

**Shape.
Join.
Look ahead.**

**Machinery and
equipment
for innovative
forming, cutting
and joining
systems**

Room for flexibility

**Forming and welding technology for efficient
production of high quality short tubes and
special applications**

weil 
technology

A brand of weil engineering gmbh

**Machinery and equipment
for innovative forming
cutting and joining systems**

weil technology



weil engineering gmbh
Headquarters Müllheim
Plant 1

weil technology is a weil engineering gmbh brand and incorporates different enterprises, which are market and technology leaders in the field of sheet metal processing. Machines and systems for innovative forming, cutting and joining techniques have been designed and manufactured for the global market within the group since 1987.

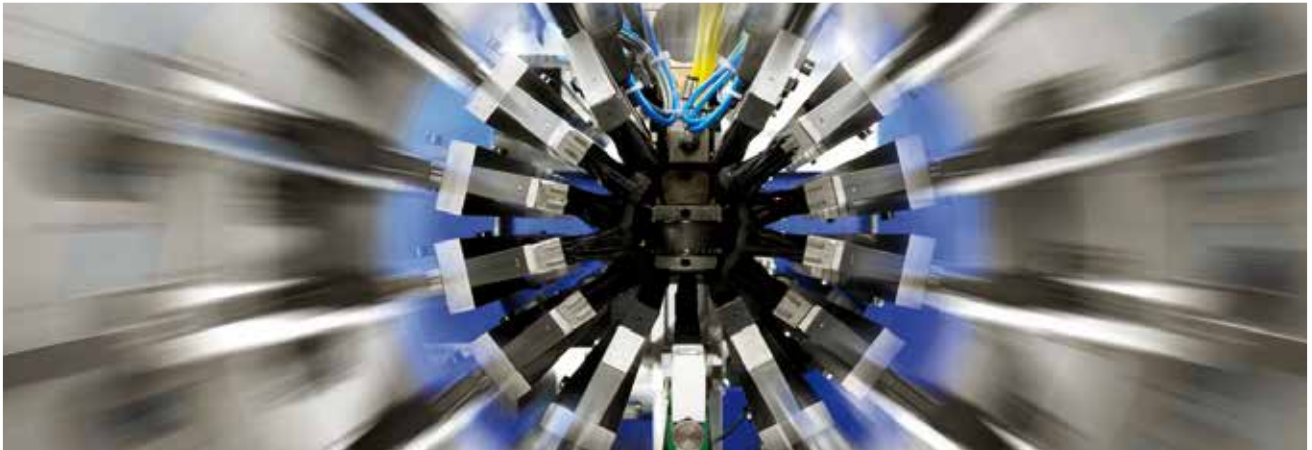
Our turn-key and fully automated production lines are primarily found in the automotive sector and in the HVAC, housing and container construction and electrical industries. Each company within weil technology focuses on its core competency and together we are able to offer our clients a large pallet of customized system solutions.

Our focus is on flexible, rational and efficient production while making use of innovative roll-forming, stamping, laser welding and laser cutting technologies.

weil technology clients value the fact that our system concepts are efficient, reliable and consistently reproduce high quality parts:

Shape. Join. Look ahead.

The better way of sheet metal forming and joining



Flexistar: Award-winning flexible production unit for manufacturing thin-walled quality tubes

Welding technology for efficient production of high quality short tubes and special applications

weil engineering is the premier turn-key supplier for customized production technology. As a specialist for the automation of production processes including forming and welding, weil engineering is the right partner for your applications in automotive, HVAC, household appliances, containers or other high quality products.

The combination of high flexibility, modular line concepts and highest process stability offers our customers the best conditions to exceed their production requirements.

Rollforming

Rollforming center



The ideal rollforming solution for all tube shapes: round, oval or polygonal.

Freedom of shape

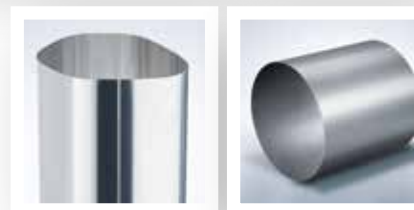
Round, oval and polygonal shaped tubes are easy to produce with this technology. Even tourniquet wrap parts can be formed.

Repeatability

The large process parameter window guarantees a stable production quality.

Tube roundness

The 2-roller technology achieves results unrivaled by other rollforming processes.



Programming

A new product can be setup very easily by choosing a predefined shape from the library and quickly adapting it to the specific geometry.

Process speed

Small diameters can be produced at rates far superior to other processes.

	RMA 200/350	RMA 400/600	RMA 400/1000
Tube diameter	60 - 200 mm	80 - 400 mm	80 - 400 mm
Tube length	60 - 350 mm	80 - 600 mm	80 - 1000 mm
Material thickness	0,4 - 1,5 mm	0,4 - 2,0 mm	0,4 - 2,0 mm
Materials	Mild steel, stainless steel*	Mild steel, stainless steel*	Mild steel, stainless steel*
Output	Up to 360 Tubes/h		

*Other materials on request.

Rollforming

RMA-series



Automatic NC-controlled 2-roller rollformer suitable for integration in an automated production line

Process
The program-controlled rollforming process is fully-automatic and guarantees a high repeatability. All process parameters can be stored for later use.

Modular configuration
The addition of a destacker and push-out unit reduces manpower requirements.

Multiple production
Increase the output: depending on the blank size, multiple parts can be rolled at the same time.

Top results
Use of an upper roller with support enables high-quality production of small diameter tubes.

The ideal rollforming solution for all tube shapes: round, oval or polygonal.

Ideal for integration in a fully-automatic production line or as a stand alone unit.

	RMA 125/700	RMA 150/700	RMA 250/700	RMA 150/1250	RMA 250/1250
Tube diameter	25 - 125 mm	50 - 150 mm	80 - 250 mm	80 - 150 mm	80 - 250 mm
Tube length	80 - 700 mm	80 - 700 mm	80 - 700 mm	80 - 1250 mm	80 - 1250 mm
Material thickness	0,4 - 2,0 mm	0,4 - 2,0 mm	0,4 - 2,0 mm	0,4 - 2,0 mm	0,4 - 2,0 mm
Materials	Mild steel, stainless steel*				
Output	Up to 360 Tubes/h				

*Other materials on request.

Rollforming

Multiroller



NC-controlled multi roller rollformer: different diameters can be produced without mechanical refitting

No tooling means no change-over time loss

Diameter changes are made at the push of a button.

Changes in material characteristics can be compensated through parameter settings.

Tube lengths up to 2000 mm
Our technology enables perfect roll-forming results even with long tubes.

Small diameters

Long tubes with small diameters and difficult to form materials are no challenge for the Multiroller.

Modular design

Automation modules are available for the Multiroller as a stand-alone roll forming center or in combination with a welding machine.



Multiple production

Depending on the blank size, several blanks can be rolled at the same time.

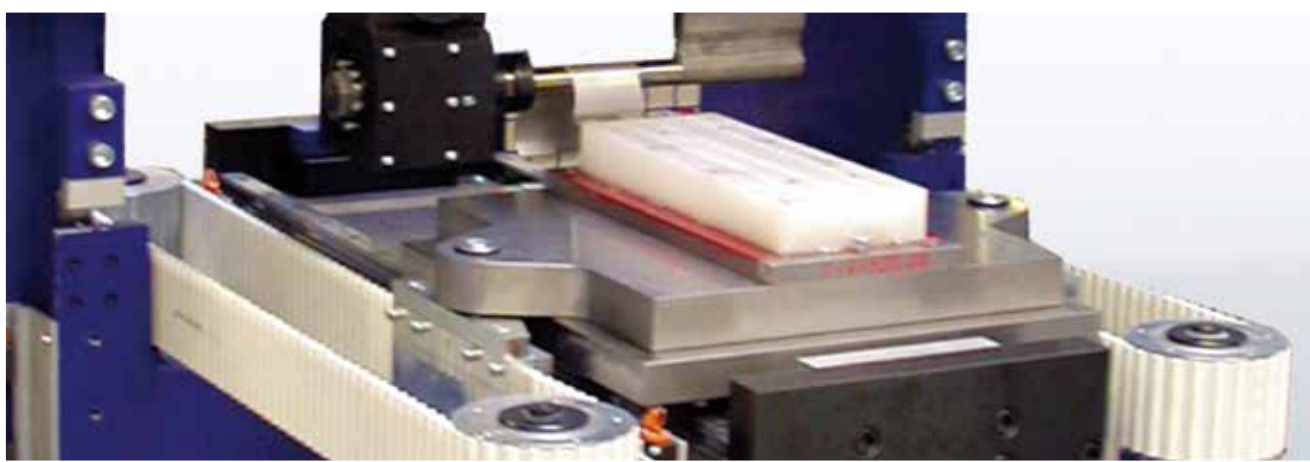
High-tech rollforming machine for a fully automated and flexible manufacturing of tubes up to 2000 mm tube length and radius greater than 30 mm

	Multiroller 400/1250	Multiroller 400/2000	Multiroller 150/2000
Tube diameter	80 - 400 mm	80 - 400 mm	60 - 150 mm
Tube length	max. 1250 mm	max. 2000 mm	max. 2000 mm
Material thickness	0,8 - 3,0 mm	0,8 - 3,0 mm	0,2 - 1,5 mm
Materials	Mild steel, stainless steel*		
Output	Up to 240 Tubes/h		

*Other materials on request.

Rollforming

Coniroller



Production cell for tailpipe tips

Highly productive manufacturing center consisting of a combination of a patented rollformer for conical, oval, polygonal or cylindrical bodies and a 2-station welding machine

Pushing design limits

Complex geometries are easily handled by this innovative machine concept.

Maximum output

The highly productive roll former combined with two clamping stations mounted on an indexing table allows a minimum cycle time.



Quick change-over

The exchange of a tool-set is done in a matter of minutes with all process parameters restored from the control panel.

High-quality tips

The patented roll forming process and subsequent welding machine guarantee high-quality end products.

Production cell for tailpipe tips	
Blank size	max. 400 x 550 mm
Developed length	max. 550 mm
Width oval / height	max. 220 mm / max. 120 mm
Material thickness	0,6 - 1,2 mm
Materials	Mild steel, stainless steel*
Welding sources	Laser, TIG, Plasma
Output	Up to 240 Parts/h

*Other materials on request.

Welding

LRSA 250



The compact two-station tube welding machine for maximum output

Geometry and clamping procedure

Round, oval and polygonal tubes can be welded by using diameter specific tools, optimized for a quick clamping sequence.

Fast change-over

Ergonomically designed tool cartridges make diameter changes quick and simple.

Easy maintenance

Despite a small footprint good accessibility is made possible by large maintenance hoods.

Modular

This machine can be operated as a stand-alone unit or integrated in a fully automated production system.



One station can be loaded and unloaded while the other station is welding, thus optimizing the use of the power source.

	LRSA 250/1100	LRSA 250/1250
Tube diameter	76 - 250 mm	76 - 250 mm
Tube length	100 - 1100 mm	100 - 1250 mm
Material thickness	0,4 - 2,0 mm	0,4 - 2,0 mm
Materials	Mild steel, stainless steel*	Mild steel, stainless steel*
Welding sources	Laser, TIG, Plasma	Laser, TIG, Plasma
Output	Up to 240 Tubes/h	

*Other materials on request.

*Other materials on request.

Welding

Ringmaster



Economical one-station welding system for rings and parts with a diameter larger than part length



Quick change-over

The three piece specific tooling is easily changed for production of a different diameter part.

Improved part formability

Parts welded back to back show better forming results.

Modular concept

Expansion to 2-station weld unit sharing controls expands productivity at a low cost.

Production of rings and tubes in medium batch sizes



	Ringmaster
Tube diameter	200 - 450 mm
Tube length	50 - 400 mm
Material thickness	1,0 - 3,0 mm
Materials	Mild steel, stainless steel*
Welding source	TIG
Output	Up to 200 Ring pairs/h

*Other materials on request.

Welding

Flexmaster series



**Flexmaster:
The one station welding machine for utmost flexibility**

Patented clamping technology

The clamping belt system allows for accurate and repeatable clamping without the requirement for diameter specific tooling: round, oval, polygonal.

Programming

Up to 400 programs with their respective clamping and welding parameters can be stored in the operator panel.

Automatic setup

The machine resizes itself according to the selected program.

Repeatability

High accuracy in the joining and clamping process guarantees a consistent quality in automated welding processes.

Modular concept

Flexmaster series machines can be combined with a number of weil engineering modules and therefore operated stand-alone or in a completely automated production line.

Use of a flexible clamping system means that diameter changes require no mechanical refitting.

	Flexmaster 400/1250	Flexmaster 400/2000	Flexmaster 600/1500 D	Flexmaster 1000/2000
Tube diameter	76 - 400 (600) mm	76 - 400 (600) mm	100 - 600 mm	200 - 1000 mm
Tube length	100 - 1270 (1525) mm	100 - 2000 mm	200 - 1525 mm	500 - 2000 mm
Material thickness	0,4 - 2,0 mm	0,8 - 3,0 mm	0,4 - 2,0 mm	0,6 - 1,5 mm
Materials				
Welding sources	Laser, TIG, Plasma	Laser, TIG, Plasma	Laser, TIG, Plasma	Laser, TIG, Plasma
Output	Up to 150 Tubes/h		Up to 180 Tubes/h	Up to 60 Tubes/h

*Other materials on request.

Rollforming + welding

Flexmaster



By adding automation devices stand-alone machines (rollforming, welding) are converted into manufacturing centers

From blank to tube

A destacker loads the infeed table with blanks up to 2000 mm (depending on tube length up to four blanks simultaneously).

Automatic transfer

A portal handling loads and unloads the rollformer and the welding station automatically and transports the

finished tubes to optional post-welding operations (brushing, calibrating).

Automation

Automatic destacking and loading of rollformer and welder eliminate the need for manual intervention.

Capabilities

Flexibility in tube geometries, tube diameters and lengths are the key features of weil engineering machines.

Cycle time

The possibility of processing multiple parts throughout the line leads to a high production output.

Modular concept

The combination of destacker, Multiroller, Flexmaster, portal handling and tube finishing equipment can be easily adapted to your production requirements.

Oval and round geometries made possible through clever multiroller and welder combination.

eg.	Tube production center HVAC tubes	Production center for chimney tubes and catalytic converter shells
Tube diameter	76 - 400 mm	76 - 400 mm
Tube length	200 - 2000 mm	120 - 1250 mm
Material thickness	0,8 - 3,0 mm	0,8 - 2,0 mm
Materials	Mild steel, stainless steel*	Mild steel, stainless steel*
Welding sources	Laser, TIG, Plasma	Laser, TIG, Plasma
Output	Up to 580 Tubes/h	Up to 240 Tubes/h

*Other materials on request.

Rollforming + welding

Twinmaster



Combination of rollformer and welding machine on a single platform

Multiple production

The Twinmaster is the highly efficient machine for short tube production

Multiple manufacturing

Increase the output: depending on the blank size, multiple parts can be rolled and welded at the same time.

Proven technology

Characteristic of many weil engineering welding machines is the ingenious clamping procedure which perfectly positions the tube in the welding station.

Flexibility

This machine allows the production of different geometries and shapes: up to 14 different radii in one tube, production of double-walled tubes, processing of perforated sheets etc. are all possible.



Modular design

The addition of a destacker and multiple tube finishing options (seam annealing, calibrating, planishing, stacking etc.) make the Twinmaster a complete production unit for short tubes.

	Twinmaster 250/700	Twinmaster 250/1250
Tube diameter	80 - 250 mm	100 - 250 mm
Tube length	100 - 700 mm	80 - 1250 mm
Material thickness	0,4 - 2,0 mm	0,4 - 2,0 mm
Materials	Mild steel, stainless steel*	Mild steel, stainless steel*
Welding source	Laser, TIG, Plasma	Laser, TIG, Plasma
Output	Up to 580 Tubes/h	Up to 700 Tubes/h

*Other materials on request.

Rollforming + welding

Ecomaster



Production center for medium-sized short tubes with integrated Multiroller roll-former

Compact and lean

The extremely economical short tube production center, consisting of an automatic rollforming unit and a continuous flow welding machine, produces tubes from blanks.

„Just-in-time“

The machine is designed as a production center for small and medium batch sizes following the pace of the subsequent operations, i. e. canning, stuffing, expanding, etc.

Round and oval

Different tube geometries can be produced by changing the clamping roll set.

Tube ends optimized for demanding forming operations can be achieved with the tube-to-tube option.

A compact and economical production center designed for decentralized short tube manufacturing.

Ecomaster 200/500	
Tube diameter	80 - 200 mm
Tube length	80 - 500 mm
Material thickness	0,8 - 2,0 mm
Materials	Mild steel, stainless steel*
Welding source	Laser, TIG, Plasma
Output	Up to 240 Tubes/h

*Other materials on request.

Rollforming + welding

Ecostar



Innovative clamping technology for fully automatic production of round, oval and polygonal tubes.

Perfect roll forming results with pre-bending of edges. Revolution in economic tube production.

Increase in flexibility

The main advantages of the „Ecostar“ are: highest flexibility in both, length and diameter changes, elimination of change-over times, program-controlled refitting without any change parts.

Freedom in tube design

Next to the already realized benefits for the today`s short tube production the newly developed „Ecostar“ offers great freedom in the design of tube shapes.

Flexible clamping and welding up to 2.0 mm material thickness

Automatic diameter adjustment
Main feature of the „Ecostar“ is the automatic diameter adjustment during rollforming and welding, same as successfully accomplished with the „Flexistar“. The tubes are rolled and clamped with radially positioned clamping rails and pushed through a stationary welding head.



Applications

These dimensions make the Ecostar the perfect fit for the production of catalytic converter shells, round/oval small containers, pressure tanks etc.

Diode Laser

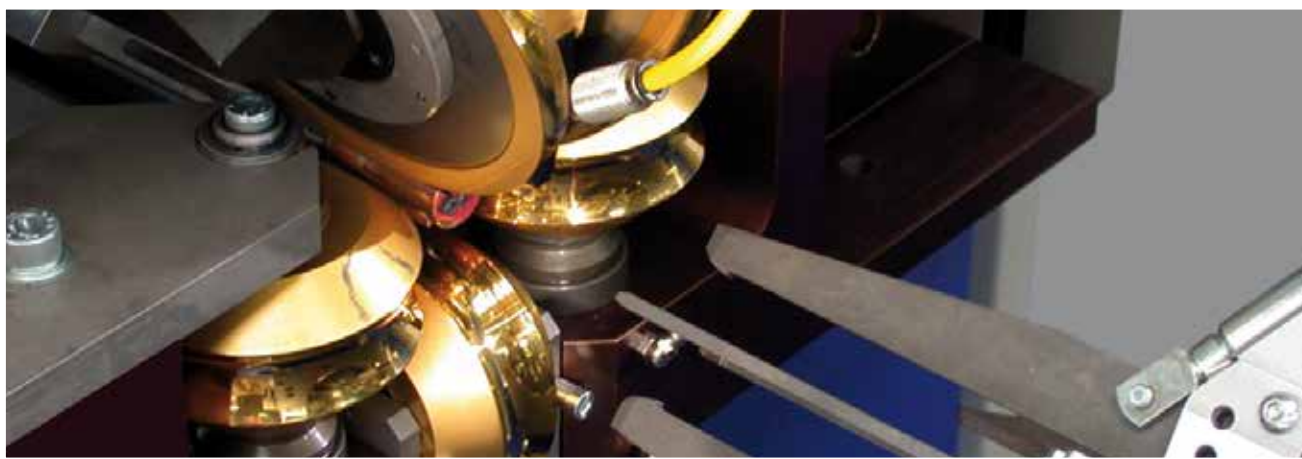
In view of cost effectiveness and economic operation cost, the diode laser is a perfect choice in conjunction with the “Ecostar”.

	Ecostar 100/1000	Ecostar 200/600	Ecostar 400/600	Ecostar 400/800
Tube diameter	30 - 100 mm	60 - 200 mm	80 - 400 mm	100 - 400 mm
Tube length	50 - 1000 mm	50 - 600 mm	50 - 600 m	80 - 800 mm
Material thickness	0,5 - 2,0 mm	0,8 - 2,0 mm	0,8 - 2,0 mm	0,8 - 2,0 mm
Materials		Mild steel, stainless steel*		
Welding source		Laser (Diode), Double TIG		
Output	Up to 800 Tubes/h	Up to 200 Tubes/h	Up to 185 Tubes/h	Up to 150 Tubes/h

*Other materials on request.

Rollforming + welding

Minimaster



Highly productive tube manufacturing unit for short small diameter tubes

Compact unit

Minimaster is a complete short tube production center on a single platform.

Tube-to-tube

A main feature of this production cell is to weld tube-to-tube, thus eliminating the undesirable effects at the seam start and end of the tube.

Batch manufacturing

Different tube diameters can be produced by changing the roll forming shaft and the clamping roll set. Short change-over times resulting from a high degree of automation allow production of small to large batches.

Efficient tube production center for short tubes with top quality weld seams due to tube-to-tube welding.



Perforated tubes

When operated with a laser, fully perforated tubes can be produced with high quality.

Minimaster 80/250	
Tube diameter	25 - 80 mm
Tube length	30 - 250 mm
Material thickness	0,4 - 2,0 mm
Materials	Mild steel, stainless steel*
Welding sources	Laser, TIG, Plasma
Output	Up to 1200 Tubes/h

*Other materials on request.

Rollforming + welding

Flexistar



Innovative flexible production unit for manufacturing thin-walled quality tubes

Continuous flow

The award-winning Flexistar concept is the fastest high-quality production unit on the market.

Variable

A compact tube production center on a single platform combining multiroller and laser welder, Flexistar requires no tooling for length or diameter changes.

This unique feature enables the alternating production of two different diameters (e.g. inner tube – outer tube) as required for insulated chimney pipes or multi-layered bellows.

Modular automation

Blanks from stacks or coil are possible on the infeed side. Automatic inline quality control can be easily integrated.



Optional tube finishing processes include expanding, beading, marking, etc.

	Flexistar 50/1000	Flexistar 150/2200	Flexistar 250/1250	Flexistar 400/1250	Flexistar 600/1250	Flexistar 600/1550
Tube diameter	40 - 150 mm	60 - 150 mm	60 - 250 mm	80 - 400 mm	76 - 600 mm	76 - 600 mm
Tube length	200 - 1000 mm	300 - 2200 mm	250 - 1250 mm	250 - 1250 mm	250 - 1250 mm	250 - 1550 mm
Material thickness	0,2 - 0,8 mm	0,2 - 0,8 mm	0,4 - 1,0 mm	0,4 - 1,0 mm	0,4 - 1,0 mm	0,4 - 1,0 mm
Materials	Mild steel, stainless steel*	Mild steel, stainless steel*	Mild steel, stainless steel*	Mild steel, stainless steel*	Mild steel, stainless steel*	Mild steel, stainless steel*
Welding source	Laser	Laser	Laser	Laser	Laser	Laser
Output	up to 240 Tubes/h	up to 240 Tubes/h	up to 280 Tubes/h	up to 240 Tubes/h	up to 240 Tubes/h	up to 240 Tubes/h

*Other materials on request.

Welding

Tubestar 100



Continuous flow tube welding machine integrated into a fully-automatic production line for short tubes

Automation

Tubestar 100 can be expanded to a high performance versatile tube production center by integrating a forming press or one of our roll forming machines.

Production of automotive tubes

From exhaust system components to rear suspension tubes, engine

cradles or other automotive body components, the Tubestar produces high-quality parts of different geometries in large quantities.

The short change-over times allow for „just-in-time“ production of various tubular components.

Application defines forming process Rollforming small diameter tubes with thick sections using tools guarantees roundness of the tubes.



Thin or perforated tubes can be easily formed with roll formers.

Tubestar 100	
Tube diameter	23 - 100 mm
Tube length	210 - 1300 mm
Material thickness	0,3 - 2,0 mm
Materials	Mild steel, stainless steel*
Welding sources	Laser, TIG, Plasma
Output	Up to 800 Tubes/h

*Other materials on request.

Welding

Tubestar 150



Continuous flow tube welding machine with high productivity and short cycle times

Transfer

The high productivity of the Tubestar series is based on optimized feeding and extraction of tubes.

Innovative clamping

The diameter specific guiding rollers generate pressure in the welding zone which leads to a highest quality weld seam.

Automatic transfer

The welded tubes can be transferred to optional post-welding operations (seam-grinding station, calibrating, etc.).

Top performance machine with highest output and with a weld seam quality ideal for processes such as spinning or hydroforming.

Tubestar 150	
Tube diameter	50 - 150 mm
Tube length	100 - 2000 mm
Material thickness	0,8 - 4,0 mm
Materials	Mild steel, stainless steel*
Welding sources	Laser, TIG, Plasma
Output	Up to 960 Tubes/h

*Other materials on request.

Tube end forming



A push into a new dimension for tube end processing in connection with flexible tube manufacturing systems.

The tube end processing center can be seamlessly connected to your existing longitudinal seam welding machine. A stand-alone version with manual tube feed and removal is also possible.

The gantry conveyor loads and unloads the processing stations in a simultaneous cycle. This system guarantees highest possible performance, manufacturing reliability and product quality – and that with minimal space requirements.

The individual units can be configured as a „single system“ or as a „double system“ which processes both tube ends at once.

A special feature is the production of double-walled tubes, in which the inner and outer tubes are alternatingly processed.

The advantage of this alternating production lies in the optimized logistical sequence for your production process:

- minimized stock levels
- highest delivery flexibility

Tube end processing configured to customer requirements

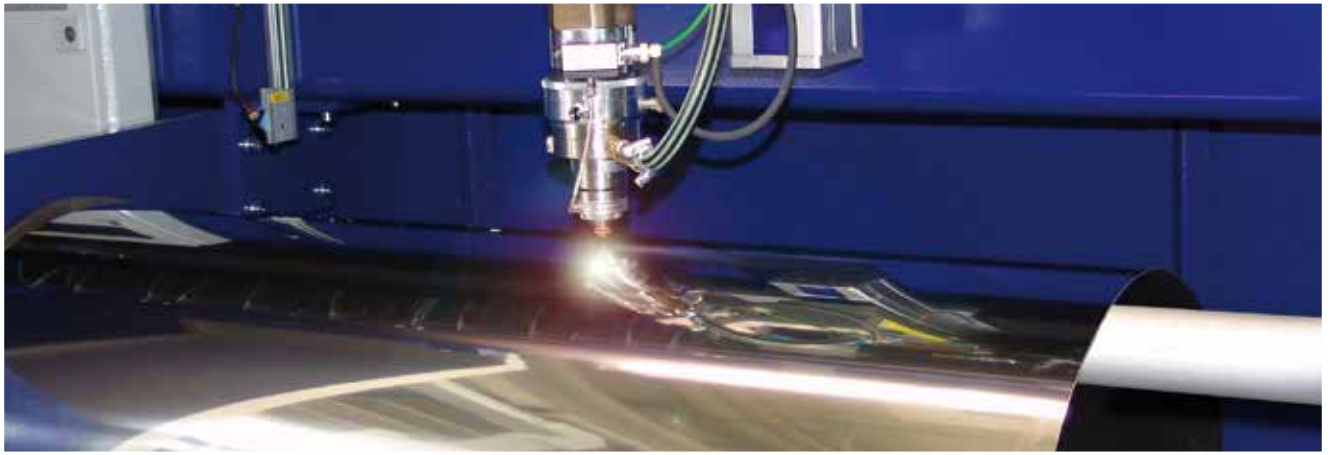
Expanding Calibrating Beading

Tube end processing REB	
Diameter	Ø 80 - 400 mm
Tube length	250 - 1250 mm
Material thickness	0,4 - 1,0 mm
Materials	Steel, coated and stainless steel*
Cycle times	Ø 100: 25 s** Ø 200: 28 s* Ø 400: 34 s
Changeover times	From Ø 100 up to Ø 400: 6 minutes From Ø 80 up to Ø 100: 12 minutes

*Other materials on request.

**With lengths under 500 mm, the cycle times increase to 30 s because the flaring processes are performed one after the other.

Tube cutting machine



Laser tube cutting machine for thin gauge large diameter tubes

Flexibility

This machine is optimized for cutting mitres, rings, ellipses, squares and freely-programmable shapes in thin-walled tubes.

All the necessary parameters - imported as CAD or graphical data - are stored in the operator panel and can be altered or recalled at any time.

Optimization

The use of a beam switch makes it possible to optimize utilisation of an existing laser source and thus expand production possibilities.

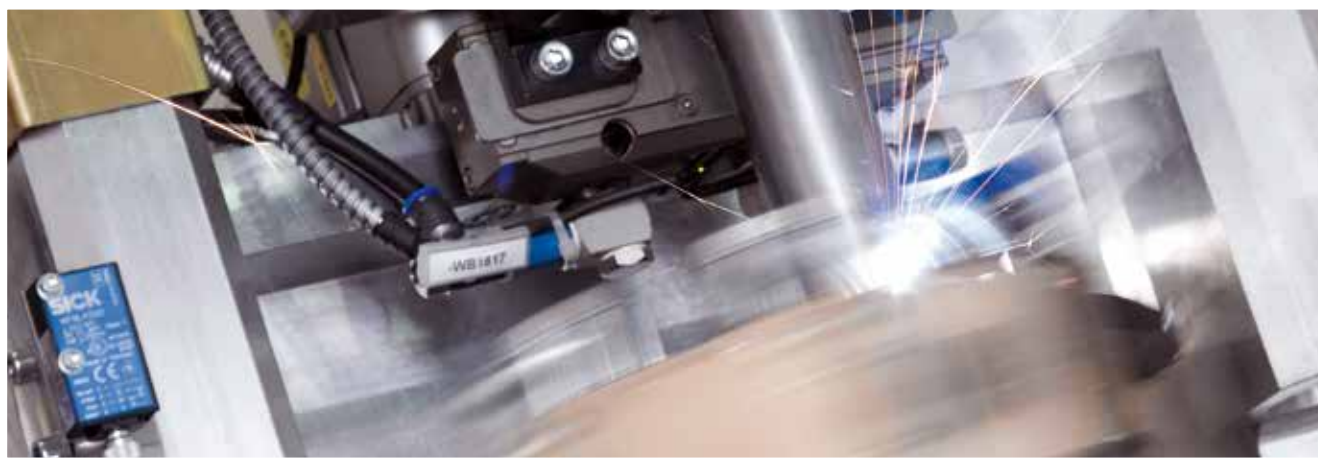
For cutting mitres, rings, ellipses, rectangles and other freely-programmable shapes.



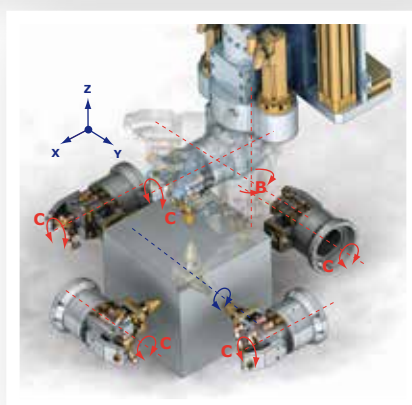
	RSM 3200	RSM 3400	RSM 3600
Tube diameter max.	200 mm	400 mm	600 mm
Input tube length	6000 mm	600/1600 mm	1600/2000 mm
Output tube length max.	1600 mm	600/1600 mm	1600/2000 mm
Material thickness	0,4 - 3,0 mm	0,4 - 3,0 mm	0,4 - 3,0 mm
Materials		Mild steel, stainless steel, Al*	
Cutting source		Laser	

*Other materials on request.

Special laser welding applications



The "Laser Welding Cell" has evolved from a well proven weil engineering modular axis system used in different high output production systems



The 4-axis machining optic in conjunction with one or more workpiece axes enables a three dimensional operation. Systems with fewer axes are available for simple curved or longitudinal seams.

The use of a double table allows for loading and unloading in parallel to processing time. It optimizes utilization of the laser and, in doing so increases the output. Optionally, the loading and unloading process can be automated in order to reduce labor cost.

Special laser welding applications

Size x / y / z	700 / 700 / 500 mm
Tool change	Quick change system
Speed	Up to 60 m/minute
Positioning accuracy	DIN EN ISO 15616/1, B
Modular architecture	from 2 up to 8 axis

Special laser welding applications



The LWC welding head's compact design and good accessibility make it perfectly adapted for 3D-use through:

- the absence of hoses for cooling water and gas supply allow for better maneuverability: B-axis $\pm 110^\circ$ and C-axis $\pm 210^\circ$,
- in combination with different tool axes allow a multitude of welding operations with high precision,
- the possibility to use different focal lengths, by simple and fast mirror exchange.



Component design and clamping concepts which are closely coordinated with our customers and optimized for efficient laser processing.

Component Design

Specifications and System Engineering

A laser-friendly component design (geometry, metallurgy, automation) in conjunction with a highly dynamic and precise system technology represent the foundation for efficient manufacturing.

The result: low-distortion, high quality components in large quantities without any need for post processing or rework.

Service



Machine issues do not always comply with regular business hours and production down times are not only inconvenient but also costly. Our service technicians understand very well the consequences of such production down times and are highly trained to help you quickly solve your issues.

Hotline

In addition to our regular business hours from Monday – Friday, 7:00 am – 4:30 pm we offer extended support hours until 10 pm when you call our hotline number.

Teleservice

With the remote access feature we can quickly respond and log into your system to diagnose the issue and help to solve any problem. Machine down times are kept at an absolute minimum and service visits often become unnecessary, so you save money twice.

Training

We offer comprehensive training programs customized for your particular needs and budgets.

Preventive Maintenance

The maintenance contract entitles you to regular preventive maintenance visits for your machines at your facility.

Production Support

We will assist you with your production and new product run-in (or machine moves).

Spare Parts

We get you your parts in the most quick and cost effective manner.

*weil engineering gmbh
Headquarters Müllheim
Plant 2*



weil engineering gmbh

*Neuenburger Str. 23
79379 Müllheim
Germany*

*+49 7631 1809-0 Phone
+49 7631 1809-149 Fax*

*info@weil-engineering.de
www.weil-engineering.de*

*Weil Engineering
North America LLC*

*25909 Meadowbrook Road
Novi, MI 48375
USA*

*+1 248 344 2211 Phone
+1 248 344 2220 Fax*

*info@weilengineering.com
www.weilengineering.com*

SCHAAL engineering GmbH

*Postweg 27
73084 Salach
Germany*

*+49 7162 9607-0 Phone
+49 7162 9607-77 Fax*

*info@schaal-engineering.de
www.schaal-engineering.de*

Weil Machinery (Shanghai) Co., Ltd.

*10th Floor, Room 1003
No. 381 Huaihai Zhong Road
Huangpu District
200020 Shanghai*

*+ 86 21 6391 5865 Phone
+ 86 21 6391 5869 Fax
+ 86 158 0177 6073 Mobile*

*info@weil-machinery.cn
www.weil-machinery.cn*

weil 
technology
A brand of weil engineering gmbh

*Protected by U.S. Patents:
Apparatus for manufacturing tubes US 7,293,687 B2 - Nov. 13, 2007
Continuous welding machine for welding a pipe blank US 2008/0257938 A1 - Oct. 23, 2008
Roll-forming or bending machine US 7,536,891 B2 - May 26, 2009*