

ERD – Electric Rod-Style Actuator

sizeit.tolomatic.com for fast, accurate actuator selection



SIZE: ALL

SPECIFICATIONS

SPECIFICATIONS (US conventional measurement)

ERD SIZE	MAXIMUM STROKE*	SCREW CODE	LEAD	LEAD ACCURACY	BACKLASH	MAXIMUM THRUST	DYNAMIC LOAD RATING	INERTIA			WEIGHT					WEIGHT (GD2 adder)		
								LMI	RP	Per Inch	LMI (AL)	LMI (SS)	RP (AL)	RP (SS)	(SS2 adder)	Per Inch	Base	Per Inch
								Base	Base		Per Inch	Base	Base	Base	Base			
in	in/rev	in/ft	in	lbf	lbf	lb-in ²	lb-in ²	lb-in ²	lb	lb	lb	lb	lb	lb	lb	lb		
10	10	SN01	1.000	0.007	0.007	40	NA	0.0022	–	0.0006	0.411	–	–	–	2.280	0.069	1.028	0.061
		SN02	0.500	0.007	0.007	40	NA	0.0022	–	0.0006	0.411	–	–	–	2.280	0.069	1.028	0.061
		SN05	0.200	0.007	0.007	40	NA	0.0022	–	0.0006	0.411	–	–	–	2.280	0.069	1.028	0.061
		BNM05	0.197	0.004	0.005	100	240	0.0040	–	0.0014	0.607	–	–	–	2.280	0.087	1.028	0.061
15	24	SN01	1.000	0.006	0.007	75	NA	0.0104	0.2101	0.0017	1.079	–	4.230	7.761	5.771	0.126	2.297	0.095
		SN02	0.500	0.005	0.007	75	NA	0.0104	0.2101	0.0017	1.079	–	4.230	7.761	5.771	0.126	2.297	0.095
		SN05	0.200	0.006	0.007	75	NA	0.0104	0.2101	0.0017	1.079	–	4.230	7.761	5.771	0.126	2.297	0.095
		BNM05	0.197	0.004	0.005	200	450	0.0178	0.2208	0.0044	1.170	–	4.230	7.761	5.771	0.159	2.297	0.095
		BNM10	0.394	0.004	0.005	200	400	0.0178	0.2208	0.0044	1.170	–	4.230	7.761	5.771	0.159	2.297	0.095
		BZ10	0.100	0.006	0.008	200	NA	0.0178	0.2208	0.0044	1.170	–	4.230	7.761	5.771	0.159	2.297	0.095
20	24	BNM05	0.197	0.004	0.005	500	900	0.0628	0.4102	0.0263	7.575	–	23 FRM	23 FRM	7.552	0.325	6.455	0.256
		BNM10	0.394	0.004	0.005	500	900	0.0628	0.4102	0.0263	7.575	–	5.610	9.030	7.552	0.325	6.455	0.256
		BNM20	0.788	0.004	0.004	500	2560	0.0628	0.4102	0.0105	7.575	–	34 FRM	34 FRM	7.552	0.325	6.455	0.256
		BZ10	0.100	0.006	0.008	500	NA	0.0628	0.4102	0.0105	7.575	–	6.050	9.448	7.552	0.325	6.455	0.256
22	39.4	BN02	0.500	0.004	0.015	1600	2836	0.4449	0.5489	0.0086	–	11.05	–	20.18	–	0.43		
		BN05	0.200	0.003	0.015	950	1624	0.4449	0.5489	0.0086	–	11.05	–	20.18	–	0.43		
		BNM05	0.197	0.002	0.004	1000	1958	0.4267	0.5307	0.0044	–	10.81	–	19.94	–	0.40		
		BNM10	0.394	0.002	0.004	900	1214	0.4267	0.5307	0.0044	–	10.81	–	19.94	–	0.40		
	BNM20	0.787	0.004	0.004	1000	2560	0.4527	0.5567	0.0105	–	11.12	–	20.25	–	0.45			
	24	RNM04	0.157	0.0004	0.0012	1700	5577	0.4226	0.5266	0.0033	–	10.79	–	19.92	–	0.39		
RNM05		0.197	0.0004	0.0012	1700	5577	0.4226	0.5266	0.0033	–	10.79	–	19.92	–	0.39			
RNM10		0.394	0.0004	0.0012	1556	5577	0.4226	0.5266	0.0033	–	10.79	–	19.92	–	0.39			
25	39.4	BN01	1.000	0.004	0.002	711	2500	0.8634	0.7749	0.0277	–	31.77	–	53.85	–	0.87		
		BN02	0.500	0.004	0.015	1423	5418	0.8634	0.7749	0.0277	–	31.73	–	53.81	–	0.87		
		BN04	0.250	0.004	0.015	2846	5238	0.8634	0.7749	0.0277	–	31.73	–	53.81	–	0.87		
		BNM05	0.197	0.002	0.004	2000	3395	0.8550	0.7740	0.0260	–	31.34	–	53.42	–	0.86		
		BNM10	0.394	0.002	0.004	1750	3372	0.8550	0.7740	0.0260	–	31.75	–	53.83	–	0.86		
		BNM25	0.984	0.004	0.005	700	2537	0.8550	0.7740	0.0260	–	31.50	–	53.58	–	0.86		
	36	RNM04	0.157	0.0004	0.0012	4159	12762	0.7734	0.7659	0.0106	–	31.29	–	53.37	–	0.78		
		RNM05	0.197	0.0004	0.0012	3878	12762	0.7734	0.7659	0.0106	–	31.29	–	53.37	–	0.78		
30	48	BN04	0.250	0.004	0.015	4500	7143	1.0872	2.1018	0.1401	–	32.66	–	54.73	–	1.39		
		BNM05	0.197	0.002	0.004	3000	6714	1.1232	2.1378	0.1702	–	34.07	–	56.14	–	1.44		
		BNM10	0.394	0.002	0.004	2950	7476	1.1233	2.1378	0.1702	–	35.48	–	57.55	–	1.44		
		BNM20	0.787	0.002	0.005	1845	5528	1.1232	2.1378	0.1702	–	33.58	–	55.65	–	1.44		
	36	RNM05	0.197	0.0004	0.0012	7868	12762	0.632	1.201	0.0531	–	31.45	–	53.52	–	1.20		
		RNM10	0.394	0.0004	0.0012	7943	12762	0.632	1.201	0.0531	–	31.45	–	53.52	–	1.20		

*Longer stroke length modification available upon request.

**Standard Temperature range	40° to 130° F (4.4° to 54.4° C)
IP rating	40 (static) standard for 10, 15, 20 sizes 69k (static) standard for 22, 25, 30 sizes

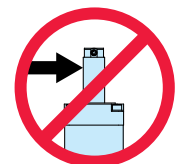
**Contact Tolomatic to review application for operations outside the standard temperature range.

SIDE LOAD CONSIDERATIONS

The standard ERD rod-style actuator is not meant to be used in applications where side loading occurs. If side loading exists in the application consider the GD2 guided option.

Loads must be guided and supported. Loads should be aligned with the line of motion of the thrust rod.

Side loading will affect the life of the actuator.



SCREW CODE	DESCRIPTION
BN	Ball Nut
BNH	Ball Nut H-series
BNL	Low-Backlash Ball Nut
BNM	Ball Nut Metric
BZ	Bronze Nut
RNM	Roller Nut
SN	Solid Nut

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SPECIFICATIONS (metric measurement)

ERD SIZE	MAXIMUM STROKE*	SCREW CODE	LEAD	LEAD ACCURACY	BACKLASH	MAXIMUM THRUST	DYNAMIC LOAD RATING	INERTIA			WEIGHT					WEIGHT (GD2 adder)		
								LMI	RP	Per 25mm	LMI (AL)	LMI (SS)	RP (AL)	RP (SS)	(SS2 adder)	Per 25mm	Base	Per Inch
								Base	Base		kg	kg	kg	kg	kg			
10	254.0	SN01	25.4	0.18	0.18	188	NA	0.64	–	0.18	0.186	–	–	–	1.034	0.031	0.466	0.028
		SN02	12.7	0.18	0.18	188	NA	0.64	–	0.18	0.186	–	–	–	1.034	0.031	0.466	0.028
		SN05	5.08	0.18	0.18	188	NA	0.64	–	0.18	0.186	–	–	–	1.034	0.031	0.466	0.028
		BNM05	5.00	0.10	0.13	445	1068	1.16	–	0.41	0.275	–	–	–	1.034	0.039	0.466	0.028
15	609.6	SN01	25.4	0.15	0.18	334	NA	3.04	61.48	0.50	0.489	–	1.919	3.520	2.618	0.057	1.042	0.043
		SN02	12.7	0.13	0.18	334	NA	3.04	61.48	0.50	0.489	–	1.919	3.520	2.618	0.057	1.042	0.043
		SN05	5.08	0.15	0.18	334	NA	3.04	61.48	0.50	0.489	–	1.919	3.520	2.618	0.057	1.042	0.043
		BNM05	5.00	0.10	0.13	890	2002	5.21	64.61	1.28	0.531	–	1.919	3.520	2.618	0.072	1.042	0.043
		BNM10	10.00	0.10	0.13	890	1779	5.21	64.61	1.28	0.531	–	1.919	3.520	2.618	0.072	1.042	0.043
		BZ10	2.54	0.15	0.20	890	NA	5.21	64.61	1.28	0.531	–	1.919	3.520	2.618	0.072	1.042	0.043
20	609.6	BNM05	5.00	0.10	0.13	2224	4003	18.38	120.04	7.7	3.436	–	23 FRM	23 FRM	3.426	0.147	2.928	0.116
		BNM10	10.00	0.10	0.13	2224	4003	18.38	120.04	7.7	3.436	–	2.545	4.096	3.426	0.147	2.928	0.116
		BNM20	20.00	0.10	0.10	2224	11387	18.38	120.04	0.3073	3.436	–	34 FRM	34 FRM	3.426	0.147	2.928	0.116
		BZ10	2.54	0.15	0.20	2224	NA	18.38	120.04	7.7	3.436	–	2.744	4.286	3.426	0.147	2.928	0.116
22	1000	BN02	12.70	0.10	0.38	7117	12615	130.36	160.83	2.52	–	5.01	–	9.15	–	0.20		
		BN05	5.08	0.08	0.38	4226	7224	130.36	160.83	2.52	–	5.01	–	9.15	–	0.20		
		BNM05	5.00	0.05	0.10	4448	8710	125.03	155.50	1.29	–	4.90	–	9.04	–	0.18		
		BNM10	10.00	0.05	0.10	4003	5400	125.03	155.50	1.29	–	4.90	–	9.04	–	0.18		
	BNM20	20.00	0.10	0.10	4448	11387	132.65	163.12	3.08	–	5.04	–	9.19	–	0.20			
	609.6	RNM04	4.00	0.01	0.03	7562	24808	123.83	154.30	0.97	–	4.89	–	9.04	–	0.18		
		RNM05	5.00	0.01	0.03	7562	24808	123.83	154.30	0.97	–	4.89	–	9.04	–	0.18		
		RNM10	10.00	0.01	0.03	3781	24808	123.83	154.30	0.97	–	4.89	–	9.04	–	0.18		
25	1000	BN01	25.40	0.102	0.05	3163	11120	252.98	227.03	8.12	–	14.41	–	24.42	–	0.39		
		BN02	12.70	0.102	0.05	6330	29100	252.98	227.03	8.12	–	14.39	–	24.41	–	0.39		
		BN04	6.35	0.102	0.05	12660	23300	252.98	227.03	8.12	–	14.39	–	24.41	–	0.39		
		BNM05	5.00	0.051	0.10	8896	15101	250.52	226.79	7.62	–	14.22	–	24.23	–	0.39		
		BNM10	10.00	0.051	0.10	7784	15000	250.52	226.79	7.62	–	14.40	–	24.42	–	0.39		
	BNM25	25.00	0.102	0.13	3114	11285	250.52	226.79	7.62	–	14.29	–	24.30	–	0.39			
	914.4	RNM04	4.00	0.0102	0.03	18500	56768	226.61	224.40	3.11	–	14.19	–	24.21	–	0.35		
		RNM05	5.00	0.0102	0.03	17250	56768	226.61	224.40	3.11	–	14.19	–	24.21	–	0.35		
RNM10		10.00	0.0102	0.03	18500	56768	226.61	224.40	3.11	–	14.19	–	24.21	–	0.35			
30	1219.2	BN04	6.35	0.102	0.38	20017	31774	318.56	615.84	41.05	–	14.81	–	24.83	–	0.63		
		BNM05	5.00	0.051	0.10	13345	29865	329.11	626.38	49.87	–	15.45	–	25.47	–	0.65		
		BNM10	10.00	0.051	0.10	13122	33255	329.11	626.38	49.87	–	16.09	–	26.11	–	0.65		
		BNM20	20.00	0.051	0.13	8207	24590	329.11	626.38	49.87	–	15.23	–	25.24	–	0.65		
	914.4	RNM05	5.00	0.010	0.03	34999	56768	184.94	351.46	1.55	–	14.27	–	24.28	–	0.54		
		RNM10	10.00	0.010	0.03	35332	56768	184.94	351.46	1.55	–	14.27	–	24.28	–	0.54		

What is an IP Rating?

The IP Code (or Ingress Protection Rating) consists of the letters IP followed by two digits and an optional letter. As defined in international standard IEC 60529, it classifies the degrees of protection provided against the intrusion of solid objects (including body parts like hands and fingers), dust, accidental contact, and water in electrical enclosures.

The IP69K test specifies a spray nozzle that is fed with 80°C water at 8–10MPa (80–100bar) and a flow rate of 14–16L/min. The nozzle is held 10–5 cm from the tested device at angles of 0°, 30°, 60° and 90° for 30s each. The test device sits on a turntable that rotates once every 12s (5rpm).

SOLIDS, FIRST DIGIT:

4	>1 mm	Most wires, screws, etc.
6	Dust tight	No ingress of dust; complete protection against solid object intrusion

LIQUIDS, SECOND DIGIT (static rating)

0	Not protected	
7	Immersion up to 1 m	Ingress of water in harmful quantity shall not be possible when the enclosure is immersed in water under defined conditions of pressure and time (up to 1 m of submersion).
9K	High pressure, high temp. wash-down	As above, plus ingress of water in harmful quantity shall not be possible when the enclosure is subject to high pressure, high temperature wash-down.

What Does IP69K mean?

German standard DIN 40050-9 extends the IEC 60529 rating system described above with an IP69K rating for high-pressure, high-temperature wash-down applications.[4] Such enclosures must not only be dust tight (IP6X), but also able to withstand high-pressure and steam cleaning.

The first digit indicates the level of protection that the enclosure provides against access to hazardous parts (e.g., electrical conductors, moving parts) and the ingress of solid foreign objects.

The second digit indicates the level of protection that the enclosure provides against harmful ingress of water.

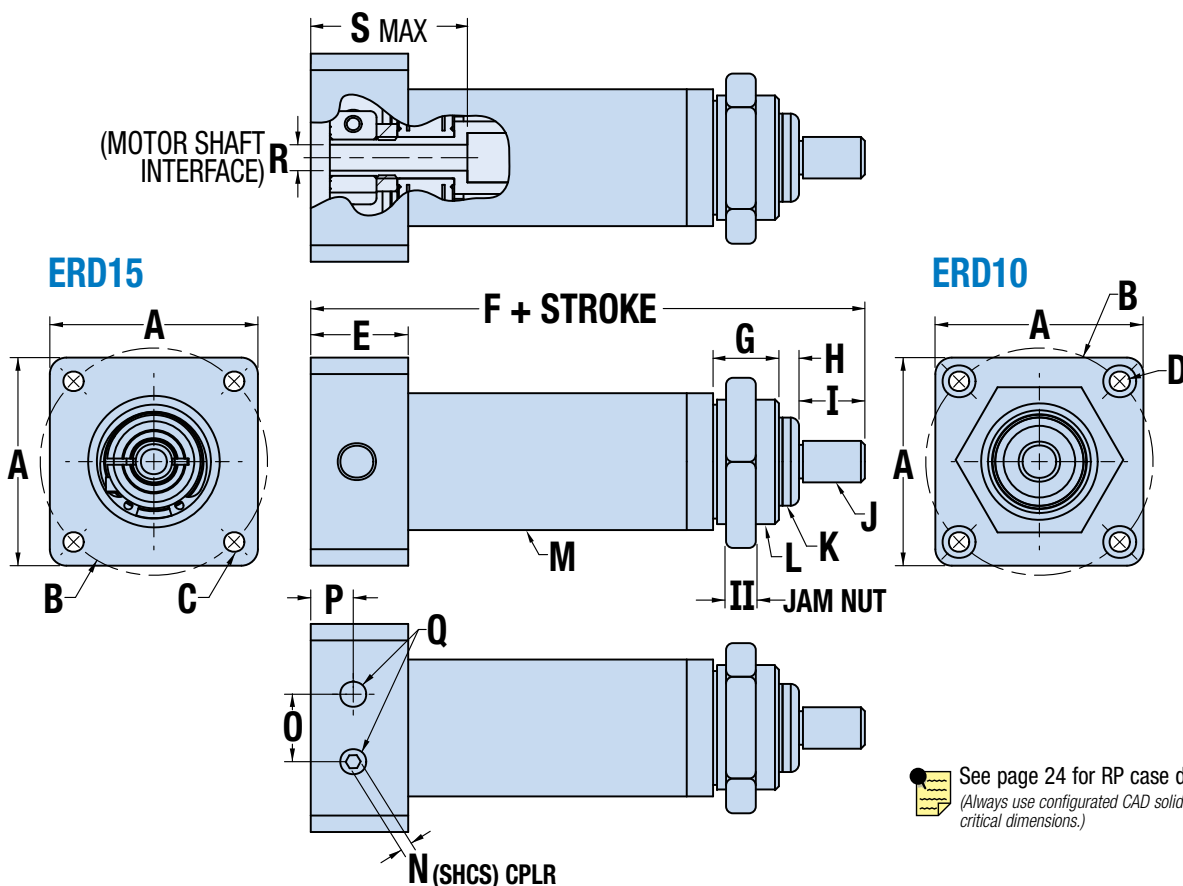
ERD – Electric Rod-Style Actuator

SIZE: 10, 15, 20

3D CAD available at www.tolomatic.com
Always use configured CAD solid model
to determine critical dimensions



ACTUATOR



See page 24 for RP case dimensions.
(Always use configured CAD solid model for
critical dimensions.)

	ERD10	ERD15	ERD20
A	40.13	56.39*	*
B	Ø43.82	Ø66.68*	*
C	-	M4 x 0.7*	*
D	Ø3.91	-	*
E	18.80	21.59*	*
F	106.7	137.2*	*
G	12.70	15.24	18.75
H	3.89	3.89	3.89
I	12.70	19.05	19.05
J**	M8 x 1.25	M12 x 1.75	M16 x 2.0
K	Ø17.42	Ø26.40	Ø33.60

	ERD10	ERD15	ERD20
L	M24 x 1.5	M34 x 1.5	M44 x 1.5
II	6.00	8.00	8.00
M	Ø26.42	Ø41.61	Ø52.20
N	2.50	2.50*	*
O	13.00	13.00	23.37
P	8.20	7.57*	*
Q	(2) M6 x 1.0 \downarrow 7.9	(2) M6 x 1.0 \downarrow 12.7	(2) M6 x 1.0 \downarrow 12.7
R	Ø5.00	Ø6.35*	*
S	27.94	31.75*	*

Dimensions in millimeters

	ERD10	ERD15	ERD20
A	1.580	2.220*	*
B	Ø1.725	Ø2.625*	*
C	-	M4 x 0.7*	*
D	Ø.154	-	*
E	0.740	0.850*	*
F	4.20	5.40*	*
G	0.500	0.600	0.750
H	0.153	0.153	0.153
I	0.500	0.750	0.750
J**	M8 x 1.25	M12 x 1.75	M16 x 2.0
K	Ø.686	Ø1.041	Ø1.323

	ERD10	ERD15	ERD20
L	M24 x 1.5	M34 x 1.5	M44 x 1.5
II	0.236	0.315	0.315
M	Ø1.040	Ø1.638	Ø2.051
N	0.098	0.098*	*
O	0.512	0.512	0.920
P	0.323	0.298*	*
Q	(2) M6 x 1.0 \downarrow .31	(2) M6 x 1.0 \downarrow .50	(2) M6 x 1.0 \downarrow .50
R	Ø.197	Ø.250*	*
S	1.100	1.250*	*

Dimensions in inches

* This dimension is determined
by motor choice.
** Note: If ordering as a replacement
actuator for use with rod end
options, order Code RA1 to receive
M10x1.25 rod end thread on the ERD15
Note: If ordering as a replacement actua-
tor for use with rod end options, order
Code RA1 to receive M16x1.5 rod end
thread on the ERD20

ERD – Electric Rod-Style Actuator

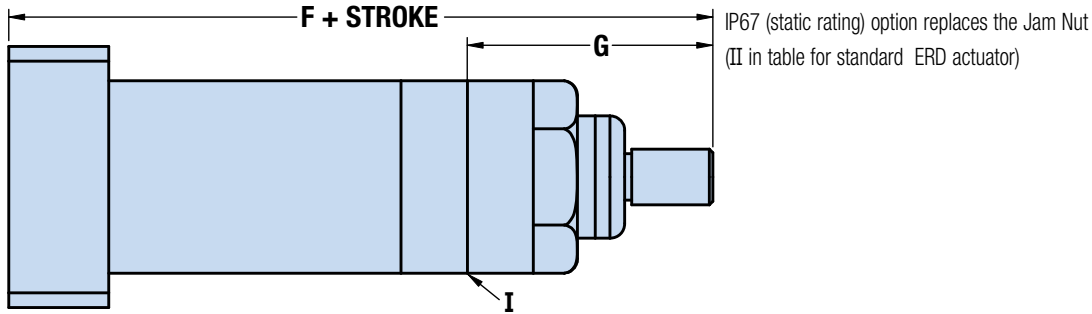
SIZE: 10, 15, 20

3D CAD available at www.tolomatic.com
Always use configured CAD solid model
to determine critical dimensions



DIMENSIONS

IP67 - IP69K OPTION DIMENSIONS



IP67 OPTION

	ERD10	ERD15	ERD20
F	121.8	152.4*	204.8*
G	44.17	53.0	72.5
I	Surface for mounting options		

IP67 OPTION

	ERD10	ERD15	ERD20
F	4.79	6.00*	8.06*
G	1.739	2.09	2.85
I	Surface for mounting options		

IP69K OPTION

	ERD10	ERD15	ERD20
F	128.1	164.8	204.8*
G	50.52	65.7	72.5
I	Surface for mounting options		

IP69K OPTION

	ERD10	ERD15	ERD20
F	5.04	6.49	8.06*
G	1.989	2.59	2.85
I	Surface for mounting options		

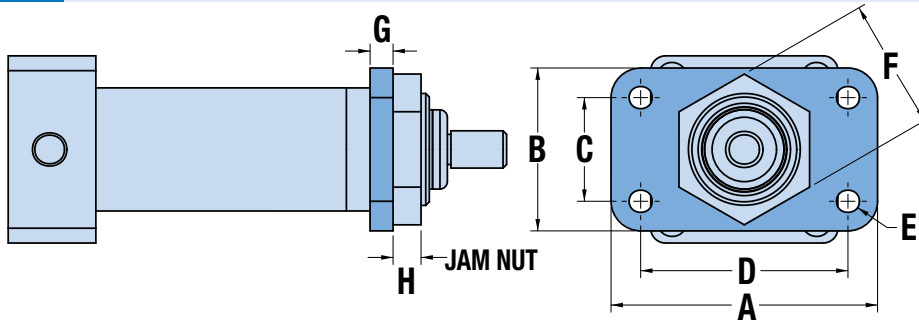
Dimensions in millimeters

Dimensions in inches



*Dimension shown is with Tolomatic AMS1xx motor hardware YMH option will determine this dimension.

FFG - FRONT FLANGE



	ERD10	ERD15	ERD20
A	57.15	63.50	88.90
B	34.93	44.45	57.15
C	22.23	31.75	44.45
D	44.45	50.80	76.20
E	Ø4.93	Ø5.61	Ø7.14
F	28.00	40.00	48.08
G	4.93	4.93	4.93
H	6.00	8.00	8.00

Dimensions in millimeters

	ERD10	ERD15	ERD20
A	2.250	2.500	3.500
B	1.375	1.750	2.250
C	0.875	1.250	1.750
D	1.750	2.000	3.000
E	Ø0.194	Ø0.221	Ø0.281
F	1.102	1.575	1.890
G	0.194	0.194	0.194
H	0.236	0.315	0.315

Dimensions in inches

ERD – Electric Rod-Style Actuator

**FAST DELIVERY
BUILT-TO-ORDER**

ORDERING

ERD 15 SN02 SM152-4 LMI ST1

MODEL
ERD Rod-Style Actuator

SIZE
10, 15, **20**, 22, 25, 30

NUT/SCREW COMBINATIONS

SIZE	CODE	TURNS/in (TPI)
10	SN	01, 02, 05
	BNM	05 mm lead
15	SN	01, 02, 05
	BNM	05, 10 mm lead
	BZ	10
20	BNM	05, 10, 20 mm lead
	BZ	10
22	BN	02, 05
	BNM	05, 10, 20 mm lead
	RNM	05, 10 mm lead
25	BN	01, 02, 04
	BNM	05, 10, 25 mm lead
	RNM	05, 10 mm lead
30	BN	04
	BNM	05, 10, 20 mm lead
	RNM	05, 10 mm lead

STROKE LENGTH

SM _ _ Enter desired stroke length in millimeters **431.800**

SIZE	MAXIMUM STROKE	
	SN or BN	Roller Nut
10	254.0	10
15,20	609.6	24
22	1000.0	39.4
25	1000.0	39.4
30	1219.2	48

Contact Tolomatic with requests for longer strokes

MOTOR MOUNTING

LMI In-line motor mount

RP1* 1:1 ratio, Reverse Parallel motor mount

RP2* 2:1 ratio, Reverse Parallel motor mount

✗ *RP is not available for the 10 size

Not all codes listed are compatible with all options. Contact Tolomatic with any questions.

OPTION ORDERING

ARI SS1 IP67 FFG KK2 YM _ _

TORQUE

ST1 Standard torque (LMI or RP)

HT1 High torque (RP only)

22, 25 & 30 size RP TORQUE CHOICES

ST Less than 60 in/lbs torque to actuator

HT More than 60 in/lbs torque to actuator

ACTUATOR GUIDE & ANTI-ROTATE

GD2 Guided unit with 2 guide shafts & tooling plate

🔧 GD2 is always aluminum even when ordered with SS1

✗ GD2 is not available for 22, 25, 30 size

ARI Internal Anti-Rotate for 15, 20, 22, 25, 30 sizes only

✗ ARI not available for 22 BNO2, BNO5 or 30 RNM05, RNM10

ENVIRONMENTAL PROTECTION

SS1 Stainless steel actuator

SS2_* Stainless steel actuator with protective motor enclosure

SS21 NPT 1/2" conduit thread

SS22 M20x1.5 conduit thread

SS23 Cord grip(s), 1 or 2 grips determined by encoder choice

IP67 & IP69K See chart below (IP ratings defined on pg. ERD_9)

HYG1 (ERD22, 25 & 30 only) IP69K Ingress protection rating (static), dust protection, high pressure water spray

LUB Food grade grease

🔧 *NOTE: Only Tolomatic motors are available with the SS2 option

✗ *SS2 is not available for 22, 25, 30 size or with GD2 option

🔧 NOTE: ERD 10, 15 & 20: IP69K available only together with SS2 option

ACTUATOR MOUNTING

FFG** Front Flange Mount

TRM Trunnion Mounting, Rear (metric)

TRR Trunnion Mounting, Rear (US standard)

FM2** Foot Mount

§PCD1 Rear Clevis Mounting inch/Imperial pin size

§PCD2 Rear Clevis Mounting metric pin size

🔧 **NOTE: Foot Mount and Front Flange Mount are shipped together with the actuator but are not installed by Tolomatic.

§ RP motor mount ONLY: 15, 20, 22, 25, 30 sizes

ROD END

Externally threaded rod end is standard

CLV Clevis Rod End

SRE Spherical Rod End

ALC Alignment Coupler Rod End

NOTE: Rod End options above are not available for all ERD sizes. Stainless steel available for the above rod ends in limited sizes. Contact Tolomatic

For replacement actuator compatible with existing rod end options see RA1 code on pg. 34

SWITCHES**

TYPE	LOGIC	NORMALLY	QUICK-DISCONNECT	CODE	QUANTITY	LEAD LENGTH
REED	SPST	Open	No	RY	After code enter quantity desired	5 m (16.4 feet)
			Yes	RK		
SOLID STATE	PNP	Open	No	TY	6 in (152mm) to QD connector w/ 5m lead	
			Yes	TK		
	NPN	Open	No	KY		
			Yes	KK		

🔧 **NOTE: Switches are shipped together with the actuator but are not installed by Tolomatic.

YOUR MOTOR HERE

YM _ _ _ Motor mount for non-Tolomatic motor. www.tolomatic.com

AM _ _ _ Tolomatic motor: contact factory

019501

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ACTUATOR SIZING

Size	IP RATING CHOICES AVAILABLE			USDA Approved Available	MOTOR ENCLOSURE AVAILABLE
	IP40	IP67	IP69K		
10	Std.	YES	YES	-	YES
15	Std.	YES	YES	-	YES
20	Std.	YES	YES	-	YES
22	-	-	Std.	YES	-
25	-	-	Std.	YES	-
30	-	-	Std.	YES	-