V

**LMASS1333**  
(Replaces 130-80000)  
10/03

## MX-05

Output Speed ID	1	2	3	4	5	6	7	8	
Ratio	65	65	43	33	22	17	22	17	
Start Efficiency	0.34	0.38	0.40	0.46	0.55	0.57	0.57	0.62	
Stall Factor	0.42	0.51	0.48	0.63	0.82	0.86	0.86	0.92	
Motor Start Torque	ft-lb	3.00	2.50	4.00	4.00	4.00	3.25	3.25	
	Nm	4.09	3.41	5.45	5.45	5.45	4.43	4.43	
<b>Output Torque</b>									
Start	ft-lb	55	55	55	55	48	39	41	34
	Nm	75	75	75	75	65	53	56	46
Stall	ft-lb	83	83	83	83	72	59	62	51
	Nm	112	112	112	112	98	79	83	69
Modulating (Continuous) <sup>2</sup>	ft-lb	39	39	39	39	34	-	-	-
	Nm	52	52	52	52	46	-	-	-
Modulating (100 Starts)	ft-lb	50	50	50	50	43	-	-	-
	Nm	67	67	67	67	59	-	-	-

## MX-20

Output Speed ID	1	2	3	4	5	6	7	8	
Ratio	65	65	43	33	22	17	22	17	
Start Efficiency	0.34	0.36	0.42	0.53	0.54	0.58	0.58	0.61	
Stall Factor	0.40	0.47	0.52	0.68	0.81	0.87	0.87	0.91	
Motor Start Torque	ft-lb	13.00	11.00	15.00	15.00	15.00	11.00	11.00	
	Nm	17.73	13.64	20.45	20.45	20.45	15.00	15.00	
<b>Output Torque</b>									
Start	ft-lb	225	225	225	225	178	148	140	114
	Nm	305	305	305	305	242	201	190	155
Stall	ft-lb	338	338	338	338	267	222	210	171
	Nm	458	458	458	458	362	301	285	232
Modulating (Continuous) <sup>2</sup>	ft-lb	158	158	158	158	125	-	-	-
	Nm	214	214	214	214	169	-	-	-
Modulating (100 Starts)	ft-lb	203	203	203	203	160	-	-	-
	Nm	275	275	275	275	217	-	-	-

## MX-85

Output Speed ID	2	3	4	5	6	7	
Ratio	69	45	33	22	13	10	
Start Efficiency	0.34	0.51	0.65	0.72	0.78	0.84	
Stall Factor	0.41	0.66	0.84	0.93	1.12	1.09	
Motor Start Torque	ft-lb	45	62	62	62	62	62
	Nm	61.06	84.13	84.13	84.13	84.13	84.13
<b>Output Torque</b>							
Start	ft-lb	850	1225	1150	850	600	450
	Nm	1153	1662	1561	1153	814	611
Stall	ft-lb	1275	1838	1725	1275	900	675
	Nm	1730	2493	2341	1730	1221	916
Modulating (Continuous) <sup>2</sup>	ft-lb	595	858	805	595	-	-
	Nm	807	1164	1092	807	-	-
Modulating (100 Starts)	ft-lb	765	1103	1035	765	-	-
	Nm	1038	1496	1404	1038	-	-

## MX-10

Output Speed ID	1	2	3	4	5	6	7	8	
Ratio	65	65	43	33	22	17	22	17	
Start Efficiency	0.32	0.33	0.40	0.53	0.54	0.58	0.58	0.61	
Stall Factor	0.41	0.51	0.48	0.63	0.81	0.87	0.87	0.92	
Motor Start Torque	ft-lb	7.00	5.70	9.00	9.00	9.00	7.00	7.00	
	Nm	9.55	7.77	12.27	12.27	12.27	9.55	9.55	
<b>Output Torque</b>									
Start	ft-lb	125	125	125	125	107	89	89	73
	Nm	170	170	170	170	145	121	121	99
Stall	ft-lb	188	188	188	188	161	134	134	110
	Nm	254	254	254	254	218	181	181	149
Modulating (Continuous) <sup>2</sup>	ft-lb	88	88	88	88	75	-	-	-
	Nm	119	119	119	119	102	-	-	-
Modulating (100 Starts)	ft-lb	113	113	113	113	96	-	-	-
	Nm	153	153	153	153	131	-	-	-

## MX-40

Output Speed ID	1	2	3	4	5	6	7	8	
Ratio	65	65	43	33	22	17	22	17	
Start Efficiency	0.30	0.36	0.40	0.48	0.54	0.58	0.51	0.54	
Stall Factor	0.41	0.46	0.53	0.69	0.81	0.87	0.77	0.81	
Motor Start Torque	ft-lb	25.00	22.00	29.00	29.00	29.00	23.00	23.00	
	Nm	34.09	27.27	39.55	39.55	39.55	31.36	31.36	
<b>Output Torque</b>									
Start	ft-lb	440	440	440	440	345	286	260	210
	Nm	597	597	597	597	468	388	353	285
Stall	ft-lb	660	660	660	660	518	429	390	315
	Nm	896	896	896	896	702	582	529	427
Modulating (Continuous) <sup>2</sup>	ft-lb	308	308	308	308	242	-	-	-
	Nm	418	418	418	418	328	-	-	-
Modulating (100 Starts)	ft-lb	396	396	396	396	311	-	-	-
	Nm	537	537	537	537	421	-	-	-

## MX-140

Output Speed ID	2	3	4	5	6	7	
Ratio	69	45	33	22	13	10	
Start Efficiency	0.34	0.51	0.65	0.72	0.78	0.84	
Stall Factor	0.53	0.67	0.86	0.74	1.00	1.15	
Motor Start Torque	ft-lb	62	85	85	85	85	85
	Nm	84.13	115.35	115.35	115.35	115.35	115.35
<b>Output Torque</b>							
Start	ft-lb	1500	1700	1600	1200	815	650
	Nm	2036	2307	2171	1628	1106	882
Stall	ft-lb	2250	2550	2400	1800	1223	975
	Nm	3053	3460	3257	2443	1659	1323
Modulating (Continuous) <sup>2</sup>	ft-lb	1050	1190	1120	840	-	-
	Nm	1425	1615	1520	1140	-	-
Modulating (100 Starts)	ft-lb	1350	1530	1440	1080	-	-
	Nm	1832	2076	1954	1466	-	-

Output speed ID numbers are defined as follows:

ID Number	1	2	3	4	5	6	7	8
50 Hz	15	22	33	43	65	84 (110 <sup>5</sup> )	127 (143 <sup>5</sup> )	165
60 Hz	18	26	40	52	77	100 (131 <sup>5</sup> )	155 (170 <sup>5</sup> )	200

Notes indicated above are located on other side.



Limitorque Actuation Systems

## Maximum Stem Capacity

	MX-05		MX-10		MX-20		MX-40		MX-85		MX-140	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
<b>Type A Couplings (Thrust and Torque)</b>												
Type A1	1.26	32.00	1.57	40	2.36	60	2.64	67	3.5	88	3.5	88
Type A1E (Extended Nut)	1.26	32.00	1.57	40	2.36	60	2.64	67	3.5	88	3.5	88
<b>Type B Couplings (Torque Only)<sup>7</sup></b>												
Type B4	1.00	25.40	1.25	31.75	1.94	49.20	2.23	56.54	2.88	73	2.88	73
Type B4E (Extended)	0.75	19.05	0.87	22.10	1.62	41.15	1.82	46.23	2.75	56	2.75	56
Type B1 (Fixed Bore) <sup>8</sup>	42		42		60		60		—		—	
Type BL (Splined)	6 & 38 splines		6 & 38 splines		6 & 36 splines		6 splines		—		—	
<b>Maximum Bore and Keyway</b>												
Maximum Bore (B4)	1.00	25	1.25	32	1.94	50	2.23	55	2.88	73	2.88	73
Key	¼ sq	8 x 7	¼ sq	10 x 8	½ sq	14 x 9	½ sq	16 x 10	¾ x ½	20 x 12	¾ x ½	20 x 12
Maximum Bore (B4E)	0.75	20	0.875	22	1.62	42	1.82	46	2.25	56	2.25	56
Key	⅜ sq	6 x 6	¼ sq	8 x 7	⅜ sq	12 x 8	½ sq	14 x 9	½ x ⅜	16 x 10	½ x ⅜	16 x 10
Mounting Base (MSS SP-102/ISO 5210)	FA10/F10		FA10/F10		FA14/F14		FA14/F14		FA16/F16		FA25/F25	
Handwheel Ratio (STD/Optional)	1:1		1:1/8:1		1:1/12:1		1:1/24:1		16/48		16/48	
Handwheel Efficiencies (STD/Optional)	N/A		56%		60%		55%		53%/51%		53%/51%	

Note 1: For 208 Volts, multiply above torque numbers by 0.81. Not available for MX-85 and MX-140.

Note 2: All continuous modulating torque numbers are based on 70% of standard rating. Modulating applications at speeds 6, 7, and 8 are not allowed. 1200 starts per hour is suitable for continuous duty as defined by IEC-34, ROTATING ELECTRIC MACHINES (SSMR option required). Not available for MX-85 and MX-140.

- Rating category = S4\_33%\_1200 S/H, where
  - S4 = intermittent periodic duty, with starting
  - 33% = total duration factor of each cycle, i.e. 1 second "ON," 2 seconds "OFF," for 3 seconds total duration factor

Note 3: Maximum motor stall torque is based on 1.5 X motor start torque.

Note 4: 230 Volts is not available with the MX-85 and MX-140.

Note 5: For MX-85 and MX-140 only.

Note 6: For 380/50 Volts for MX-85 and MX-140, multiply torque values by 0.90.

Note 7: Maximum bores for Type B couplings are based on the use of rectangular keys.

Note 8: Available in ISO base only.

Note 9: 380V/60Hz for MX-140 only, multiply torque values by 0.64

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