Tolomatic™
EXCELLENCE *IN MOTION*

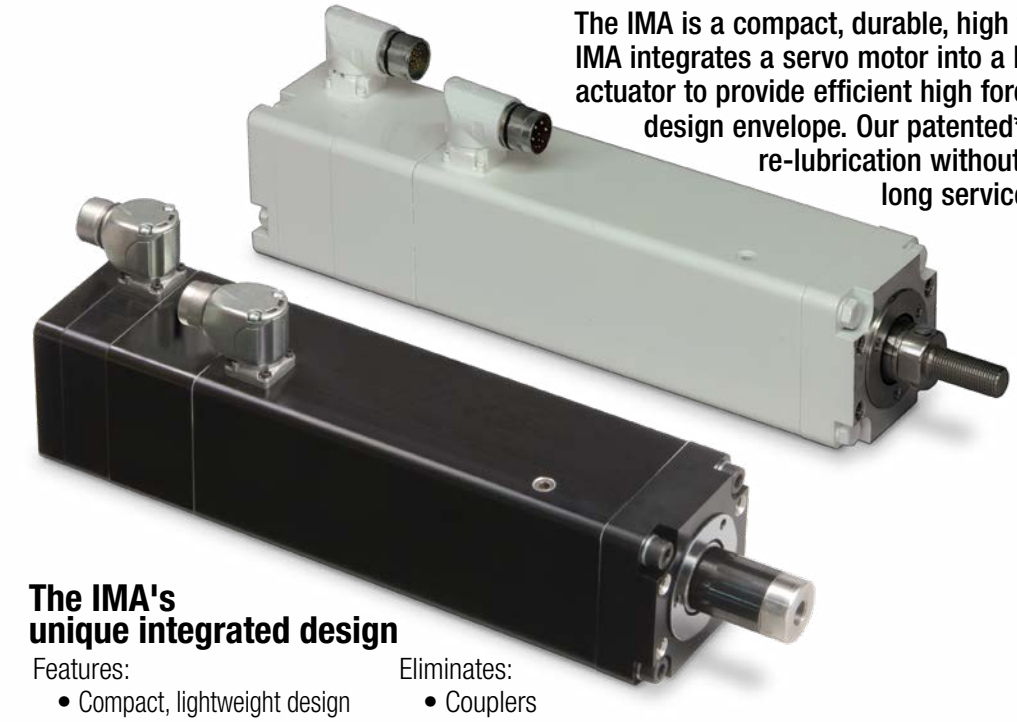
IMA

INTEGRATED MOTOR ROD-STYLE ACTUATOR

ENDURANCE TECHNOLOGY℠
A Tolomatic Design Principle
Patented

LINEAR SOLUTIONS MADE EASY

The longest lasting, high-force integrated actuator on the market!



The IMA is a compact, durable, high force rod-style actuator. The IMA integrates a servo motor into a ball or roller screw-driven actuator to provide efficient high force in a compact lightweight design envelope. Our patented* design allows for easy re-lubrication without disassembly for extremely long service life.

*U.S. PATENT NO. 8,196,484

The IMA's unique integrated design

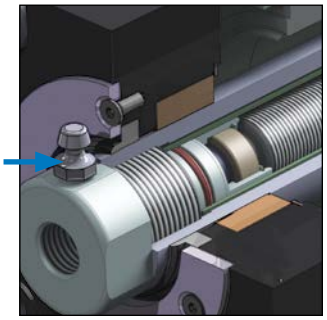
Features:

- Compact, lightweight design
- Long life
- High force
- High positional accuracy
- High efficiency
- Proven performance
- Ratings for extreme environments
- Compatibility
- Low inertia

Eliminates:

- Couplers
- Adapters
- Belts
- Gears
- Unneeded assembly labor
- Forced air or water cooling
- Hydraulic systems
- Pneumatic systems
- Need for multiple vendors

PATENTED SCREW LUBRICATION SYSTEM FOR EXTENDED SERVICE LIFE



TOLOMATIC'S ELECTRIC ROD-STYLE ACTUATORS

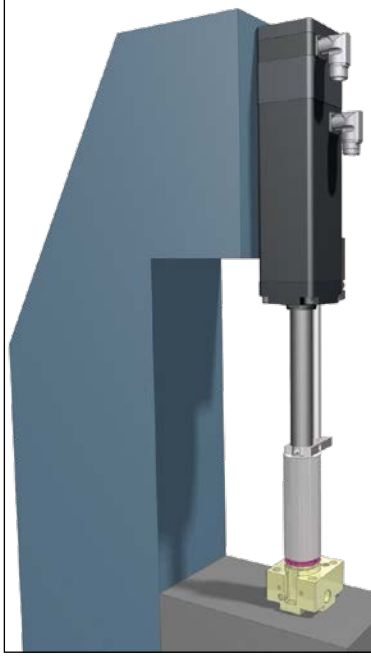
						Combined Actuator & Motor	
	ERD	**RSH**	**RSA**	**RSX**	**GSA**	**IMA**	**IMAS**
							
	Rod-Style Actuator	**Hygienic Rod-Style Actuator**	**Rod-Style Actuator**	**High Force Rod-Style Actuator**	**Guided Rod-Style Actuator**	**Integrated Servo Actuator**	**Hygienic Integrated Servo Actuator**
Force up to:	2 kN *(500 lbf)*	35 kN *(7,900 lbf)*	58 kN *(13,000 lbf)*	445 kN *(100,000 lbf)*	18 kN *(4,100 lbf)*	36 kN *(8,000 lbf)*	11 kN *(2,500 lbf)*
Speed up to:	1.0 m/s *(40 in/s)*	0.5 m/s *(20 in/s)*	3.1 m/s *(120 in/s)*	0.8 m/s *(30 in/s)*	3.1 m/s *(120 in/s)*	1.3 m/s *(50 in/s)*	0.5 m/s *(20 in/s)*
Stroke Length up to:	0.6 m *(24 in)*	1.2 m *(48 in)*	1.5 m *(60 in)*	1.5 m *(59 in)*	0.9 m *(36 in)*	0.5 m *(18 in)*	0.5 m *(18 in)*
Screw/Nut Type	Ball	Ball & Roller	Solid, Ball & Roller	Ball & Roller	Solid, Ball & Roller	Ball & Roller	Ball & Roller
	For complete information see www.tolomatic.com or literature number:						
Literature Number:	2190-4000	2100-4010	3600-4233	2171-4001	3600-4231	2700-4000	2700-4014

(Actuators typically can't achieve maximum force and speed simultaneously. Some options may limit maximum specifications. See product brochure for details.)

IMA Applications

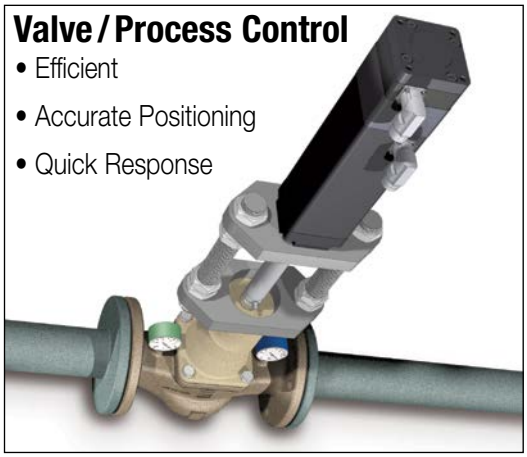
Press Fitting System

- High Force
- Long Life



Valve / Process Control

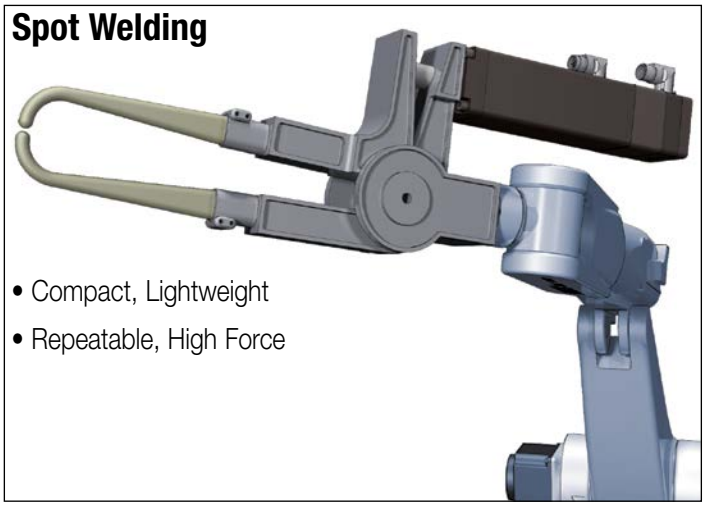
- Efficient
- Accurate Positioning
- Quick Response



Fluid Dispensing

- Repeatable Force
- Smooth Velocity

Spot Welding



- Compact, Lightweight
- Repeatable, High Force

More Applications:

- Aerospace
- Animation
- Assembly
- Automated assembly
- Automatic tool changers
- Automotive
- Clamping
- Converting
- Conveyors
- Cycle testing
- Fillers
- Formers
- Hydraulic replacement
- Laser positioning
- Machine tools
- Material handling systems
- Medical equipment
- Military
- Molding
- Motion simulators
- Open / close doors
- Packaging equipment
- Parts clamping
- Patient lifts
- Pick & place
- Pneumatic replacement
- Precision grinders
- Product test simulations
- Riveting / fastening / joining
- Robot manipulator arms
- Sawmill equipment
- Semiconductor
- Stamping
- Table positioning
- Tension control
- Test stands
- Tube bending
- Volumetric pumps
- Water jet control
- Wave generation
- Web guidance
- Welding
- Wire winding

IMA INTEGRATED MOTOR ACTUATOR

The IMA is a compact, durable, high force rod-style actuator with an IP65 rating. The IMA integrates a servo motor into a ball or roller screw-driven actuator to provide efficient high force in a compact lightweight design envelope. Our patented design allows for easy re-lubrication without disassembly for extremely long service life. Built-to-order in stroke lengths up to 450 mm (18") with your choice of screw technology.

ENDURANCE TECHNOLOGY℠

A Tolomatic Design Principle

Tolomatic™ ...MAXIMUM DURABILITY

EXCELLENCE *IN MOTION*

ROBOT & DRIVE/CONTROLLER COMPATIBILITY

- Compatible feedback, connector(s) and wiring to match the following robot & drive/controller manufacturers:
  - ABB Robot*
  - Aerotech BM*
  - Allen Bradley MP & VP Techniques FM & NT
  - B&R 8LS*
  - Baldor BSM
  - Beckhoff AM8*
  - Bosch Rexroth MSK
  - Nidec/Control Techniques FM & NT
  - Fanuc Robot*
  - Kawasaki Robot*
  - Kollmorgen AKM*
  - Kuka Robot*
  - Lenze MCA
  - Motoman / Yaskawa Robot*
  - Nachi Robot*
  - Omron*
  - Parker MPP*
  - Schneider Electric SH*
  - SEW CMP*
  - Siemens 1F*
  - Stober*

  *Consult Tolomatic for lead time
- Tolomatic standard connector, wiring and flying lead cable can be used to integrate with servo drive manufacturers such as: •AMC •Copley •Elmo •+ Others
- STAGGERED CONNECTORS for convenient installation

MULTIPLE SCREW TECHNOLOGIES

YOU CAN CHOOSE:

- Ball screws offer efficiency at a cost effective price

- Roller screws provide the highest force and life ratings available

HIGH POSITIONAL ACCURACY

MAX. SCREW ACCURACY	
Roller Nut	± 0.0004"/ft. *± 0.0102mm/300mm*
Ball Nut	± 0.0009"/ft. *± 0.023mm/300mm*

INTERNAL BUMPERS

- Bumpers protect the screw and nut assembly from damage at end of stroke

HIGH RESOLUTION FEEDBACK

YOU CAN CHOOSE:

- Incremental encoder
- Multi-turn absolute encoder, Hiperface, Hiperface DSL, EnDat 2.2
- Resolver

HIGH FORCE ANGULAR CONTACT BEARINGS

- Provides complete support of screw and protects the feedback device from linear forces

REPLACEABLE ROD WIPER

- Prevents contaminants from entering the actuator for extended life

GREASE PORT

- Screw re-lubrication system provides extended screw service life
- Convenient lubrication without disassembly (IMA22 is lubed for life and does not include grease port)

INTEGRAL MOUNTING

- Four metric threaded holes on front face are available for direct mounting or addition of customized options

THREADED ROD END

- Zinc plated alloy steel construction for corrosion resistance
- Provides a common interface to multiple rod end options

THRUST TUBE

- Steel thrust tube supports extremely high force capabilities
- Salt bath nitride treatment provides excellent corrosion resistance, surface hardness and is very resistant to adherence of weld slag, water and other potential contaminant

LIGHTWEIGHT ALUMINUM DESIGN

- Black anodized extrusion design is optimized for rigidity and strength

SMOOTH BODY DESIGN

- Eliminates potential contaminant collection points

MULTIPLE MOTOR WINDINGS

YOU CAN CHOOSE:

- 230V or 460V rated windings potted directly into actuator housing
- Skewed motor windings provide minimal torque ripple for smooth linear motion
- Integral thermal switch for over temperature protection
- 1 stack motor (MV21-230V & MV41-460V) available for the IMA22 & IMA33, allows strokes between 3 and 6" providing the force needed for many applications in a more compact, lighter weight packages

DISCOVER THE IMA-S STAINLESS STEEL DESIGN

The best integrated hygienic actuator available!
CLICK HERE!

OPTIONS *(SEE IMA EXTENDED CATALOG FOR MORE IMA OPTIONS)*

MOUNTING

• Front Face - Standard

• Mounting Plates

• Rear Clevis

• Front Flange

• Trunnion, Rear or Front

• Side Mounting Holes, 2 sides & bottom *(no photo)*

ROD END

• Internal Thread - Standard

• External Threads

• Clevis

• Spherical Eye

• Alignment Coupler

BRAKE

• 24V Spring held / electronically released

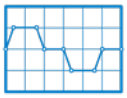
IP67 • For protection against water and dust ingress

CABLES

• Signal Cable (5 & 10 m)
• Power Cable (5 & 10 m)

ARO • Anti-Rotate

IMA - Integrated Motor Actuator



Performance & Mechanical Specifications:

Series	Nut/ Screw	Screw Lead	Motor Stack[1]	Cont. Thrust	Peak Thrust	Dynamic Load Rating	Lead Accuracy	Max. Velocity	Base Inertia[2]	Inertia per unit of Stroke	Break-away Torque	Nominal Back Drive Force[3]
		mm		kN	kN	kN	mm/300mm	mm/sec	kg-cm²	kg-cm² / mm	N-m	N
IMA22	BN05	5	1	0.89	1.45	5.74	0.052	356	0.897	0.0036	0.34	218
			3	1.45	1.45			356	1.482			
	BN10	10	1	0.45	1.36	4.40	0.052	711	0.901	0.0029	0.34	109
			3	0.80	1.45			711	1.487			
IMA33	BN05	5	1	1.62	4.45	8.72	0.052	305	2.723	0.0078	0.54	347
			3	4.00	4.45			292	4.825			
	BN10	10	1	0.81	2.44	5.43	0.052	610	2.737	0.0093	0.54	173
			3	2.00	4.00			584	4.838			
	BN20	20	1	0.41	1.23	11.39	0.100	1,217	2.908	0.0359	0.54	89
			3	1.00	3.00			1,167	5.010			
	RN04	4	1	2.00	6.01	41.10	0.010	244	2.727	0.0103	0.60	434
			3	4.76	11.12			234	4.829			
	RN05	5	1	1.56	4.67	45.82	0.010	305	2.729	0.0105	0.60	347
			3	3.78	11.34			292	4.831			
	RN10	10	1	0.78	2.34	45.82	0.010	610	2.747	0.0121	0.60	173
			3	1.89	5.69			584	4.848			
IMA44	BN05	5	3	7.78	10.45	17.97	0.023	267	9.689	0.0530	0.63	405
	BN10	10	3	3.89	11.03	15.03	0.023	533	9.719	0.0549	0.63	205
	BN25	25	3	1.56	4.67	11.30	0.100	1,334	9.933	0.0683	0.63	80
	RN04	4	3	9.34	18.46	56.94	0.010	234	9.609	0.0285	0.70	507
	RN05	5	3	7.34	17.13	56.94	0.010	292	9.614	0.0288	0.70	405
	RN10	10	3	3.67	11.03	56.94	0.010	584	9.648	0.0309	0.70	205
IMA55	BN05	5	3	13.12	17.39	29.89	0.023	167	75.240	0.4462	1.06	681
	BN10	10	3	6.58	16.41	33.27	0.023	333	75.340	0.4501	1.06	343
	BN20	20	3	3.28	8.23	24.60	0.023	667	75.720	0.4664	1.06	169
	RN05	5	3	12.23	35.81	106.31	0.010	201	74.720	0.3234	1.16	676
	RN10	10	3	6.14	17.93	106.31	0.010	399	74.830	0.3279	1.16	338
		in		lbf	lbf	lbf	in/ft	in/sec	lb-in²	lb-in² / in	in-lb	lbf
IMA22	BN05	0.197	1	200	325	1,290	0.0021	14.0	0.306	0.0012	3.0	49
			3	325	325			14.0	0.506			
	BN10	0.394	1	102	305	990	0.0021	28.0	0.308	0.0010	3.0	25
			3	180	325			28.0	0.508			
IMA33	BN05	0.197	1	365	1,000	1,960	0.0021	12.0	0.931	0.0027	4.8	78
			3	900	1,000			11.5	1.649			
	BN10	0.394	1	183	549	1,220	0.0021	24.0	0.935	0.0032	4.8	39
			3	450	900			23.0	1.653			
	BN20	0.788	1	92	276	2,560	0.0040	47.9	0.994	0.0123	4.8	20
			3	225	675			45.9	1.712			
	RN04	0.157	1	450	1,350	9,240	0.0004	9.6	0.932	0.0035	5.3	98
			3	1,070	2,500			9.2	1.650			
	RN05	0.197	1	350	1,050	10,300	0.0004	12.0	0.933	0.0036	5.3	78
			3	850	2,550			11.5	1.651			
	RN10	0.394	1	175	525	10,300	0.0004	24.0	0.939	0.0041	5.3	39
			3	425	1,280			23.0	1.657			
IMA44	BN05	0.197	3	1,750	2,350	4,040	0.0009	11.5	3.311	0.0181	5.6	91
	BN10	0.394	3	875	2,480	3,380	0.0009	23.0	3.321	0.0188	5.6	46
	BN25	0.985	3	350	1,050	2,540	0.0040	52.5	3.394	0.0233	5.6	18
	RN04	0.157	3	2,100	4,150	12,800	0.0004	9.2	3.284	0.0098	6.2	114
	RN05	0.197	3	1,650	3,850	12,800	0.0004	11.5	3.285	0.0098	6.2	91
	RN10	0.394	3	825	2,480	12,800	0.0004	23.0	3.297	0.0106	6.2	46
IMA55	BN05	0.197	3	2,950	3,910	6,720	0.0009	7.9	25.710	0.1525	9.4	153
	BN10	0.394	3	1,480	3,690	7,480	0.0009	15.7	25.750	0.1538	9.4	77
	BN20	0.788	3	738	1,850	5,530	0.0009	26.2	25.880	0.1594	9.4	38
	RN05	0.197	3	2,750	8,050	23,900	0.0004	7.9	25.530	0.1105	10.3	152
	RN10	0.394	3	1,380	4,030	23,900	0.0004	15.7	25.570	0.1120	10.3	76

Performance data was validated using an aluminum face mount plate:
IMA22 (8.25" x 7.0" x 0.7");
IMA33 (8.25" x 7.0" x 0.7");
IMA44 (9.0" x 9.0" x 0.7");
IMA55 (9.0" x 9.0" x 1.0")
Ambient Temp. = 77°F (25°C);
Elevation < 3281' (1,000 m);
Drive specifications: Sinusoidal Commutation and PWM Voltage Source

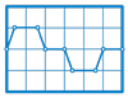
[1]1 Stack winding MV21 / 41
3 Stack winding MV23 / 43

[2]Value given is for a zero stroke actuator † To be determined, visit www.tolomatic.com for up-to-date information

[3]In all vertical application an unpowered IMA will require a brake to maintain position. Tolomatic recommends that the nominal back drive force specification be used for reference only. Back drive force is subject to change throughout the life of the actuator, due to mechanical break in, ambient temperature, and duty cycle variation.

Reference Only

Back drive force is subject to change throughout the life of the actuator, due to mechanical break in, ambient temperature, and duty cycle variation.



Performance & Mechanical Specifications:

		IMA22 (1 STACK, MV21/41)	IMA22 (3 STACK, MV23/43)	IMA33 (1 STACK, MV21/41)	IMA33 (3 STACK, MV23/43)	IMA44	IMA55
Face Size	mm	63.5	63.5	83	83	110	142
	in	*2.5*	*2.5*	*3.3*	*3.3*	*4.4*	*5.6*
Stroke	mm	76.2 to 304.8	152.4 to 304.8	76.2 to 457.2	152.4 to 457.2	152.4 to 457.2	152.4 to 457.2
	in	*3.0 to 12.0*	*6.0 to 12.0*	*3.0 to 18.0*	*6.0 to 18.0*	*6.0 to 18.0*	*6.0 to 18.0*
****Base Weight**	kg	2.4	2.9	5.2	6.4	13	24.8
	lb	*5.3*	*6.4*	*11.4*	*14.1*	*28.6*	*54.5*
Weight per unit of Stroke	kg/mm	0.0073	0.0073	0.0118	0.0118	0.0197	0.03771
	lb/in	*0.2428*	*0.2428*	*0.6603*	*0.6603*	*1.1035*	*2.1115*
Screw Lead Backlash **BN**		*in = 0.004*	mm = 0.1				
RN		*in = 0.0020*	mm = 0.051				
Temp Range	°C	Standard: 10 to 40; Extended: -20 to 60 (Contact Tolomatic if operation in the Extended Range is required)					
	°F	*Standard: 50 to 104; Extended: -4 to 140 (Contact Tolomatic if operation in the Extended Range is required)*					
IP Rating		Standard IP65, Optional IP67 (Static)					
Rel. Humidity (non-condensing)		5 to 90%					
Shock		20g peak, 6 msec duration					
Vibration		2.5g 30....2,000 Hz					

*In vertical applications an unpowered IMA will require a brake to maintain position if the load on the actuator exceeds this value

**Value given is for a zero stroke actuator

Motor Specifications:

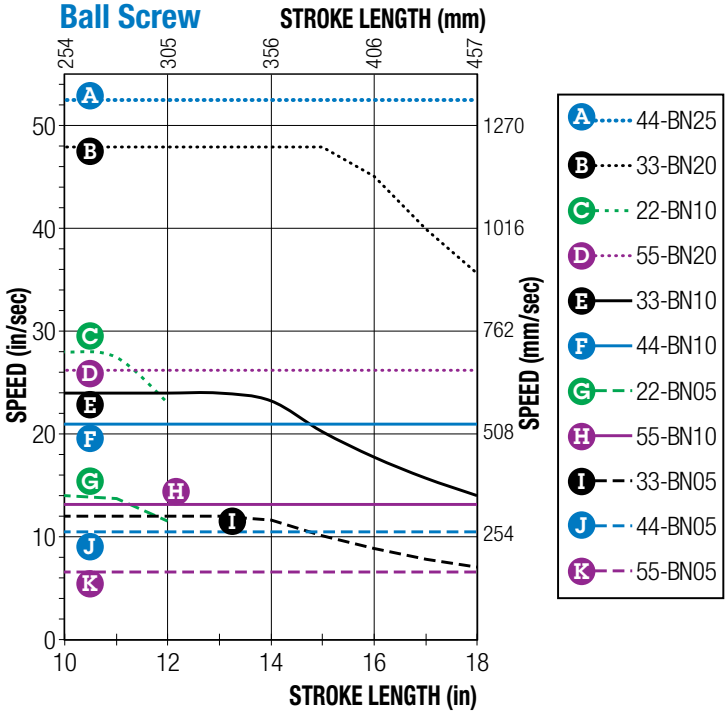
		IMA22				IMA33				IMA44		IMA55	
Winding/Motor Voltage		MV21	MV41	MV23	MV43	MV21	MV41	MV23	MV43	MV23	MV43	MV23	MV43
Torque Constant (Kt)	N-m/A Peak	0.37	0.74	0.49	0.93	0.61	1.21	0.62	1.21	0.61	1.20	0.76	1.51
	in-lb/A Peak	*3.3*	*6.6*	*4.3*	*8.2*	*5.4*	*10.7*	*5.5*	*10.7*	*5.4*	*10.6*	*6.7*	*13.4*
Voltage Constant (Ke)	V/Krpm Peak	51.0	102.0	61.0	122.0	81.0	160.0	79.8	154.0	78.1	153.1	100.0	201.0
Continuous Stall Torque	N-m	0.85		1.50		1.80		4.40		8.50		12.70	
	in-lb	*7.5*		*13.3*		*16.0*		*39.0*		*75.0*		*112.0*	
Continuous Stall Current	ARMS	1.60	0.80	2.20	1.15	2.10	1.10	5.00	2.50	9.70	5.00	11.80	5.90
Peak Torque	N-m	2.54		4.50		5.40		13.20		25.40		38.00	
	in-lb	*22.5*		*39.9*		*48.0*		*117.0*		*225.0*		*336.0*	
Peak Current	ARMS	4.8	2.4	6.6	3.5	6.3	3.3	15.0	7.5	29.1	15.0	29.5	14.8
Resistance	Ohms	18.10	72.40	7.10	28.30	10.00	40.10	2.07	8.30	0.58	2.32	0.57	2.93
Inductance	mH	10.7	42.0	4.5	18.0	13.6	54.1	3.8	15.0	2.8	11.5	1.4	5.8
Bus Voltage	VRMS	230	460	230	460	230	460	230	460	230	460	230	460
Speed @ Rated V	RPM	4,264				3,650		3,500		3,500		2,400	
Number of Poles		8											

RoHs Compliant Components;

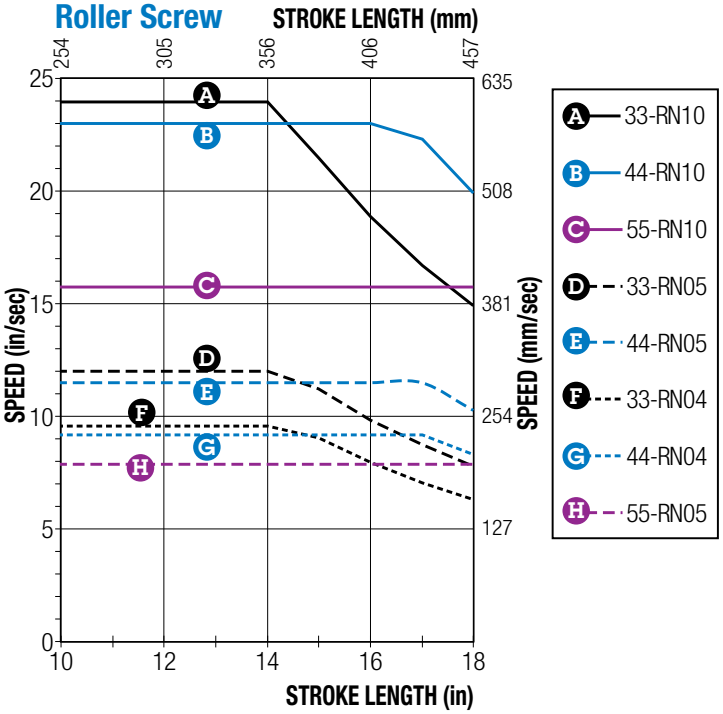
Performance data was validated using an aluminum face mount plate: IMA22/33 (8.25" x 7.0" x 0.7"); IMA44 (9.0" x 9.0" x 0.7"); IMA55 (9.0" x 9.0" x 1.0"); Ambient Temperature = 77°F *(25°C)*; Elevation < 3281' *(1,000 m)*; Drive specifications: Sinusoidal Commutation and PWM Voltage Source

CRITICAL SPEED

Ball Screw

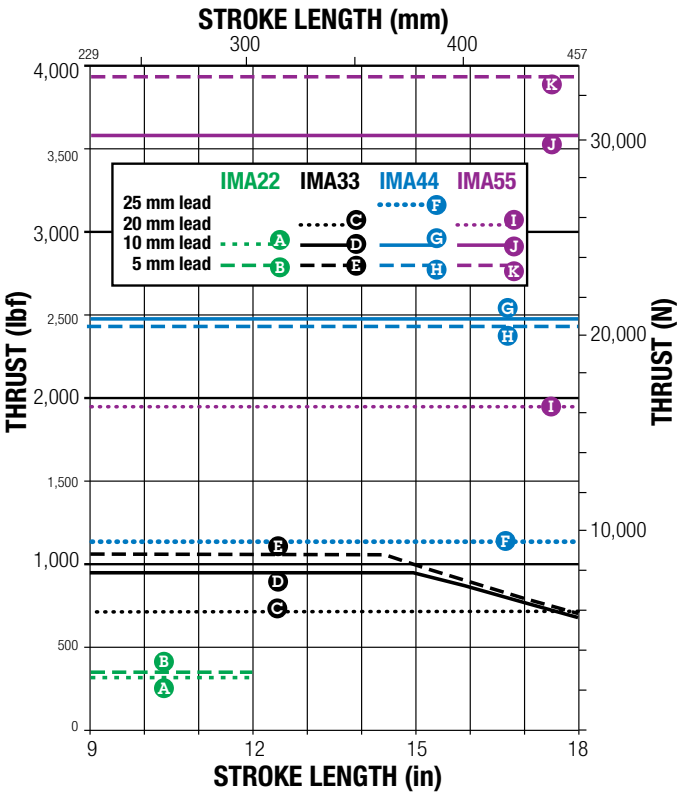


Roller Screw

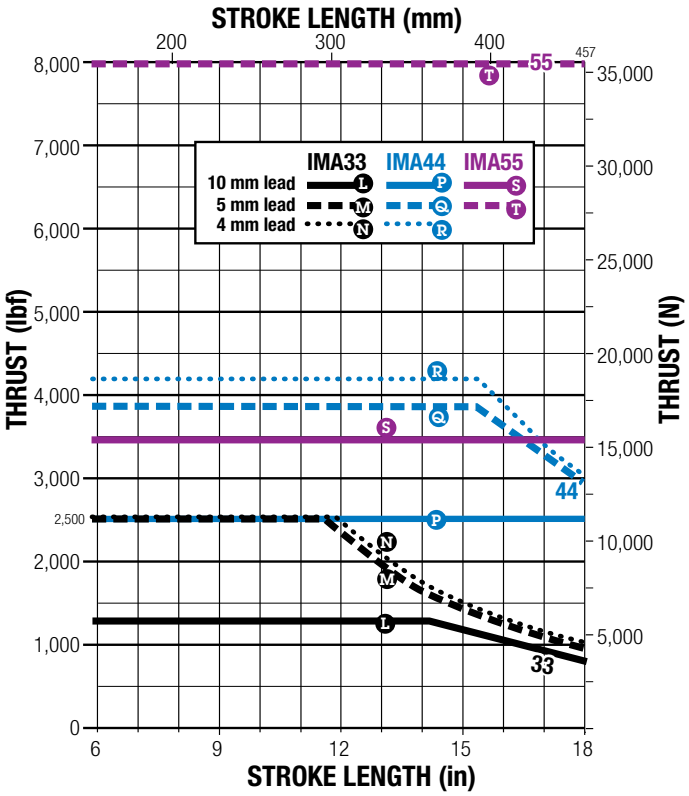


SCREW BUCKLING LOAD

Ball Screw



Roller Screw

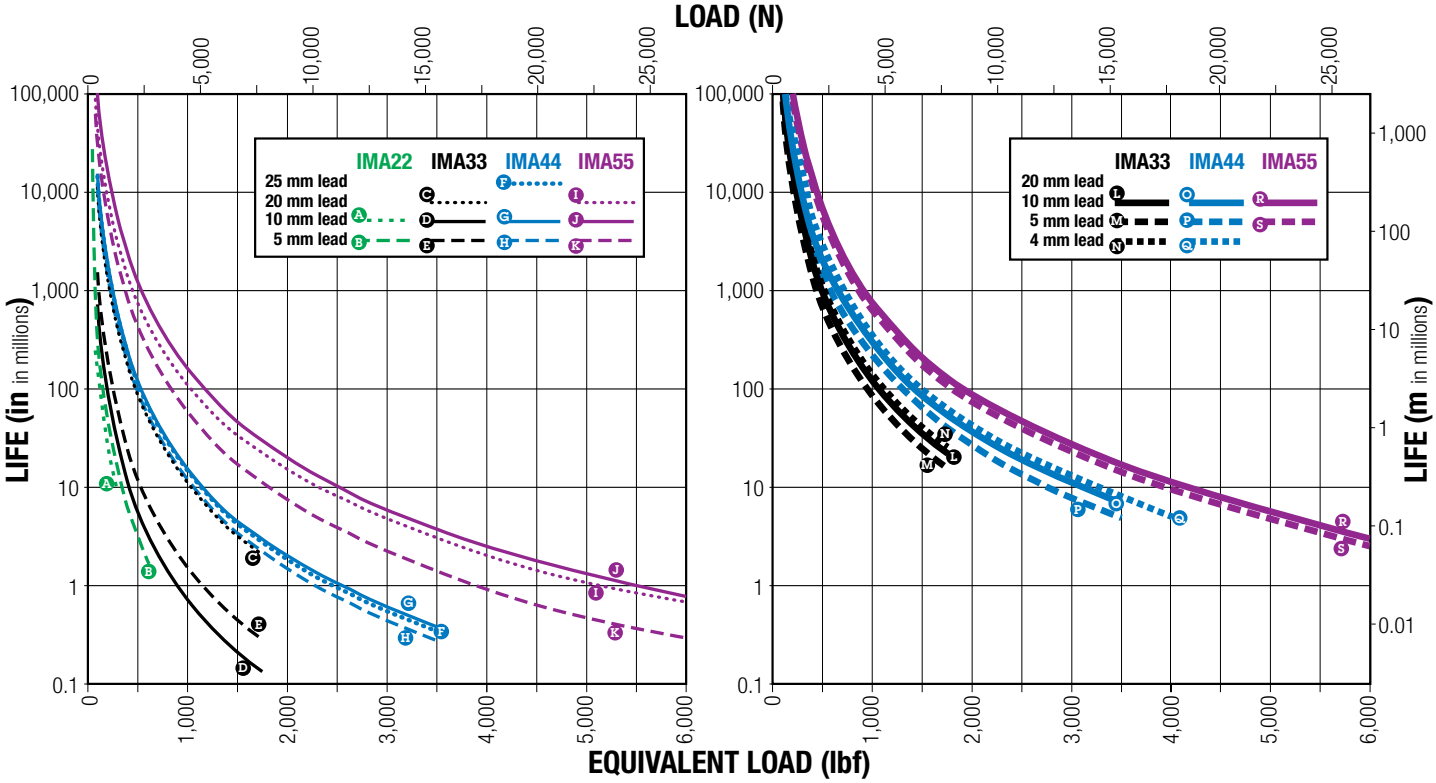


All curves represent properly lubricated and maintained actuators.

LIFE

BALL SCREW

ROLLER SCREW



All curves represent properly lubricated and maintained actuators.

NOTE: The L_{10} *expected life of a ball screw linear actuator is expressed as the linear travel distance that 90% of properly maintained ball screw manufactured are expected to meet or exceed. This is not a guarantee and this graph should be used for estimation purposes only.*

The underlying formula that defines this value is:

$$L_{10} = \left(\frac{C}{P_e}\right)^3 \bullet \ell \equiv$$

L_{10} *Travel life in millions of units (in or mm), where:*

C = Dynamic load rating (lbf) or *(N)*

P_e = Equivalent load (lbf) or *(N)*
If load is constant across all movements then:
actual load = equivalent load

ℓ = Screw lead (in/rev) *(mm/rev)*

*Use the "***Equivalent Load***" calculation below, when the load is not constant throughout the entire stroke. In cases where there is only minor variation in loading, use greatest load for life calculations.*

Where:

$$P_e = \sqrt[3]{\frac{L_1(P_1)^3 + L_2(P_2)^3 + L_3(P_3)^3 + L_n(P_n)^3}{L}}$$

P_e = Equivalent load (lbf) or *(N)*

P_n = Each increment at different load (lbf) or *(N)*

L = Total distanced traveled per cycle (extend + retract stroke) $[L = L_1 + L_2 + L_3 + L_n]$

L_n = Each increment of stroke at different load (in) or *(mm)*

RE-LUBRICATION RECOMMENDATION:

IMA33, IMA44, IMA55: IMA Lubrication requirements for electric actuators depend on the motion cycle (velocity, force, duty cycle), type of application, ambient temperature, environmental surrounding and various other factors.
For many general purpose applications, Tolomatic ball screw actuators are typically considered lubricated for life unless otherwise specified, such as those actuator models outfitted with a re-lubrication feature. For roller screw or ball screw actuators outfitted with a re-lubrication feature, Tolomatic recommends to re-lubricate the actuator at least once per year or every 1,000,000 cycles, whichever comes first, to maximize service life. For more demanding applications such as pressing, high frequency or other highly stressed applications, the re-lubrication interval for these actuators will vary and will need to be more frequent. In these demanding applications, it is recommended to execute at least 5 full stroke moves every 5,000 cycles of operation (or more frequent if possible) to re-distribute the grease within the actuator.

Re-lubricate with Tolomatic Grease #2744-9099 into the grease zerk located on the rod end.

	Quantity	
IMA33	2.5 + [0.010 x L (mm)]	g
IMA44	4.8 + [0.010 x L (mm)]	g
IMA55	6.6 + [0.019 x L (mm)]	g
IMA33	0.09 + [0.009 x L (in)]	oz
IMA44	0.17 + [0.009 x L (in)]	oz
IMA55	0.23 + [0.017 x L (in)]	oz

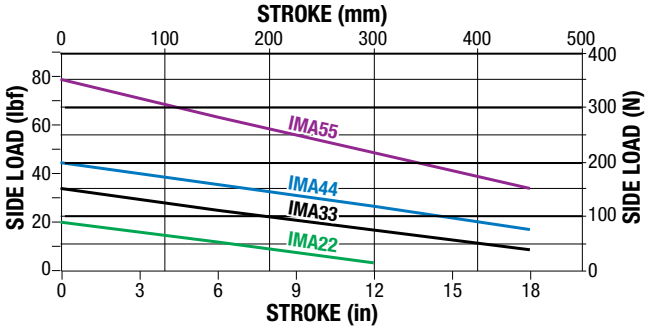
L=stroke length (mm or in)

In some applications oil may leak from the grease zerk. In contamination sensitive applications replace grease zerk with plug.

SIDE LOAD CONSIDERATIONS

The IMA integrated motor actuator is not meant to be used in applications where side loading occurs. 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.

IMA SIDE LOAD SPECIFICATIONS



BRAKE CONSIDERATIONS

In all vertical application an un-powered IMA will require a brake to maintain position.Tolomatic recommends that the nominal back drive force specification (listed on page IMA_8) be used for reference only. Back drive force is subject to change throughout the life of the actuator, due to mechanical break in, ambient temperature, and duty cycle variation.

See "P" dimension, pg. 11

A brake can be used with the actuator to keep it from backdriving, typically in vertical applications. A brake may be used for safety reasons or for energy savings allowing the actuator to hold position when un-powered. See page IMA_23 for ordering information.

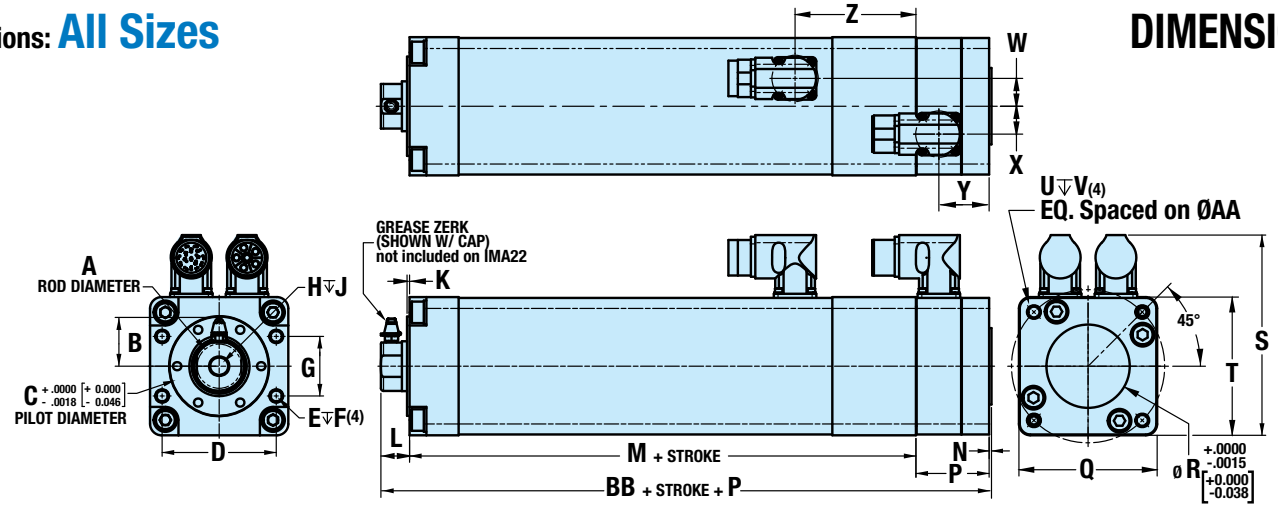
NOTE: The optional Spring-Applied / Electronically-Released Brake requires 24V power. Input current rating:
IMA22 - 0.35 Amps;
IMA33 - 0.43 Amps;
IMA44 - 0.67 Amps;
IMA55 - 0.66 Amps.

Brake Specifications:

	SERIES	IMA22	IMA33	IMA44	IMA55
ROTOR INERTIA	gm-cm²	19	73	239	214
	oz-in²	*0.104*	*0.400*	*1.307*	*1.171*
HOLDING TORQUE	N-m	1.6	4.0	9.0	16.4
	in-lb	*14*	*35*	*89*	*145*
CURRENT	Amp	0.35	0.43	0.67	0.66
ENGAGE TIME	mSec	75	40	25	15
DISENGAGE TIME	mSec	20	50	35	25
VOLTAGE	Vdc	24			

Dimensions: All Sizes

DIMENSIONS



	IMA22	IMA33	IMA44	IMA55
A	25.38	30.13	38.08	57.13
B	–	28.3	32.3	41.9
C	48.000	60.000	72.000	100.000
D	54.00	69.00	85.00	110.00
E	M6 x 1.0	M8 x 1.25	M8 x 1.25	M12 x 1.75
F	13.2	14.5	17.1	22.5
G	20.00	36.00	55.00	65.00
H	M8 x 1.25	M12 x 1.25	M20 x 1.5	M27 x 2.0
J	16.5	22.2	25.9	38.1
K	1.5	1.5	1.5	1.5
L	17.3	17.3	16.8	24.1
M	109.8	153.7	200.0	266.2
N	1.5	1.5	1.5	1.5
P1	41.2	44.2	44.2	48.2
P2	86.7	80.8	80.0	96.8
P3	–	50.3	50.3	54.3
P4	–	93.5	89.0	96.8
P5	41.2	44.2	44.2	59.9
P6	86.7	80.8	80.0	96.8
P7	58.7	59.2	59.2	67.5
P8	96.3	100.6	99.1	111.5
P9	65.1	59.2	63.6	80.5
P10	107.2	100.6	99.1	122.9
Q	63.5	83.6	110.5	143.6
R	40.000	50.000	75.000	100.000
S1	104.4	124.6	151.4	184.3
S2	102.0	122.2	149.0	181.9
S3	–	113.5	140.4	173.3
T	63.5	83.6	110.5	143.6
U	M6 x 1.0	M8 x 1.25	M8 x 1.25	M12 x 1.75
V	13.5	16.5	16.5	20.5
W	9.5	16.8	22.2	22.2
X	9.5	16.8	22.2	22.2
Y	27.3	30.4	30.4	34.4
Z	60.6	73.1	77.9	86.9
AA	70.00	92.00	127.00	155.00
BB	128.6	172.5	218.3	291.8

Dimensions in millimeters

	IMA22	IMA33	IMA44	IMA55
A	0.999	1.186	1.499	2.249
B	–	1.11	1.27	1.65
C	1.8898	2.3622	2.8346	3.937
D	2.126	2.717	3.346	4.331
E	–	–	–	–
F	0.52	0.57	0.68	0.89
G	0.787	1.417	2.165	2.559
H	–	–	–	–
J	0.65	0.88	1.02	1.50
K	0.06	0.06	0.06	0.06
L	0.68	0.68	0.66	0.95
M	4.32	6.05	7.88	10.48
N	0.06	0.06	0.06	0.06
P1	1.62	1.74	1.74	1.90
P2	3.41	3.18	3.15	3.81
P3	–	1.98	1.98	2.14
P4	–	3.68	3.50	3.81
P5	1.62	1.74	1.74	2.36
P6	3.41	3.18	3.15	3.81
P7	2.31	2.33	2.33	2.66
P8	3.79	3.96	3.90	4.39
P9	2.56	2.33	2.50	3.17
P10	4.22	3.96	3.90	4.84
Q	2.50	3.29	4.35	5.66
R	1.5748	1.9685	2.9528	3.937
S1	4.11	4.91	5.96	7.26
S2	4.02	4.81	5.87	7.16
S3	–	4.47	5.53	6.82
T	2.50	3.29	4.35	5.66
U	–	–	–	–
V	0.53	0.65	0.65	0.80
W	0.38	0.66	0.88	0.88
X	0.38	0.66	0.88	0.88
Y	1.08	1.20	1.20	1.35
Z	2.39	2.88	3.07	3.42
AA	2.756	3.622	5.000	6.102
BB	5.06	6.79	8.6	11.49

Dimensions in inches

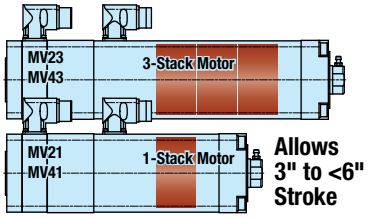
KEY FEATURES: 1-STACK & 3-STACK MOTORS

IMA22

SERIES		MV21/41	MV23/43
STROKE	mm	76.2 to 304.8	152.4 to 304.8
	in	3.0 to 12.0	6.0 to 12.0
PEAK THRUST	N	up to 1,446	up to 1,446
	lbf	up to 325	up to 325

IMA33

SERIES		MV21/41	MV23/43
STROKE	mm	76.2 to 457.2	152.4 to 457.2
	in	3.0 to 18.0	6.0 to 18.0
PEAK THRUST	N	up to 4,673	up to 11,100
	lbf	up to 1,050	up to 2,500



P1 =	Dx1 D1N	Digital Encoder
P2 =	Dx1 D1B	Digital Encoder with Brake
P3 =	DE2 D1N	*Digital Encoder (Nidec/Control Techniques NT)
P4 =	DE2 D1B	*Digital Encoder (Nidec/Control Techniques NT) w/ Brake
P5 =	Dx1 R1N	Resolver
P6 =	Dx1 R1B	Resolver with Brake

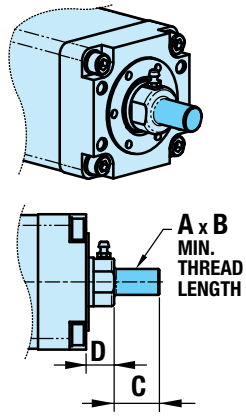
P7 =	Dx1 A1N DA2 A2N	SICK Hiperface SICK Hiperface DSL
P8 =	Dx1 A1B DA2 A2B	SICK Hiperface w/ Brake SICK Hiperface DSL w/ Brake
P9 =	Dx1 H4N	Heidenhain Endat 2.2
P10 =	Dx1 H4B	Heidenhain Endat 2.2 w/ Brake
S1 =	DT1, DE1 DL1, DS1	Tolomatic Standard, Nidec/Control Techniques FM, Lenze, Siemens

S2 =	DB1	Bosch MSK Motor Series
S3 =	DE2	Nidec/Control Techniques NT Series

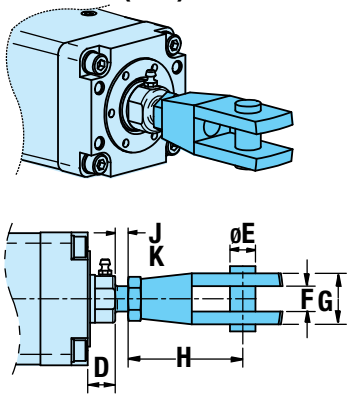
*Uses Box Mount Connectors (IP67 not available)
Not available as standard on IMA22

Dimensions: Rod End Options

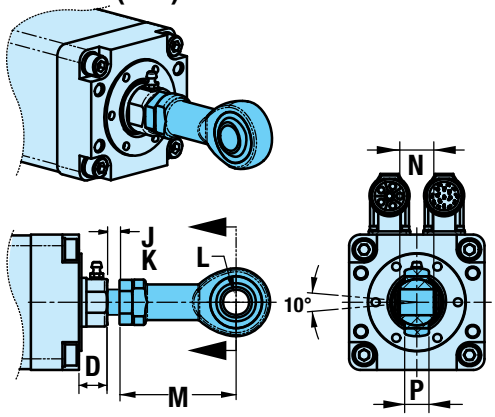
EXTERNAL THREADED ROD END (MET)



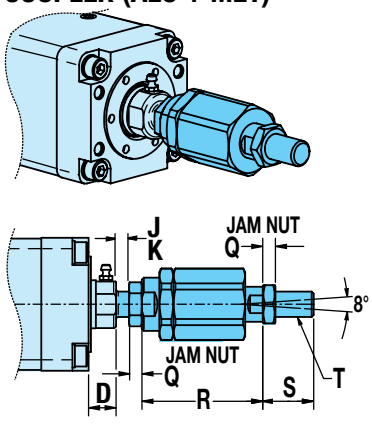
CLEVIS ROD END (RCL)



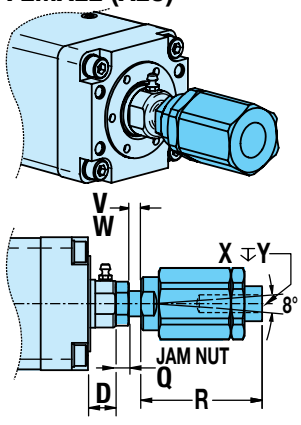
SPHERICAL ROD EYE (SRE)



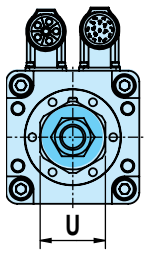
ALIGNMENT COUPLER (ALC + MET)



ALIGNMENT COUPLER FEMALE (ALC) *



*For IMA44 & IMA55 Only



	IMA22	IMA33	IMA44	IMA55
A	M10 x 1.25	M16 x 1.5	M20 x 1.5	M27 x 2.0
B	22.1	34.3	41.4	38.1
C	24.6	37.3	44.5	50.8
D	17.3	17.3	16.8	24.1
E	10.00	16.00	20.00	30.00
F	10.0	16.0	20.0	30.0
G	20.0	32.0	40.0	55.0
H	45.0	72.0	90.0	123.5
J	9.1	13.2	14.2	10.1
K	2.5	3.0	3.0	5.1
L	10.00	16.00	20.00	30.00
M	48.0	72.0	87.0	123.5
N	14.0	21.0	25.0	37.0
P	12.5	15.0	18.0	25.0
Q	5.0	8.0	10.0	13.5
R	53.0	76.0	82.0	93.0
S	20.0	32.0	40.0	54.0
T	M10 x 1.25	M16 x 1.5	M20 x 1.5	M27 x 2.0
U	30.0	41.0	42.0	55.0
V	–	–	11.0	11.0
W	–	–	4.1	2.4
X	–	–	M20 x 1.5	M27 x 1.75
Y	–	–	42.0	54.0

Dimensions in millimeters

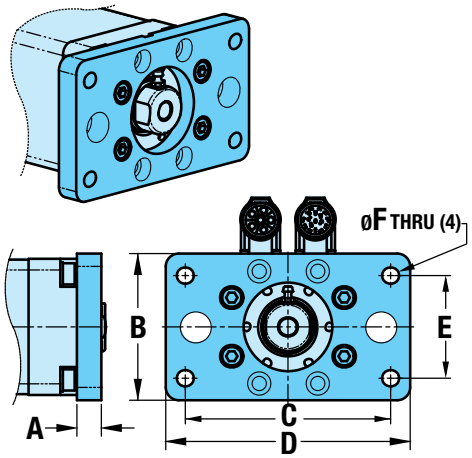
	IMA22	IMA33	IMA44	IMA55
A	–	–	–	–
B	0.87	1.35	1.63	1.80
C	0.97	1.47	1.75	2.00
D	0.68	0.68	0.66	0.95
E	0.394	0.630	0.787	1.181
F	0.39	0.63	0.79	1.18
G	0.79	1.26	1.57	2.17
H	1.77	2.83	3.54	4.86
J	0.36	0.52	0.56	0.40
K	0.10	0.12	0.12	0.20
L	0.394	0.630	0.787	1.181
M	1.89	2.84	3.43	4.86
N	0.55	0.83	0.98	1.46
P	0.49	0.59	0.71	0.94
Q	0.20	0.32	0.39	0.53
R	2.09	2.99	3.23	3.66
S	0.79	1.26	1.57	2.16
T	–	–	–	–
U	1.18	1.61	1.65	2.17
V	–	–	0.43	0.43
W	–	–	0.16	0.09
X	–	–	–	–
Y	–	–	1.65	2.13

Dimensions in inches

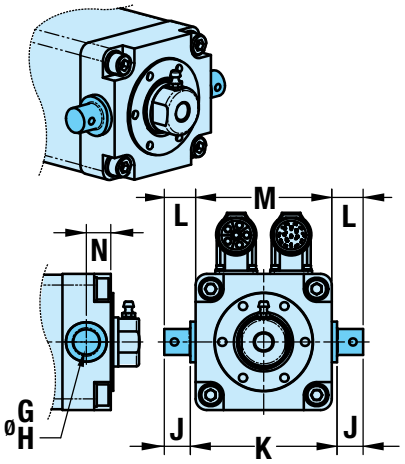
Dimensions: Mounting Options

DIMENSIONS

FRONT FLANGE MOUNT (FFG)



FRONT TRUNNION MOUNT (TRF)

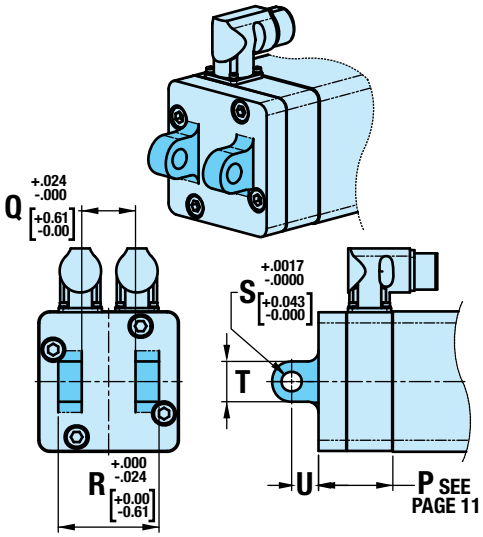


	IMA22	IMA33	IMA44	IMA55
A	11.2	15.0	16.0	17.8
B	67.3	87.0	110.5	150.0
C	100.00	126.00	150.00	230.00
D	117.3	150.0	170.0	260.0
E	50.00	63.00	75.00	115.00
F	8.7	12.3	14.7	16.7
G	11.99	15.98	19.99	24.99
H	11.96	15.95	19.96	24.97
J	8.6	16.0	20.1	24.9
K	68.0	90.0	123.0	160.0
L	10.9	19.2	26.3	33.1
M	63.5	83.6	110.5	143.6
N	15.0	15.0	21.0	28.0
Q	26.000 [1]	32.000	50.000	60.000
R	45.000 [2]	60.000	90.000	110.000 [4]
S	10.000 [3]	12.000	16.000	20.000 [5]
T	20.00	24.00	36.00	40.00
U	13.00	16.00	22.00	27.00
V	11.99	15.98	19.99	24.99
W	11.96	15.95	19.96	24.97
X	8.6	16.0	20.1	24.9
Y	68.0	90.0	123.0	160.0
Z	10.9	19.2	26.3	33.1
AA	63.5	83.6	110.5	143.6
BB	15.0	20.0	25.0	32.0

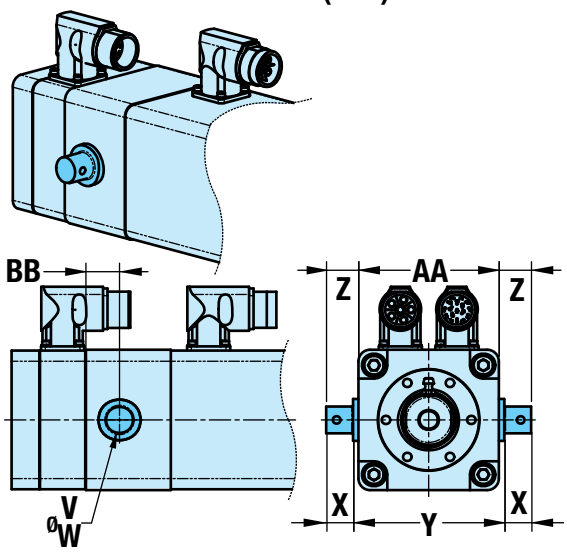
1 *+0.520mm/-0.000mm*
2 *+0.000mm/-0.620mm*
3 *+0.036mm/-0.000mm*
4 *+0.000mm/-0.870mm*
5 *+0.052mm/-0.000mm*

Dimensions in millimeters

REAR CLEVIS MOUNT (PCD)



REAR TRUNNION MOUNT (TRR)



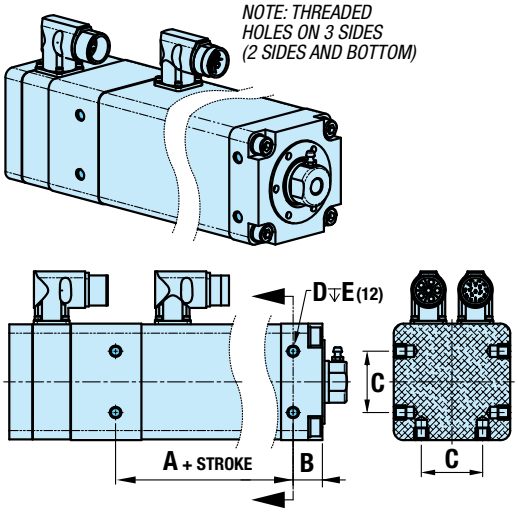
	IMA22	IMA33	IMA44	IMA55
A	0.44	0.59	0.63	0.70
B	2.65	3.43	4.35	5.91
C	3.937	4.961	5.906	9.055
D	4.62	5.91	6.69	10.24
E	1.969	2.480	2.953	4.528
F	0.34	0.48	0.58	0.66
G	0.472	0.629	0.787	0.984
H	0.471	0.628	0.786	0.983
J	0.34	0.63	0.79	0.98
K	2.68	3.54	4.84	6.30
L	0.43	0.76	1.04	1.30
M	2.50	3.29	4.35	5.66
N	0.59	0.59	0.83	1.10
Q	1.0236[1]	1.2598	1.9685	2.3622
R	1.7717[2]	2.3622	3.5433	4.3307[4]
S	0.3937[3]	0.4724	0.6299	0.7874[5]
T	0.787	0.945	1.417	1.575
U	0.512	0.630	0.866	1.063
V	0.472	0.629	0.787	0.984
W	0.471	0.628	0.786	0.983
X	0.34	0.63	0.79	0.98
Y	2.68	3.54	4.84	6.30
Z	0.43	0.76	1.04	1.30
AA	2.50	3.29	4.35	5.66
BB	0.59	0.79	0.98	1.26

1 +0.0205"/-0.0000"
2 +0.0000"/-0.0244"
3 +0.0014"/-0.0000"
4 +0.0000"/-0.0343"
5 +0.0020"/-0.0000"

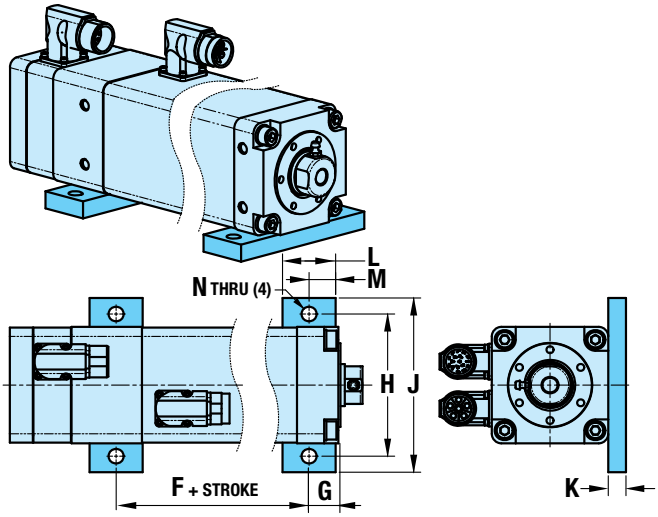
Dimensions in inches

Dimensions: Options

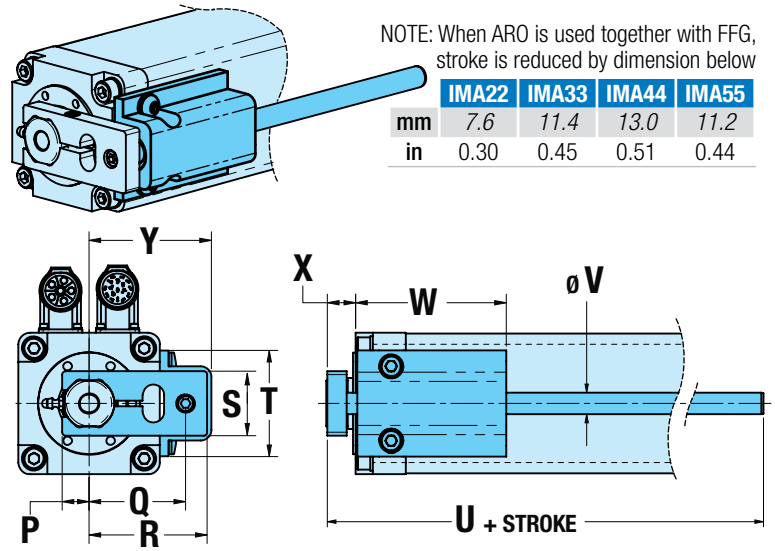
SIDE MOUNTING (MST)



MOUNTING PLATES (MP2)



ANTI ROTATE (ARO)



NOTE: When ARO is used together with FFG, stroke is reduced by dimension below

	IMA22	IMA33	IMA44	IMA55
mm	*7.6*	*11.4*	*13.0*	*11.2*
in	0.30	0.45	0.51	0.44

	IMA22	IMA33	IMA44	IMA55
A	67.8	100.7	143.0	191.2
B	20.0	21.0	25.0	30.0
C	34.00	44.00	50.00	85.00
D	M6 X 1.0	M8 x 1.25	M8 x 1.25	M12 x 1.75
E	13.1	14.5	17.1	22.5
F	67.8	100.7	143.0	191.2
G	20.0	21.0	25.0	30.0
H	80.00	102.00	130.00	170.00
J	100.0	125.0	155.0	200.0
K	11.0	12.7	12.7	20.0
L	30.0	38.1	38.1	50.0
M	15.0	19.1	19.1	0.5
N	8.7	10.7	10.7	15.1
P	12.7	15.9	19.8	31.8
Q	43.3	57.0	70.5	95.1
R	51.2	69.7	83.2	109.7
S	34.8	38.1	45.9	68.2
T	46.2	62.7	62.7	106.7
U	81.0	105.2	108.5	142.5
V	9.5	12.7	12.7	19.1
W	65.0	89.0	93.0	115.6
X	16.1	16.1	15.5	22.8
Y	54.9	72.3	85.7	118.3

Dimensions in millimeters

	IMA22	IMA33	IMA44	IMA55
A	2.67	3.97	5.63	7.53
B	0.79	0.83	0.98	1.18
C	1.339	1.732	1.969	3.346
D	–	–	–	–
E	0.52	0.57	0.68	0.89
F	2.67	3.97	5.63	7.53
G	0.79	0.83	0.98	1.18
H	3.150	4.016	5.118	6.693
J	3.94	4.92	6.10	7.87
K	0.43	0.50	0.50	0.79
L	1.18	1.50	1.50	1.97
M	0.59	0.75	0.75	0.98
N	0.34	0.42	0.42	0.59
P	0.50	0.63	0.78	1.25
Q	1.71	2.24	2.78	3.74
R	2.02	2.75	3.28	4.32
S	1.37	1.50	1.81	2.69
T	1.82	2.47	2.47	4.20
U	3.19	4.14	4.27	5.60
V	0.38	0.50	0.50	0.75
W	2.56	3.50	3.66	4.55
X	0.63	0.63	0.61	0.90
Y	2.16	2.85	3.38	4.66

Dimensions in inches

The IMA is matched to your drive/controller choice

The IMA has been successfully integrated with the following servo drive/controller and robot companies:

Controller/ Drive Manufacturers
- Aerotech BM*
- Allen Bradley MP & VP
- B&R 8LS*
- Baldor BSM
- Beckhoff AM8*
- Bosch Rexroth MSK
- Kollmorgen AKM*
- Lenze MCA
- Nidec/Control Techniques FM & NT
- Omron*
- Parker MPP*
- Schneider Electric SH*
- SEW CMP*
- Siemens 1F
- Stober*
- Others

Robot Manufacturers
- ABB*
- Fanuc*
- Kawasaki*
- Kuka*
- Motoman*
- Nachi*
- Others

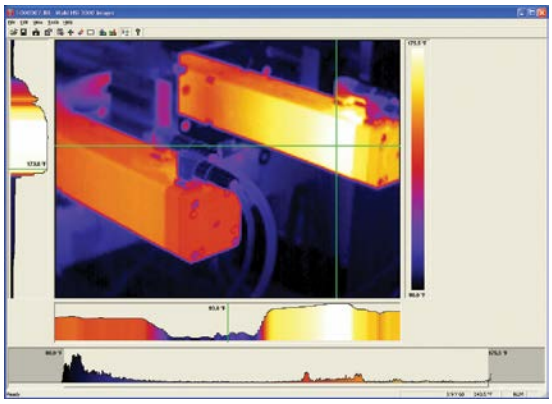
* Consult Tolomatic for lead time

Contact Tolomatic if your preferred servo drive/ controller or robot supplier is not listed above.

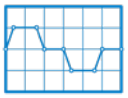
Enabled by Rockwell Automation Technologies Licensed Partner

For additional information regarding the integration of the IMA to an Allen Bradley/Rockwell drive see tech note linked below:
3600-4187_TN_IMA-AB-servo.pdf

The IMA is the most rigorously tested Tolomatic product yet



Cutting edge products like the IMA don't just fall into place. Over 20,000 hours of testing were required to prove the design that ships today. Thermal imaging, dynamic loading and other state-of-the-art techniques give us the confidence to stand behind our published performance data.



Selection Guidelines

1 ESTABLISH MOTION PROFILE

Using the application stroke length, desired cycle time and loads establish the motion profile details.

2 COMPARE OPERATING (PEAK) THRUST AND SPEED TO OPERATING REGION

Calculate the application required operating (peak) thrust and speed and compare to tables on pages IMA_6-7. The calculated thrust and speed must fall within the operating region of the actuator.

3 COMPARE SEVERE DUTY (CONTINUOUS) THRUST AND SPEED TO SEVERE DUTY REGION

Calculate the RMS thrust and speed required and compare to tables on pages IMA_6-7. The calculated thrust and speed must fall within the severe duty region. See complete instructions on page IMA_10 for help calculating continuous force.

$$T_{RMS} = \sqrt{\frac{\text{sum } (T_i^2 \times t_i)}{\text{sum } (t_i)}} \qquad V_{RMS} = \sqrt{\frac{\text{sum } (V_i^2 \times t_i)}{\text{sum } (t_i)}}$$

4 CONSIDER SCREW/NUT CHOICES

Choose roller nuts for its longer life (see Life graph on page IMA_9) and higher peak loads. Ball nuts are cost competitive and more efficient (see table on page IMA_6).

SCREW ACCURACY		
Roller Nut	± 0.0004"/ft.	*± 0.0102mm/300mm*
Ball Nut	± 0.002"/ft.	*± 0.051mm/300mm*

5 VERIFY CRITICAL SPEED OF THE SCREW

Verify that the application's peak linear velocity does not exceed the critical speed value for the size and lead of the screw selected.

6 VERIFY AXIAL BUCKLING STRENGTH OF THE SCREW (ROLLER SCREW)

Verify that the peak thrust does not exceed the critical buckling force for the size of the screw selected.

7 MOTOR WINDINGS & VOLTAGES

Choose motor windings optimized for 230 Vac and 460 Vac voltage busses. The 1 stack motor (MV21-230V & MV41-460V), available for the IMA22/33, allows strokes between 3 and 6" providing the thrust needed for many applications in a more compact, lighter weight package

8 CALCULATE LUBRICATION INTERVAL

See page IMA_10 for an overview and IMA Users Guide (#2700-4001) for complete instructions to calculate lubrication interval.

9 TEMPERATURE

The IMA is intended to operate in an environment with an ambient temperature between 50-104°F, (10-40°C). Performance should be de-rated if the ambient temperature is above 77°F (25°C). Contact the factory if the ambient temperature does not fit within this range. NOTE: Temperature of the actuator's body can approach 180°F (82°C) in aggressive applications. Adequate clearance to ensure actuator's ambient conditions do not rise drastically should be allowed.

10 BRAKE CONSIDERATIONS

In all vertical application an unpowered IMA will require a brake to maintain position. Tolomatic recommends that the nominal back drive force specification be used for reference only. Back drive force is subject to change throughout the life of the actuator, due to mechanical break in, ambient temperature, and duty cycle variation.

A brake can be used with the actuator to keep it from back-driving, typically in vertical applications. A brake may be used for safety reasons or for energy savings allowing the actuator to hold position when unpowered. See page IMA_19 for ordering information.

NOTE: The optional Spring-Applied / Electronically Released Brake requires 24V power. Input current rating:
IMA22 - 0.35Amps; IMA33 - 0.43 Amps;
IMA44 - 0.67 Amps; IMA55 - 0.66 Amps.

11 CHOOSE MOTOR CONNECTORS & FEEDBACK DEVICE

Connector choice and wiring emulates popular motor manufacturers for compatibility.
Current connector choices include:
- Bosch Rexroth MSK Series
- Control Techniques FM & NT
- Lenze MCA Series

Current feedback choices include:
- Incremental Encoder
- Absolute Encoder, Hiperface, Hiperface DSL, EnDat 2.2
- Resolver

Contact Tolomatic for additional motor connectors, feedback combinations and motor files for third party drives.

12 CONSIDER MOUNTING & ROD END OPTIONS

Examine mounting options dimensional drawings on page IMA_11-14. Standard mounting on the IMA are 4 tapped holes on the front rod end face of the actuator. The Side Mount option (MST) includes 12 tapped holes, 4 on each side and 4 on the bottom of the actuator. Other fixed mounting options are the Front Flange Mount (FFG) and Mounting Plates (MP2). Pivoting mount options are Front Trunnion (TRF), Rear Trunnion (TRR) and Rear Clevis Mount (PCD).

Rod End Options include: External Threaded Rod End (MET), Clevis Rod End (RCL), Spherical Rod Eye (SRE) and Alignment Coupler (ALC).

NOTE: Regardless of the mounting option chosen, care must be taken to ensure that the load is guided and in-line with the thrust rod's line of motion. Misalignment of the thrust rod's line of motion will cause degradation in the actuator's expected life.

13 CONSIDER ENVIRONMENTAL RATING AND ANTI-ROTATE OPTIONS

The environmental rating for a standard IMA is IP65, choose IP67 for protection against water and dust ingress. Choose the Anti-Rotate Option (ARO) if required. Call Tolomatic at 1-800-328-2174 for help in determining the best actuator for your application.

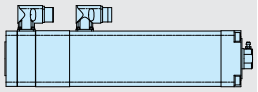
APPLICATION DATA WORKSHEET

Fill in known data. Not all information is required for all applications

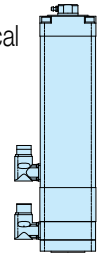
sizeit.tolomatic.com for fast, accurate actuator selection

ORIENTATION

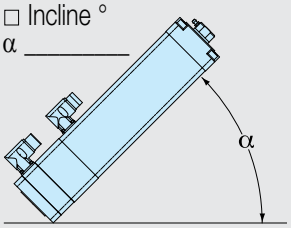
☐ Horizontal



☐ Vertical



☐ Incline °
α _____



☐ Load supported by actuator OR ☐ Load supported by other mechanism

MOVE PROFILE

EXTEND

Move Distance _____
☐ inch ☐ millimeters

Move Time _____sec

Max. Speed _____
☐ in/sec ☐ mm/sec

Dwell Time After Move _____sec

RETRACT

Move Distance _____
☐ inch ☐ millimeters

Move Time _____sec

Max. Speed _____
☐ in/sec ☐ mm/sec

Dwell Time After Move _____sec

NO. OF CYCLES _____

☐ per minute ☐ per hour

HOLD POSITION?

☐ Required
☐ Not Required
☐ After Move ☐ During Power Loss

STROKE LENGTH _____

order in mm ONLY

☐ millimeters (SM) (Metric)

⚠ NOTE: If load or force changes during cycle use the highest numbers for calculations

EXTEND	RETRACT
LOAD _____	**LOAD** _____
☐ lb (U.S. Standard) ☐ kg (Metric)	☐ lb (U.S. Standard) ☐ kg (Metric)
FORCE _____	**FORCE** _____
☐ lbf (U.S. Standard) ☐ N (Metric)	☐ lbf (U.S. Standard) ☐ N (Metric)

PRECISION

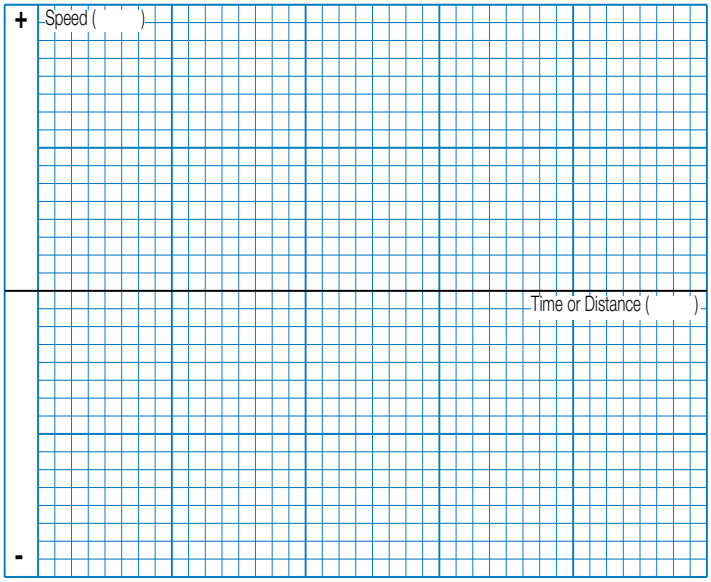
Repeatability _____
☐ inch ☐ millimeters

OPERATING ENVIRONMENT

Temperature, Contamination, Water, etc.

_____
_____
_____

MOTION PROFILE



Graph your most demanding cycle, including accel/decel, velocity and dwell times. You may also want to indicate load variations and I/O changes during the cycle. Label axes with proper scale and units.

CONTACT INFORMATION

Name, Phone, Email
Co. Name, Etc.

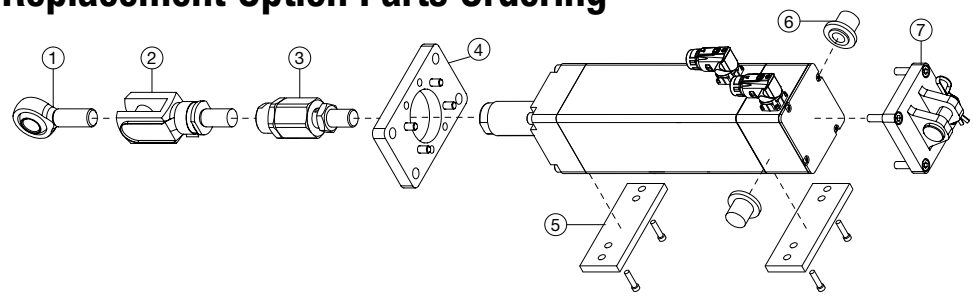
_____
_____
_____

STOP **USE THE TOLOMATIC SIZING AND SELECTION SOFTWARE AVAILABLE ON-LINE AT www.tolomatic.com OR... CALL TOLOMATIC AT 1-800-328-2174.** We will provide any assistance needed to determine the proper actuator for the job.

EMAIL help@tolomatic.com

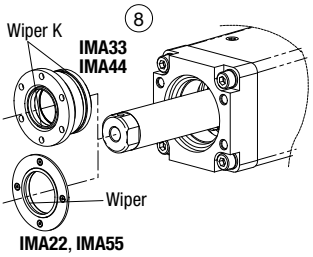
IMA - Integrated Motor Actuator

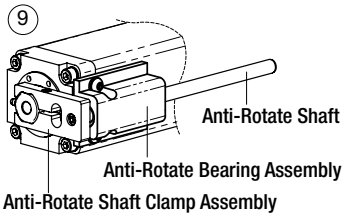
Replacement Option Parts Ordering



All parts are listed for REPLACEMENT ONLY. If not ordered on original unit the IMA may require additional tapped holes or replacement rod end. Contact Tolomatic.

	IMA22	IMA33	IMA44	IMA55
① Spherical Rod End Kit	2722-9014	2733-9014	2744-9014	2755-9014
② Clevis Rod End Kit	2722-9015	2733-9015	2744-9015	2755-9015
③ Alignment Coupler Kit	2124-1070	2132-1060	2150-1060	2164-1060
④ Front Flange Kit	2722-9018	2733-9018	2744-9018	2755-9018
⑤ Mounting Plate Kit	2722-9010	2733-9010	2744-9010	2755-9010
⑥ Trunnion (1 piece)	2124-1061	2132-1051	2150-1051	2164-1051
⑦ Clevis Mount Kit	2722-2045	2733-1045	2744-1045	2755-1045
⑧ Wiper Kit	2722-9146	2733-9146	2744-9146	2755-9146
⑧ Wiper Seal	2552-1132	2115-1030	2744-1003	2140-1030
⑨ Anti-Rotate Bearing Assy	2722-9075	2733-9075	2733-9075	2755-9075
⑨ Anti-Rotate Shaft Clamp Assy	2722-9074	2733-9074	2744-9074	2755-9074
⑨*Anti-Rotate Shaft	*See ordering method below			
Mobilith SHC220 Grease, 14oz (Ball Screw)	2744-1016			
Arcanol Load400 Grease, 14oz (Roller Screw)	2744-9099			





*Anti-Rotate Ordering method:

Replacement Anti-Rotate Shaft	Actuator/Size		Screw		Stroke (mm)						Optional Bearing Assembly and Clamp		
Example: NGSIMA□□	□N□□		SM□□□·□□□								BAC		
Example: NGSIMA33	BN05		SM760·200								BAC		

	5M, 230VAC	10M, 230VAC	5M, 460VAC	10M, 460VAC
Tolomatic Power Cable	2744-1488	2744-1221	2733-1611	2733-1221
Tolomatic Power Cable, Brake	2744-1489	2744-1222	2733-1612	2733-1222

	5M	10M
Tolomatic Feedback Cable, 12 pin, Resolver/Absolute	2733-1613	2733-1223
Tolomatic Feedback Cable, 17 pin, Incremental	2733-1614	2733-1224

IMA - Integrated Motor Actuator

Ordering

MODEL SELECTION (MUST BE IN THIS ORDER) — OPTIONS (IN ANY ORDER)

IMA 44 BN05 SM3044-8 MV23 DT1D1 N ALC MP2 IP67 CR5

MODEL

IMA	Integrated Motor Actuator

SIZE

22	22 Series Actuator
33	33 Series Actuator
44	44 Series Actuator
55	55 Series Actuator

NUT / SCREW

Screw/Nut combinations available

22	33	44	55	Description
BN05	**BN05**	**BN05**	**BN05**	Ball Nut, 5 mm lead
BN10	**BN10**	**BN10**	**BN10**	Ball Nut, 10 mm lead
—	**BN20**	—	**BN20**	Ball Nut, 20 mm lead
—	—	**BN25**	—	Ball Nut, 25 mm lead
—	**RN04**	**RN04**	—	Roller Nut, 4 mm lead
—	**RN05**	**RN05**	**RN05**	Roller Nut, 5 mm lead
—	**RN10**	**RN10**	**RN10**	Roller Nut, 10 mm lead

STROKE LENGTH

SM____. Stroke, (76.2 to 457.2) enter stroke length in millimeters

NOTE: Maximum stroke for IMA22 is 12" (304.8 mm)

MOTOR VOLTAGE

MV21*	230 Vac, Motor Voltage, 1 Stack Winding
MV41*	460 Vac, Motor Voltage, 1 Stack Winding
MV23	230 Vac, Motor Voltage, 3 Stack Winding
MV43	460 Vac, Motor Voltage, 3 Stack Winding

*NOTE: 22/33 size actuators only

BRAKE OPTION

N	NO Brake
B	Brake

ROD END OPTIONS

—	**Standard**, female, internally threaded rod end
MET	Male Externally Threaded Rod End
SRE	Spherical Eye Rod End
RCL	Clevis Rod End
ALC	Alignment Coupler*

*NOTE: ALC requires ARO (Anti-Rotate). For IMA22 & 33 the MET option is also required.

MOUNTING OPTIONS

—	Standard Face Mount
MP2	Mounting Plates - 2 req.
FFG	Front Flange Mount
TRF	Trunnion Mount, Front
TRR	Trunnion Mount, Rear
PCD	Clevis Mount, Rear
MST	Side Mount (tapped holes on 3 sides)

OTHER OPTIONS

IP67**	Ingress Protection Rating
ARO	Anti Rotate
LUB	Food Grade Grease

**IP67 is not available with DE2 (Control Techniques NT connectors)
Not available on any IMA22

CABLES

CR5	**Tolomatic standard** 5m flying lead cables, power and feedback
CR10	**Tolomatic standard** 10m flying lead cables, power and feedback

For custom cable lengths please contact Tolomatic. Lead times will vary.

NOTE: only use these cable options with DT1 motor connector, use cables from drive manufacturer for all others.

For IP rated cables contact Tolomatic

MOTOR SERIES CONNECTORS		FEEDBACK DEVICE	
Allen Bradley MP	**DA1**	**A1**	SICK Hiperface
Allen Bradley VP	**DA2**	**A2**	SICK Hiperface DSL
Bosch Rexroth MSK	**DB1**	**A1**	SICK Hiperface
Nidec/Cntl. Tech., FM	**DE1**	**A1**	SICK Hiperface
Nidec/Cntl. Tech., FM	**DE1**	**R1**	Resolver
Nidec/Cntl. Tech., FM	**DE1**	**D1**	Incremental
Nidec/Cntl. Tech., NT	**DE2**	**D1**	Incremental
Lenze MCS	**DL1**	**A1**	SICK Hiperface
Lenze MCS	**DL1**	**R1**	Resolver
Lenze MCS	**DL1**	**D1**	Incremental

MOTOR SERIES CONNECTORS		FEEDBACK DEVICE	
Siemens 1F	**DS1**	**H4**	Heidenhain Endat 2.2
Tolomatic Standard	**DT1**	**D1**	Incremental
Tolomatic Standard	**DT1**	**R1**	Resolver
Tolomatic Standard	**DT1**	**A1**	SICK Hiperface
Tolomatic Standard	**DT1**	**H1**	Heidenhain Endat 2.2
Motor Connector or Feedback Device Not Shown	**DX**	***See below	

*** Tolomatic can configure the IMA to connect to a drive using cables from other leading drive manufactures including but not limited to those listed below.

ABB	Fanuc	Motoman	SEW
Aerotech	Kawasaki	Nachi	Stober
B&R	Kollmorgen	Omron	Others
Baldor	Kuka	Parker	
Beckhoff	Lenze	Schneider Electric	

This integration includes customer specified motor thermal protection, feedback, connectors, flying lead/connectorized extension cables and motor alignment.

For more information about combinations not listed above, or other customizations, contact Tolomatic.

tolomatic.com/CAD
Download 3D CAD
Always use CAD solid model to determine critical dimensions

tolomatic.com/ask
Technical support before and after purchase

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YOUR MOTOR HERE®
Match your motor to compatible mounting plates with Tolomatic actuators.

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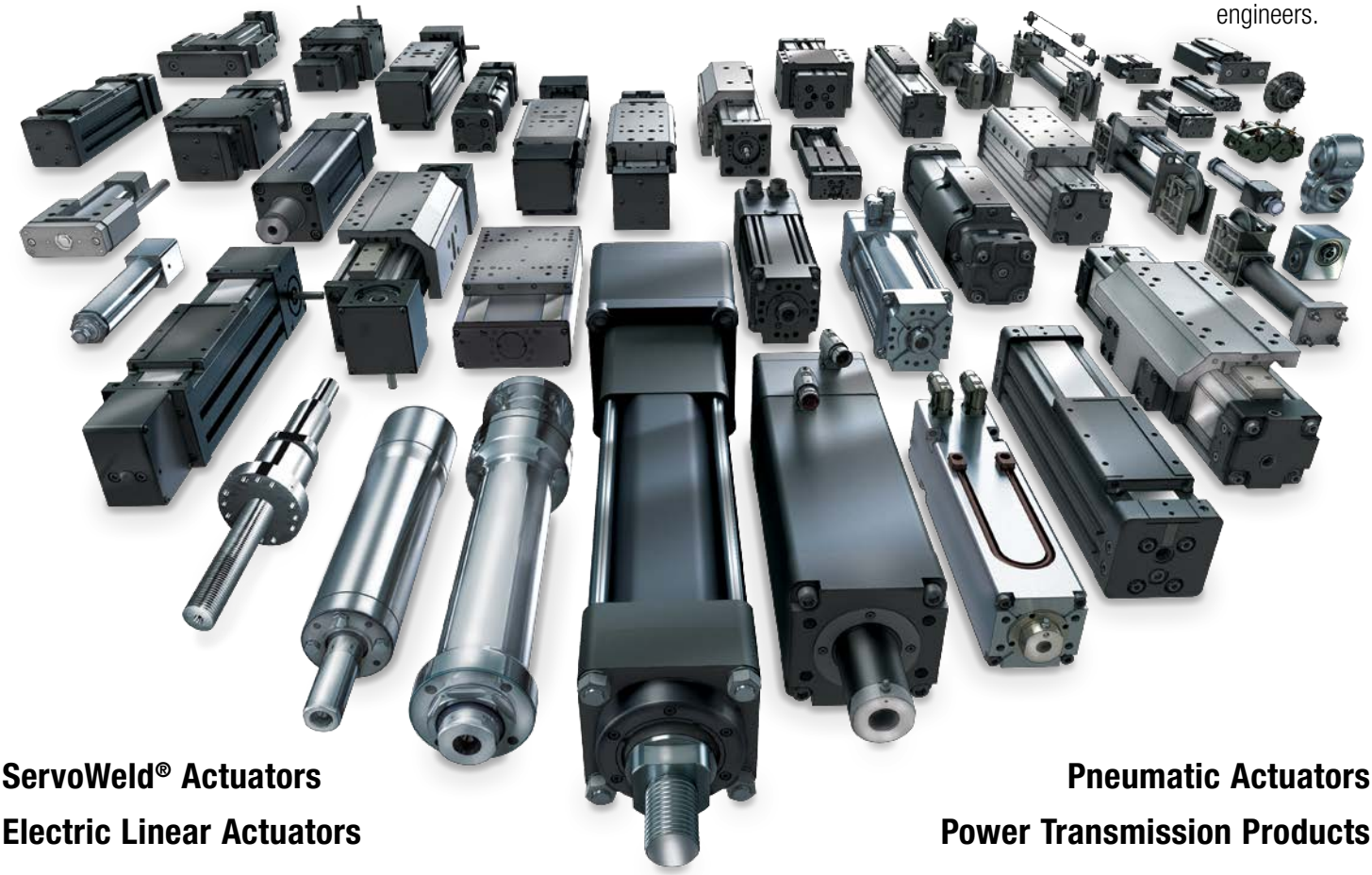
Get a question answered or request a virtual design consultation with one of our engineers.



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