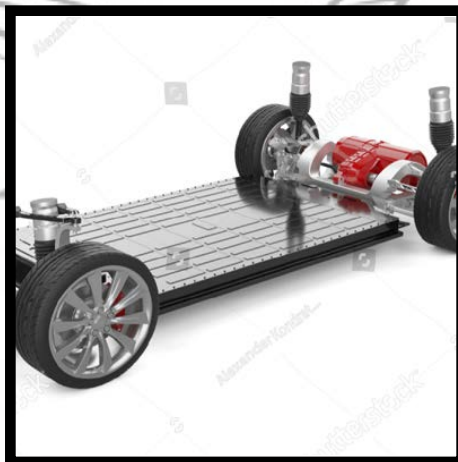
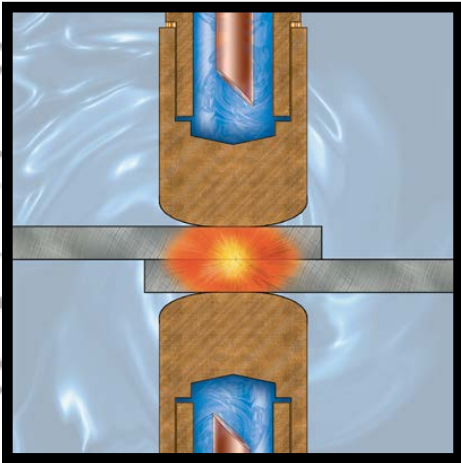


# AUTOMOTIVE APPLICATIONS



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**AUTOMOTIVE MOTION SOLUTIONS EXPERTS**

# Tolomatic<sup>TM</sup> a Legacy of Innovation in Automotive (Manufacturing/Resistance Spot Welding) Solutions

**2020**

Customer focused ServoWeld® CSW series introduced

**2017 - 2018**

Expansion of the branch in china; addition of ServoWeld® service centers in Germany and Mexico

**2016**

Introduction of the SWA, 3rd generation ServoWeld® actuator

**2015**

Opening of location in Suzhou, China

**2010 - 2014**

Production development of planetary roller screws for ServoWeld® actuators at Tolomatic

**2007**

Production of the GSWA, 2nd generation ServoWeld® actuator begins

**2004**

Leading US automaker chooses ServoWeld® actuators for global body shop

**2002**

First Servo Electric Actuator for Resistance Spot Welding

**Founded in 1954 with a continuous history of motion innovation**

**ENDURANCE TECHNOLOGY<sup>SM</sup>**  
A Tolomatic Design Principle

#### ADDITIONAL OPTIONS

- Long Stroke
- Manual Override
- Mid-Trunnion Mounting

#### INTEGRATED WATER COOLING OPTION

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

#### INTEGRATED FORCE FEEDBACK OPTION

- Integrated Piezo-electric sensor

#### LARGE THRUST TUBE

40% larger diameter for greater stability

#### HIGH SPEED

- 700 mm/s (27.5 in/sec)

#### TOLOMATIC PLANETARY ROLLER SCREW



- 5mm XR
- 10mm

#### OPTIONAL INTEGRATED ANTI-ROTATE

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

## Tolomatic electric actuators provide:

- High Duty Cycle and long life with Endurance Technology<sup>SM</sup>
- Infinite positioning
- High accuracy and repeatability
- Energy efficient operation
- Simplifies machine design by eliminating the need for protective guards/enclosures

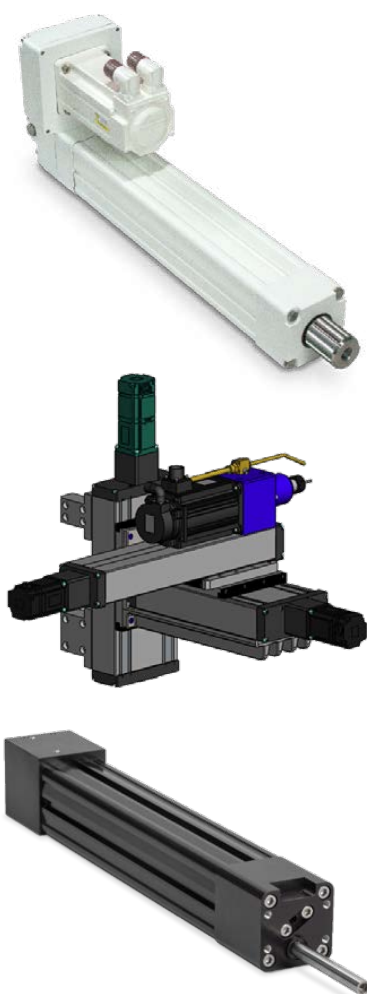
# Design Partnership Capabilities

In 2002 a customer came to Tolomatic to shift from pneumatic to electric servo actuators. That partnership lead to the ServoWeld™ product line with over 40,000 units in automotive RSW globally.

## Your challenge = Tolomatic's opportunity

Our broad array of products fix problems in all types of industrial automation. But if existing actuators don't exactly meet your unique automotive production challenge our engineering staff can design an actuator that does.

Our greatest successes happen when we engage closely with customers refining or creating entirely new actuators. Tolomatic experts are eager to help you with your next motion challenges.



ENGINEERING STEPS:	TOLOMATIC'S VALUE ADD:
CHALLENGE IDENTIFIED	<ul style="list-style-type: none"><li>• Leveraging 65+ years of motion experience and in the automotive market for decades</li></ul>
PROJECT SCOPE	<ul style="list-style-type: none"><li>• Clear definition of motion requirements and product selection capabilities</li></ul>
FEASIBILITY STUDY	<ul style="list-style-type: none"><li>• Broad Configurable Product Catalog</li><li>• Quick product quotes and drawing validation</li></ul>
CONCEPT DESIGN	<ul style="list-style-type: none"><li>• On-line Sizing Software</li><li>• Application Engineering Collaboration</li><li>• Possible Product Modifications</li></ul>
3D FINAL LAYOUT	<ul style="list-style-type: none"><li>• YMH (Your Motor Here)</li><li>• On-line CAD Files</li></ul>
PROTOTYPE TESTING	<ul style="list-style-type: none"><li>• Tolomatic Lab</li><li>• Field Prototypes</li><li>• Iterative Design</li></ul>
VALIDATION MANUFACTURING	<ul style="list-style-type: none"><li>• Speed of Delivery</li><li>• High Quality</li><li>• Endurance Technology for Long Life</li></ul>



Refining product requirements per customer needs is in our DNA at Tolomatic. *What are your next motion challenges in automotive production?* Let's continue the journey together.

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# AUTOMOTIVE INDUSTRY SOLUTIONS

## BODY SHOP ASSEMBLY



**RSW (Steel & Aluminum),  
CLAMPING (Mostly  
Pneumatic) RIVETING,  
PROJECTION WELDING,  
DISPENSING (Adhesives),  
CLINCHING, HEMMING**

## PRESS SHOP



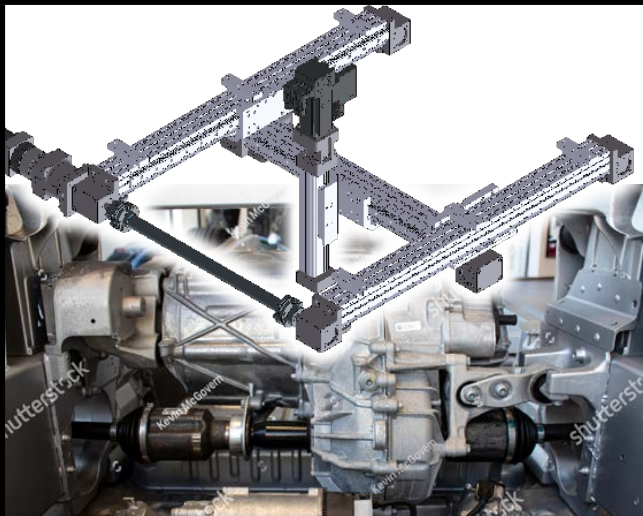
**METAL FORMING, HANDLING,  
DIE EXCHANGES, PACKING,  
TRANSPORT**



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## QUALITY INSPECTION



## POSITIONING OF INSPECTION SYSTEMS

## PAINT SHOP



## PAINT DISPENSING, ADHESIVE & SEALANT DISPENSING, INSULATION SPRAYING



## FINAL ASSEMBLY



## CONVEYING, LIFTING STATIONS, PART POSITIONING, DISPENSING, PRESSING

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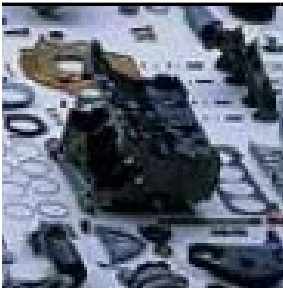
# COMPONENT MANUFACTURING BY

## INJECTION MOLDED PARTS



- Part Ejection
- Platen Pressing
- Mold Pressing
- Part Handling
- Pick & Place

## POWERTRAIN



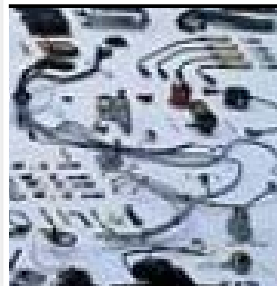
- Honing
- Conveying
- Part Positioning
- Pressing
- Forming & Bending

## BATTERIES & TRAYS



- Micro & Projection Welding
- Crimping
- Pressing
- Tray Welding

## ELECTRONIC COMPONENTS



- Pick and Place
- Pogo Pin Testing
- Sorting
- Camera, Parts Inspection

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# TIER 1 & TIER 2 SUPPLIERS



## INTERIOR COMPONENTS



- Welding
- Forming & Bending
- Cutting
- Testing

## EXHAUST SYSTEM COMPONENTS



- Tube Bending
- Welding
- Tube Flaring
- Parts Insertion
- Crimping

## TIRES



- Product Feeder
- Rubber Cutting
- Tire Turn-Up
- Green Tire Transfer
- Tire Reclamation

## BRAKES & CLUTCHES

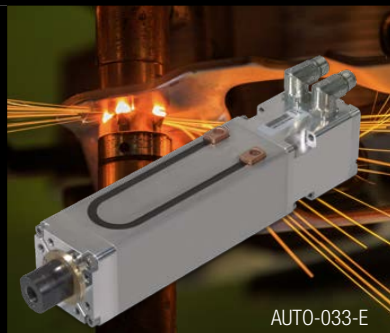


- Testing
- Pressing
- Balancing
- Part Positioning

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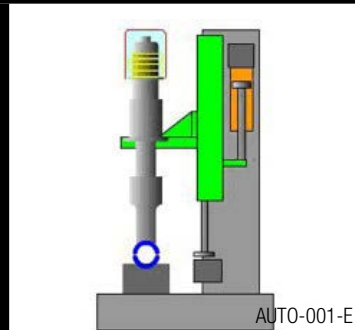
# Tolomatic<sup>TM</sup>: AUTOMOTIVE APPLICATIONS

## RESISTANCE SPOT WELDING



**SOLUTION: CSWX  
ELECTRIC INTEGRATED  
ROD ACTUATOR**

## ULTRASONIC WELDING



**SOLUTION: CUSTOM  
ELECTRIC GUIDED  
ROD ACTUATOR**

## PART STAMPING



**SOLUTION: MXP40N  
PNEUMATIC BAND  
CYLINDER**

## AIR BAG PRODUCTION



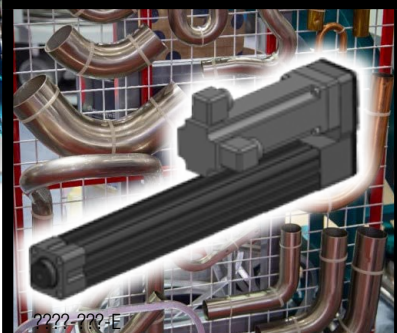
**SOLUTION: RSX  
EXTREME FORCE  
ELECTRIC LINEAR  
ACTUATOR**

## WHEEL BEARING PRESS



**SOLUTION: RSX  
EXTREME FORCE  
ELECTRIC LINEAR  
ACTUATOR**

## TUBE BENDING: HEADREST



**SOLUTION: RSA  
ELECTRIC ROD  
ACTUATORS**

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# ATION SOLUTIONS

## BRAKE ASSEMBLY



**SOLUTION: RSX, TRS,  
MXE ELECTRIC ROD &  
RODLESS ACTUATORS**

## INJECTION MOLDING



MCHT-015-E

**SOLUTION: IMA  
INTEGRATED MOTOR  
ACTUATOR**

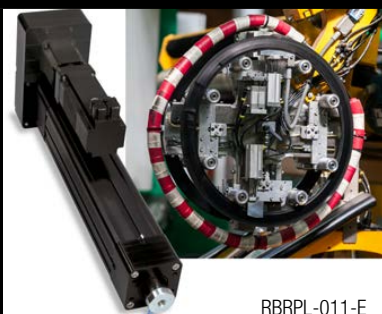
## GREEN TIRE TRANSFER



RBRPL-012-E

**SOLUTION: RSA32  
SCREW-DRIVE  
ELECTRIC ROD-STYLE  
ACTUATORS**

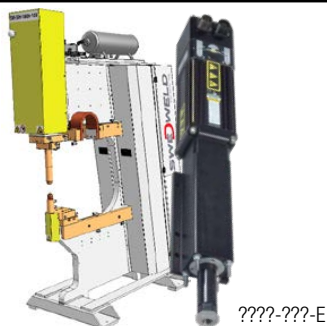
## TIRE TURN UP: MANUFACTURING



RBRPL-011-E

**SOLUTION: RSA64  
SCREW-DRIVE  
ELECTRIC ROD-STYLE  
ACTUATORS**

## PROJECTION WELDING



????-???-E

**SOLUTION:  
SERVOWELD™  
PROJECTION**

## POWERTRAIN ASSEMBLY



AUTO-032-E

**SOLUTION: RSA & RSX  
ELECTRIC LINEAR  
ACTUATORS**

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# Tolomatic™ SOLUTIONS WITH PROVEN ROD STYLE SCREW DRIVE

## ERD ECONOMICAL



### SOLUTION FOR:

- Pneumatic cylinder replacement
- General automation

**Models:** ERD10, ERD15, ERD20

### SPECIFICATIONS (UP TO):

MAX. STROKE	MAX. FORCE	MAX. SPEED
24 in	500 lbf	40 in/sec
609 mm	2224 N	1016 mm/sec

## RSA INDUSTRIAL: ST/HT



### SOLUTION FOR:

- Pneumatic & hydraulic replacement
- General automation

**Models:** ST: RSA12, RSA16, RSA24, RSA32, RSA50, RSA64;  
HT: RSA24, RSA32, RSA50, RSA64;

### SPECIFICATIONS (UP TO):

MAX. STROKE	MAX. FORCE	MAX. SPEED
60 in	13039 lbf	58 in/sec
1524 mm	58 kN	1473 mm/sec



### SOLUTION FOR:

- Hydraulic replacement
- Heavy duty applications

**Models:** RSX080, RSX096, RSX128

### SPECIFICATIONS (UP TO):

MAX. STROKE	MAX. FORCE	MAX. SPEED
35 in	50000 lbf	29.9 in/sec
891 mm	222 kN	759 mm/sec

## IMA COMPACT, INTEGRATED SERVO



### SOLUTION FOR:

- Pneumatic & hydraulic replacement
- High performance applications

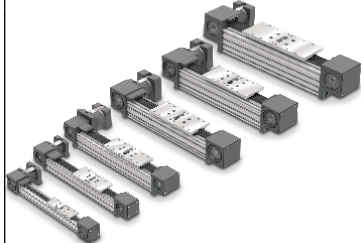
**Models:** IMA22, IMA33, IMA44, IMA55

### SPECIFICATIONS (UP TO):

MAX. STROKE	MAX. FORCE	MAX. SPEED
18 in	6875 lbf	52.5 in/sec
457 mm	31 kN	1334 mm/sec

## RODLESS BELT DRIVE ACTUATORS

### MXB-N NO BEARING



### SOLUTION FOR:

- Externally guided, supported loads

**Models:** MXB16N, MXB25N, MXB32N, MXB40N, MXB50N, MXB63N

### SPECIFICATIONS (UP TO):

MAX. STROKE	MAX. FORCE	MAX. SPEED	MAX. LOAD
200 in	418 lbf	200 in/sec	NA
5080 mm	1859 N	5080 mm/sec	NA

### MXB-S SOLID BEARING



### SOLUTION FOR:

- Light to moderate loads & moments

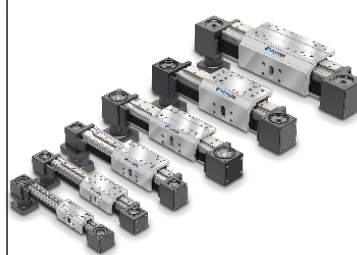
**Models:** MXB16S, MXB25S, MXB32S, MXB40S, MXB50S, MXB63S

### SPECIFICATIONS (UP TO):

MAX. STROKE	MAX. FORCE	MAX. SPEED	*MAX. LOAD
200 in	418 lbf	100 in/sec	520 lb
5080 mm	1859 N	2540 mm/sec	2313 N

\*Auxiliary carrier option offers increased load and bending moment capacity

### MXB-P PROFILED RAIL BEARING



### SOLUTION FOR:

- Moderate to high loads and moments

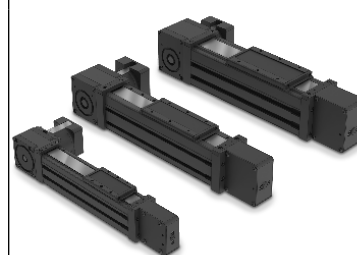
**Models:** MXB16P, MXB25P, MXB32P, MXB40P, MXB50P, MXB63P

### SPECIFICATIONS (UP TO):

MAX. STROKE	MAX. FORCE	MAX. SPEED	*MAX. LOAD
200 in	418 lbf	150 in/sec	1292 lb
5080 mm	1859 N	3810 mm/sec	5745 N

\*Auxiliary carrier option offers increased load and bending moment capacity

### B3W INTERNAL V-WEDGE BEARING



### SOLUTION FOR:

- Moderate to high loads and moments
- Stable, precision load guidance

**Models:** B3W10, B3W15, B3W20, B3W10D, B3W15D, B3W20D

### SPECIFICATIONS (UP TO):

MAX. STROKE	MAX. FORCE	MAX. SPEED	*MAX. LOAD
207 in	325 lbf	200 in/sec	2008 lb
5258 mm	1446 N	5080 mm/sec	8932 N

\*Dual 180° & auxiliary carrier options offer increased load and bending moment capacity



# AUTOMOTIVE INDUSTRY PERFORMANCE

## ACTUATORS

### GSWA RESISTANCE SPOT WELDING



#### SOLUTION FOR:

- 7th axis robotic resistance spot welding
- Pedestal / projection welding

**Models:** SWA, SWB, GSWA

#### SPECIFICATIONS (UP TO):

MAX. STROKE	MAX. FORCE	MAX. SPEED
18 in	5500 lbf	24 in/sec
457 mm	24500 N	610 mm/sec

### SWA/B RESISTANCE SPOT WELDING



#### SOLUTION FOR:

- 7th axis robotic resistance spot welding
- Pedestal / projection welding

**Models:** SWA, SWB, GSWA

#### SPECIFICATIONS (UP TO):

MAX. STROKE	MAX. FORCE	MAX. SPEED
18 in	5500 lbf	24 in/sec
457 mm	24500 N	610 mm/sec

### CSWX RESISTANCE SPOT WELDING



#### SOLUTION FOR:

- 7th axis robotic resistance spot welding
- Pedestal / projection welding

**Models:** CSW, CSWX

#### SPECIFICATIONS (UP TO):

MAX. STROKE	MAX. FORCE	MAX. SPEED
11.8 in	4047 lbf	27.5 in/sec
300 mm	18 kN	700 mm/sec

### ROLLER SCREWS



#### SOLUTION FOR:

- Merchant roller screws for installation in your actuators
- High performance applications

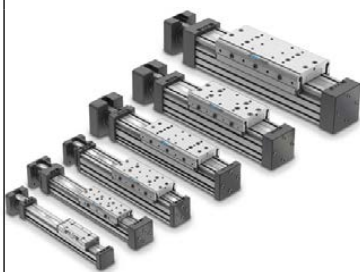
**Models:** 15.04, 15.05, 15.10, 20.04, 20.05, 20.10, 30.05, 30.10, 36.05, 36.10, 39.10, 48.12, 63.10

#### SPECIFICATIONS (UP TO):

MAX. STROKE	MAX. FORCE
40 in	50000 lbf
1036 mm	222 kN

## RODLESS SCREW DRIVE ACTUATORS

### MXE-S SOLID BEARING



#### SOLUTION FOR:

- Light to moderate loads & moments

**Models:** MXE16S, MXE25S, MXE32S, MXE40S, MXE50S, MXE63S

#### SPECIFICATIONS (UP TO):

MAX. STROKE	MAX. FORCE	MAX. SPEED	*MAX. LOAD
178 in	4300 lbf	60 in/sec	520 lb
4521 mm	19 kN	1524 mm/sec	2313 N

\*Auxiliary carrier option offers increased load and bending moment capacity

### MXE-P PROFILED RAIL BEARING



#### SOLUTION FOR:

- Moderate to high loads & moments

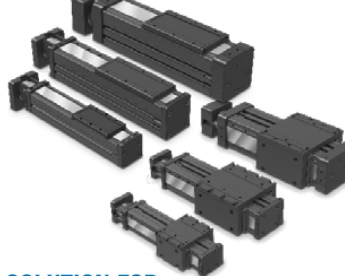
**Models:** MXE16P, MXE25P, MXE32P, MXE40P, MXE50P, MXE63P

#### SPECIFICATIONS (UP TO):

MAX. STROKE	MAX. FORCE	MAX. SPEED	*MAX. LOAD
178 in	4300 lbf	60 in/sec	1292 lb
4521 mm	19127 N	1524 mm/sec	5745 N

\*Auxiliary carrier option offers increased load and bending moment capacity

### B3S INTERNAL RE-CIRCULATING BALL BEARING



#### SOLUTION FOR:

- Moderate to high loads & moments
- Stable, precision load guidance

**Models:** B3S10, B3S15, B3S20, B3S10D, B3S15D, B3S20D

#### SPECIFICATIONS (UP TO):

MAX. STROKE	MAX. FORCE	MAX. SPEED	*MAX. LOAD
178 in	4300 lbf	60 in/sec	1292 lb
4521 mm	19127 N	1524 mm/sec	5745 N

\*Dual 180° & auxiliary carrier options offer increased load and bending moment capacity

## MODIFIED & CUSTOM

### LZT HIGH SPEED ROD ACTUATOR



#### SOLUTION FOR:

- High speed parts positioning

**Models:** LZT

### TRS TWIN PROFILE RAIL STAGE



#### SOLUTION FOR:

- High accuracy applications

**Models:** 100, 165

# 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.



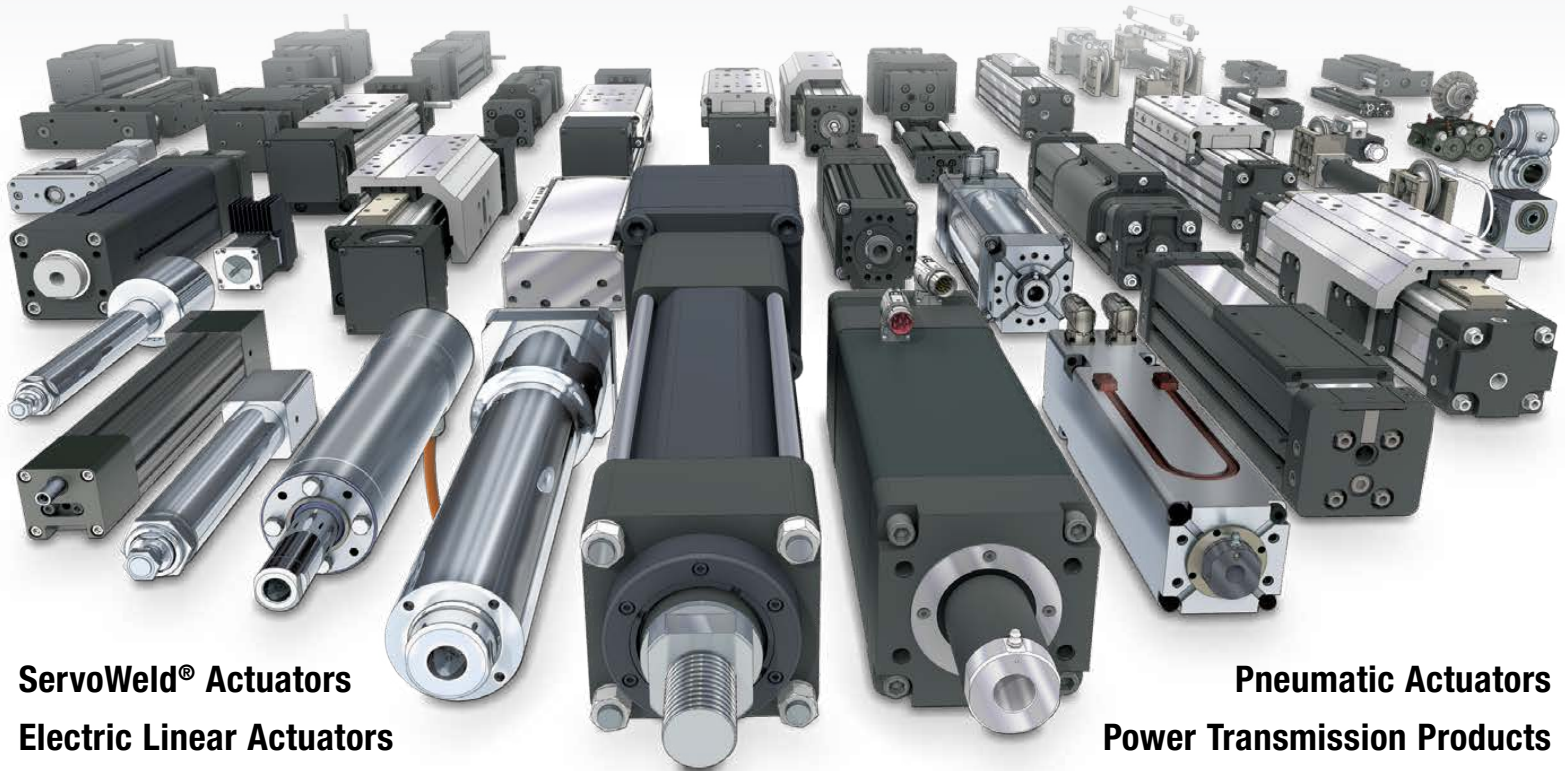
## LIBRARY

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.



**ServoWeld® Actuators**  
**Electric Linear Actuators**

**Pneumatic Actuators**  
**Power Transmission Products**

# Tolomatic<sup>TM</sup>

EXCELLENCE *IN MOTION*

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

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ServoWeldChina@tolomatic.com

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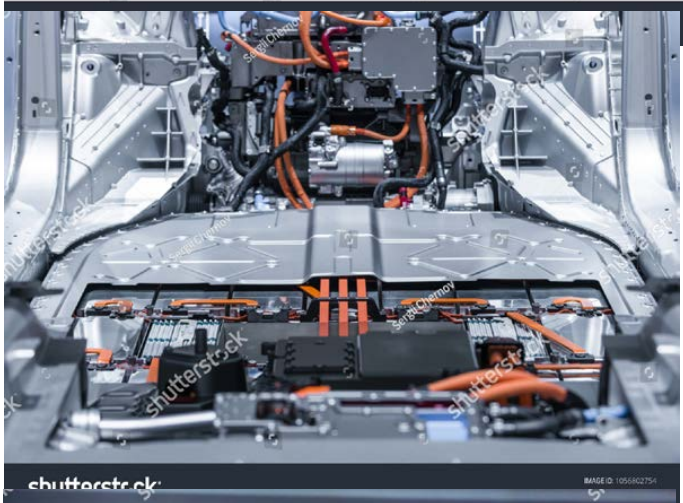
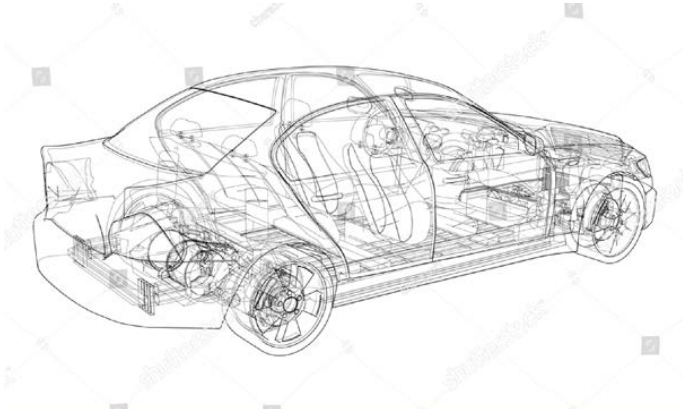
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## EXTRA IMAGES FOR CONSIDERATION



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