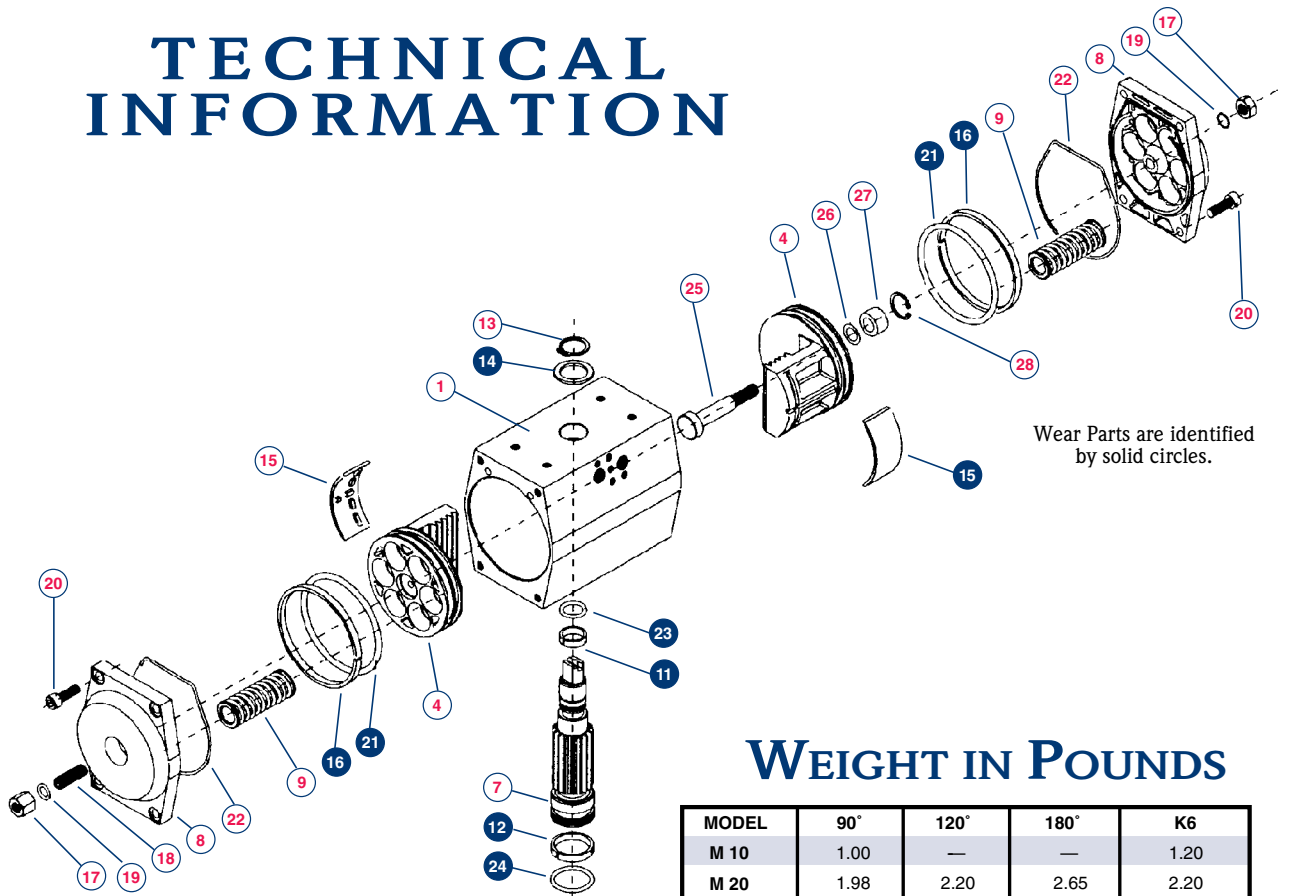


RACK AND PINION

ACTUATORS AND ACCESSORIES



TECHNICAL INFORMATION



Wear Parts are identified by solid circles.

M-SERIES MATERIALS

POS.	QTY.	DESCRIPTION	MATERIAL
1	1	BODY	ANODIZED ALUMINUM POLYESTER EPOXY COATING
4	2	PISTON**	DIE CAST ALUMINUM
7	1	PINION	E.N.P. ASTM B656 STEEL
8	2	END CAP**	EPOXY COATED ALUMINUM
9	MAX 12	SPRING CARTRIDGE	EPOXY COATED STEEL DELRIN / BRASS
11	1	UPPER PINION BEARING	DELRIN 500
12	1	LOWER PINION BEARING	DELRIN 500
13	1	CIRCLIP	E.N.P. ASTM B656 STEEL
14	1	PINION WASHER	DELRIN 500
15	2	PISTON SKATE	DELRIN 500
16	2	PISTON GUIDE RING	DELRIN 500
17	2	SEALING NUT	304 Stainless Steel
18	2	TRAVEL STOP	304 Stainless Steel
19	2	TRAVEL STOP O-RING	BUNA N
20	8	END CAP SCREW	304 Stainless Steel
21	2	PISTON O-RING	BUNA N
22	2	END CAP O-RING	BUNA N
23	1	UPPER PINION O-RING	BUNA N
24	1	LOWER PINION O-RING	BUNA N
25	1	DLS STOP BOLT	304 STAINLESS STEEL
26	1	DLS STOP BOLT O RING	VITON
27	1	DLS STOP BOLT BEARING	TEFLON
28	1	DLS STOP BOLT CIRCLIP	E.N.P. ASTM B656 STEEL

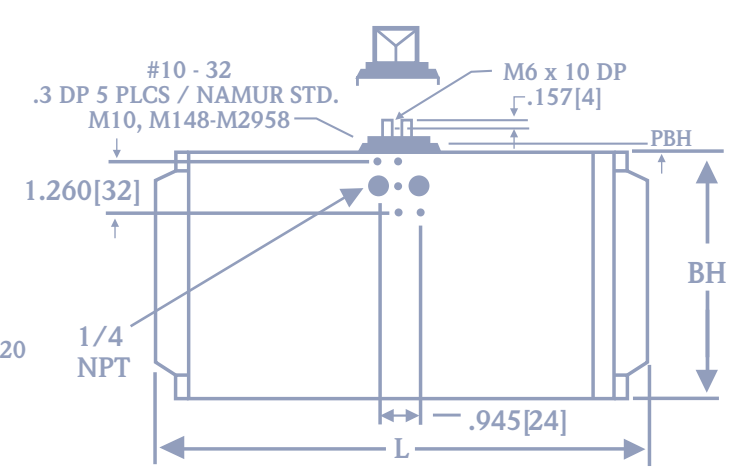
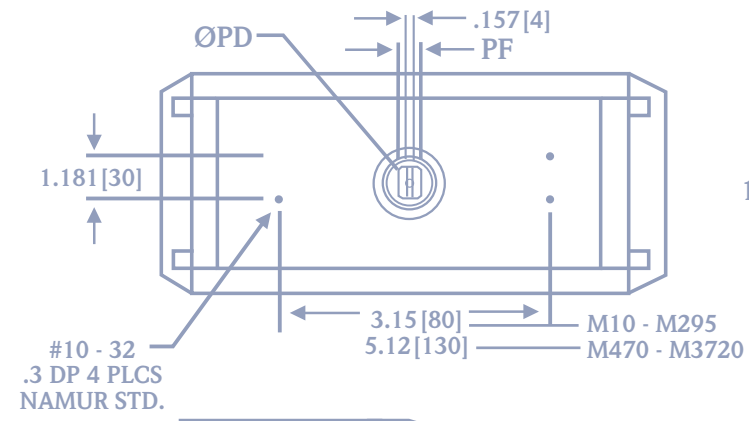
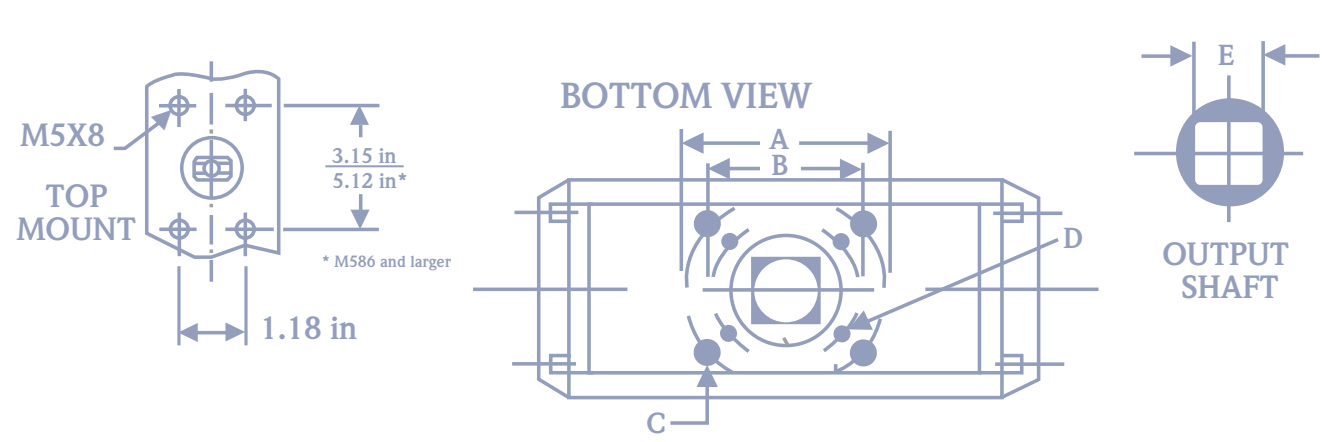
WEIGHT IN POUNDS

MODEL	90°	120°	180°	K6
M 10	1.00	—	—	1.20
M 20	1.98	2.20	2.65	2.20
M 30	2.98	3.26	3.97	3.42
M 52	4.30	4.74	5.95	5.07
M 73	5.51	5.95	7.94	6.39
M 103	7.39	8.16	11.25	8.38
M 148	10.58	11.47	13.56	12.79
M 222	14.99	16.90	20.68	17.86
M 295	18.74	20.73	26.02	22.49
M 470	31.00	—	—	39.80
M 586	34.40	39.69	55.79	42.78
M 900	61.50	—	—	83.10
M 1213	68.80	81.14	106.94	86.66
M 2366	132.32	146.63	173.60	180.81
M 2958	160.97	177.60	—	209.48
M 3720	205.00	—	—	267.00

AIR CONSUMPTION CUBIC INCHES PER CYCLE (Open/Close)

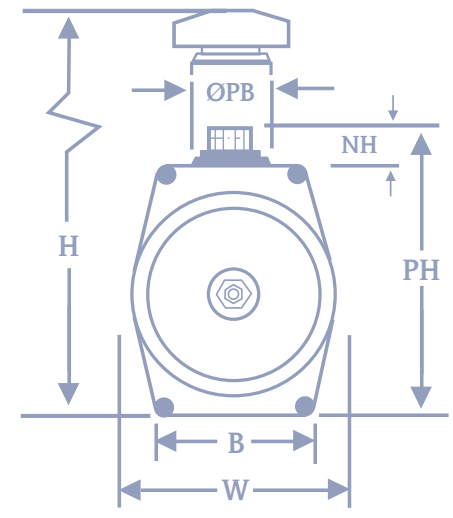
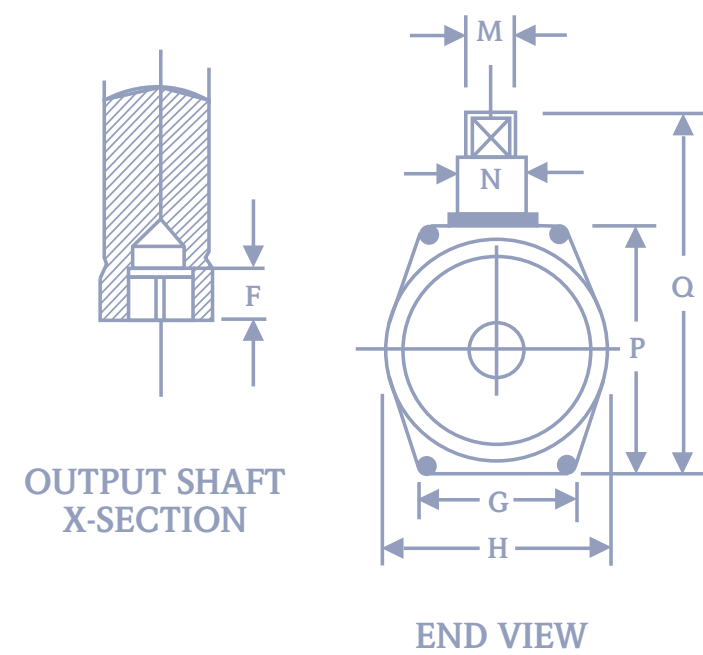
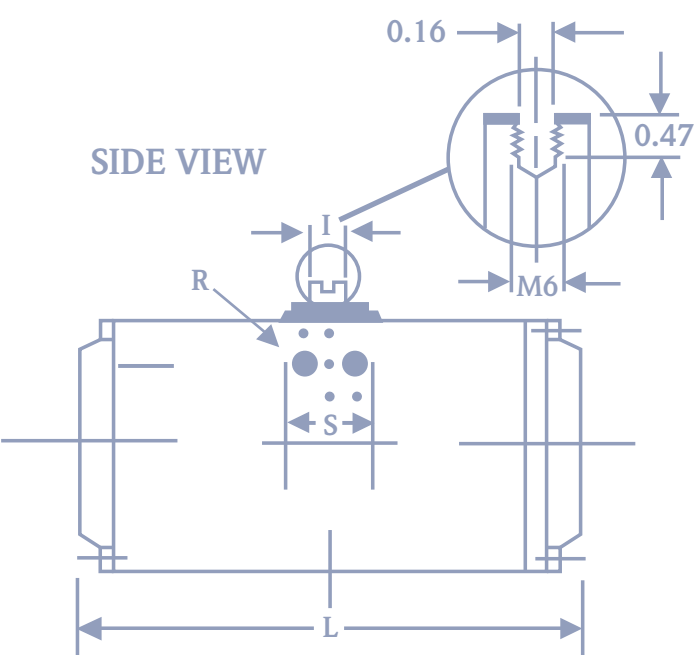
MODEL	90°	120°	180°	K6
M 10	12.8	—	—	6.7
M 20	15.3	17.1	28.1	7.3
M 30	22.0	24.4	41.5	9.2
M 52	36.6	42.7	68.3	15.3
M 73	52.5	61.0	99.5	22.0
M 103	67.1	82.4	131.2	27.5
M 148	112.9	137.3	189.2	41.5
M 222	152.6	176.9	341.7	67.1
M 295	218.5	241.0	415.0	86.7
M 470	335.6	—	—	174.5
M 586	416.2	476.0	790.2	174.5
M 900	762.8	—	—	396.7
M 1213	872.6	1013.0	1293.7	360.0
M 2366	1586.6	1861.2	2471.5	701.8
M 2958	1922.2	2288.4	—	1037.4
M 3720	2955.0	—	—	1594.0

** M10 - M20 utilize polyaramide materials



Model	A	FO	B	FO	C*	D*	E	F	G	H	I	L	L1*	M	N	P	Q	R	S
M 10	1.65	F04	1.42	F03	#10 - 32	#10 - 32	9 or 11MM	0.55	2.02	2.54	0.35	4.33	—	0.48	—	2.60	3.50	1/4	.94
M 20	1.97	F05	1.42	F03	1/4 - 20	#10 - 32	14MM	0.71	1.97	2.32	0.39	5.00	7.52	0.47	0.79	2.91	3.82	1/4	.94
M 30	2.76	F07	1.97	F05	5/16 - 18	1/4 - 20	14MM	0.71	2.36	2.76	0.39	5.24	7.99	0.47	0.79	3.46	4.37	1/4	.94
M 52	2.76	F07	1.97	F05	5/16 - 18	1/4 - 20	17MM	0.75	2.56	3.27	0.39	6.10	9.29	0.55	1.02	3.94	4.84	1/4	.94
M 73	2.76	F07	1.97	F05	5/16 - 18	1/4 - 20	17MM	0.75	2.56	3.58	0.39	6.97	10.63	0.55	1.02	4.25	4.95	1/4	.94
M 103	2.76	F07	1.97	F05	5/16 - 18	1/4 - 20	17MM	0.75	2.76	3.94	0.55	7.99	12.36	0.79	1.38	4.61	5.55	1/4	.94
M 148	4.02	F10	2.76	F07	3/8 - 16	5/16 - 18	22MM	0.96	3.54	4.72	0.55	8.50	12.72	0.79	1.97	5.51	6.45	1/4	.94
M 222	4.02	F10	2.76	F07	3/8 - 16	5/16 - 18	22MM	0.96	3.54	4.72	0.79	11.18	16.85	1.10	1.97	5.51	6.71	1/4	.94
M 295	4.02	F10	2.76	F07	3/8 - 16	5/16 - 18	22MM	0.98	4.06	5.39	0.79	11.42	17.76	1.10	1.97	6.30	7.51	1/4	.94
M 470	4.92	F12	4.02	F10	1/2 - 13	3/8 - 16	27MM	1.07	4.33	6.77	0.79	13.27	—	1.10	2.36	7.80	9.70	1/4	.94
M 586	4.92	F12	4.02	F10	1/2 - 13	3/8 - 16	27MM	1.07	4.33	6.77	1.10	14.49	22.36	1.42	2.36	7.80	9.70	1/4	.94
M 900	6.50	F16	4.92	F12	3/4 - 10	1/2 - 13	36MM	1.57	5.31	8.82	1.26	16.62	—	1.42	2.84	10.00	11.77	1/4	.94
M 1213	5.51	F14	—	—	5/8 - 11	—	36MM	1.57	5.31	8.82	1.26	17.72	27.24	1.57	2.95	10.00	11.77	1/4	.94
M 2366	6.50	F16	—	—	3/4 - 10	—	46MM	1.57	6.26	10.71	1.26	23.07	35.63	1.57	3.54	11.89	13.66	1/4	.94
M 2958	6.50	F16	—	—	3/4 - 10	—	46MM	1.53	6.26	10.71	1.26	23.07	—	1.57	3.54	11.89	13.66	1/4	.94
M 3720	6.50	F16	—	—	3/4 - 10	—	46MM	1.61	6.30	14.17	1.26	26.89	—	1.58	2.96	14.17	15.94	1/2	1.97

Top mounting dimensions for accessories to Namur standard. Bottom mounting is to DIN-ISO standards.
Solenoid mounting to Namur specifications is available on all units and is standard on units 148 and higher.
* U.N.C. bolt sizes.
L1* - 180° end-to-end dimensions

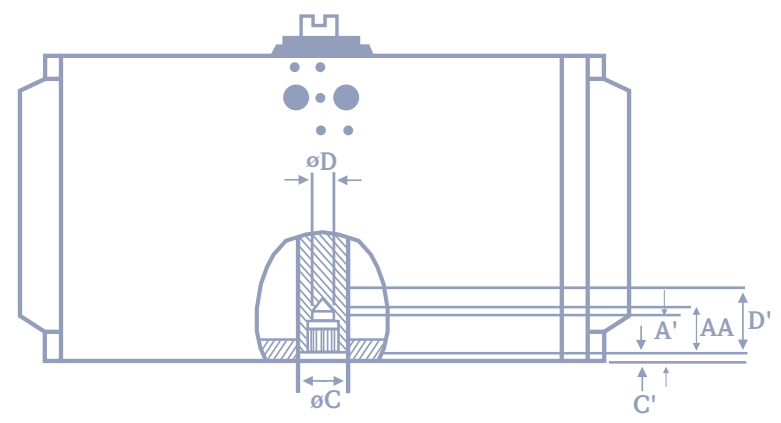


MOUNTING DIMENSIONS

SIZE	ISO		
	X	Y	Z
M10	F03	—	—
M10	—	F04*	—
M20	F03	F05	—
M30	F05	F07	—
M52	F05	F07	—
M73	F05	F07	—
M103	F05	F07	—
M148	F07	F10	—
M222	F07	F10	—
M295	F07	F10	F12
M470	—	F10	F12
M586	—	F10	F12
M900	—	F12	F16'
M1213	—	—	F14
M2366	—	—	F16
M2958	—	—	F16
M3720	—	—	F16

DRIVE DIMENSIONS

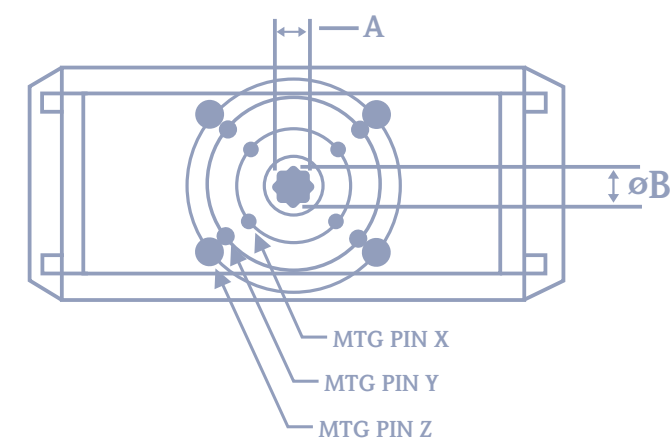
SIZE	ISO SQUARE 8 - POINT							
	A mm	A in.	A'	øB	øC	C'	øD	D'
M10	9	0.354	0.55	0.673	0.85	0.09	—	—
M10	11	0.433	0.55	0.673	0.85	0.09	—	—
M20	14	0.551	0.61	0.713	0.92	0.08	0.60	0.71
M30	14	0.669	0.61	0.713	0.92	0.08	0.60	0.71
M52	17	0.669	0.63	0.874	1.13	0.08	0.73	0.81
M73	17	0.669	0.63	0.874	1.25	0.08	0.73	0.81
M103	17	0.669	0.63	0.874	1.45	0.08	0.73	1.14
M148	22	0.866	0.81	1.122	1.57	0.10	0.94	1.03
M222	22	0.866	0.81	1.122	2.07	0.10	0.94	1.26
M295	22	0.866	0.83	1.122	2.07	0.12	0.94	1.30
M470	27	1.063	0.83	1.437	2.59	0.12	1.15	1.69
M586	27	1.063	0.83	1.437	2.59	0.12	1.15	1.69
M900	30	1.417	1.26	1.909	3.10	0.16	1.56	2.17
M1213	36	1.417	1.26	1.909	3.10	0.16	1.56	2.17
M2366	46	1.811	1.26	2.441	4.12	0.16	2.00	2.13
M2958	46	1.811	1.22	2.441	5.12	0.12	2.00	2.09
M3720	48	1.811	1.26	2.441	5.12	0.12	2.00	2.13



ISO MOUNTING PATTERN TABLE

ISO	øB.C.	øB.C.	THREAD	DP
	in.	mm		
F03	1.417	36	#10 - 32UNC	0.43
F04*	1.654	42	#10 - 32UNC	0.43
F05	1.969	50	1/4 - 20UNC	0.35
F07	2.758	70	5/16 - 16UNC	0.47
F10	4.016	102	3/8 - 16UNC	0.59
F12	4.921	125	1/2 - 13UNC	0.71
F14	5.512	140	5/8 - 11UNC	0.94
F16	6.496	165	3/4 - 10UNC	1.18

' M900 has 5/8" - 11UNC on F16
' M3720 also includes a 4.59 x 12.87 rectangular pattern
* Alternate Bottom Plate (M10 Only)





UniTorq

Established in 1992 in Norcross, Georgia, UniTorq has consistently provided our customers with reliable, affordable actuators and accessories. With a continued focus on the latest trends in technology and manufacturing, we have expanded our product line to include a wider selection of sizes and features to meet the varying needs in today's market. These changing market trends have lead to the introduction of an electric line of actuators in 1999 along with an expanded product line of pneumatic actuators and accessories. At UniTorq, the basic principle is continuous dedication to our customers' needs through the manufacturing and distribution of superior actuation products with an ongoing commitment to dependable service and support.



UNITORQ — HOW TO SPECIFY

Actuator will be a dual rack and pinion design with a one piece electroless nickel plated pinion that is machined a continuous 360 degrees and drive dimensions to ISO 5211 dimensions. The pinion shall have upper and lower Delrin 500 encapsulated bearings. The actuator body shall be of extruded aluminum, hard anodized after machining and then painted with a one part dry powder epoxy polyester paint for additional external protection. End caps shall be aluminum die cast with one part dry powder epoxy polyester for protection. End caps shall be affixed to the body with stainless steel UNC cap screws. Actuator will have as standard double travel stops that can be adjusted while the actuator is pressurized. Actuator shall have Delrin 500 piston bearings permanently affixed to the pistons, all seals on the end caps, and pinions shall be Buna N material. Actuator shall have the capability of being field converted from double acting to spring return type with no additional tooling required. The actuator shall have the same end-to-end dimensions for double acting as spring return. Spring design shall be of the fully encapsulated design for safety. All dimensions shall be to Namur for the affixing of accessories and transmitting devices. All mounting dimensions to the valve or damper shall be to ISO 5211 standard. All actuators shall be fully traceable by an individual serial number permanently stamped on the body. This actuator shall be designated as the UniTorq "M" Series actuator.

*For additional information regarding our products,
or to place an order, please phone our office.
UniTorq can also be reached via the web at*

www.unitorq.com

Unitorq Actuators & Controls

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