



FORMING LARGE PIPES

SYSTEM SOLUTIONS FOR THE
MANUFACTURE OF LARGE PIPES



LARGE PIPES CONNECT THE WORLD

As a global leader of innovative forming technologies, Schuler has provided its customers for many years with quality and expertise, with unparalleled performance and a broad range of services.

THE SCHULER STORY

The Schuler Group can trace its roots back to a locksmith's shop founded by Louis Schuler in the German town of Göppingen in 1839. The company started manufacturing sheet metal processing machines in 1852. As a global leader of innovative metal-forming systems and technologies, today Schuler delivers machinery, systems, dies, process expertise and services to the worldwide metal-forming industry. Our customers include automotive manufacturers and suppliers as well as companies from the domestic goods, packaging, energy and electrical industries. In addition, Schuler is a leader in the market for forging and coining technology, and builds system solutions for aerospace and railway industries. Schuler is represented with its own facilities and subsidiaries in forty countries.

SCHULER'S EXPERIENCE

Schuler can be relied on unconditionally: as a leader in forming technology with experience spanning over 170 years, we offer turnkey system solutions for efficient production of large pipes. We ensure that we maintain our position of leadership in quality by continuous innovations and investment in research and development. As a Schuler customer, you benefit from more than just our expertise in R&D, engineering or project management, but also from our global service. We are looking forward to your project!



Schuler constantly works on redefining its boundaries, and sets new standards as it does so. This is our tradition; this is our future.

PLANNING TOMORROW'S TURNKEY PRODUCTION TODAY

System solutions for large pipe manufacture



„Experience grows with success. Combined with expertise gathered over years, the results are advanced and reliable concepts.“

Dr. Markus Ernst, member of the Board of Management of Schuler AG

Schuler is a company that is not afraid of taking a new approach. Therefore, right from the word go, we are a company that makes a mark – even in the most remote regions of the world. Large pipes create reliable connections between natural resources and civilization, where these resources are used.

As a technological pioneer with a long tradition, we have been developing innovative solutions for more than 170 years. But despite all the attention that we pay to the tiniest details, we never lose sight of the big picture. At Schuler, we do not regard turnkey solutions for manufac-

turing large pipes merely as the sum of individual components, but rather as a highly integrated overall concept: from innovative designs and intelligent production principles through to production with reduced consumption of resources.

Maximum performance. Maximum concentration. Extreme endurance: We invest everything needed for the production of large pipes in each of our solutions. In this way, Schuler sets standards and raises turnkey large pipe production to a new level. The world is growing together. With Schuler. Today, tomorrow and thereafter.



CONCEPTS THAT PROVIDE CONNECTIONS

Strategic Alliance: ATIS und Schuler

COOPERATION WITH ATIS

Quality connects: Schuler exclusively works with companies that share its values, something which makes for successful partnerships. It is important for the connection to make strategic sense, in order that the partners can work together on meeting the target and delivering what the customer wants. Creating a strong alliance with ATIS means, firstly, that the system supplier for large pipe production can rely on production from Schuler and that both companies can work together with synergy to carry out larger projects successfully. This is a win-win situation not only for both partners, but also for our customers. You benefit from innovative expertise in large pipe manufacture and reliable experience in the skillful handling of turnkey projects.

„We put our heart and soul into each project to carry our responsibility for your success.“

Walter Gut, Managing Director, ATIS GmbH



ATIS has made a name for itself all over the world as a competent and reliable partner for the pipe manufacturing industry when it comes to planning and developing complete systems and facilities.

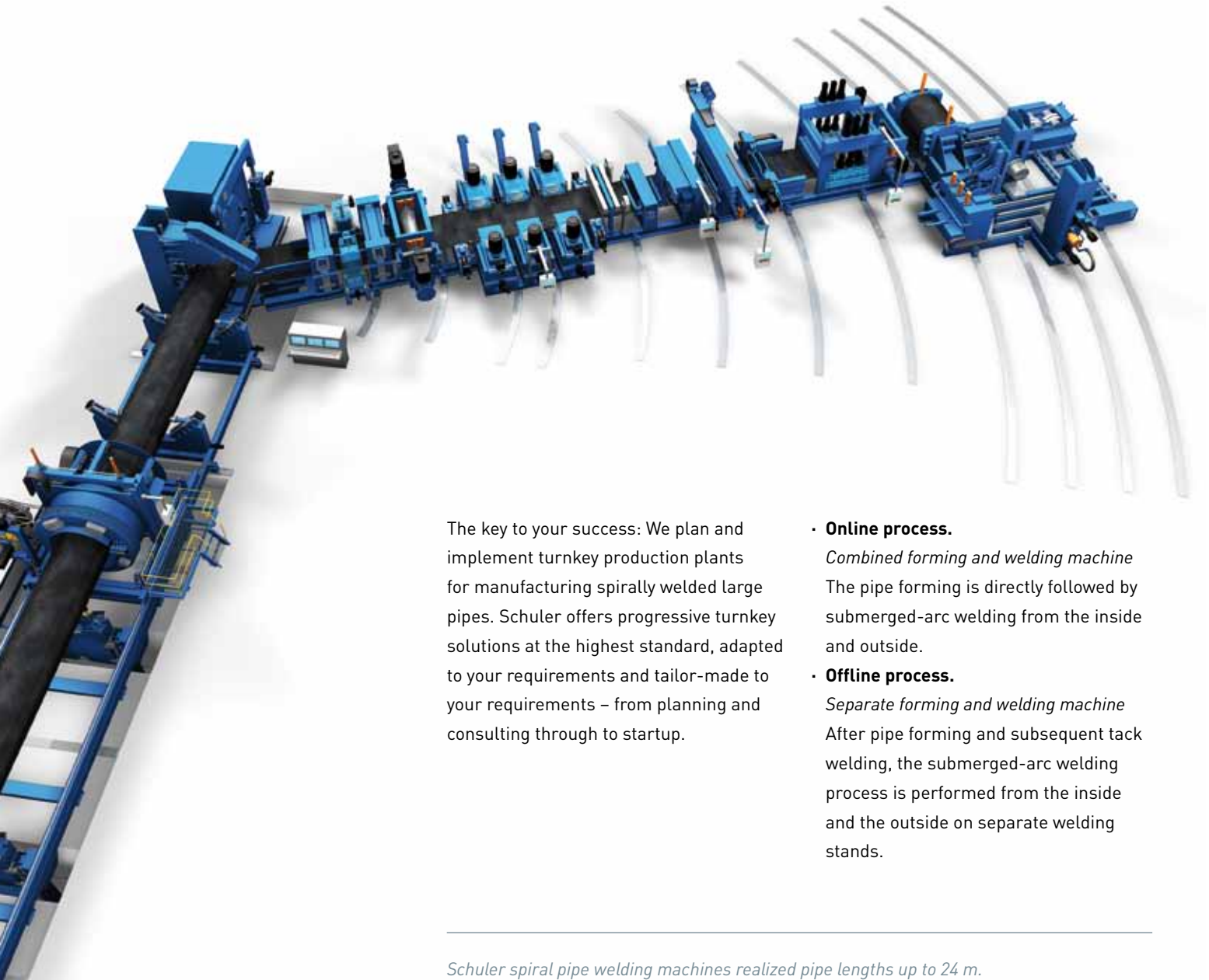


REFERENCES

Ultrasonic Testing Equipment	2012	GEIT-V&M · Brazil
Ultrasonic Testing Equipment	2011	STS · Spain
Upgrade Spiral Pipe Machine	2010	Bender-Ferndorf · Germany
Ultrasonic Testing Equipment	2010	VSB-Vallourec & Sumitomo Tubos · Brazil
Spiral Pipe Plant – Offline	2009/2010	Topworth · India
Ultrasonic Testing Equipment	2009/2010	VAM Drilling · France
Spiral Pipe Plant – Offline	2008/2010	United Spiral Pipe · USA
Spiral Pipe Machine	2007/2008	Altumet · Algeria
Ultrasonic Testing Equipment	2007	Hai-Long · China
Ultrasonic Testing Equipment	2006	Tubos Soldados Atlântico · Brazil
Upgrade Spiral Pipe Machine	2006	Alfapipe · Algeria
Ultrasonic Testing Equipment	2006	Hai-Long · China
X-Ray-Fluoroscopy	2005/2006	Tubos Soldados Atlântico · Brazil
Spiral Pipe Plant – Online	2005	AZIZ · Saudi Arabia

SPIRAL PIPE WELDING MACHINES

Everything from a single source: Turnkey pipe plants for spirally welded large pipes



The key to your success: We plan and implement turnkey production plants for manufacturing spirally welded large pipes. Schuler offers progressive turnkey solutions at the highest standard, adapted to your requirements and tailor-made to your requirements – from planning and consulting through to startup.

- **Online process.**

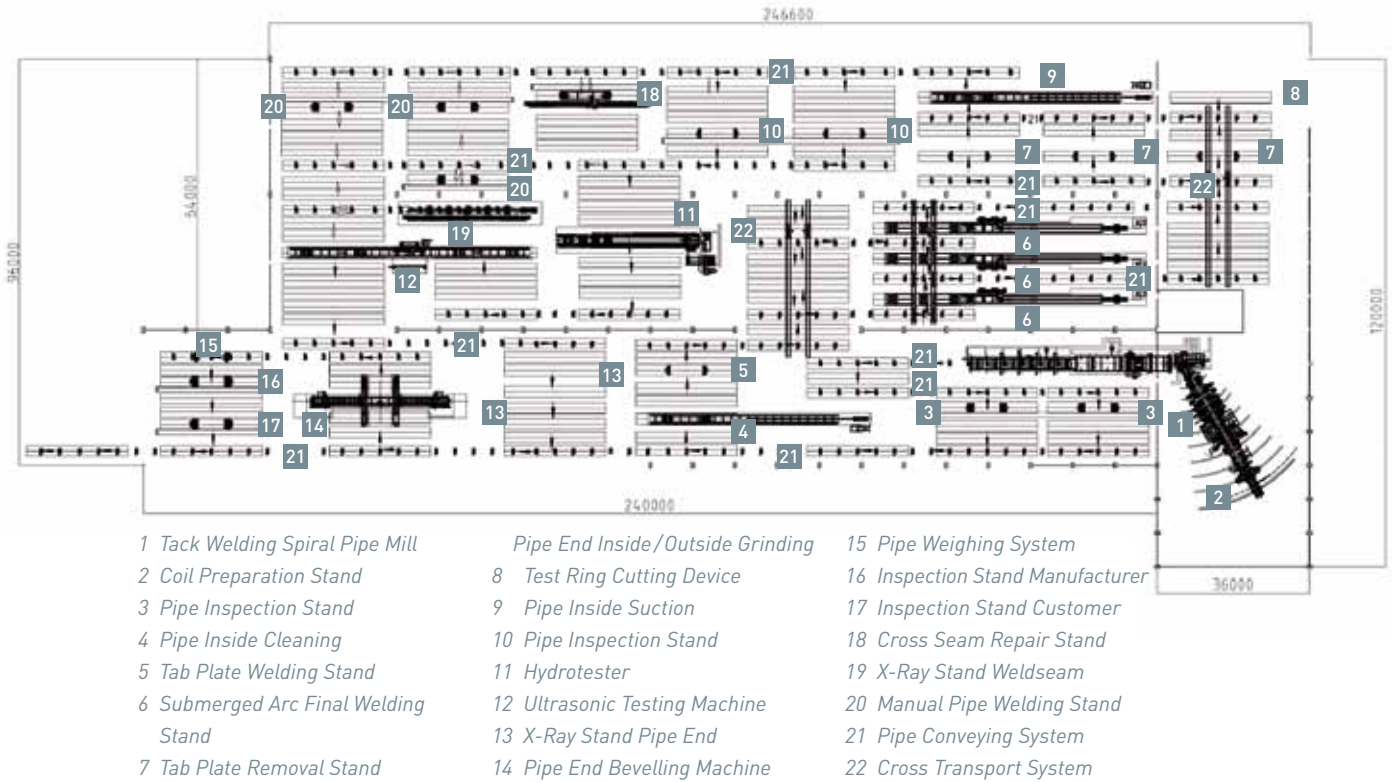
Combined forming and welding machine
The pipe forming is directly followed by submerged-arc welding from the inside and outside.

- **Offline process.**

Separate forming and welding machine
After pipe forming and subsequent tack welding, the submerged-arc welding process is performed from the inside and the outside on separate welding stands.

*Schuler spiral pipe welding machines realized pipe lengths up to 24 m.
The diameters are 450 mm – 3,500 mm (18" – 140"), wall thicknesses are
6 mm – 25 mm (1/4" – 1")*

SPIRAL PIPE WELDING LAYOUT



COIL PREPARATION STAND



Enormous reduction of coil change time and idling of the complet SPM · Increased safety · No additional crane transfer necessary · Safe decoiling without springout · Integrated in the spiral pipe machine · Max. APi Grade X100 · Exact 90° cut of the strip start

Coil weight	max. 45 tons
Coil outside diameter	1,300 – 2,200 mm
Coil inside diameter	720 – 800 mm
Strip width	1,000 – 2,050 mm
Strip thickness	6 – 25.4 mm
Speed:	
Uncoiling speed	0.3 – 6.0 m/min
Plasma support speed	0.1 – 3.0 m/min

FORMING SECTION



Automation of key procedures resulting in more efficient change of dimensions · Adjustments driven by servo motor with absolute encoder · Vizualisation at the control panel · All parameters saved in the SCADA database · Gap scanner · Digital measuring of outer diameter · Outer and inner calibration system

Strip width	1,000 – 2,050 mm
Material tolerances	acc. to DIN 1016
Strip width tolerance	0 + 20 mm
Strip camber	max. 15 mm*
Telescopic effect	max. 100 mm
Specific coil weight	max. 22 kg**

*per 10 m length ** per mm strip width

LONGITUDINALLY WELDED LARGE PIPES

For the most precise requirements: System solutions
for longitudinally welded large pipes



*Tried and tested for years: our reliable J-press for the step forming process in the conventional design.
Available in a trend-setting development as a LFJ-press.*



As a leader in forming technology, we also use innovative hydraulic press technology for manufacturing large pipes. Whether as an individual press or fully integrated into a complete pipe plant: hydraulic presses from Schuler give you a decisive competitive edge when it comes to manufacturing longitudinally welded large pipes. Whether you require a new pipe plant or the replacement of individual components to increase performance, Schuler makes the difference.

We use two technologies for manufacture:

- **System solutions with the UOE process.**

For this process, we supply crimping presses (C-presses), U-presses and O-presses.

- **Lines with the step forming process.**

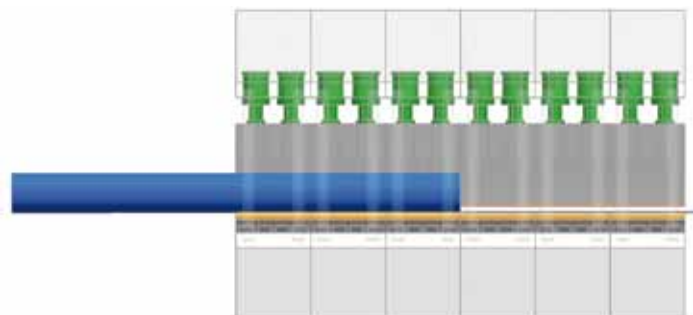
We supply crimping presses (C-presses) and J-step forming presses for the step forming process.

Pipe lengths up to 18 m (60 ft) and more can be achieved on our hydraulic large pipe presses. The diameters are up to 1,625 millimeters (64 inches), the wall thicknesses up to 65 millimeters (2.5 inches).

SCHULER LFJ PRESS

Schuler Linear Feeding J-press

- Higher productivity due to the Schuler Linear Feeding system with simultaneous feeding of the blank and removal of the pipe
- Better pipe quality by decoupling the bending line from the press bowing
- Can be extended from 12 m to 18 m or even 24 m because of the modular press design



PERIPHERAL SYSTEMS AND MACHINES

Keeping every detail in sight

Pipe Handling
Ultrasonic Test Stand
X-Ray Test Stand
Pipe Cleaning Device
Cross Seam Welding Stand
Cross Transport
Coil Handling
Inspection Stand
Offline Welding Stand
End Beveling Machine
Hydrotester

Systems from Schuler are unique. With our tailor-made range of peripherals, you can choose from numerous possibilities to have your system planned individually down to the most painstaking detail, and to design it completely according to your requirements. We cover the entire market spectrum – from handling through to cleaning, from the coil through to the finished and tested pipe.

It goes without saying that you can also receive all our solutions as individual units for integration.

Simply contact our customer service, on your doorstep worldwide – we will be happy to help you!

PIPE HANDLING



ULTRASONIC TEST STAND



X-RAY TEST STAND



PIPE CLEANING DEVICE



CROSS SEAM WELDING STAND

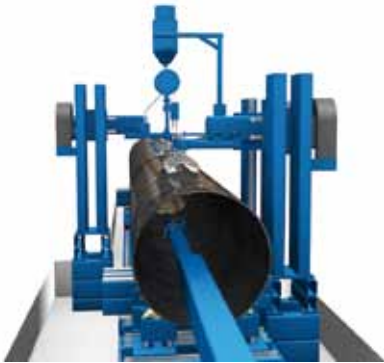


CROSS TRANSPORT



OFFLINE WELDING STAND

Fully automated process · Welding seam tracking device · Automatic flux supply and recovery system · Video camera system · Welding parameter data base



Welding speed	max. 3.4 m/min
Inside welding	3 x DC/AC or power wave/square wave
Outside welding	2 x DC/AC or power wave/square wave
Material grade	max. API Grade X100

END BEVELING MACHINE

Automatic Clamping with correct force according to the diameter · Max cycle time 5 min · Infinitely coverage for all diameter ranges · Short change over time · Concentric clamping and thereby protection of the copying tool · Pipe handling by cross transport system · Energy recovery by using the latest inverter technology



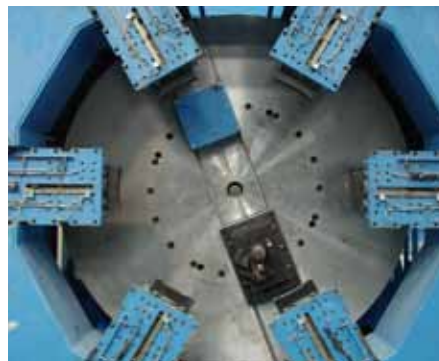
Cutting speed	max. 90 m/min
Face plate feed	5–50 mm/min
Face plate drive servo motor	max. 200 kW AC

HYDROTESTER

Ball aligning heads · Inside sealing or face sealing both possible · Water hydraulic control system · Variable holding time · Connecting to PID data system · Automatic pipe positioning · Automatic test sequence · Visualization with data base for all pipe parameters · Full automatic pipe feeding



Pipe diameter	18"–140"
Pipe length	8–24 m
Closing force	up to 5,000 t
Water pressure	max. 400 bar
Displacement range	33–300 liter/min





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FORMING THE FUTURE