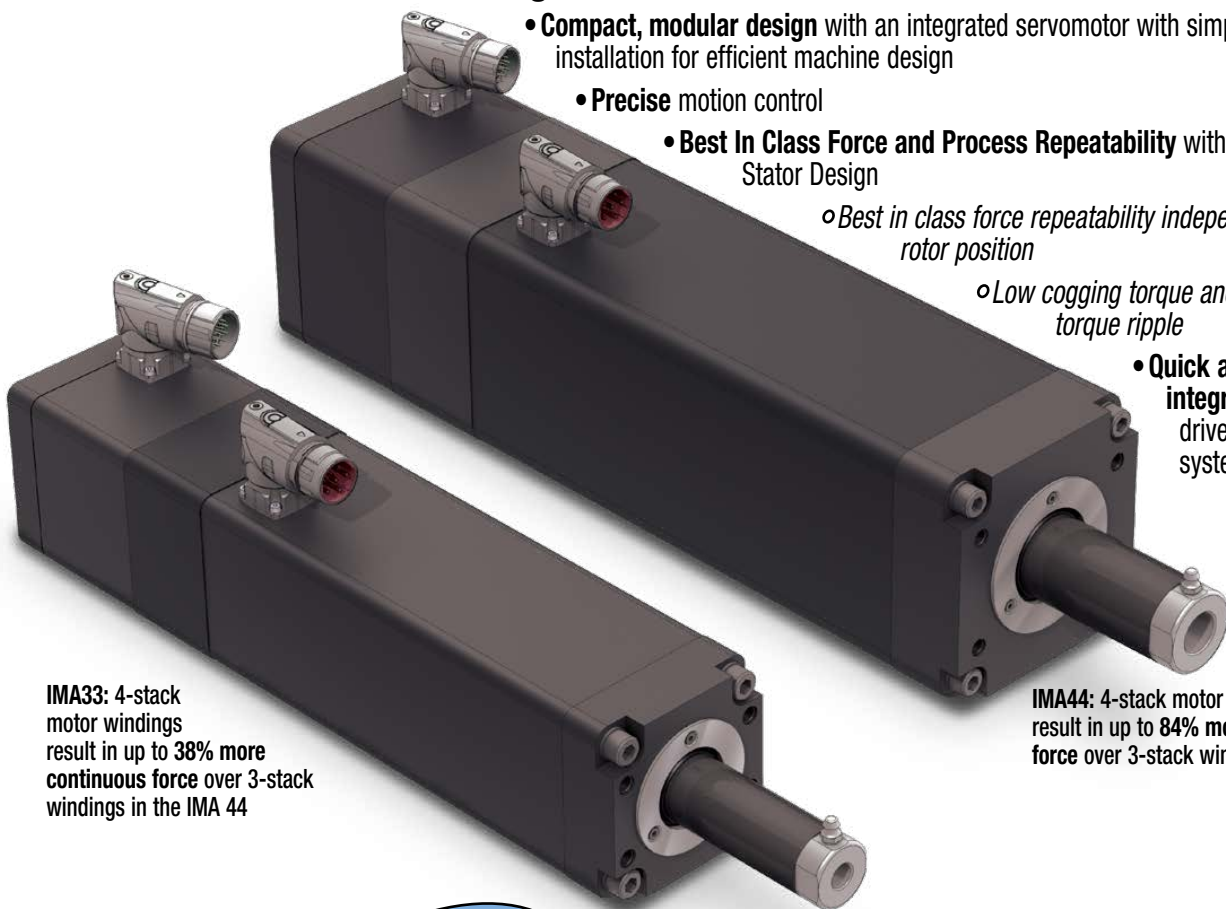


# IMA ACTUATORS WITH 2 & 4 STACK MOTORS FOR MAXIMUM CONTINUOUS FORCE

The IMA Integrated Servo Actuator product offering now includes 2 and 4-stack motors in addition to the standard 1 and 3-stack motor offerings.

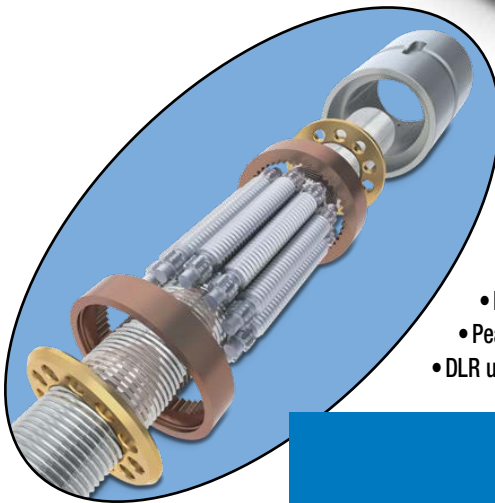
IMA Servo Integrated Actuator benefits include:

- **Compact, modular design** with an integrated servomotor with simple installation for efficient machine design
- **Precise motion control**
- **Best In Class Force and Process Repeatability** with Skewed Stator Design
  - *Best in class force repeatability independent of rotor position*
  - *Low cogging torque and reduced torque ripple*
- **Quick and easy integration** with drive and control systems



**IMA33:** 4-stack motor windings result in up to **38% more continuous force** over 3-stack windings in the IMA 44

**IMA44:** 4-stack motor windings result in up to **84% more continuous force** over 3-stack windings



**IMA Integrated Linear Servo Actuators with Tolomatic Roller Screws for Long, Reliable Life**

Pre-loaded roller screws benefits:

- Dynamic applications (high frequency)

**Increased peak force and DLR with XR Roller Screw design**

- Longer rollers for increased capability
- Peak force up to 5400 lbf (24kN)
- DLR up to 20,624 lbf (92 kN)

**LINEAR SOLUTIONS MADE EASY**

# IMA - Linear Actuator with Integrated 2-4 Stack Servo Motor

## Performance & Mechanical Specifications:

SERIES	STACK <sup>1</sup>	NUT/SCREW	SCREW LEAD		DYNAMIC LOAD RATING (1 MIL REVS)		CONT. THRUST		PEAK THRUST		MAX. VELOCITY		BASE INERTIA <sup>2</sup>	
			mm	in	kN	lbf	kN	lbf	kN	lbf	mm/sec	in/sec	kg-cm <sup>2</sup>	lb-in <sup>2</sup>
IMA33	4	BN05	05	0.197	8.7	1,960	4.5	1,000	4.5	1,000	350	13.8	5.8261	1.9909
		BN10	10	0.394	5.4	1,215	2.8	640	4.0	900	700	27.6	5.8261	1.9909
		BN20	20	0.788	11.4	2,560	1.4	320	3.0	675	1,333	52.5	5.9428	2.0308
		RN04	04	0.157	41.1	9,240	6.6	1,475	11.1	2,500	280	11.0	5.8310	1.9926
		RN05	05	0.197	45.4	10,210	5.3	1,180	11.1	2,500	350	13.8	5.8310	1.9926
		RN10	10	0.394	45.4	10,210	2.6	590	10.2	2,290	700	27.6	5.8310	1.9926
IMA44	2	BN05	05	0.197	18.0	4,035	5.5	1,245	8.9	2,000	292	11.5	7.9631	2.7211
		BN10	10	0.394	15.0	3,370	2.8	625	7.8	1,750	583	23.0	7.9631	2.7211
		BN25	25	0.985	11.3	2,540	1.1	250	3.1	700	1,333	52.5	7.9631	2.7211
		RN04	04	0.157	56.5	12,705	6.4	1,440	17.8	4,000	233	9.2	7.8865	2.6949
		RN05	05	0.197	56.5	12,705	5.1	1,150	14.7	3,300	292	11.5	7.8865	2.6949
		RN10	10	0.394	56.5	12,705	2.6	575	7.7	1,725	583	23.0	7.8865	2.6949
	4	RN05XR	05	0.197	56.5	12,705	7.3	1,650	17.8	4,000	292	11.5	9.6021	3.2812
		BN05	05	0.197	18.0	4,035	8.9	2,000	8.9	2,000	333	13.1	11.8405	4.0461
		BN10	10	0.394	15.0	3,370	7.3	1,645	7.8	1,750	667	26.2	11.8405	4.0461
		BN25	25	0.985	11.3	2,540	2.9	660	3.1	700	1,333	52.5	11.8405	4.0461
		RN04	04	0.157	56.5	12,705	16.9	3,810	17.8	4,000	267	10.5	11.7638	4.0199
		RN05	05	0.197	56.5	12,705	13.6	3,045	14.7	3,300	333	13.1	11.7638	4.0199
		RN10	10	0.394	56.5	12,705	6.8	1,525	17.8	4,000	667	26.2	11.7638	4.0199
		RN05XR	05	0.197	56.5	12,705	13.6	3,045	17.8	4,000	333	13.1	11.7638	4.0199

## Motor Specifications:

		IMA33		IMA44			
WINDING/MOTOR VOLTAGE		MV24	MV44	MV22	MV42	MV24	MV44
TORQUE CONSTANT (K <sub>t</sub> )	N-m/A Peak	0.64	1.28	0.52	0.90	0.64	1.29
	in-lb/A Peak	5.7	11.4	4.6	8.0	5.7	11.4
VOLTAGE CONSTANT (K <sub>e</sub> )	V/Krpm Peak	78	155	66	107	81	162
CONTINUOUS STALL TORQUE	N-m	5.6	5.6	5.5	4.9	14.6	14.6
	in-lb	50.0	50.0	48.8	43.0	129.0	129.0
CONTINUOUS STALL CURRENT	A <sub>RMS</sub>	7.2	3.6	7.5	3.8	16.0	8.0
PEAK TORQUE	N-m	21.9	21.9	16.5	14.6	43.7	43.7
	in-lb	194.0	194.0	146.0	129.0	387.0	387.0
PEAK CURRENT	A <sub>RMS</sub>	29.0	14.5	22.5	11.4	48.0	24.0
RESISTANCE	Ohms	1.14	4.56	0.90	4.20	0.35	1.59
INDUCTANCE	mH	2.42	9.82	3.65	15.70	2.04	8.90
BUS VOLTAGE	V <sub>RMS</sub>	230	460	230	460	230	460
SPEED @ RATED V	RPM	4,200	4,200	3,500	3,500	4,000	4,000
NO. OF POLES		8					



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

<sup>1</sup>2 = 2 Stack winding MV22 or MV42  
<sup>3</sup>3 = 3 Stack winding MV23 or MV43  
<sup>4</sup>4 = 4 Stack winding MV24 or MV44

<sup>2</sup>Value given is for a zero stroke actuator  
<sup>†</sup>To be determined, visit [www.tolomatic.com](http://www.tolomatic.com) for up-to-date information

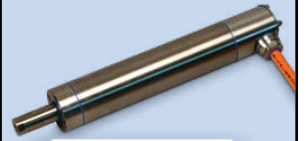
<sup>3</sup>In all vertical application an unpowered IMA will require a brake to maintain position. Tolomatic recommends that the nominal back drive force specification be used for reference only. Back drive force is subject to change throughout the life of the actuator, due to mechanical break in, ambient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

# IMA - Linear Actuator with Integrated 1-4 Stack Servo Motor

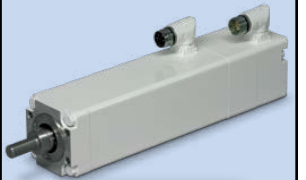
## ENDURANCE TECHNOLOGY<sup>SM</sup> ...MAXIMUM DURABILITY

A Tolomatic Design Principle

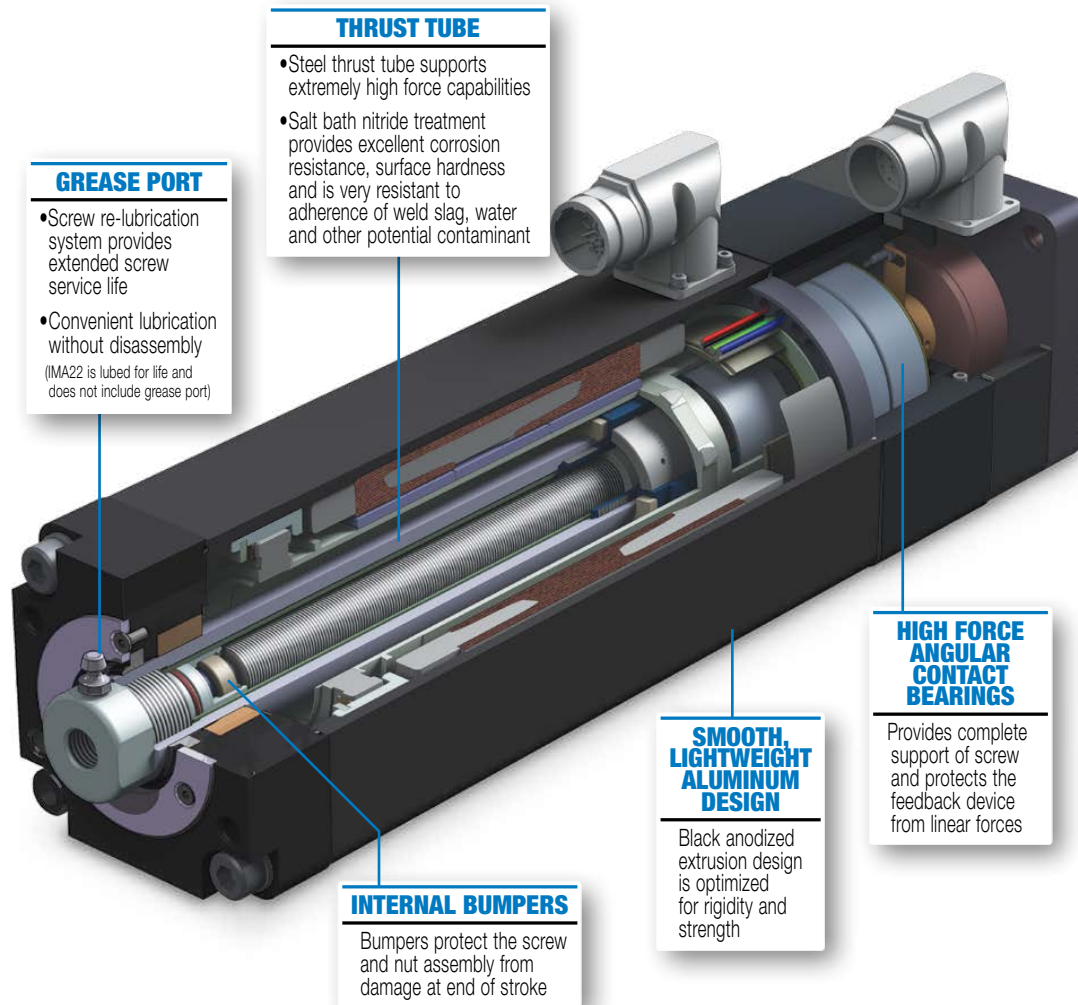
**EXTENDED CATALOG OPTIONS:**  
Proven designs Tolomatic has delivered to customers. Lead time will vary from standard delivery time. Consult Tolomatic.



**STAINLESS STEEL DESIGN**



**FOOD GRADE PAINT**



### 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)

### 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

### HIGH FORCE ANGULAR CONTACT BEARINGS

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

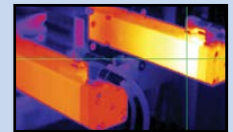
### SMOOTH, LIGHTWEIGHT ALUMINUM DESIGN

Black anodized extrusion design is optimized for rigidity and strength

### INTERNAL BUMPERS

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

## OPTIONS TEMPERATURE



- On / Off Switch
- PT1000 Sensor

## MODIFICATIONS



- Single Connector



- Hex Rod



- Manual Override



- Mounting Flange
- Custom Paints / Coatings

## OPTIONS

### MOUNTING

- Front Face - Standard
- Side Mounting Holes, 2 sides & bottom (no photo)



- Mounting Plates



- Rear Clevis



- Front Flange



- Trunnion, Rear or Front

### 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)

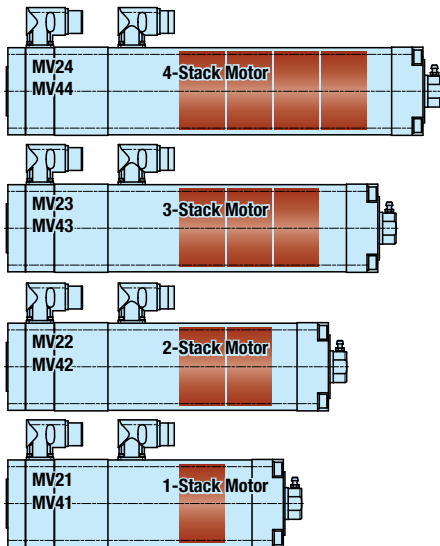
### ARO

- Anti-Rotate



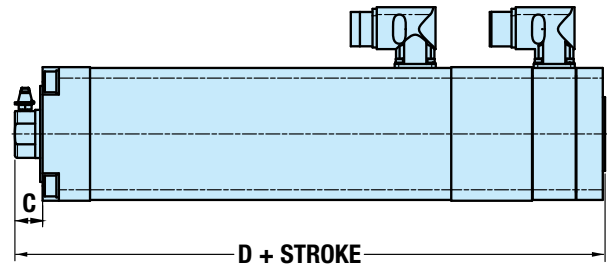
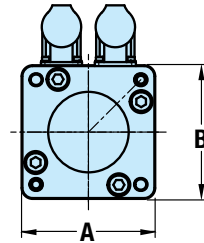


# IMA - Linear Actuator with Integrated 1-4 Stack Servo Motor



- 4 – STACK (MINIMUM 7.5" STROKE)
- 3 – STACK (MINIMUM 6" STROKE)
- 2 – STACK (MINIMUM 4.5" STROKE)
- 1 – STACK (MINIMUM 3" STROKE)

## Dimensions



	IMA33	IMA44
A	83.6	110.5
B	83.6	110.5
C	17.3	16.8
D 1 Stack	155.5	NA
D 2 Stack	NA	243.8
D 3 Stack	231.7	281.9
D 4 Stack	269.8	320.0
D 1 Stack w/ Brake	196.9	NA
D 2 Stack w/ Brake	NA	279.3
D 3 Stack w/ Brake	273.1	317.4
*D 4 Stack w/ Brake	311.2	355.5

Dimensions in millimeters

\*Overall length reduction is possible depending on application, contact Tolomatic

	IMA33	IMA44
A	3.29	4.35
B	3.29	4.35
C	0.68	0.66
D 1 Stack	6.12	NA
D 2 Stack	NA	9.60
D 3 Stack	9.12	11.10
D 4 Stack	10.62	12.60
D 1 Stack w/ Brake	7.75	NA
D 2 Stack w/ Brake	NA	11.00
D 3 Stack w/ Brake	10.75	12.50
*D 4 Stack w/ Brake	12.15	13.90

Dimensions in inches

NA = Not Available

## The Tolomatic Difference Expect More From the Industry Leader:



### INNOVATIVE PRODUCTS

Unique linear actuator solutions with Endurance Technology<sup>SM</sup> to solve your challenging application requirements.



### FAST DELIVERY

The fastest delivery of catalog products... Built-to-order with configurable stroke lengths and flexible mounting options.



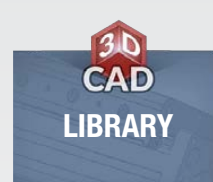
### ACTUATOR SIZING

Online sizing that is easy to use, accurate and always up-to-date. Find a Tolomatic electric actuator to meet your requirements.



### YOUR MOTOR HERE

Match your motor with compatible mounting plates that ship with any Tolomatic electric actuator.



### CAD LIBRARY

Easy to access CAD files available in the most popular formats to place directly into your assembly.



### TECHNICAL SUPPORT

Extensive motion control knowledge: Expect prompt, courteous replies to any application and product questions from Tolomatic's industry experts.

# Tolomatic<sup>TM</sup>

EXCELLENCE IN MOTION

COMPANY WITH  
QUALITY SYSTEM  
CERTIFIED BY DNV GL  
= ISO 9001 =  
Certified site: Hamel, MN

### USA - Headquarters

#### Tolomatic Inc.

3800 County Road 116  
Hamel, MN 55340, USA  
**Phone:** (763) 478-8000  
Toll-Free: **1-800-328-2174**  
sales@tolomatic.com  
[www.tolomatic.com](http://www.tolomatic.com)

### MEXICO

#### Centro de Servicio

Parque Tecnológico Innovación  
Int. 23, Lateral Estatal 431,  
Santiago de Querétaro,  
El Marqués, México, C.P. 76246  
**Phone:** +1 (763) 478-8000  
help@tolomatic.com

### EUROPE

#### Tolomatic Europe GmbH

Elisabethenstr. 20  
65428 Rüsselsheim  
Germany  
**Phone:** +49 6142 17604-0  
help@tolomatic.eu

### CHINA

#### Tolomatic Automation Products (Suzhou) Co. Ltd.

No. 60 Chuangye Street, Building 2  
Huqiu District, SND Suzhou  
Jiangsu 215011 - P.R. China  
**Phone:** +86 (512) 6750-8506  
TolomaticChina@tolomatic.com

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