Linear Motion solutions for metal forming

We pioneer motion

SCHAEFFLER

Get the perfect shape with our linear motion solutions

Key drivers of growth in the metal forming industry

The key growth factors driving the global metal forming market are the increasing demand for machined parts across various industries like automotive, aerospace, construction, electronics, expanding automation and technological advancements in metal forming equipment.

The metal forming industry is constantly looking for new technologies, materials and processes to increase efficiency and product performance, improve sustainability while reducing costs and environmental impact. The energy consumption of the machines is also an important factor, and the electrification of fluid-powered functions is crucial to improving efficiency. Process control and performance are key parameters for these machines.

Schaeffler is the preferred partner for innovative and efficient solutions pushing the boundaries of performance and reliability in material forming industry.

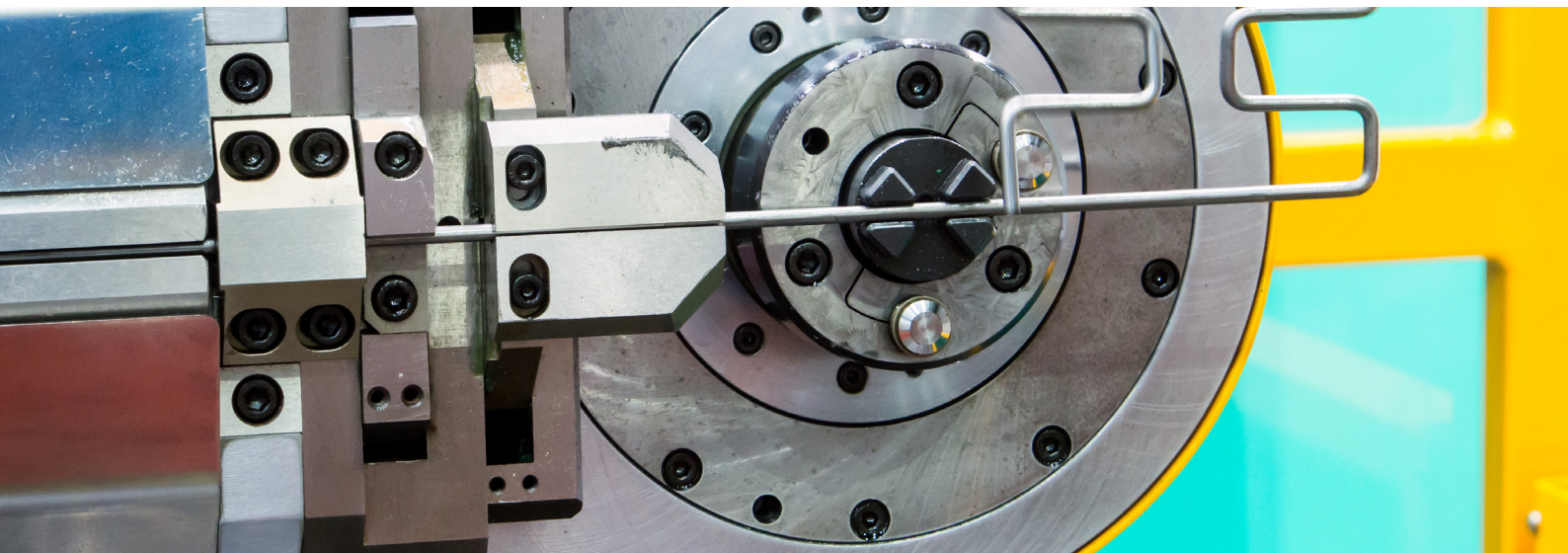
Value proposition

- Excellent repeatability with high precision
- Increased productivity
- High energy efficiency
- Oil-free operation
- Minimum downtime with outstanding reliability
- Long service life
- Compact and space saving design
- Easy integration

The powerful EWELLIX electromechanical actuators offered by Schaeffler, high efficiency screws and reliable linear guides fulfil demanding requirements and help to improve the overall performance of the metal forming process.

We support customers with linear motion solutions providing:

- High performance products with high reliability
- Compact and robust design
- Extensive industry experience and knowledge
- Strong customisation capabilities
- Global presence and support



Move towards electrification

Greater controllability of machines as well as energy-saving and sustainable solutions are also crucial in the metal forming industry

By electrifying metal forming processes, manufacturers can significantly increase productivity, improve product quality, save energy and reduce environmental impact, thus contributing to sustainable manufacturing processes.

Schaeffler helps customers transition from established manufacturing process technologies to innovative approaches with easy, safe and environmentally friendly linear motion solutions.

Advantages of electromechanical solutions over established technologies such as pneumatics and hydraulics

Increase productivity
Complete controllability and positioning precision with high speed

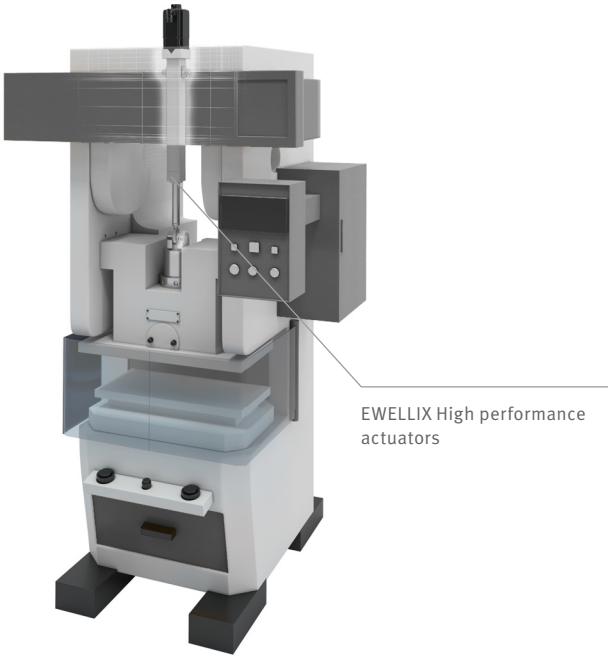
Lower Total Cost of Ownership
Maximise uptime, increase quality and reduce maintenance cost

Reduce carbon footprint
Higher efficiency with power consumption close to zero while not in use

Improve safety
No fluid under pressure during operation, safer during inspection and service

How much can you save in your application?
This simple tool helps you to quickly navigate through the wide range of EWELLIX actuators offered by Schaeffler to select the right solution for your specific needs.

Servo press



Features

- High load carrying capacity
- High speed and acceleration capability
- High peak load acceptance over short stroke
- Compactness

Benefits

- Accurate positioning with excellent repeatability
- Minimum downtime with outstanding reliability
- Excellent technology for pressing
- Long service life due to roller screw technology
- Easy to integrate complete actuator solutions

Electromechanical servo presses feature a high degree of controllability and enable complex motion sequences as well as different forces, speeds and stroke lengths. They are used for a wide variety of applications including press fitting, stamping, and clinching. Larger presses can be used for high precision deep drawing.
Our roller screw technology and EWELLIX high performance actuators with roller screws offered by Schaeffler are the best solution for the high peak loads of press applications and offer the best service life, power density and reliability in their class.

Ball and roller screws **EWELLIX High performance actuators**

Roller screws

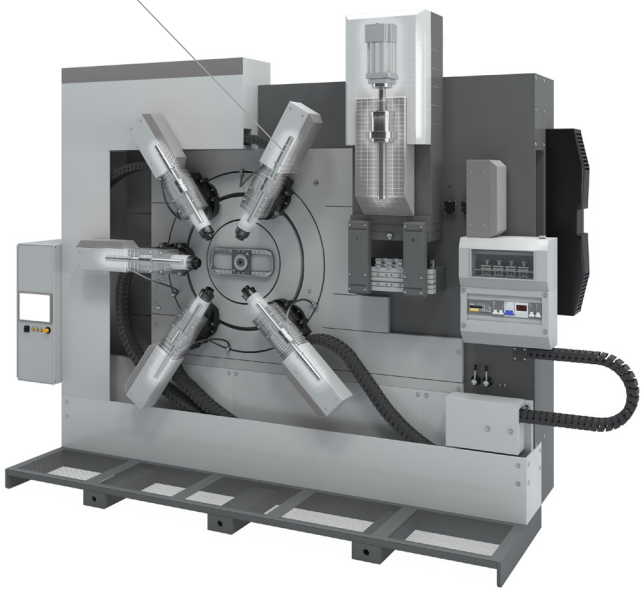
SRSA

LEMC

EMA-100

Tube and wire forming

Planetary roller screws



Features

- High speed and acceleration capability
- High peak load acceptance
- High power density
- Compactness

Benefits

- Minimum downtime with outstanding reliability
- Long service life due to roller screw technology
- Easy installation with matching bearing support units
- Compact and easy to integrate components
- Easy to integrate complete actuator solutions

Tube and wire bending machines are highly versatile machines to shape complex, highly precise and repeatable 3D shaped metal parts that are used for vehicle fluid handling, exhaust systems or electrical busbar.
The most compact, efficient and reliable machine for bending and forming of any shape and diameter can be equipped with roller screws and EWELLIX high-performance actuators offered by Schaeffler. The high speed and performance of the roller screws enable the highest productivity for spring forming machines, multi- slides, tube & wire bending and end-forming machines.

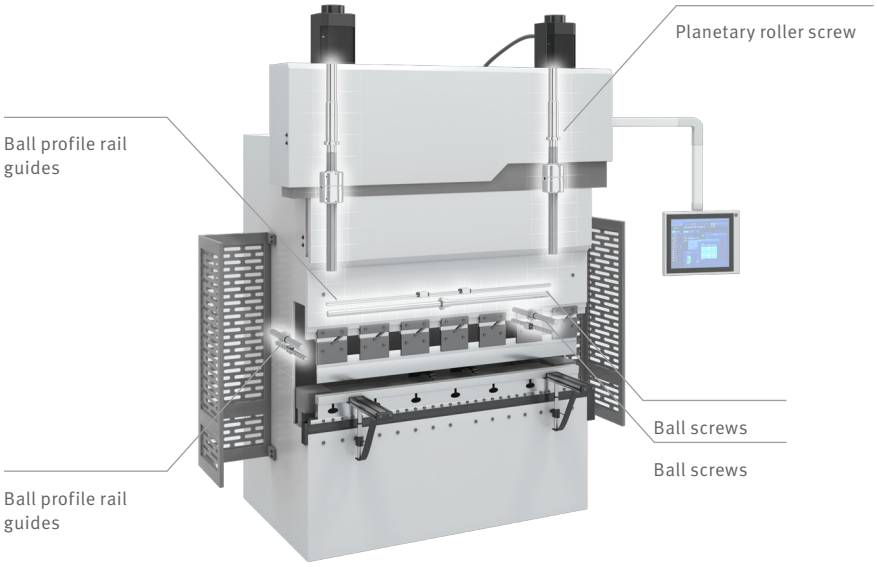
Ball and roller screws

Roller screws

EWELLIX High performance actuators

EMA-100

Press brake machine



Features

- Highest load carrying capacity
- High speed and high acceleration capability
- High precision and rigidity
- Long lasting sealing solution (linear guides)

Benefits

- Accurate positioning with excellent repeatability
- Minimum downtime with outstanding reliability
- Most compact solution for high force linear motion
- Easily customized design for easy integration
- Long service life due to roller screw technology
- Virtually maintenance free with lubrication reservoirs (linear guides)

Press brake machines need to offer high precision and flexibility and are suitable for a wide range of applications that require complex shapes, tight tolerances and repeatable bending processes common in industries such as aerospace, automotive and electronics. The switch to electrification of fluid powered functions is essential for improving efficiency, repeatability and sustainability. Schaeffler roller screws are available with various combinations of sizes and leads to best match customer requirements in terms of force capacity, robustness and speed.
Our linear guides ensure precise guidance of the tools.

Ball and roller screws **Profile rail guides**

Roller screw

Ball screws

KLLT

Laser cutting

Features

- High precision and rigidity
- Minimum friction
- Compactness
- No recirculation of the steel balls (precision rail guides)
- Anti-creeping system (precision rail guides)

Benefits

- Smooth and efficient running performance
- Flexibility in design and integration
- Easily customized design for easy integrationLong service life
- Low maintenan

2D and 3D laser cutting is an extremely versatile, precise and advanced manufacturing process that utilises laser technology to precisely cut materials such as metal, wood, plastic and glass. The precision, speed and versatility of 2D/3D laser cutting make it an invaluable technology for industries where complex shapes, tight tolerances and high-quality finishes are required.
Schaeffler linear guides enable precise small axial movement of laser head. Our ball screw allow smooth movement of the X axis.

Ball screws	Profile rail guides	Precision rail guides
		
Ball screws	KLLT	LW

Products overview




EWELLIX High performance actuators	SRSA	LEMC	EMA-100	CASM - 32/40/63
Max. dynamic axial force	500 kN	80 kN	80 kN	up to 25 kN
Max. dynamic load capacity	to 572 kN	106,3 kN	106 kN	up to 59 kN
Max. speed	1111 mm/sec	1000 mm/s	890 mm/s	up to 480 mm/s
Max. stroke	1500 mm	800 mm	2000 mm	300 mm


Ball and roller screws	SP	SR
Diameter	8 to 16 mm	8 to 240 mm
Lead	2 to 5 mm	2 to 50 mm
Acceleration	up to 4000 rad/s^2	up to 20000 rad/s^2
Dynamic load capacity	from 2,2 kN to 7,6 kN	from 8 kN to 4 000 kN
Maximum speed	120000/Ø rpm	160000/Ø rpm

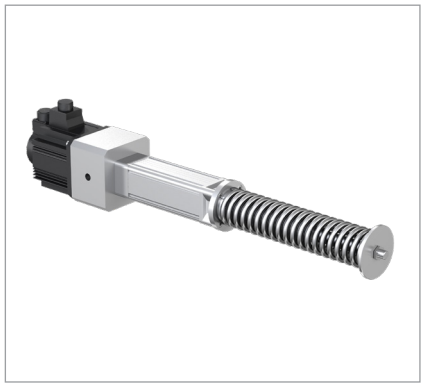

Linear guides	KLLT-range	LW-range
Size and range	15 to 45	3 to 12 30x15 to 80x50
Dynamic load rating	up to 59,2 kN	64,5 kN
Speed	up to 5 m/sec	up to 2 m/sec
Acceleration max	up to 75 m/s^2	up to 160 m/s^2
Accuracy	up to 18 µm at 4 m	up to 2 µm at 1000 mm

Your engineering partner

Customisation

With more than 50 years of experience, we provide customers with tailor-made solutions that fit any application needs. Our extensive product knowledge, combined with engineering expertise, transforms customer needs into tailored solutions. Focusing on client-specific requests, our engineers help customers develop and implement cost-effective solutions to optimise the performance of the application.

EWELLIX EMA made of stainless steel

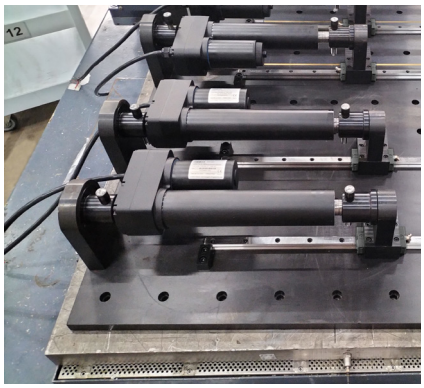


EWELLIX CASM with spring around the push tube

Cylinder with very long stroke length

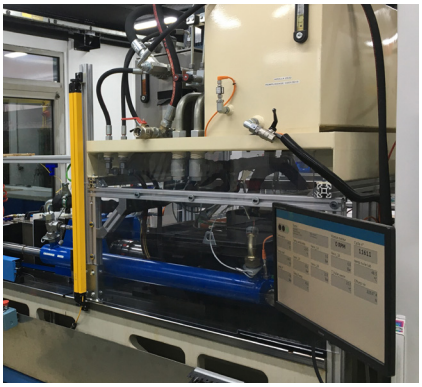
Testing capacities

All our products are extensively tested for their key parameters according to a comprehensive test plan that covers all regulatory and environmental requirements and meets the most stringent industry standards. We are able to test all components down to the ball or roller screw. In addition, we can simulate mechanical, electrical and environmental application conditions.



Vibraton test

EWELLIX EMA testing



Roller screws testing

Supporting tool

Digital

Schaeffler has developed a portfolio of tool to support customers in easy selection and calculation the right Schaeffler product for their application.

EWELLIX Actuator select

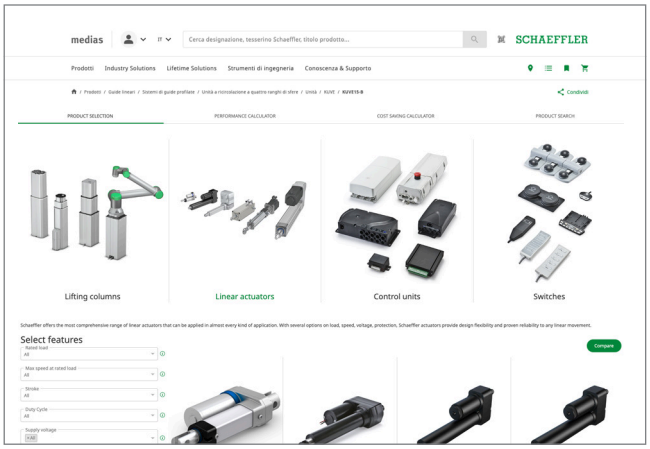
- Product selection
- Performance calculator
- Cost saving calculator

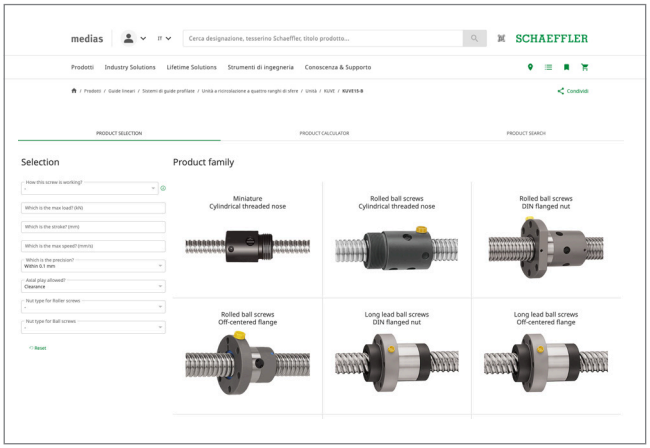
Ball and Roller Screw select

- Product selection
- Product calculator
- Product verification

Linear guides select

- Product selection
- Product calculator
- Cross-reference
- Product sear





EWELLIX Actuator select
› Scan QR code
› Click on link

Ball and Roller Screw select
› Scan QR code
› Click on link

Publications

Supporting documents are available for download on Schaeffler.com on each product page under the technical data section:

- Operating manual
- Mounting instruction

EWELLIX High performance actuator SRSA
› Scan QR code
› Click on link

Roller screws
› Scan QR code
› Click on link

EWELLIX High performance actuator LEMC
› Scan QR code
› Click on link

Ball screws
› Scan QR code
› Click on link

EWELLIX High performance actuator EMA-100
› Scan QR code
› Click on link

Ball profile rails LLT
› Scan QR code
› Click on link

EWELLIX High performance actuator CASM-32/40/63
› Scan QR code
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Precision rail guides LW
› Scan QR code
› Click on link

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