

Selection Data for Limitorque MX Actuators

60 Hz – 230V⁴, 380V⁹, 460V, 575V • 50 Hz – 380V⁶, 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	3.25	3.25
	Nm	4.09	3.41	5.45	5.45	5.45	4.43	4.43
Output Torque								
Start	ft-lb	55	55	55	55	48	39	41
	Nm	75	75	75	75	65	53	56
Stall	ft-lb	83	83	83	83	72	59	62
	Nm	112	113	113	113	98	80	84
Modulating (Continuous) ²	ft-lb	38	38	38	38	33	-	-
	Nm	51	51	51	51	44	-	-
Modulating (100 Starts)	ft-lb	49	49	49	49	43	-	-
	Nm	66	66	66	66	58	-	-

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	11.00	11.00
	Nm	17.73	13.64	20.45	20.45	20.45	15.00	15.00
Output Torque								
Start	ft-lb	225	225	225	225	178	148	140
	Nm	305	305	305	305	241	201	199
Stall	ft-lb	338	338	338	338	267	222	210
	Nm	458	458	458	458	362	302	299
Modulating (Continuous) ²	ft-lb	157	157	157	157	124	-	-
	Nm	212	212	212	212	168	-	-
Modulating (100 Starts)	ft-lb	202	202	202	202	160	-	-
	Nm	273	273	273	273	216	-	-

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
	Nm	61.06	84.13	84.13	84.13	84.13
Output Torque						
Start	ft-lb	850	1225	1150	850	600
	Nm	1153	1661	1559	1153	814
Stall	ft-lb	1275	1838	1725	1275	900
	Nm	1730	2493	2341	1730	1221
Modulating (Continuous) ²	ft-lb	680	980	920	680	-
	Nm	922	1328	1247	922	-
Modulating (100 Starts)	ft-lb	765	1102	1035	765	-
	Nm	1037	1494	1403	1037	-

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
	Nm	2033
Stall	ft-lb	2100
	Nm	2847

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	7.00	7.00
	Nm	9.55	7.77	12.27	12.27	12.27	9.55	9.55
Output Torque								
Start	ft-lb	125	125	125	125	107	89	89
	Nm	170	170	170	170	145	121	121
Stall	ft-lb	188	188	188	188	161	134	134
	Nm	255	255	255	255	218	182	182
Modulating (Continuous) ²	ft-lb	88	88	88	88	75	-	-
	Nm	119	119	119	119	102	-	-
Modulating (100 Starts)	ft-lb	112	112	112	112	96	-	-
	Nm	151	151	151	151	130	-	-

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	23.00	23.00
	Nm	34.09	27.27	39.55	39.55	39.55	31.36	31.36
Output Torque								
Start	ft-lb	440	440	440	440	345	286	260
	Nm	597	597	597	597	468	388	353
Stall	ft-lb	660	660	660	660	518	429	390
	Nm	896	896	896	896	702	582	530
Modulating (Continuous) ²	ft-lb	308	308	308	308	241	-	-
	Nm	417	417	417	417	326	-	-
Modulating (100 Starts)	ft-lb	396	396	396	396	310	-	-
	Nm	536	536	536	536	420	-	-

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
	Nm	84.13	115.35	115.35	115.35	115.35
Output Torque						
Start	ft-lb	1500	1700	1600	1200	815
	Nm	2034	2305	2169	1627	1105
Stall	ft-lb	2250	2550	2400	1800	1223
	Nm	3053	3460	3257	2443	1659
Modulating (Continuous) ²	ft-lb	1200	1360	1280	960	-
	Nm	1627	1844	1735	1301	-
Modulating (100 Starts)	ft-lb	1350	1530	1440	1080	-
	Nm	1830	2074	1952	1464	-

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.

Maximum Stem Capacity

Limitorque Actuation Systems

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 ¾	14 x 9	½ x ¾	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	⅜ sq.	6 x 6	¼ sq.	8 x 7	⅝ sq.	12 x 8	½ x ¾	14 x 9	½ x ¾	16 x 10	½ x ¾	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.

Limitorque
Euro House
Abex Road
Newbury
Berkshire, RG14 5EY
England
Phone: 44-1-635-46999
Fax: 44-1-635-36034

Limitorque Nippon Gear Co., Ltd.
Asahi-Seimei Bldg., 4th Floor
1-11-11 Kita-Saiwai, Nishi-Ku
Yokohama-Shi, (220-0004)
Japan
Phone: 81-45-326-2065
Fax: 81-45-320-5962

Limitorque Asia, Pte., Ltd.
12, Tuas Avenue 20
Singapore 638824
Phone: 65-6868-4628
Fax: 65-6862-4940

Flowserve Limitorque
120 Vinyl Court
Woodbridge, Ontario
L4L 4A3
Canada
Phone: 905-856-4565
Fax: 905-856-7905

Limitorque Beijing, Pte., Ltd.
RM A1/A2
22/F, East Area
Hanwei Plaza
No. 7 Guanghua Road
Chaoyang District
Beijing 100004
People's Republic of China
Phone: 86-10-5921-0606
Fax: 86-10-6561-2702

Flowserve Limitorque
423 Jaina Towers II
District Centre, Janakpuri
New Delhi, India 110058
Phone: 91-11-2561-4486

Flowserve Corporation has established industry leadership in the design and manufacture of its products. When properly selected, this Flowserve product is designed to perform its intended function safely during its useful life. However, the purchaser or user of Flowserve products should be aware that Flowserve products might be used in numerous applications under a wide variety of industrial service conditions. Although Flowserve can (and often does) provide general guidelines, it cannot provide specific data and warnings for all possible applications. The purchaser/user must therefore assume the ultimate responsibility for the proper sizing and selection, installation, operation and maintenance of Flowserve products. The purchaser/user should read and understand the Installation and Maintenance (I & M) instructions included with the product, and train its employees and contractors in the safe use of Flowserve products in connection with the specific application.

While the information and specifications contained in this literature are believed to be accurate, they are supplied for informative purposes only and should not be considered certified or as a guarantee of satisfactory results by reliance thereon. Nothing contained herein is to be construed as a warranty or guarantee, express or implied, regarding any matter with respect to this product. Because Flowserve is continually improving and upgrading its product design, the specifications, dimensions and information contained herein are subject to change without notice. Should any question arise concerning these provisions, the purchaser/user should contact Flowserve Corporation at any one of its worldwide operations or offices.

For more information about Flowserve Corporation, contact www.flowserve.com or call USA 1-800-225-6989.

FLOWERVE CORPORATION
FLOW CONTROL DIVISION
Limitorque Actuation Systems
5114 Woodall Road
P.O. Box 11318
Lynchburg, VA 24506-1318
Phone: 434-528-4400
Fax: 434-845-9736
www.limitorque.com

