

## SmartActuator Series

# ICR RP (Reverse Parallel)

INTEGRATED CONTROL ROD-STYLE ACTUATOR

ENDURANCE TECHNOLOGY<sup>SM</sup>

## INSERT TO THE ICR BASIC & PLUS FEATURING RP MOTOR MOUNTING



### • MOTOR ORIENTATION •

YOU CAN CHOOSE



- **IMI** In-line option directly couples the driving shaft and is a one-piece housing construction for optimum alignment and support of the motor



- **RP** Reverse-parallel option minimizes the overall length and offers 1:1 or 2:1 belt ratio

### OPTIONS MOUNTING



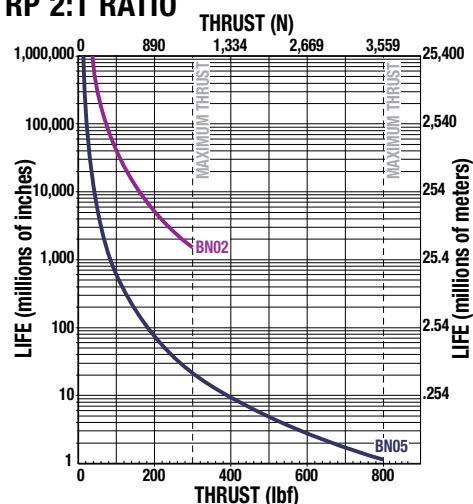
- Rear Clevis

## MECHANICAL SPECIFICATIONS

		Unit	BN02	BN05	
Screw Type			Ball	Ball	
Screw Pitch		tpi	2	5	
Maximum Thrust	Peak	RP 1:1	lbf	142.5	360
			<i>N</i>	<i>633.9</i>	<i>1601</i>
		RP 2:1	lbf	285	720
			<i>N</i>	<i>1267.7</i>	<i>3202.7</i>
	Continuous	RP 1:1	lbf	76	193.5
			<i>N</i>	<i>338</i>	<i>860.7</i>
		RP 2:1	lbf	152	387
			<i>N</i>	<i>676</i>	<i>1721.5</i>
Max Stroke	in	24	24		
	<i>mm</i>	<i>609.6</i>	<i>609.6</i>		
Base Weight RP, 1:1	lb	11.79	10.25		
	<i>kg</i>	<i>5.35</i>	<i>4.65</i>		
Base Weight RP, 2:1	lb	11.99	10.45		
	<i>kg</i>	<i>5.44</i>	<i>4.74</i>		
Weight/unit of stroke	lb/in	0.345	0.313		
	<i>kg/mm</i>	<i>0.0062</i>	<i>0.0056</i>		

## BALL SCREW LIFE

## RP 2:1 RATIO



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 screws 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:

Travel life in millions of inches, where:

$$L_{10} = \left( \frac{C}{F} \right)^3 =$$

C = Dynamic load rating (lbf)  
F = Cubic mean applied load (lbf)

All curves represent properly lubricated and maintained actuators.

## POWER SUPPLY SIZING GUIDELINES

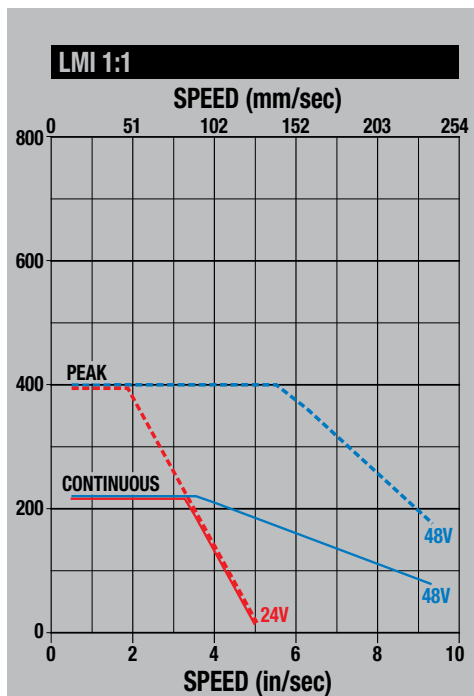
The ICR Basic and Plus actuators are intended to run off an isolated DC power source. The power supply that is required will depend on the application. A 48V supply will allow the actuator to operate at maximum speed. A 24V supply will result in approximately half the rated velocity. Input current will depend on the actuator power needed in the application. If operating more than one actuator on the same power supply add the required power supply rating for each actuator. Call Tolomatic for help in determining power supply requirements for your application.

BN05 - 2:1 RATIO (Required Power - Watts)									
SPEED (in/sec)	THRUST (lbf)								
	100	200	300	400	500	600	700	800	
0.5	53	70	93	124	163	209	263	324	13
1.0	67	95	130	173	222	279	343	413	25
1.5	82	122	168	220	280	345	418	496	38
2.0	99	150	206	268	336	409	488	573	51
2.5	117	178	244	315	390	470	555	644	64
3.0	137	208	283	362	443	528	616	708	76
3.5	158	239	323	408	495	584			89
4.0	180	271	363	454					102
4.5	204	305	403	500					114
4.75	216	322	424						121
	445	890	1334	1779	2224	2669	3114	3559	
	THRUST (N)								SPEED (mm/sec)

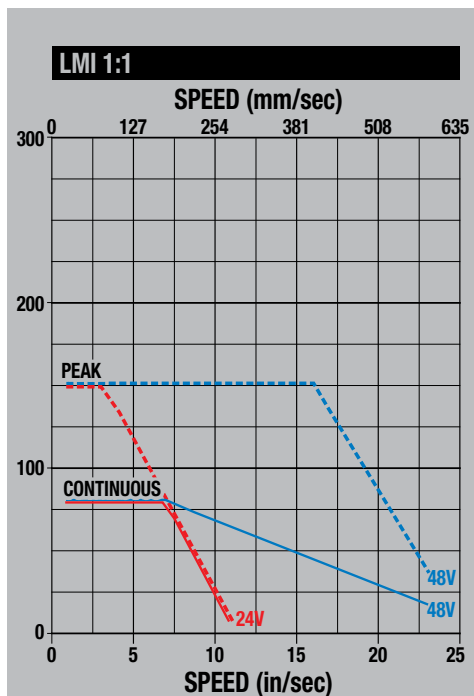
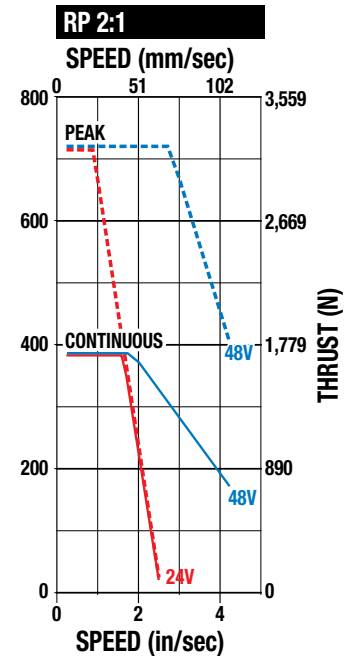
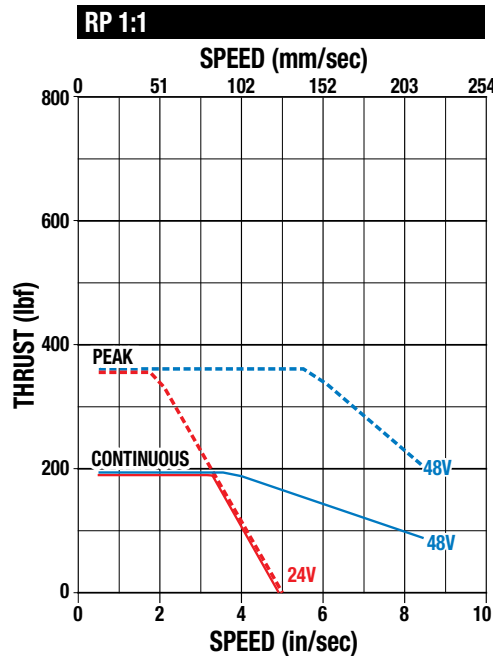
BN02 - 2:1 RATIO (Required Power - Watts)									
SPEED (in/sec)	THRUST (lbf)								
	40	80	120	160	200	240	280	300	
1	28	49	73	100	129	161	196	214	25
2	38	69	103	139	177	218	262	285	51
3	50	91	134	179	226	276	329	356	76
4	64	114	166	221	277	335	396	427	102
5	81	140	201	264	329	395	464	498	127
6	99	167	237	309	381	456	532	570	152
7	119	196	275	355	436	517	600	642	178
8	141	228	315	403	491	580	670		203
9	165	261	356	452	548				229
10	191	295	399						254
11	219	332	444						279
12	249								305
	178	356	534	712	890	1068	1246	1334	
	THRUST (N)								SPEED (mm/sec)

Use these tables to help determine the proper power source rating for an application. NOTE: green numbers indicate power supply required in Watts for the given speed and thrust indicated at outside margins.

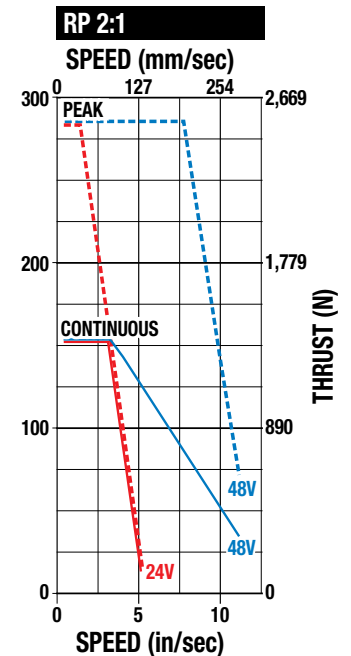
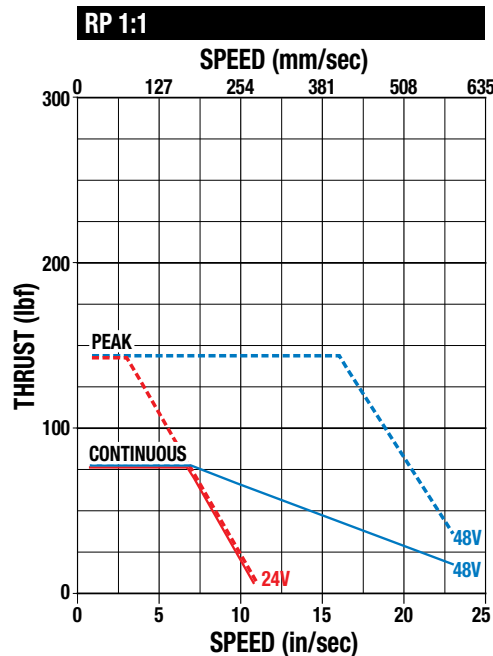
## SPEED vs THRUST



### BN05



### BN02



**LEGEND**

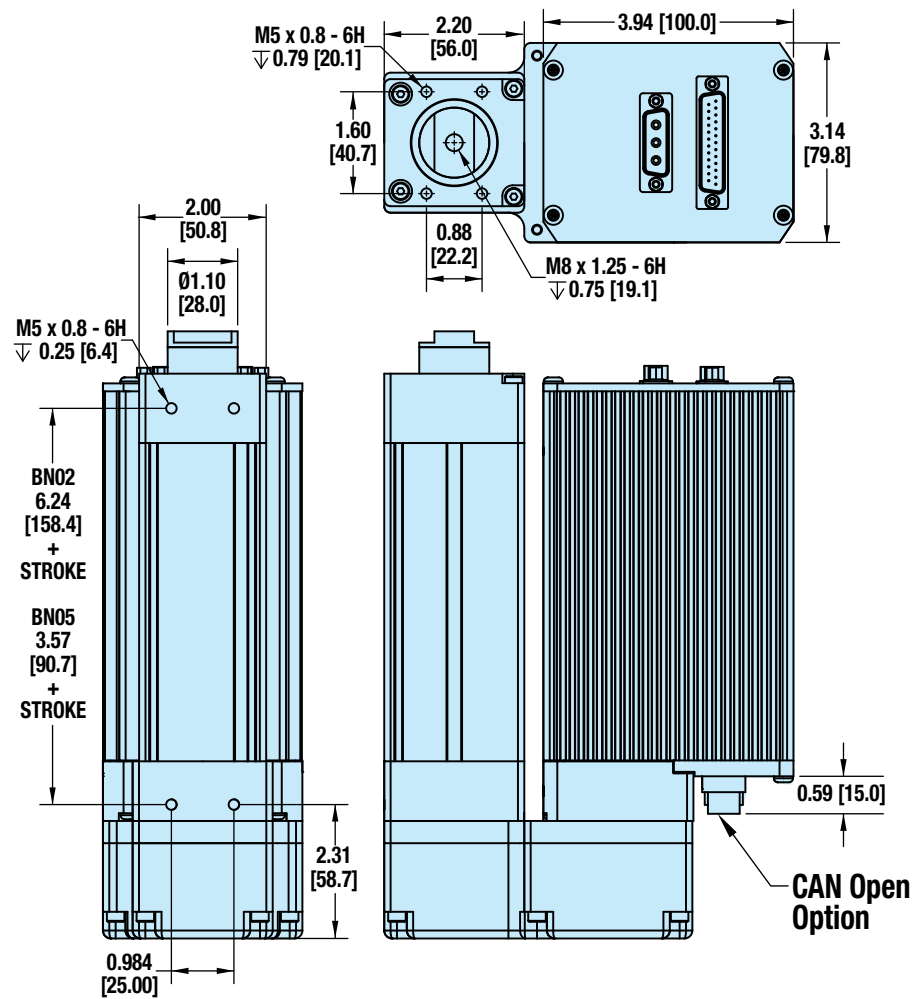
24V	---	---
48V	---	---
CONTINUOUS	---	---
PEAK	---	---

### SIDE LOAD CONSIDERATIONS

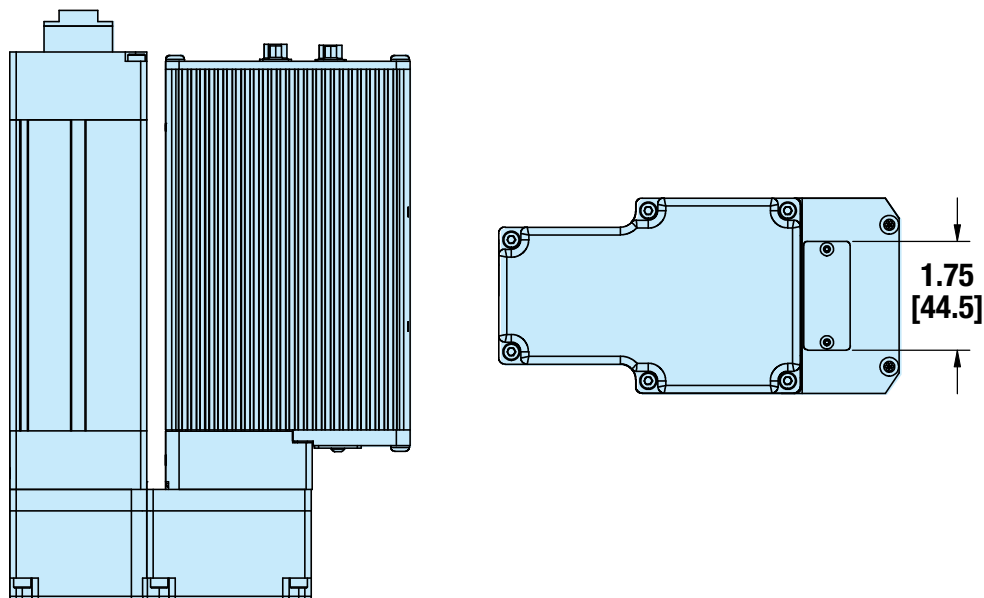
Rod screw actuators are designed to push guided and supported loads and are not designed for applications that require significant side loading. Contact Tolomatic for details regarding side loading capabilities.

## ACTUATOR DIMENSIONS -RP

### ICR Plus

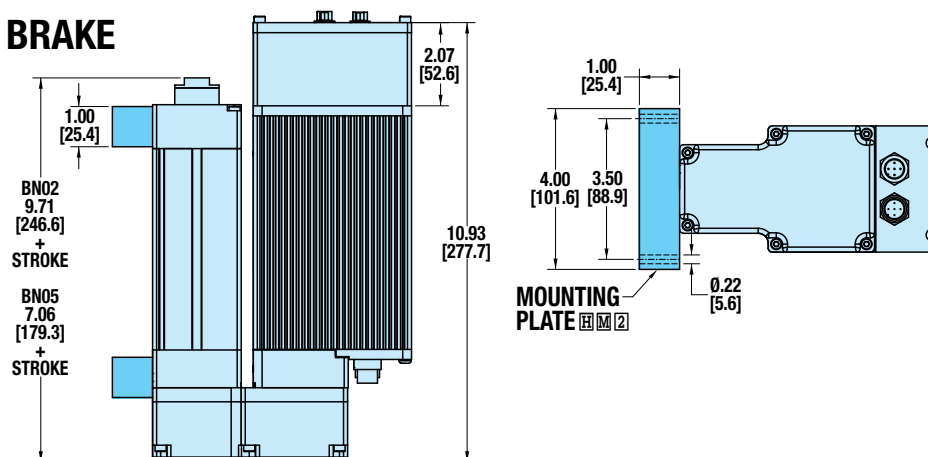


### ICR Basic

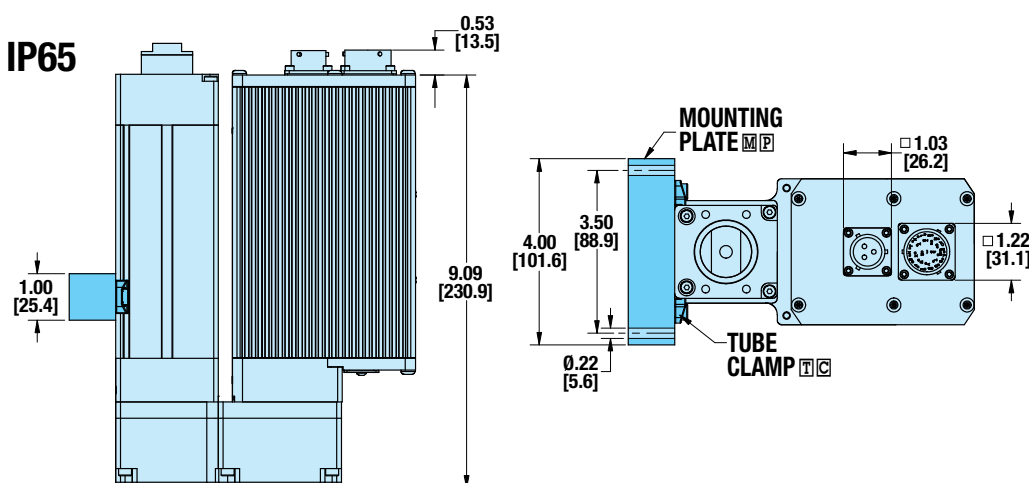


# ACTUATOR OPTION DIMENSIONS - RP

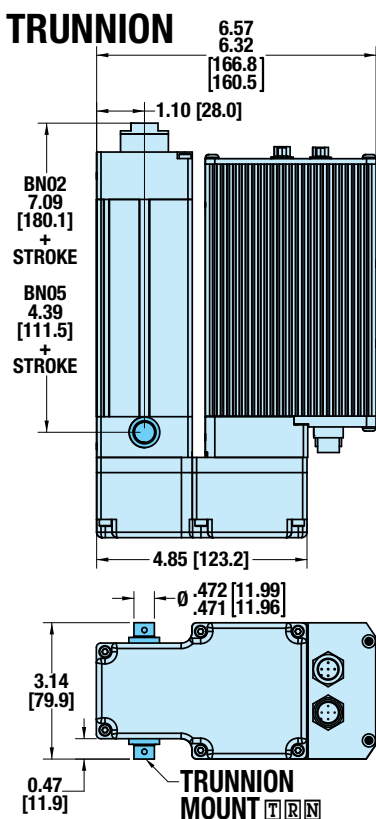
## BRAKE



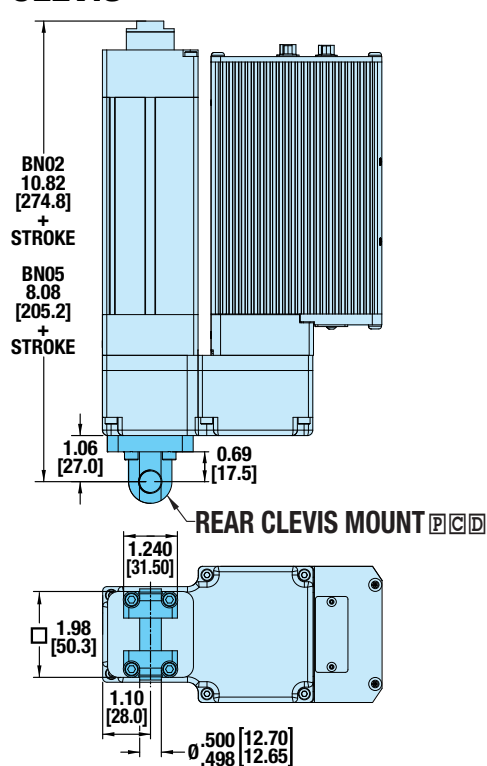
## IP65



## TRUNNION



## CLEVIS



## ORDERING

MODEL SELECTION (MUST BE IN THIS ORDER)

ICR 20P BN05 SM304.8

OPTIONS (IN ANY ORDER)

LMI SV1P CPS CNC5 SAB SRE TC8 TK2

## MODEL

ICR Integrated Control Rod-Style Actuator

## SIZE, Standard or IP65 Option

20S 20 Series Actuator, Standard  
20P 20 Series Actuator, IP65 Option

## NUT / SCREW

BN02 Ball Nut, 2 turns per inch  
BN05 Ball Nut, 5 turns per inch

## STROKE LENGTH

SM \_\_\_\_\_ Stroke, enter desired stroke  
length in **millimeters**

## MOTOR / DRIVE ORIENTATION

LMI In-line orientation (1:1 ratio)  
RP1 Reverse-parallel (1:1 ratio)  
RP2 Reverse-parallel (2:1 ratio)

## MOTOR / DRIVE CONFIGURATION

SV1B Servo Motor, Basic Drive  
SV1P Servo Motor, Plus Drive

## CABLES

CPS Standard Cables, Power and Signal  
CIP IP65 Cables, Power and Signal

## COMMUNICATION OPTION

CNC1 with 1m CANopen / DeviceNet  
Communication Cable  
CNC5 with 5m CANopen / DeviceNet  
Communication Cable  
CNC0 CANopen / DeviceNet NO Cables

## BRAKE OPTION

SAB Spring-Applied / Electronically-  
Released Brake  
(For holding position when unpowered)

## ROD END OPTIONS

MET Male Externally Threaded Rod End  
SRE Spherical Eye Rod End  
CLV Clevis Rod End  
ALC Alignment Coupler

## MOUNTING OPTIONS

MP\_ Mounting Plates, indicate quantity  
HM2 Head Mounting Plates (always 2)  
FFG Front Flange Mount  
TC\_ Tube Clamp, indicate quantity  
TRR Trunnion Mount, Rear  
PCS\* Eye Mount, Rear Clevis, Single  
PCD\* Rear Clevis, Double  
\*NOTE: Available for RP units only

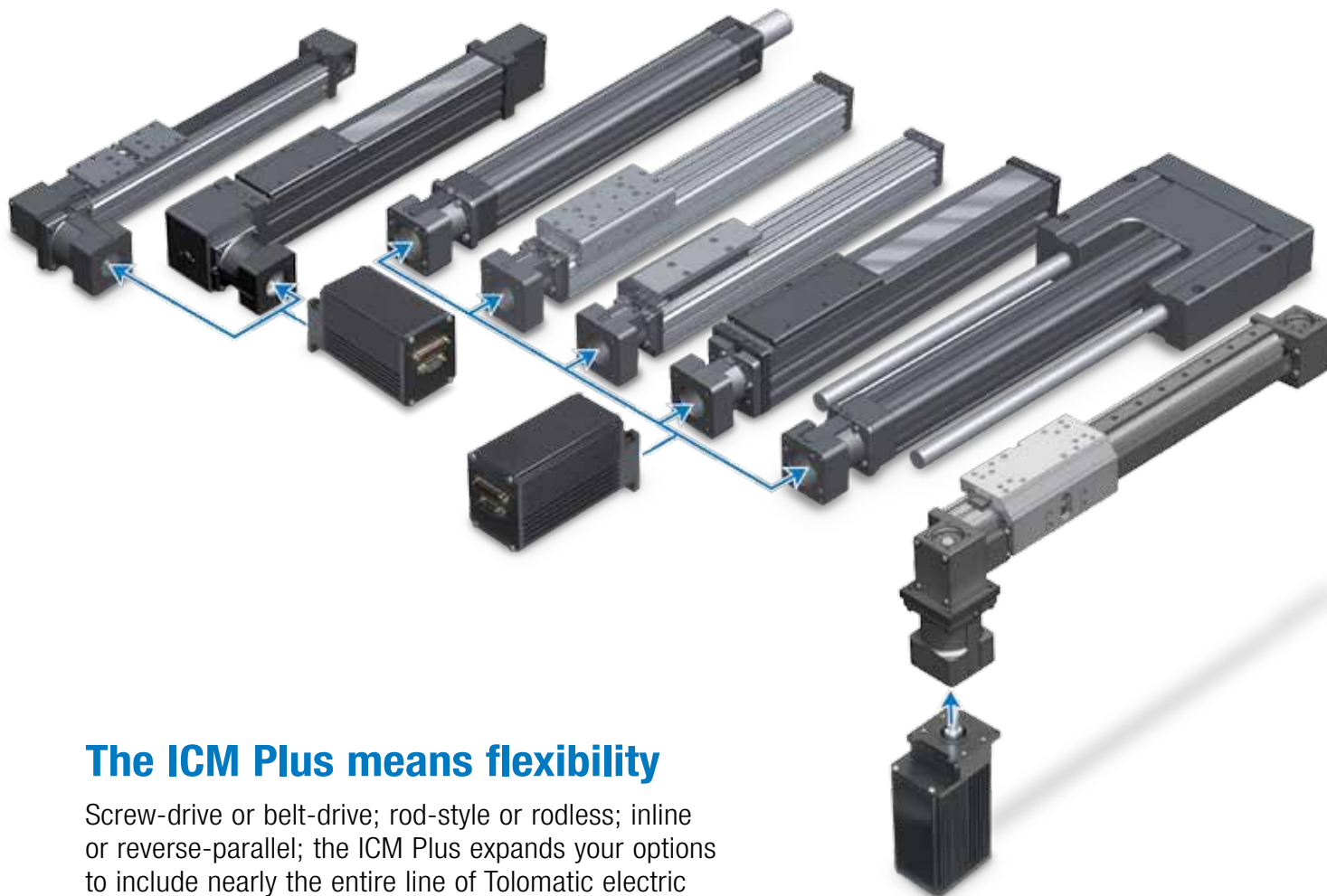
## SWITCHES

TYPE	LOGIC	NORMALLY	QUICK-DISCONNECT	CODE	QUANTITY	LEAD LENGTH
REED	SPST	Open	no	RY	After code enter quantity desired	5 meters (16.4 feet)
			QD	RK		
		Closed	no	NY		
			QD	NK		
SOLID STATE	PNP	Open	no	TY		
			QD	TK		
		Open	no	KY		
			QD	KK		
	PNP	Closed	no	PY		
			QD	PK		
		Closed	no	HY		
			QD	HK		

VISIT [www.tolomatic.com/icr](http://www.tolomatic.com/icr)  
FOR COMPLETE, UP-TO-DATE INFORMATIONNot all codes listed are  
compatible with all options.Call Tolomatic 1-800-328-2174  
to determine available options  
and accessories based on your  
application requirements.Items highlighted with yellow have been  
updated since the ICR introduction.

## Need a RODLESS SmartActuator? Choose the ICM Plus

The ICM Plus places an all-in-one (control, drive, motor) solution mounted to your choice of Tolomatic electric rodless or rod-style actuator. The ICM Plus is designed for industrial applications, by combining a flexible integrated digital drive with the power of a servo motor.



### The ICM Plus means flexibility

Screw-drive or belt-drive; rod-style or rodless; inline or reverse-parallel; the ICM Plus expands your options to include nearly the entire line of Tolomatic electric actuators.



*See the ICM Plus brochure #2100-4008 for information about ICM Plus capabilities and features*



# THE TOLOMATIC DIFFERENCE

What you expect from the industry leader:



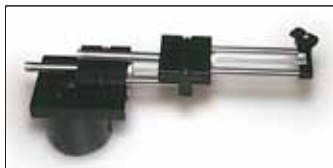
## EXCELLENT CUSTOMER SERVICE & TECHNICAL SUPPORT

Our people make the difference! Expect prompt, courteous replies to all of your application and product questions.



## INDUSTRY LEADING DELIVERIES

Standard catalog products are built to order and ready-to-ship in 5 days or less. Modified and custom products ship weeks ahead of the competition.



## INNOVATIVE PRODUCTS

From standard catalog products... to modified products... to completely unique custom products, Tolomatic designs and builds the best solutions for your challenging applications.



## SIZING & SELECTION SOFTWARE

Windows® compatible, downloadable from our website – FREE – the best tool of its kind on the market! Product selection has never been easier.



## 3D MODELS & 2D DRAWINGS AVAILABLE ON THE WEB

Easy to access CAD files are available in many popular formats.

### ALSO CONSIDER THESE OTHER TOLOMATIC PRODUCTS:

#### PNEUMATIC PRODUCTS



RODLESS CYLINDERS: Band Cylinders, Cable Cylinders, MAGNETICALLY COUPLED CYLINDERS/SLIDES; GUIDED ROD CYLINDER SLIDES; ROTARY ACTUATORS  
"FOLDOUT" BROCHURE #9900-9075    PRODUCTS BROCHURE #9900-4028    [www.tolomatic.com/pneumatic](http://www.tolomatic.com/pneumatic)

#### ELECTRIC PRODUCTS



ROD & GUIDED ROD STYLE ACTUATORS, HIGH THRUST ACTUATORS, SCREW & BELT DRIVE RODLESS ACTUATORS, MOTORS, AXIOM DRIVES/CONTROLLERS  
"FOLDOUT" BROCHURE #9900-9074    PRODUCTS BROCHURE #9900-4016    [www.tolomatic.com/electric](http://www.tolomatic.com/electric)

#### POWER TRANSMISSION PRODUCTS



GEARBOXES: Float-A-Shaft®, Slide-Rite®, DISC CONE CLUTCH; CALIPER DISC BRAKE  
"FOLDOUT" BROCHURE #9900-9076    PRODUCTS BROCHURE #9900-4029    [www.tolomatic.com/pt](http://www.tolomatic.com/pt)



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