

FORMING THE FUTURE



RING ROLLING LINES FOR  
THE MANUFACTURING OF  
SEAMLESS RINGS

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**SCHULER** 

Member of the ANDRITZ GROUP

# FORGING AND ROLLING. TURN-KEY SYSTEMS FOR THE MANUFACTURING OF RINGS.

■ Systems for hot forging

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**Schuler forging.** System solutions from Schuler offer customers worldwide a decisive advantage when it comes to quality, in all temperature ranges:

- Systems for hot forging
- Systems for warm forging
- Systems for cold forging

In the field of hot forging, Schuler produces turn-key systems for the manufacture of rolled rings.

## Customized forging and rolling procedures from Schuler.

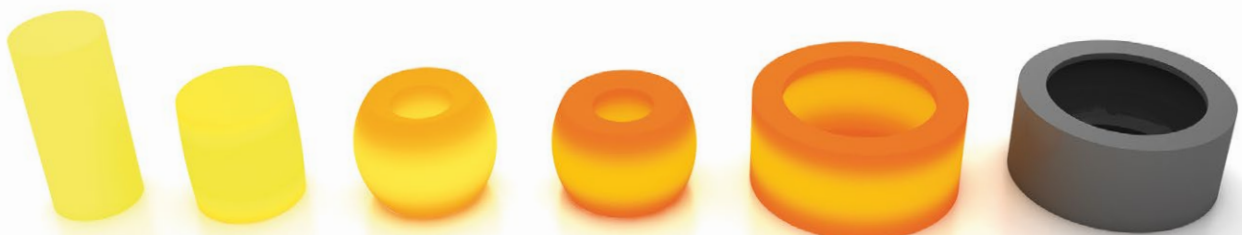
These systems enable seamless rings to be manufactured in accordance with specific, required properties. Seamless rings are used in motors, bearings, aircraft turbines and many other different components. Modern forming processes from Schuler, such as double-sided pre-punching, enable the production of an optimal fiber structure.

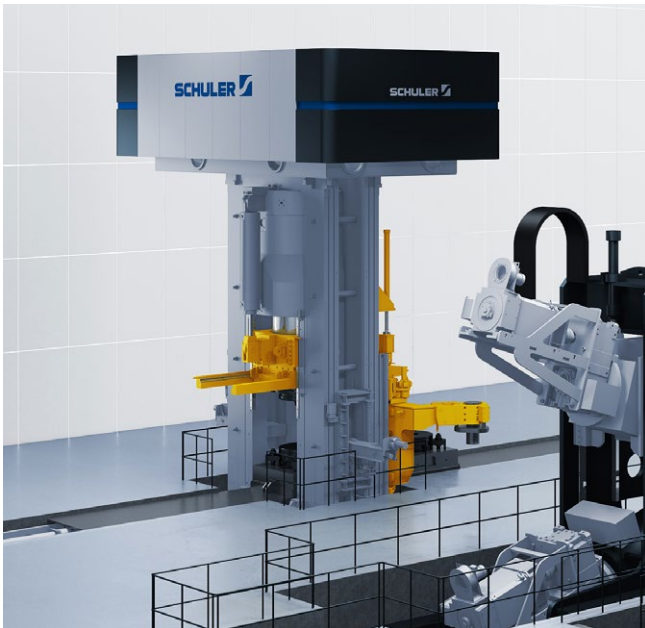
**The advantages of the Schuler ring rolling line are as follows:**

- The position of the upper mandrel bearing and thus the length of the roller mandrels can be adjusted to the geometry of the ring, resulting in a significantly reduced bending and die load.
- The roller mandrel's additional drive unit means all forming tools can continue to rotate during non-productive time. This guarantees optimal and even cooling.
- The innovative machine concept with reduced installation height enables outstanding accessibility for quick changing of the roller mandrel.
- The cassette design of the main roller enables die changing in just a few minutes, guaranteeing economical operation.
- Robust machine design and large bearings as well as the use of proven Schuler technology in the field of drive and control technology ensure high availability of the system.

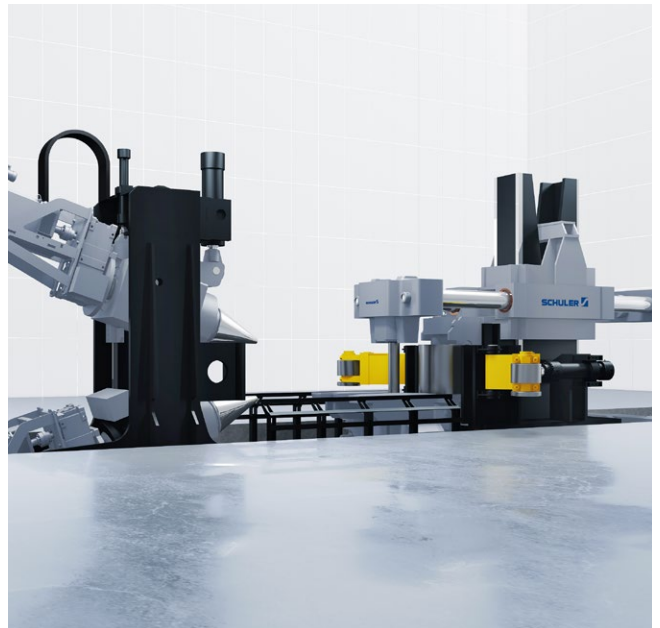
## SEQUENCE OF OPERATIONS FOR THE MANUFACTURING OF SEAMLESS RINGS

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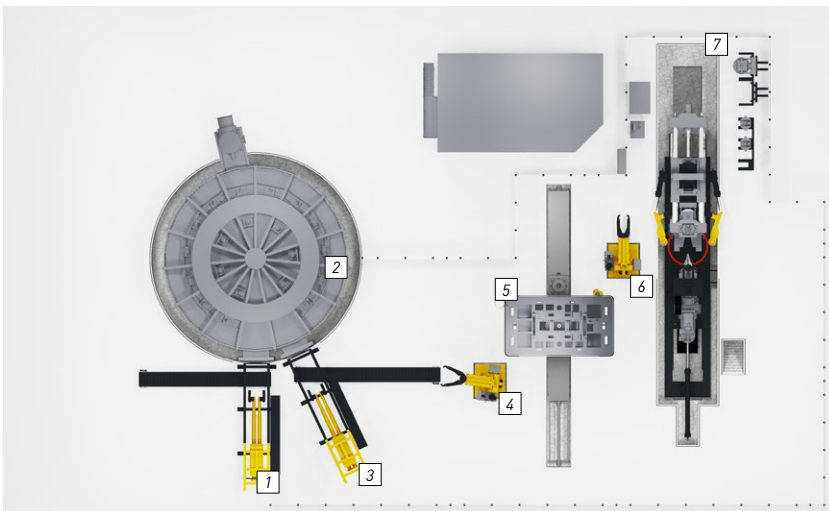


Hydraulic press for forging ring blanks (MH-3000).



Manufacturing of flat and tall rings on the same ring rolling line.

## TURN-KEY SYSTEM FOR THE MANUFACTURING OF RINGS

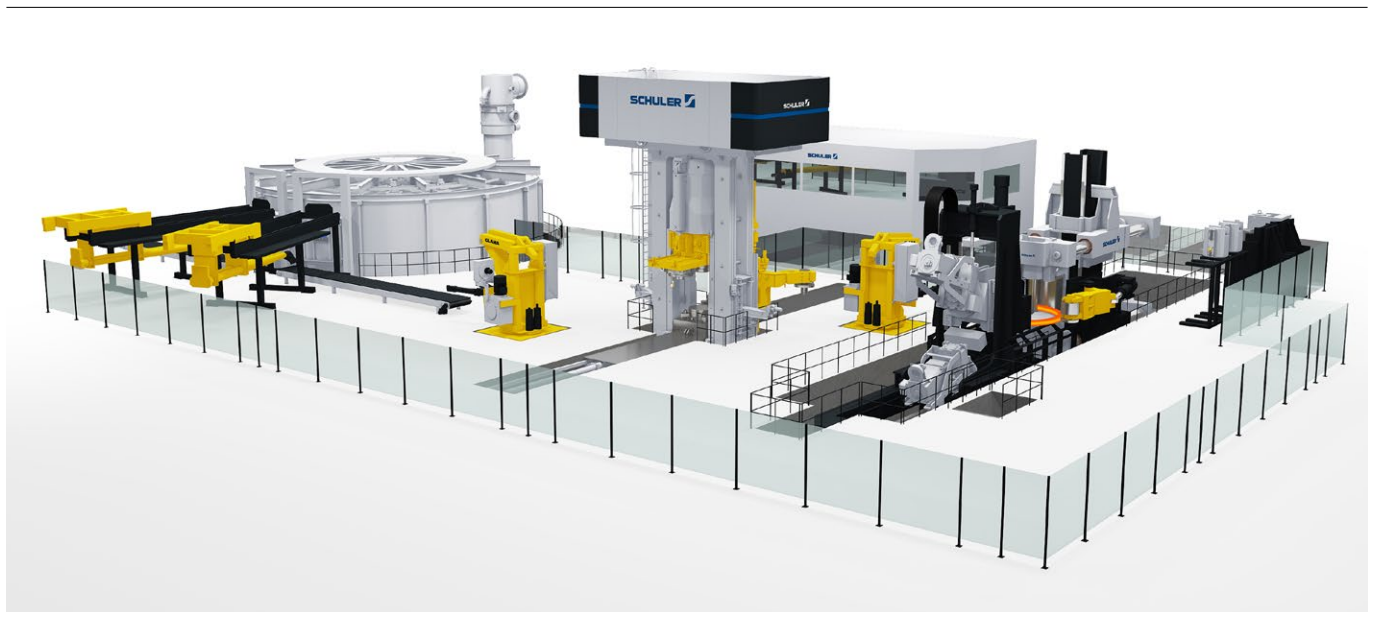


- 1 Loading manipulator
- 2 Rotary hearth furnace
- 3 Unloading manipulator
- 4 Robot
- 5 Hydraulic forging press
- 6 Robot
- 7 Ring rolling line

**Designs of Schuler ring rolling lines:** Machines from the standard range are suitable for common applications. Versions for special ring dimensions or even increased forming forces for materials that are difficult to form, are available on request.

Standard range	Radial rolling force (kN)	Axial rolling force (kN)	Max. outside diameter of ring (mm)	Max. ring height (mm)
100/80 – 2500/400	1,000	800	2,500	480
125/100 – 3000/550	1,250	1,000	3,000	550
160/125 – 4000/650	1,600	1,250	4,000	650
200/160 – 5000/700	2,000	1,600	5,000	700
250/200 – 6000/800	2,500	2,000	6,000	800
315/250 – 7000/900	3,150	2,500	7,000	900
400/315 – 8000/1000	4,000	3,150	8,000	1,000
500/ 400 – 8000/1250	5,000	4,000	8,000	1,250

**AUTOMATIC TURN-KEY SYSTEM FOR THE MANUFACTURING OF SEAMLESS RINGS WITH ROTARY HEARTH FURNACE, HYDRAULIC PRELIMINARY FORGING PRESS AND THE SCHULER RING ROLLING LINE**



# SCHULER RING ROLLING LINE.

## SOLUTIONS IN DETAIL.

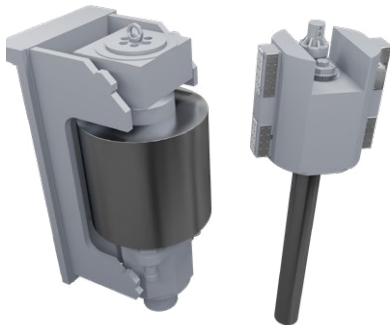
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### UPPER BEARING ADJUSTMENT

#### Advantages:

- Better crane accessibility due to low installation height
- Use of mandrels with different lengths



### MAIN ROLLER CASSETTE – MANDREL BEARING CASSETTE

#### Advantages:

- Quick die change
- The right die for every ring
- Set up can continue during production



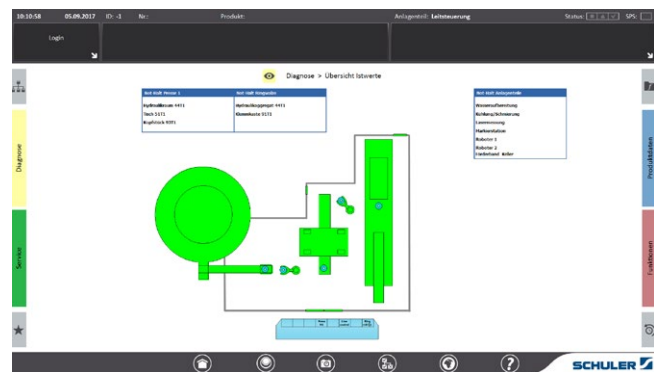
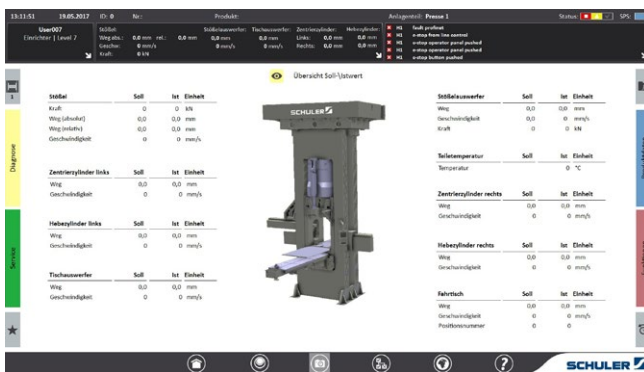
### MANDREL DRIVE

#### Advantages:

- Even cooling around entire circumference
  - Low wear during start-up
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# OPTIMAL ROLLING PROCESSES. CONTROL SYSTEMS FOR TURN-KEY SYSTEMS.

The control program guarantees optimal rolling processes. The program takes into account the special requirements of rings.



## Machine control:

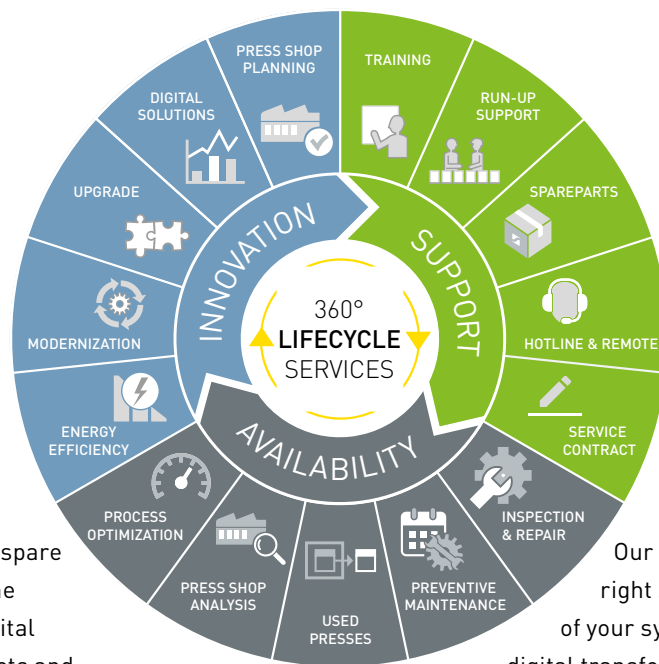
- Design with Siemens TIA Portal
- Clear illustration of the process parameters
- Process sequences are freely programmable
- Simple parameter input
- Comprehensive product data management
- Maintenance-friendly
- User management with several password levels

## Master control:

- Overview of the entire line
- Simple part and error tracking
- Several production plans possible
- Connection to a production information system
- Safety concept for the entire system

# LIFECYCLE SERVICE FROM SCHULER.

## EXTENSIVE INDUSTRY SERVICES FOR FORMING TECHNOLOGY.



From the dependable supply of spare parts and rapid assistance in the event of malfunctions to the digital transformation process: products and services from Schuler Service help you to keep your system running at an optimal level.

Whether it's spare parts service, maintenance work, modernisations, used presses, IT solutions, or our 24/7 support with quick response times: you can count on our Service Team to ensure maximum safety and system availability in your press shop – whenever you need us, even on our 24/7 Hotline.

Our experts provide you with the right solutions over the entire lifecycle of your system whilst assisting you with digital transformation, from consultations about various available IT solutions to the actual implementation.

Schuler Service is here to help as your competent partner. Reliable, knowledgeable and friendly.

**We look forward to hearing from you.**  
**Your Service Team.**



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**ABOUT THE SCHULER GROUP – [WWW.SCHULERGROUP.COM](http://WWW.SCHULERGROUP.COM)**

Schuler offers customized cutting-edge technology in all areas of forming – from the networked press to press shop planning. In addition to presses, our products include automation, dies, process know-how and service for the entire metalworking industry. Schuler’s Digital Suite brings together solutions for networking forming technology and is continuously being developed to further improve line productivity and availability. Our customers include automotive manufacturers and suppliers, as well as companies in the forging, household appliance and electrical industries. Presses from the Schuler Group mint coins for more than 180 countries. Founded in 1839 at our headquarters in Göppingen, Germany, Schuler has approx. 5,000 employees at production sites in Europe, China and the Americas, as well as service companies in more than 40 countries. The company is part of the international technology group ANDRITZ.

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