Selection Data for Limitorque MX Actuators

60 Hz – 230V[4], 380V[9], 460V, 575V • 50 Hz – 380V[6], 400V, 415V

LMENSS2333
08/08

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		0.41	0.46	0.48	0.55	0.64	0.71	0.75	0.76
Motor Start Torque	ft-lb	3.00	2.50	4.00	4.00	4.00	4.00	3.25	3.25
	Nm	4.09	3.41	5.45	5.45	5.45	5.45	4.43	4.43
Output Torque									
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	113	113	113	98	80	84	69
Modulating	ft-lb	38	38	38	38	33	-	-	-
(Continuous)[2]	Nm	51	51	51	51	44	-	-	-
Modulating	ft-lb	49	49	49	49	43	-	-	-
(100 Starts)	Nm	66	66	66	66	58	-	-	-

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		0.38	0.45	0.48	0.63	0.72	0.76	0.77	0.78
Motor Start Torque	ft-lb	7.00	5.70	9.00	9.00	9.00	9.00	7.00	7.00
	Nm	9.55	7.77	12.27	12.27	12.27	12.27	9.55	9.55
Output Torque									
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	255	255	255	255	218	182	182	149
Modulating	ft-lb	88	88	88	88	75	-	-	-
(Continuous)[2]	Nm	119	119	119	119	102	-	-	-
Modulating	ft-lb	112	112	112	112	96	-	-	-
(100 Starts)	Nm	151	151	151	151	130	-	-	-

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		0.41	0.43	0.50	0.63	0.71	0.73	0.73	0.78
Motor Start Torque	ft-lb	13.00	10.00	15.00	15.00	15.00	15.00	11.00	11.00
	Nm	17.73	13.64	20.45	20.45	20.45	20.45	15.00	15.00
Output Torque									
Start	ft-lb	225	225	225	225	178	148	140	114
	Nm	305	305	305	305	241	201	199	155
Stall	ft-lb	338	338	338	338	267	222	210	171
	Nm	458	458	458	458	362	302	299	233
Modulating	ft-lb	157	157	157	157	124	-	-	-
(Continuous)[2]	Nm	212	212	212	212	168	-	-	-
Modulating	ft-lb	202	202	202	202	160	-	-	-
(100 Starts)	Nm	273	273	273	273	216	-	-	-

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		0.36	0.43	0.48	0.58	0.63	0.68	0.68	0.68
Motor Start Torque	ft-lb	25.00	20.00	29.00	29.00	29.00	29.00	23.00	23.00
	Nm	34.09	27.27	39.55	39.55	39.55	39.55	31.36	31.36
Output Torque									
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	530	428
Modulating	ft-lb	308	308	308	308	241	-	-	-
(Continuous)[2]	Nm	417	417	417	417	326	-	-	-
Modulating	ft-lb	396	396	396	396	310	-	-	-
(100 Starts)	Nm	536	536	536	536	420	-	-	-

MX-85

Output Speed ID		2	3	4	5	6	7
Ratio		65	43	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
Output Torque							
Start	ft-lb	850	1225	1150	850	600	450
	Nm	1153	1661	1559	1153	814	610
Stall	ft-lb	1275	1838	1725	1275	900	675
	Nm	1730	2493	2341	1730	1221	916
Modulating	ft-lb	680	980	920	680	-	-
(Continuous)[2]	Nm	922	1328	1247	922	-	-
Modulating	ft-lb	765	1102	1035	765	-	-
(100 Starts)	Nm	1037	1494	1403	1037	-	-

MX-140

Output Speed ID		2	3	4	5	6	7
Ratio		65	43	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	62	85	85	85	85	85
	Nm	84.13	115.35	115.35	115.35	115.35	115.35
Output Torque							
Start	ft-lb	1500	1700	1600	1200	815	650
	Nm	2034	2305	2169	1627	1105	881
Stall	ft-lb	2250	2550	2400	1800	1223	975
	Nm	3053	3460	3257	2443	1659	1323
Modulating	ft-lb	1200	1360	1280	960	-	-
(Continuous)[2]	Nm	1627	1844	1735	1301	-	-
Modulating	ft-lb	1350	1530	1440	1080	-	-
(100 Starts)	Nm	1830	2074	1952	1464	-	-

MX-150

Output Speed ID		6	7
Ratio		13	10
Start Efficiency		0.78	0.84
Stall Factor		1.12	1.09
Motor Start Torque		150	150
Output Torque			
Start	ft-lb	1500	1150
	Nm	2033	1559
Stall	ft-lb	2100	1610
	Nm	2847	2182

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[5])	127 (143[5])	165
60 Hz	18	26	40	52	77	100 (131[5])	155 (170[5])	200

Notes indicated above are located on other side.

FLOWSERVE®

Limitorque Actuation Systems

Maximum Stem Capacity

Output Speed (RPM)	MX-05		MX-10		MX-20		MX-40		MX-85		MX-140		MX-150	
	Rated Output Torque													
Type A Couplings	**in.**	**mm**	**in.**	**mm**	**in.**	**mm**	**in.**	**mm**	**in.**	**mm**	**in.**	**mm**	**in.**	**mm**
Type A1	1.26	32	1.57	40	2.36	60	2.64	67	3.50	88	3.50	88	3.50	88
Type A1E (Extended Nut)	1.26	32	1.57	40	2.36	60	2.64	67	3.50	88	3.50	88	3.50	88
Type B Couplings (Torque Only)[7]	**in.**	**mm**	**in.**	**mm**	**in.**	**mm**	**in.**	**mm**	**in.**	**mm**	**in.**	**mm**	**in.**	**mm**
Type B4	1	25.4	1.25	30	1.94	50	2.2	55	2.88	73	2.88	73	2.625	65
Type B4E (Extended)	0.75	19	0.91	22	1.56	41	1.78	46	2.25	57	2.25	57	2.625	65
Type B1 (Fixed Bore)[8]	N/A	42	N/A	42	N/A	60	N/A	60	N/A	N/A	N/A	N/A	N/A	N/A
Type BL (Splined)	6 & 38 Splines		6 & 38 Splines		6 & 36 Splines		6 Splines		N/A	N/A	N/A	N/A	N/A	N/A
Maximum Bore and Keyway	**in.**	**mm**	**in.**	**mm**	**in.**	**mm**	**in.**	**mm**	**in.**	**mm**	**in.**	**mm**	**in.**	**mm**
Maximum Bore (B4)	1	25	1.25	30	1.94	50	2.2	55	2.88	73	2.88	73	2.625	65
Maximum Keyway	¼ sq.	8 x 7	¼ sq.	10 x 8	½ x ⅜	14 x 9	½ x ⅜	16 x 10	¾ x ½	20 x 12	¾ x ½	20 x 12	⅝ x 7/16	18 x 11
Maximum Bore (B4E)	.75	18	0.91	22	1.56	41	1.78	46	2.25	56	2.25	56	2.5	65
Maximum Keyway	3/16 sq.	6 x 6	¼ sq.	8 x 7	⅜ sq.	12 x 8	½ x ⅜	14 x 9	½ x ⅜	16 x 10	½ x ⅜	16 x 10	0.625 sq.	18 x 11

	MX-05	MX-10	MX-20	MX-40	MX-85	MX-140	MX-150
Mounting Base (MSS SP-102/ISO 5210)	FA10/F10	FA10/F10	FA14/F14	FA14/F14	FA16/F16	FA25/F25	FA25/F25
Handwheel Ratio (STD/Optional)	Direct	Direct/8:1	Direct/12:1	Direct/24:1	16/48	16/48	16/48
Side-Mounted Handwheel Efficiencies	N/A	52%	54%	51%	53%/51%[10]	53%/51%[10]	53%/51%[10]

Note 1: For 208 Volts, multiply above torque numbers by 0.81. Consult factory 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 - Consult factory for MX-140 & MX-150.

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

Note 6: For 380/50 Volts for MX-85, MX-140 and MX-150 multiply torque values by 0.90.

Note 7: Maximum bores for Type B couplings may require rectangular keys.

Note 8: Available in ISO base only.

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

Note 10: Efficiencies for MX-85, MX-140 and 150 are 51% with SGA and 53% without SGA.

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