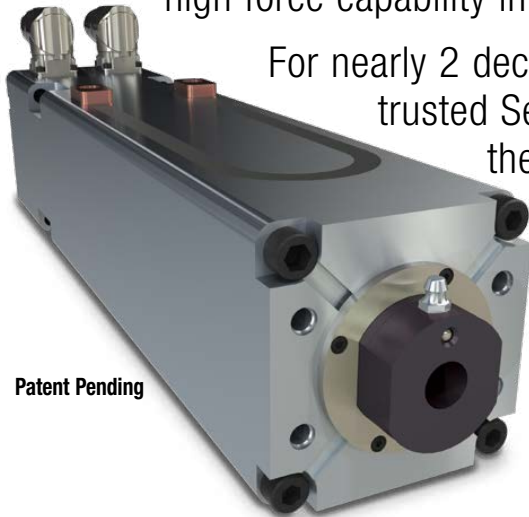


Compact ServoWeldTM Actuator

The CSW delivers the highest precision, highest quality and best reliability of welding actuators in the industry.

Our latest & best generation ServoWeld actuator offers high force capability in a smaller package.

For nearly 2 decades customers have trusted ServoWeld actuators for their resistance spot welding needs.



Patent Pending



Designed with collaborative customer input, the CSW exceeds expectations with:

Desired Improvements	Benefits of CSW
Small Package High Power Density	<ul style="list-style-type: none"> • 1 model can now handle most welding applications with C, X and Pinch weld guns • 15.6 kN (3,500 lbf) of force in a compact 90 mm frame
More Welds per Minute	<ul style="list-style-type: none"> • Top speed C Gun performance: up to 700 mm/sec (27.5 in/sec) • Water cooling for high performance duty cycles
Manufacturing Flexibility	<ul style="list-style-type: none"> • Force range and speed to adapt quickly to increases in production demand • Supports smallest and most powerful weld gun designs
Reliability	<ul style="list-style-type: none"> • Estimated life up to 20 million welds in typical welding applications with proper maintenance. • In field serviceability with rod tip zerk fitting

	Benefits of ServoWeld and Tolomatic
Trusted Worldwide	<ul style="list-style-type: none"> • Validated and specified at the largest global automotive OEMs • Tens of millions of vehicles manufactured with ServoWeld actuators, since 2002 • Tolomatic's engineering design experience since 1954 • 4 Service Centers in North America, Europe and Asia
Highest Performance Resistance Spot Welding	<ul style="list-style-type: none"> • Superior tip dressing performance • Best in class force repeatability • Exceptional sensitivity during robot equalization (EQ) • Unrivaled low force performance for class A surface production

CSW

Compact ServoWeld™ Actuator

	CSW	CSWX
Force capability	15.6 kN (3,500 lbf)	18 kN (4,047 lbf)
Typical Weld Estimated Life	20 million	30 million
Warranty	12 months	24 months
Roller Screw	RN05 & RN10	RN05XR & RN10
Motor	3-stack	3-stack & 4-stack
Options:	NA	Force Feedback
	NA	Long Stroke

ENDURANCE TECHNOLOGYSM

A Tolomatic Design Principle

TOLOMATIC PLANETARY ROLLER SCREW

- 5mm
- 10mm



INTEGRATED WATER COOLING OPTION

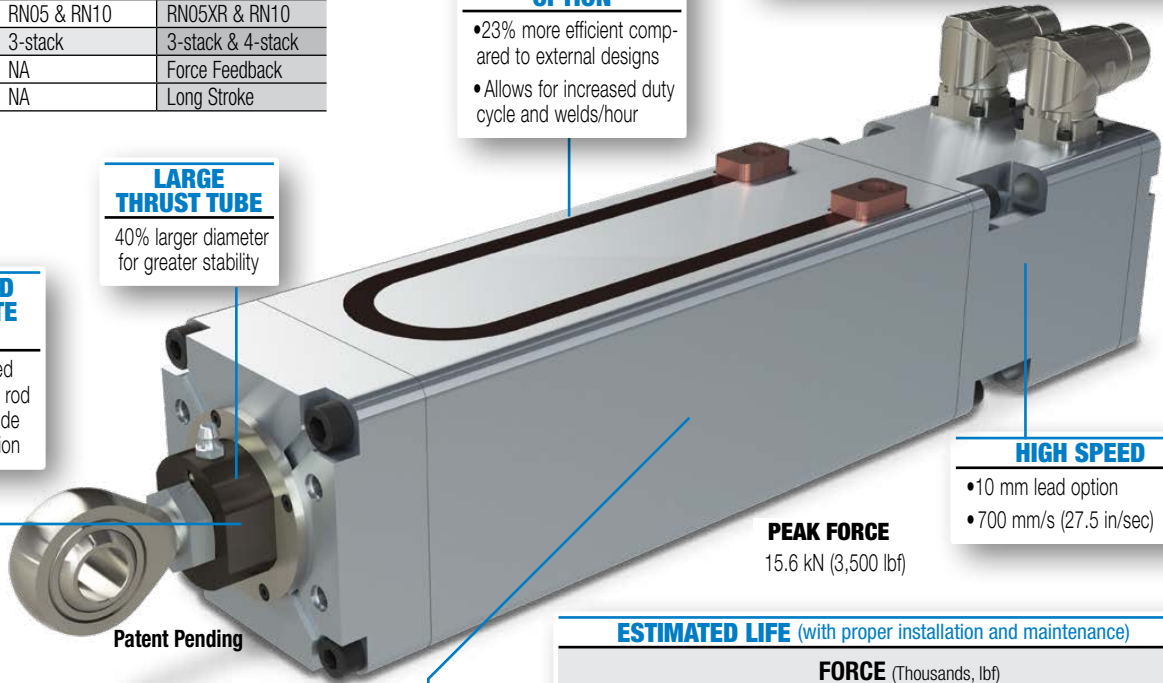
- 23% more efficient compared to external designs
- Allows for increased duty cycle and welds/hour

LARGE THRUST TUBE

40% larger diameter for greater stability

INTEGRATED ANTI-ROTATE OPTION

Optional machined 'Double-D' thrust rod designed to provide internal anti-rotation



Patent Pending

HIGH SPEED

- 10 mm lead option
- 700 mm/s (27.5 in/sec)

PEAK FORCE
15.6 kN (3,500 lbf)

STANDARD STROKE LENGTHS

- 160 mm (6.3 in)
- 200 mm (7.9 in)
- 250 mm (9.8 in)
- 300 mm (11.8 in)

REPEATABILITY

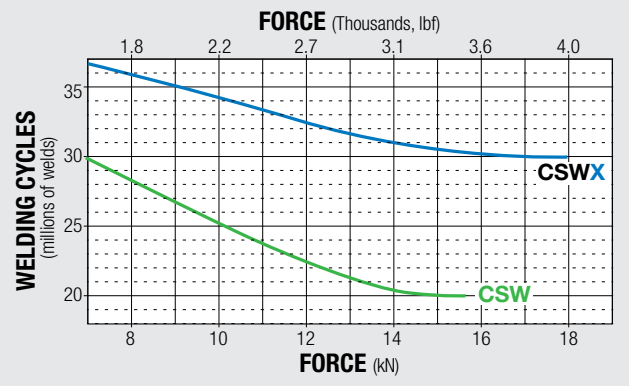
Force repeatability of $\pm 3\%$ for entire life of actuator

MID-TRUNNION MOUNTING



Rectangular extrusion is easy to adapt to a wide variety of mounting locations

ESTIMATED LIFE (with proper installation and maintenance)



Manufactured in the U.S.A.

and China

TolomaticTM
EXCELLENCE IN MOTION

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

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