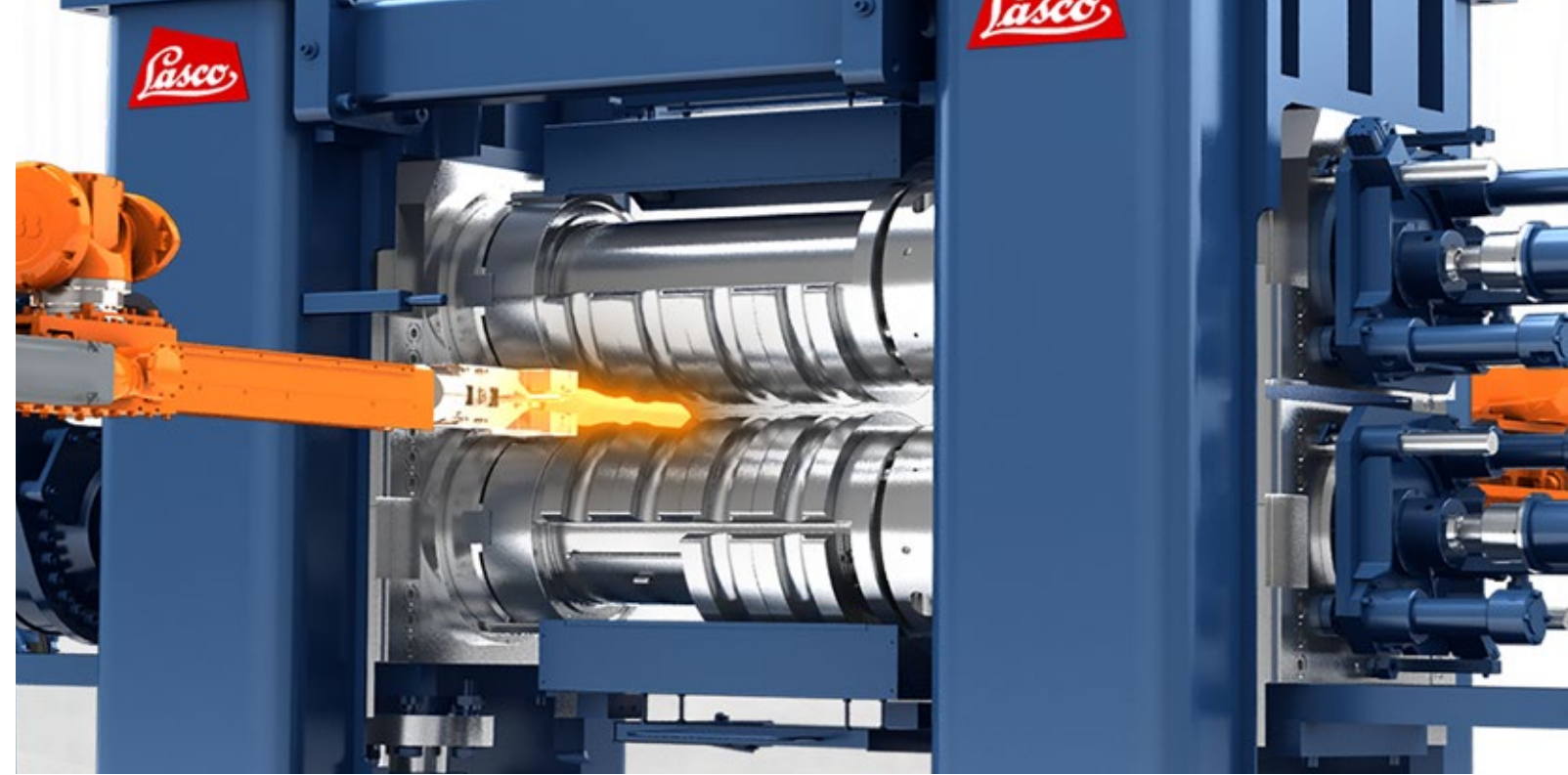


ROLLING MACHINES

Efficiency through perfection





EFFICIENT PREFORMING UNIT

Near-net-shape preforming

The growing requirements in solid forming with regard to reproducible quality of the forged parts and optimum cost reduction are met primarily by automated production cells.

LASCO rolling machines contribute to an increase in the degree of automation possible, and impress with high uptime and very short change-over times.

With the special designs of longitudinal and cross rolls, LASCO has completed its range of machines and production lines in the field of mass pre-distribution in die forging processes. LASCO rolling machines are an indispensable constituent in flexible and very modern production lines e. g. in the automotive supply industry.

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Your partner for mechanical engineering and technology

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LOCATIONS ON
3 CONTINENTS

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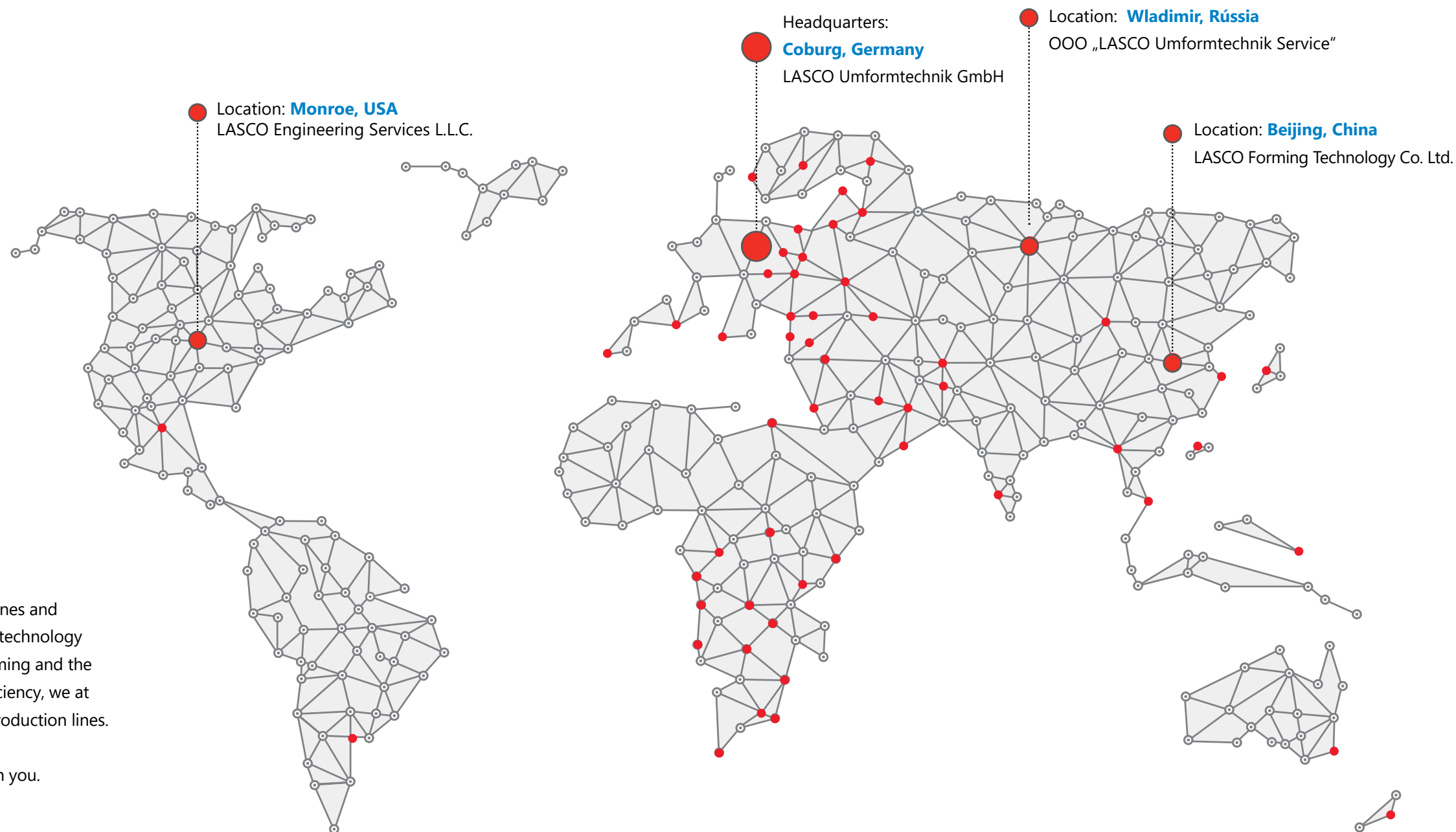
SALES AND SERVICE PARTNERS
IN 60 COUNTRIES

100

COUNTRIES OF USE ALL
OVER THE WORLD

Specialized in modern machine tools, efficient production lines and comprehensive automation technology, we are among the technology leaders in the fields of solid metal forming, sheet metal forming and the production of sand-lime blocks. Focusing on economic efficiency, we at LASCO design holistic solutions and also expand existing production lines.

We cooperate, solve your problems, and work together with you.
Because the center of the LASCO world is not us, but you.



Past, present and future:

Since 1863, we have been your reliable partner for solid and sheet metal forming - and today also for building material machines and automation & robotics.



Scan now and watch
our company video!

Guiding principle:

We are personally committed to your success. With a team of professionals who want to achieve nothing less than the best for you.

HIGHLY DYNAMIC & PRECISE

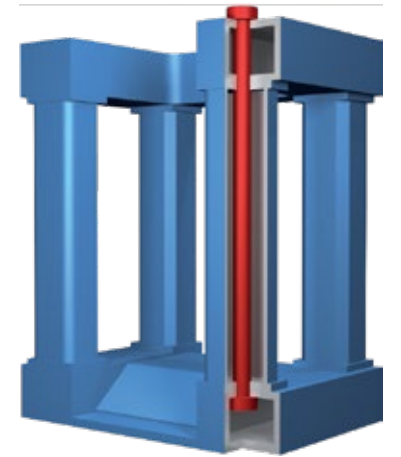
Improved quality at lower costs

LASCO cross wedge and forging rolls offer a wide range of innovative detail solutions that qualify these preforming units for use in highly automated process chains and flexible production processes.

Flexibility by means of a combined rolling machine: The unique LASCO concept according to which rolling machines may be operated both as forging rolls and as cross wedge rolls offers the customer outstanding flexibility. The basis of this concept are the upper and lower rollers driven individually and directly by torque motors, which are synchronized in the same direction (QKW) or in the opposite direction (RCW).

Benefits:

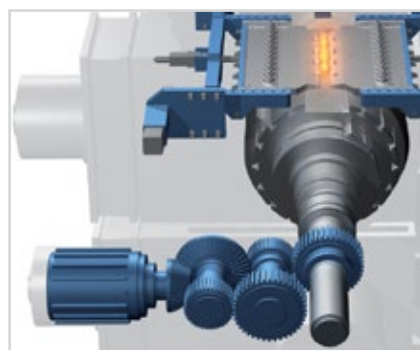
- ▶ Significant material savings of up to 30%
- ▶ Improved surface quality compared to incremental preforming processes
- ▶ Longer die life in the subsequent forging process due to reduced forming degree
- ▶ Low flash content due to optimally preformed forged blanks



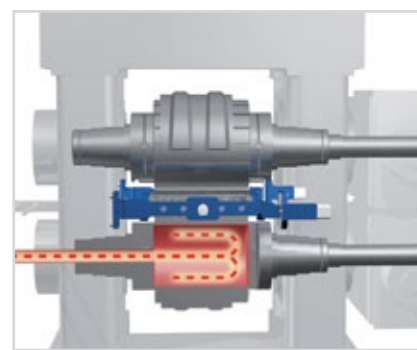
Roll frame: multi-part and prestressed by tie rods

Quality features:

- ▶ Maintenance-friendly, highly dynamic torque motor drives
- ▶ Roller gap adjustment between two rolling processes - without process interruption
- ▶ Short production downtime during roller change due to patented roller clamping system
- ▶ Compensation of the axial thermal expansion of the rollers by hydraulic roller clamping
- ▶ Roller change with change device on the line or with suitable indoor crane without additional tools
- ▶ Fast zero-point synchronization of tools
- ▶ Cycle time reduction through suitable feeding and unloading units (optional)
- ▶ Integrated heating and spraying systems – required for non-ferrous metals



Rollers are driven individually by torque motors with downstream compact reduction gears



Temperature control of the rollers



Roller change device:
A roller can be exchanged in less than 10 minutes



CROSS WEDGE ROLL QKW

Automated preforming specialist

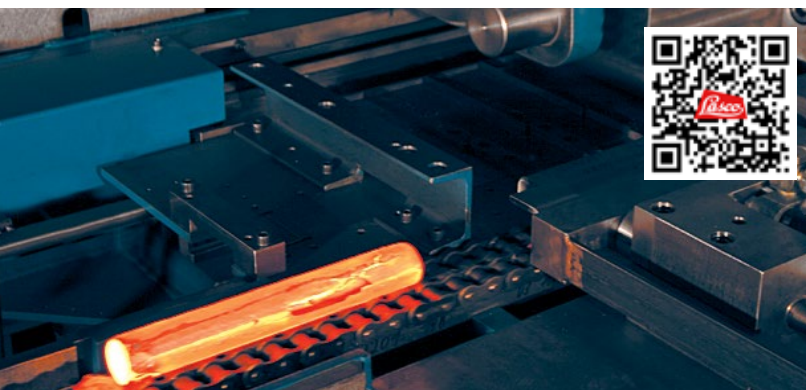
The **cross wedge roll** is designed for the **preforming of round billets**. It is ideally suited for finish-forming of **gear shafts, stepped shafts or hollow shafts**. The QKW can both be used as a **stand-alone unit** and be an **integral constituent of an automated forging line**.

Performance overview:

- ▶ Preforming and finish-forming by rolling round material
- ▶ Particularly suitable for medium and large batches
- ▶ For steel and non-ferrous metals, e.g. aluminum

Dimensions:

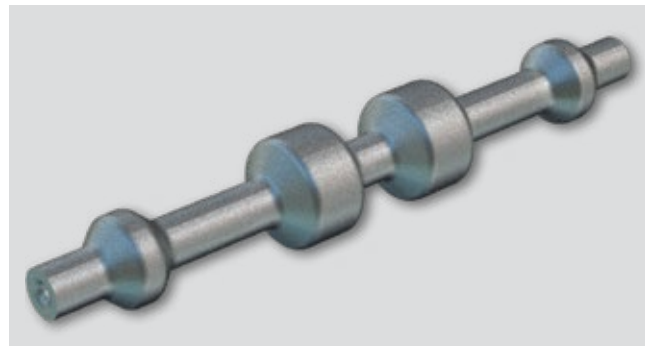
- ▶ Roller diameter 350 mm - 1,400 mm



Automatic part feeding

Part feeding:

Optimally heated forging billets are picked up by the chain belt and pushed into the cross conveyor. By way of the guide prism, the feeding device driven by servo-motor transports the forging billet to the starting position of the forming process.



Cross wedge-rolled billet for the production of con-rods



LASCO cross wedge roll QKW 700 with feeding system

FORGING ROLL RCW

Universal preforming unit

The **forging roll RCW** is designed for the **preforming of round and square material**. The billet is fed radially to the rollers by the stretching manipulator and formed in individual sectors (usually two to five passes).

Performance overview:

- ▶ Preforming by stretching round and square material
- ▶ Suitable for small to large batches
- ▶ Suitable for steel and non-ferrous metals, e.g. aluminum

Dimensions:

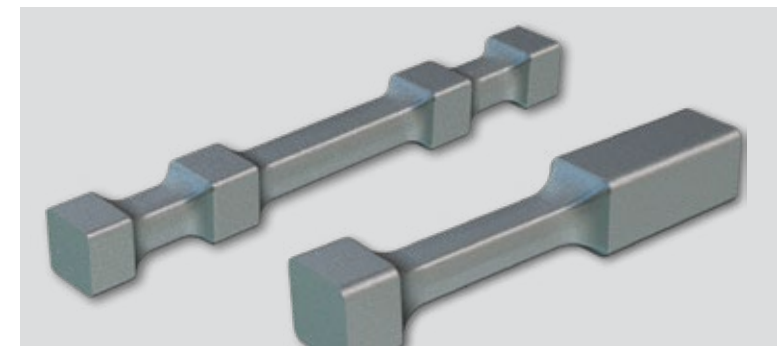
- ▶ Roller diameter 350 mm - 1,000 mm



Stretching manipulator with special gripping system

Freely programmable stretching manipulator

By decoupling the electric drive, reaction forces from the forming process are kept away from the manipulator and changes in billet lengths are compensated. Since there is no fixed motion sequence, the stretching manipulator can be used flexibly.



Forge-rolled billets



LASCO forging roll RCW 560 with stretching manipulator

SPECIAL DESIGNS

The optimum machine type for every application

Besides the basic types of cross wedge and forging rolls, LASCO has additional units in its product portfolio. These include **longitudinal rolls** with roller gap adjustment as special designs of a forging roll as well as **skew rolling mills** and **axial feed cross rolls**.

While cross wedge, rolling forge and skew rolling are suitable for large batch sizes with short cycle times, axial feed cross rolling is ideal for small batch sizes.

This enables us to find the optimum unit also for your preforming process.

► Longitudinal roll

A special design is the forging roll with dynamic roller gap adjustment.

The basic structure of this special longitudinal roll largely corresponds to that of our traditional forging roll. The dynamic roller gap adjustment is achieved via two hydraulic cylinders, each coupled to one of the two bearing housings of the upper roller, and changes the roller gap depending on the actual position of the roller.

In longitudinal rolling, the restrictions due to the "Mannesmann effect" and "contraction" do not exist. Options such as two stretching manipulators and automatic loading and unloading devices lead to the shortest possible cycle times, as idle times are largely avoided.

The RCW 630, for example, has a rolling force of 2,000 kN. The LASCO patent DE 103 19 258 B4 gives a detailed description of the process.



► Skew rolling mill STW

The skew rolling mill is used for producing preforms of seamless tubes.

Starting from round material, first a reverse extrusion operation is carried out on a hydraulic press. The preformed billet is then fed horizontally onto the mandrel of the skew rolling mill.

In the following forming process, several active rollers reduce the wall thickness of the tube billet step by step.



Result:

- Continuous wall reduction and thus extension of the billet.



► Axial feed cross roll AVQ

A special form of cross rolling is axial feed cross rolling.

The axial feed cross roll is used for preforming small quantities of billets to special geometries.

The round material is actively drawn through two forming rollers. The reduction of the diameter is achieved by radial adjustment of the forming rollers.



Special benefit:

- Simple and product-independent design of the work rolls
- Suitable for small series

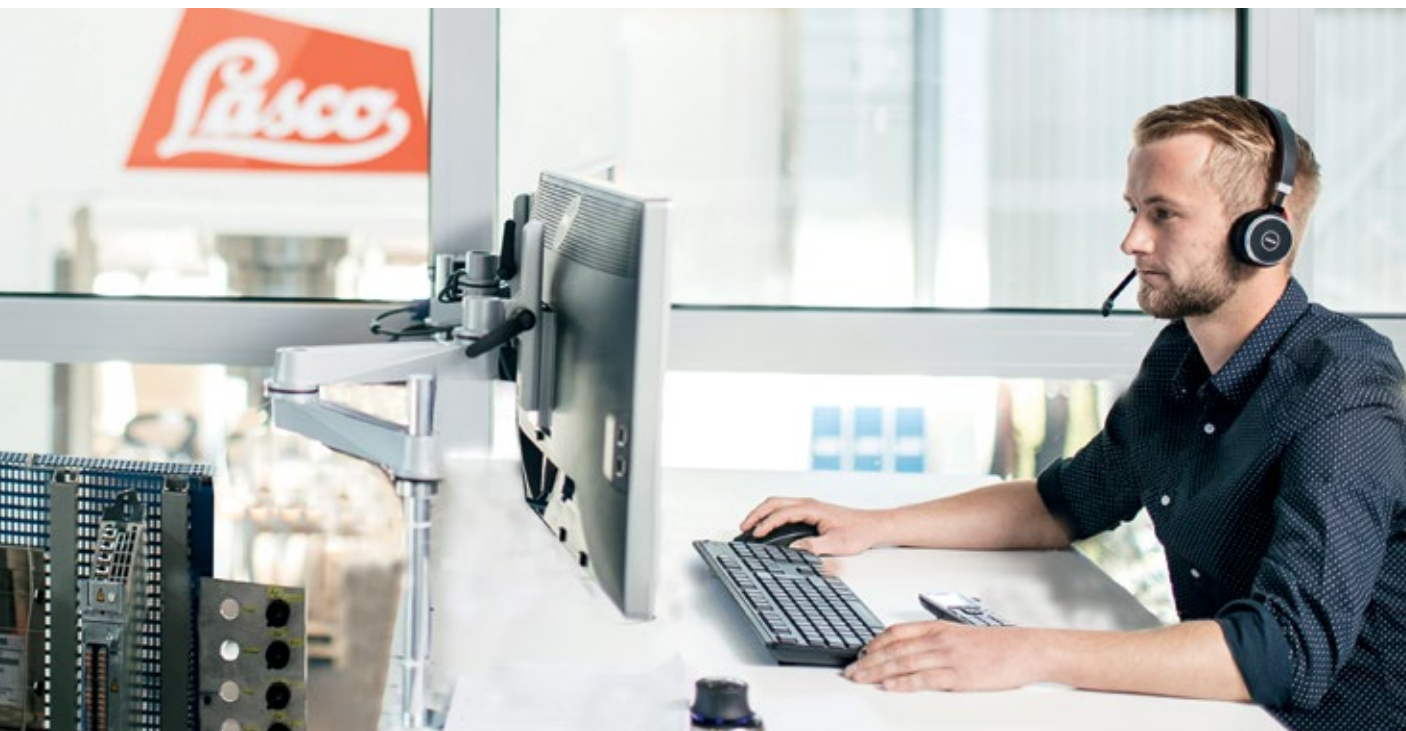
Performance overview/ process technology:

Compact, horizontally arranged cross roll with two radially adjustable work rollers and axial feed of the billet – (diameter 630 mm, circumferential speed 1,000 mm/s)



VIRTUAL COMMISSIONING

Simulation of complex systems



Already in the engineering phase, automation systems are virtually optimized for commissioning. LASCO uses real process parameters for this purpose. Long before assembly begins, all machine sequences and operating conditions are simulated on the computer.

The use of this method in the development process of machines/production lines detects and eliminates errors at an early stage.

This minimizes correction loops in the engineering stage. **Cost-optimized** and **shortened commissioning on site** are the beneficial outcomes.

The "virtual commissioning" technology can also be used for planned changes to the setup of the production line. Changes of products and production processes can already be tested and adapted virtually parallel to production.



REMOTE ASSISTANCE SYSTEM

Real-time collaboration

LASCO machines and lines are characterized by high availability and operational safety. In order to guarantee this in the long term, it is particularly important to us to offer our customers the fastest possible assistance and to be able to provide them with competent support. Remote diagnosis provides the service technician with valuable information on the actual condition of the system.

The system represents the technically superior alternative to conventional means of communication. Video stream and SmartGlasses enable bidirectional image and sound transmission from the first-person perspective as well as fast and direct troubleshooting by the technician on site. This reduces downtime and ideally avoids production interruptions. The virtual support by a LASCO expert during the execution of the individual work steps significantly increases the quality of the measure. Furthermore, upcoming repair work can be prepared in a targeted manner.

Our service

- ▶ Demand-oriented and optimized LASCO Remote Assistance System
- ▶ Quick and direct contact to LASCO experts
- ▶ Integration, training and workshop

Take a look at
LASCO Remote Assistance.
Simply scan the QR-Code.



Remote service

Since 1998 already, LASCO has offered remote maintenance solutions that allow our service technicians to access the control systems of LASCO lines worldwide from Coburg. We offer a combined system for maximum safety and efficiency.

Your benefits

- ▶ Support in maintaining optimum system availability
- ▶ Efficient fault analysis in real time
- ▶ Bidirectional video and audio communication
- ▶ Free hands and unrestricted movements thanks to SmartGlasses

AUTOMATION & ROBOTICS

More precise / faster / more economical

Intelligent production lines: People, machines, lines, products and logistics communicate and cooperate directly with each other - that's Industry 4.0, with the goal of largely self-organizing production. We create automation solutions and robotic systems that secure your competitive edge for years to come. You benefit from our experienced programmers who devote themselves in-house to the creation of source code. Always in direct contact with technicians and assemblers. This enables us to meet your needs precisely, even if your requirements change or the market makes adjustments necessary.

► **Separation**

Ideal automation solutions are used for the separation of source materials, for example step conveyors or stacking devices with image recognition.

► **Transport & handling**

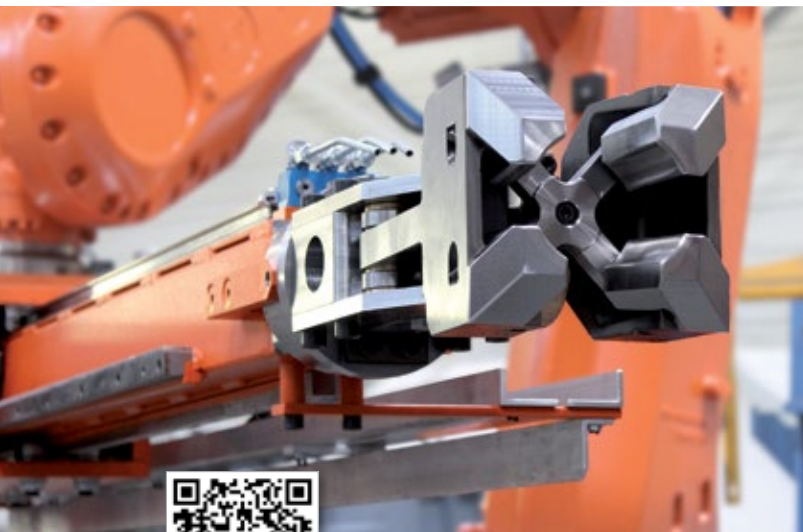
With fast, safe and robust transport and handling systems, such as robots and linear transfer systems, production lines become efficient.

► **Image processing systems**

State-of-the-art sensor technology and optical image recognition identify potential misalignments, which are compensated by robotics automatically.

► **Gripping technology**

Transfer operations must be handled quickly, accurately and safely, but also smoothly. LASCO knows the most advanced solution for every product and process - from vacuum systems to sensitive gripping system.



Scan now and experience
Automation and Robotics!

► In addition, LASCO offers robotic systems for sorting, stacking, cleaning, testing and marking different work-pieces/components. LASCO master control systems reliably link and control complex production lines.

Technical data QKW / RCW

QKW series	500	700	1000
Roller diameter [mm]	500	700	1,000
Roller width [mm]	500	700	1,000
Billet diameter max. [mm]	50	70	110
Billet length max. [mm]	300	400	560
Adjustment lower roller approx.[mm]	40	60	80
Main-drive power per roller [kW]	22	55	90
Roller tempering	optional	optional	optional
Width including feeding unit approx. [mm]	3,000	5,000	6,200
Height approx. [mm]	2,000	3,300	4,700
Depth approx. [mm]	1,500	2,400	3,600
Weight incl. rollers approx. [kg]	15,000	25,000	50,000

RCW series	460	560	930
Outer diameter of tool [mm]	460	560	930
Clamping width of tool [mm]	560	700	1,120
Thickness of billet max. square [mm]	63	80	125
Length of billet max. [mm]	315	400	630
Weight incl. tool approx. [kg]	1,200	2,200	8,000
Adjustment of roller [mm]	20	25	30
Main-drive power per roller [kW]	125	200	500
Roller tempering	optional	optional	optional
Width approx. [mm]	3,800	4,800	7,500
Height approx. [mm]	1,800	2,300	3,500
Depth (without roller change manipulator) approx. [mm]	1,200	1,500	2,400
Weight incl. rollers approx. [kg]	15,000	25,000	100,000

► Further models and sizes available on request

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