

IM-ECO

IM-ECO Wire Mesh Welding Lines for the Production of Fencing Mesh and Industrial Mesh



Entwicklungs- und Verwertungs-Gesellschaft m.b.H., Raaba-Austria

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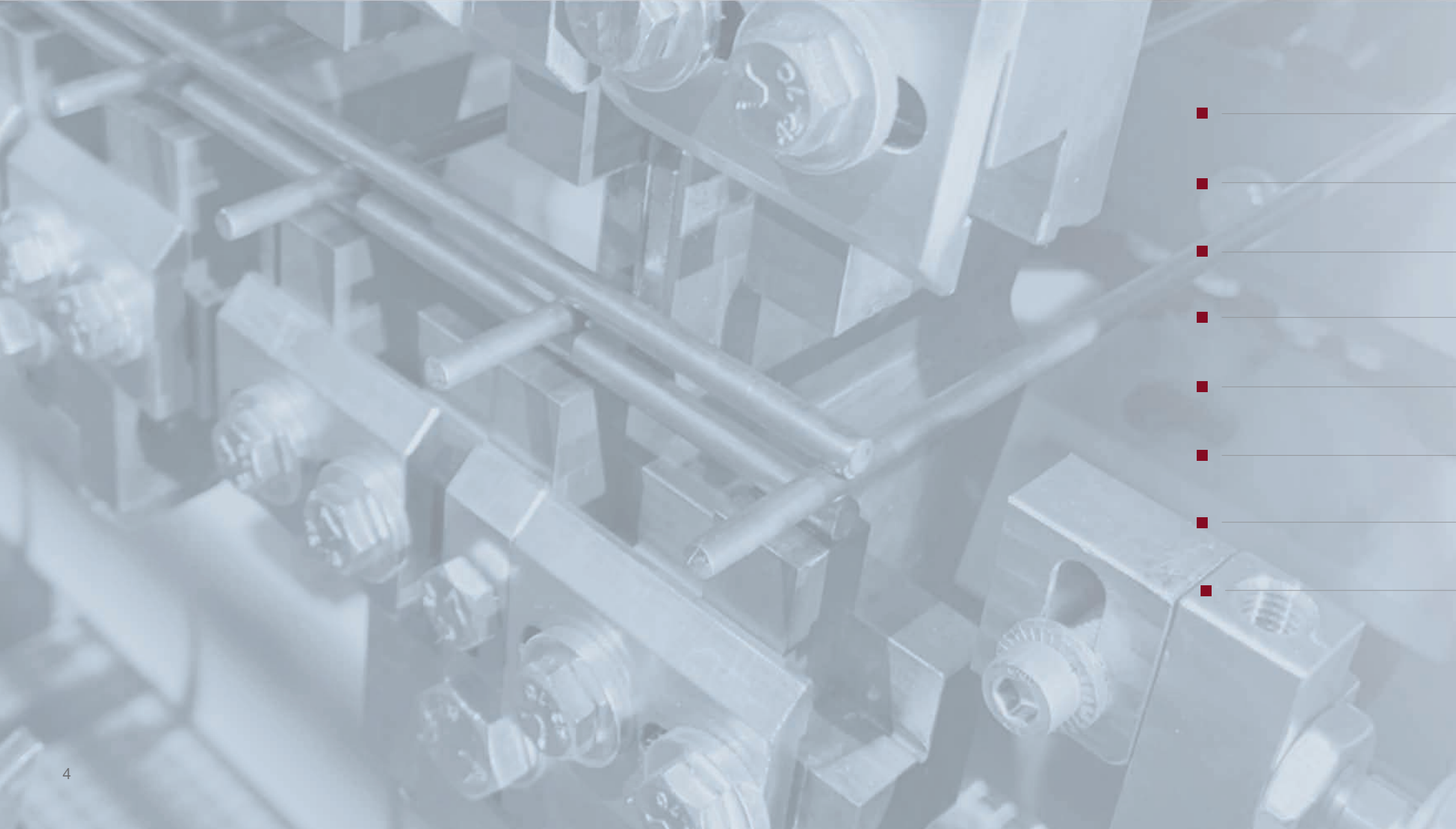
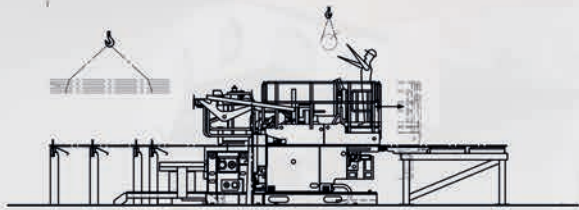


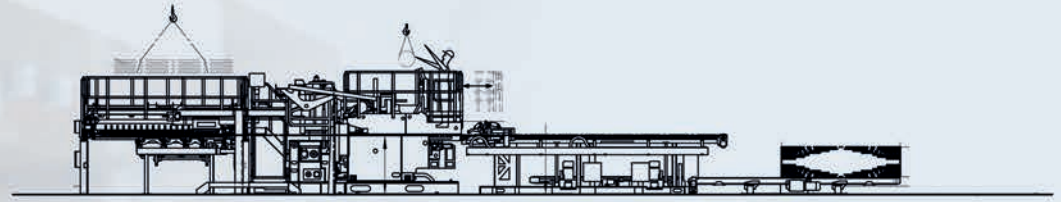
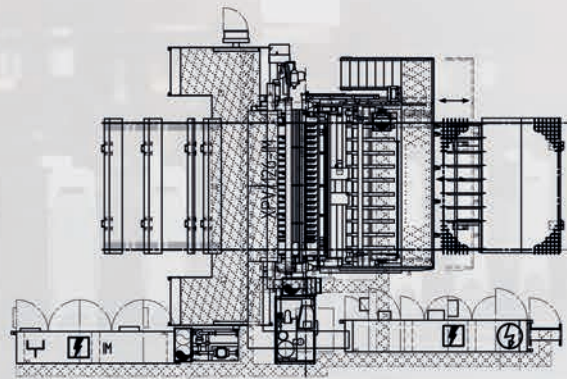
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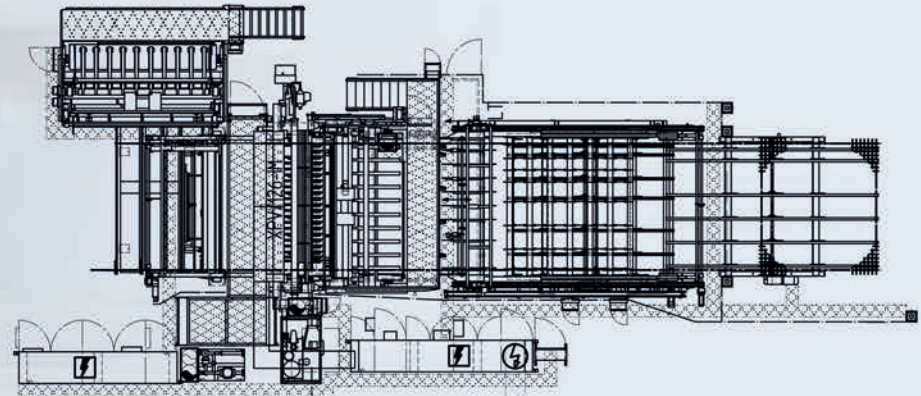
Basic Configuration:

- *Manual line wire feeding
- *Manual sheet pick-up



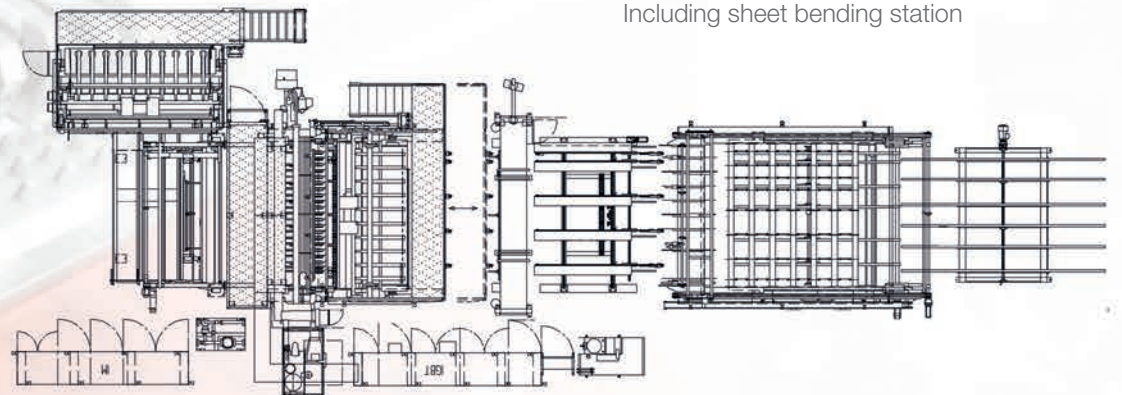
Standard Configuration:

- *Automatic line wire feeding
- *Automatic sheet stacker



Standard Configuration:

Including sheet bending station



Technical Data

IM-ECO/126

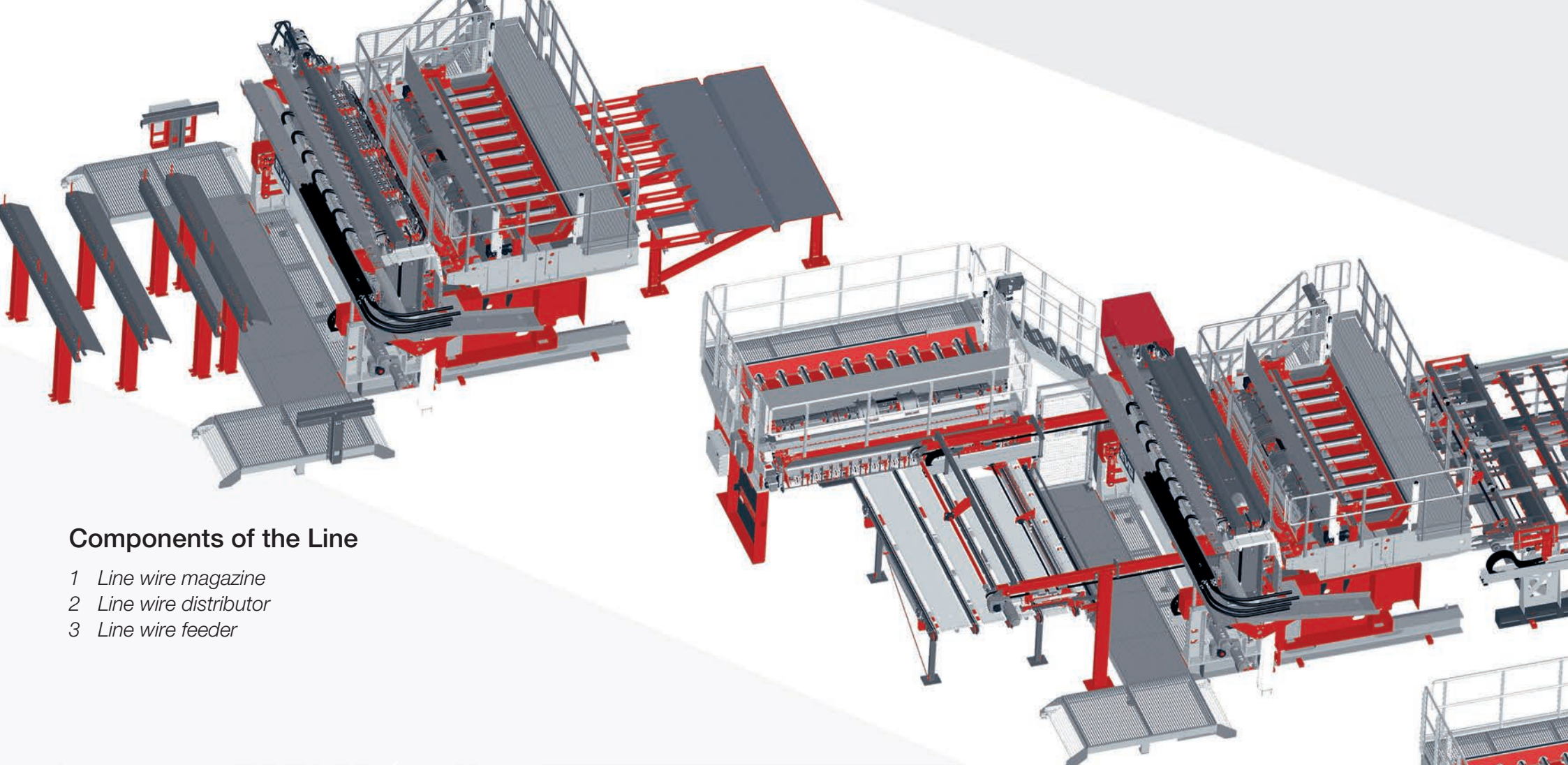
- Welding lines of modular design for the production of industrial mesh and fence panels made of cold-rolled material with bright galvanized or copper-coated surface.

Designed for the flexible manufacturing of small and mid-size production lots with prestraightened line and cross wires.

The line and cross wires are welded fully automatically and flexibly in accordance with the sheet geometry given by the control unit of the line.

The technical data indicated refer to standard lines which can be adapted to our customers' specific requirements.

Max. mesh width	mm	3400
Max. welding width	mm	3200
Line wire		
Diameter range	mm	3,0 – 8,0
Spacings	mm	25 – 400 Steplessly
Cross wire:		
Diameter range	mm	3,0 – 8,0
Pitches	mm	12,5 – 400 Steplessly
Max. overall wire size	mm	16
Max. working speed	CW/min	150
Optional execution for the production of twin-bar wire mesh		
Max. overall wire size		2x6 plus 5
Max. overall wire size		2x8 plus 6

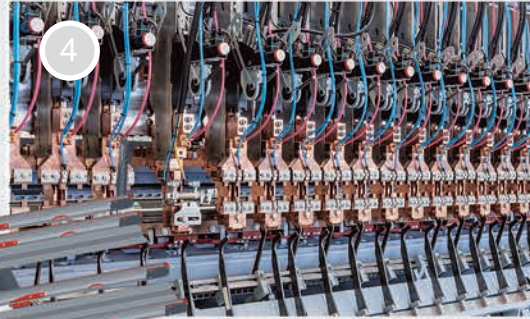
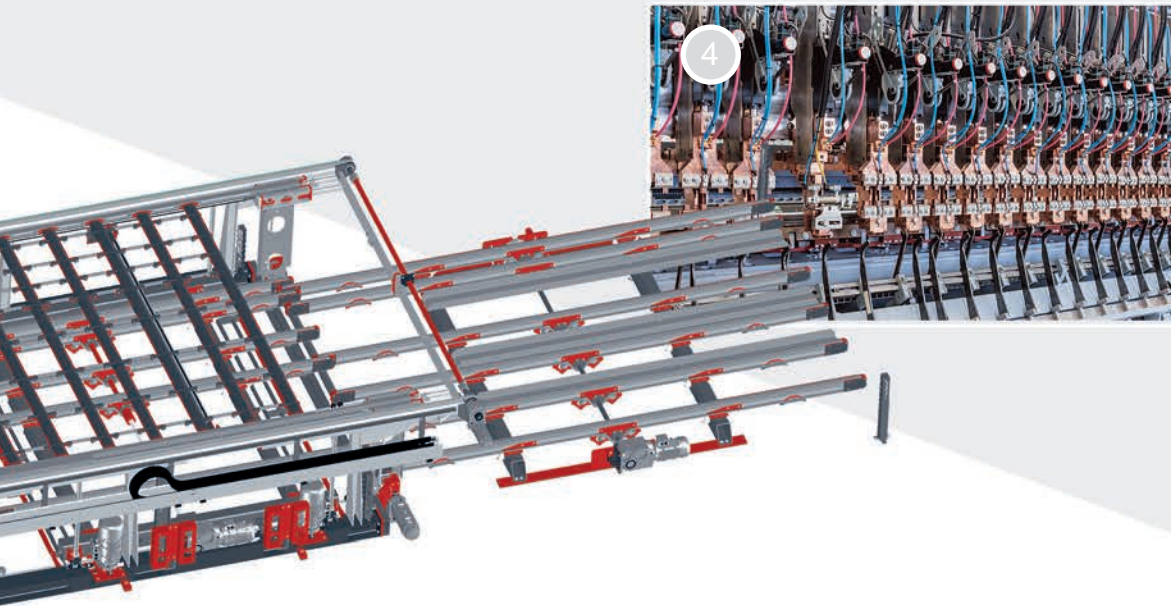


Components of the Line

- 1 *Line wire magazine*
- 2 *Line wire distributor*
- 3 *Line wire feeder*

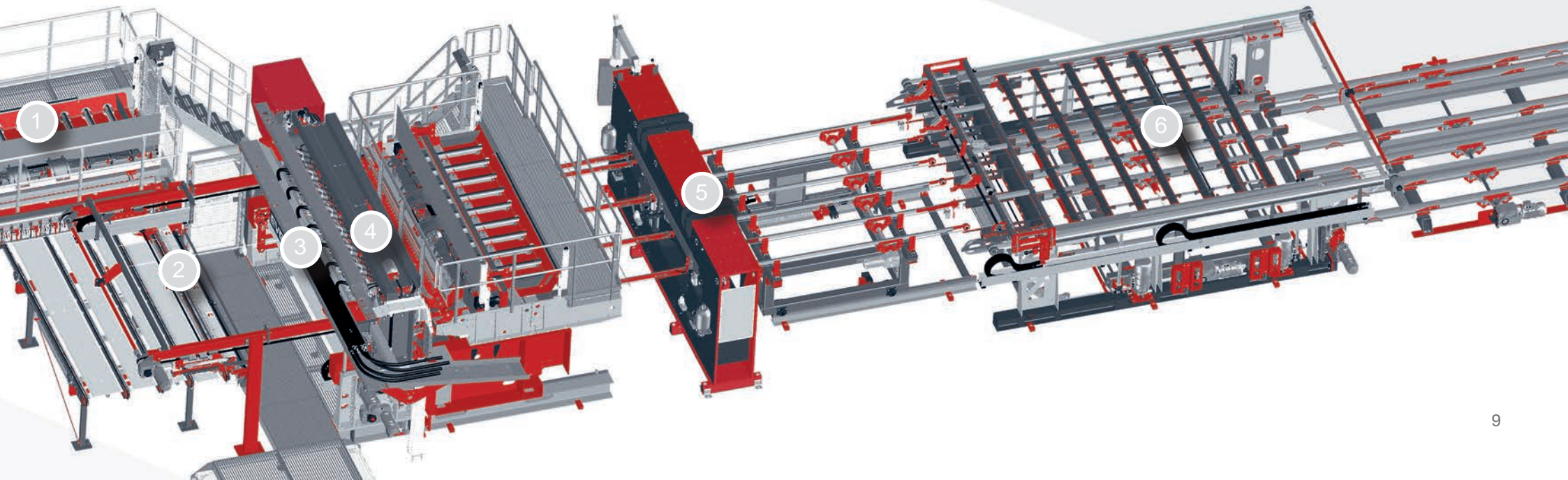


Configurations



Components of the Line

- 4 *Welding machine*
- 5 *Sheet bending station*
- 6 *Sheet stacker*



Line Wire Feeding

■ Automatic line wire feeding

With this configuration, the singling-out, distribution and feeding of line wires is carried out fully automatically.

● Line wire magazine

Allows two-stage automatic singling-out of wires after pre-portioning small wire bundles from the bundle support and subsequent singling-out through mechanical combing out of wires.

Electronic monitoring of the bundle size ensures continuous operation. A separate support area serves to prepare another complete set of wires or the line wires for the subsequent job.

Quick manual central adjustment when changing over to another wire diameter.

● Line wire distributor

After singling out, the line wires are dropped from the stationary line wire magazine onto the toothed belt conveyor running crosswise to production direction before they are positioned at a spacing of 12.5mm or multiples thereof.

A comb-shaped transportation unit takes over the wires for a sheet by carrying out a vertical lifting movement and prepares them for take-over at the line wire feeder.





- **Line wire feeder**

The wires are taken over from the line wire distributor by a clamping beam mounted to the feeding chariot before they are transported to the welding unit without any return movement and aligned automatically.

At the same time, the line wires are transferred to the servo-electrically driven precision advance positioned on the inlet side. The advance units including the integrated line wire guides can be shifted crosswise and, when changing the line wire spacings, they can be repositioned to steplessly adjustable spacings fast and precisely by hand using an easy-to-use grid-based manual tool. At transfer to the precision advance, line wires are positioned in accordance to the mesh pattern.

This functional principle allows distributing and loading the feeder with line wires of the subsequent sheet while production is going on. This reduces production downtime between sheets to an absolute minimum.



- **Manual line wire feeding**

With the basic configuration of the line, the wire bundle is put down onto the line wire supporting table and the individual wires are fed manually to the precision advance by the machine.

Cross Wire Feeding

■ TOP cross wire magazine

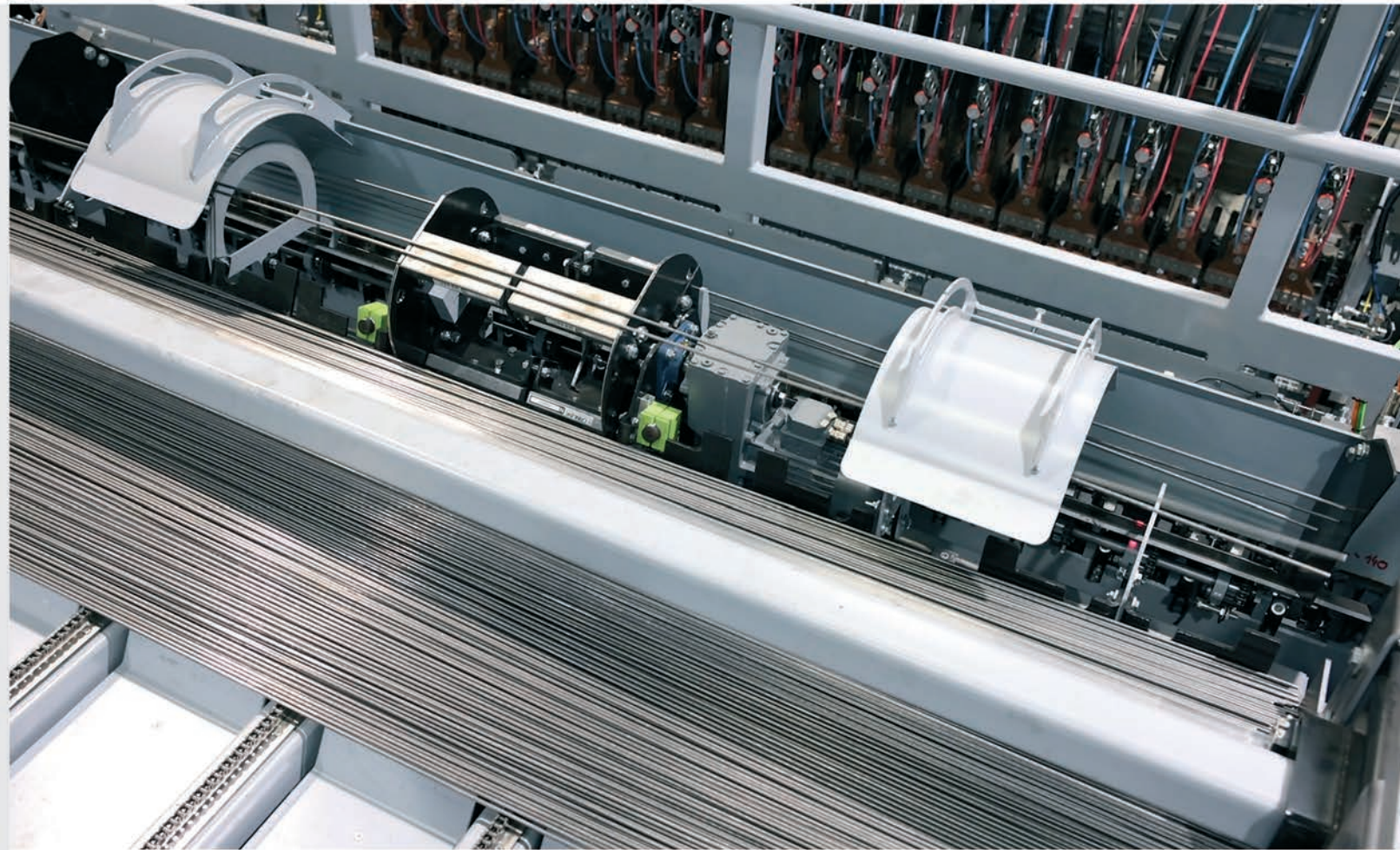
Allows two-stage automatic singling-out of wires after pre-portioning small wire bundles from the bundle support and subsequent singling-out through mechanical combing out of wires.

Positioning devices ensure the exact position of cross wires in the welding unit and, therefore, in the mesh system.

Electronic monitoring of the bundle size ensures continuous operation.

A separate support area serves to prepare another complete set of wires or the cross wires for the subsequent job.

Quick manual central adjustment when changing over to another wire diameter.

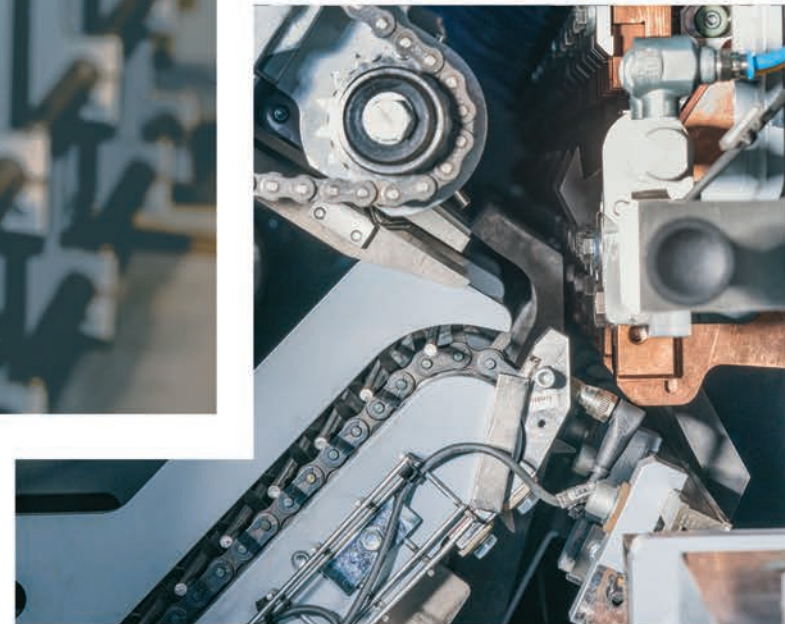




■ BOTTOM chain

Optional chain magazine for the production of double-bar wire mesh with two cross wires running below and above the line wires respectively or sheets with cross wires running alternately either above or below the line wires.

The bottom chain magazine is filled from the top cross wire magazine using a wire switch system. Afterwards, the cross wires are fed from below the line wires before they are welded to the bottom side of the line wires according to the given production sequence.



Welding Machine

■ Welding units

The welding units are mounted to linear guides and can be shifted crosswise. They are fixed in place by an eccentric clamping mechanism. With this mechanical setup the welding units can be positioned quickly by hand when changing over the program. Positioning takes only a few maneuvers and requires more or less no tools nor is it necessary to modify current bridges or to readjust polarity.

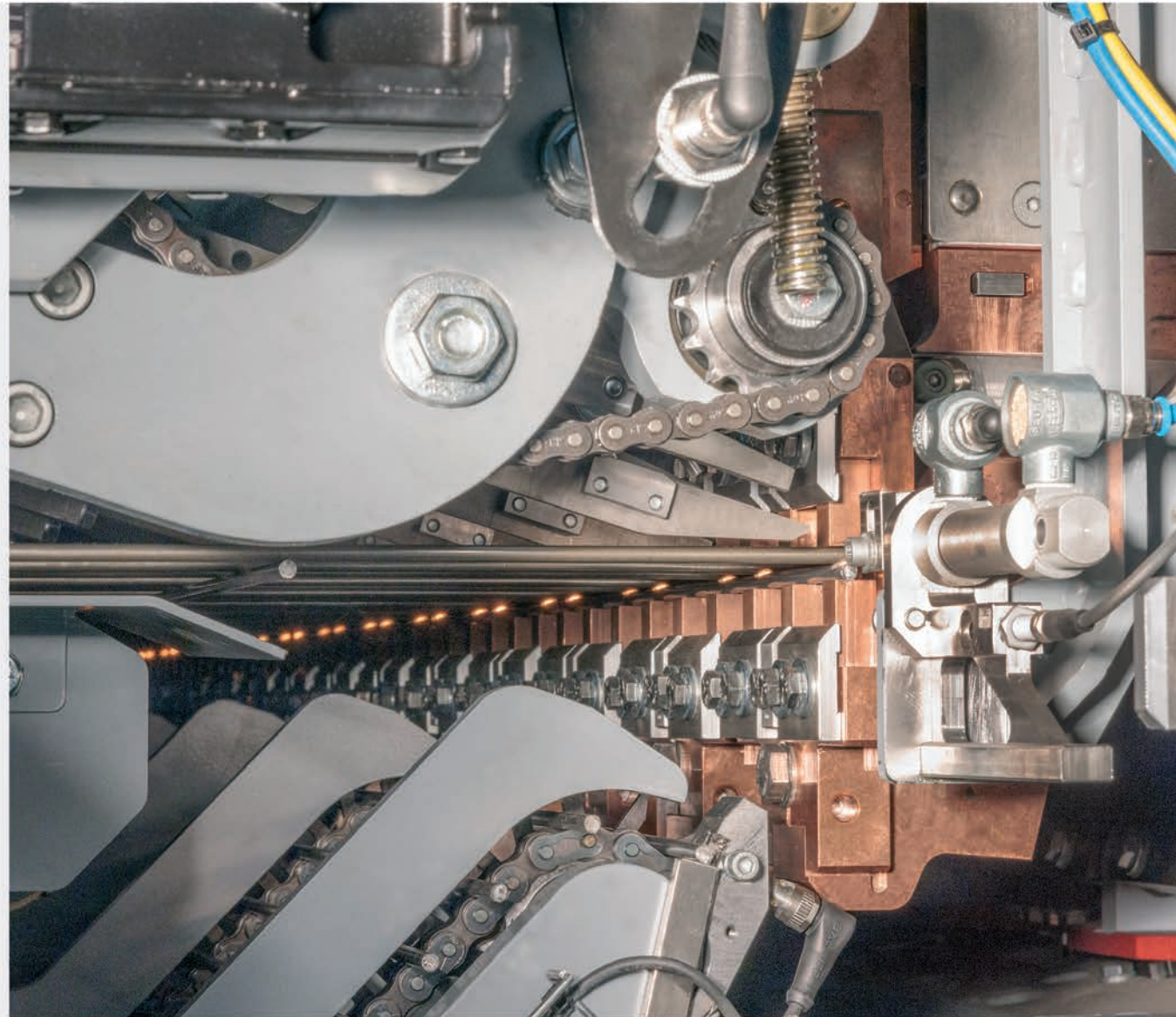
The multi-electrode clamping units are designed to carry up to 5 electrodes for the welding of a maximum of 5 line wires by means of one welding unit. Fast and flexible manual positioning of electrodes when changing over to another program.

For the sheet to be produced, the machine control unit computes the optimum position of the welding units and informs the operator via the machine's visualization.

For welding current supply, the top and bottom electrodes of the welding units are connected to a continuous one-phase bus bar pair.

The welding units are activated individually via the machine control's input computer. The centrally adjustable welding pressure is applied by an active-hydraulic movement of the top electrodes.

Minimum electrode wear through servo-hydraulic welding pressure control for optimum process control with exact times both for pressure increase and decrease.



EVG ECOWELD Medium frequency direct current welding

This advanced welding technology enables shortest welding times with minimum heat input. As a result, highest product quality in compliance with customary tolerances can be ensured.

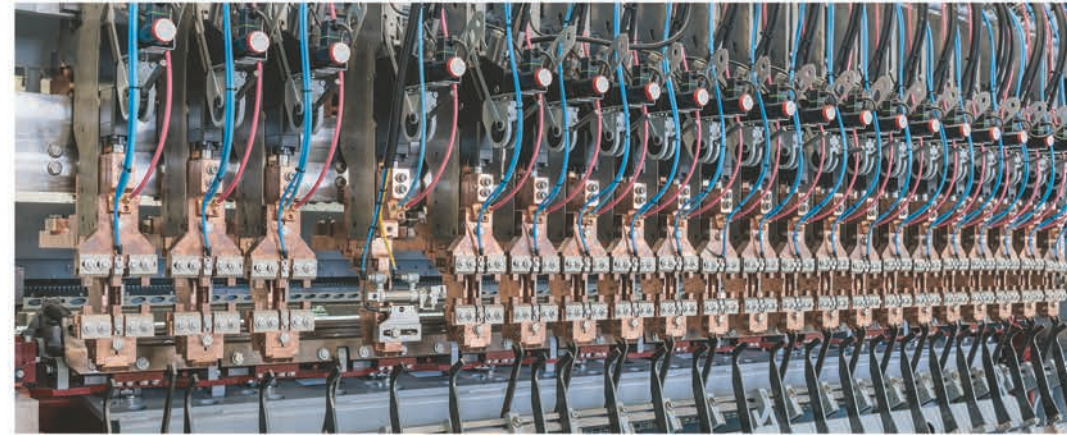
A welding joint strength, which is uniform across the entire mesh width and which is conforming to standards, is obtained by the omission of phase limits when using a continuous bus bar pair.

In combination with the precise positioning of line and cross wires it is possible to produce mesh with minimum overhangs without the necessity of later trimming.

The entire welding current path is made up of massive copper, a feature which ensures minimum electric resistance and maximum energy efficiency.

In order to limit supply system loading, heavy mesh types can be produced using cascade welding.

Some other outstanding features of the EVG ECOWELD technology include a symmetrical supply system loading, a high $\cos \varphi$ power factor and few loading effects.



Sheet Stacker

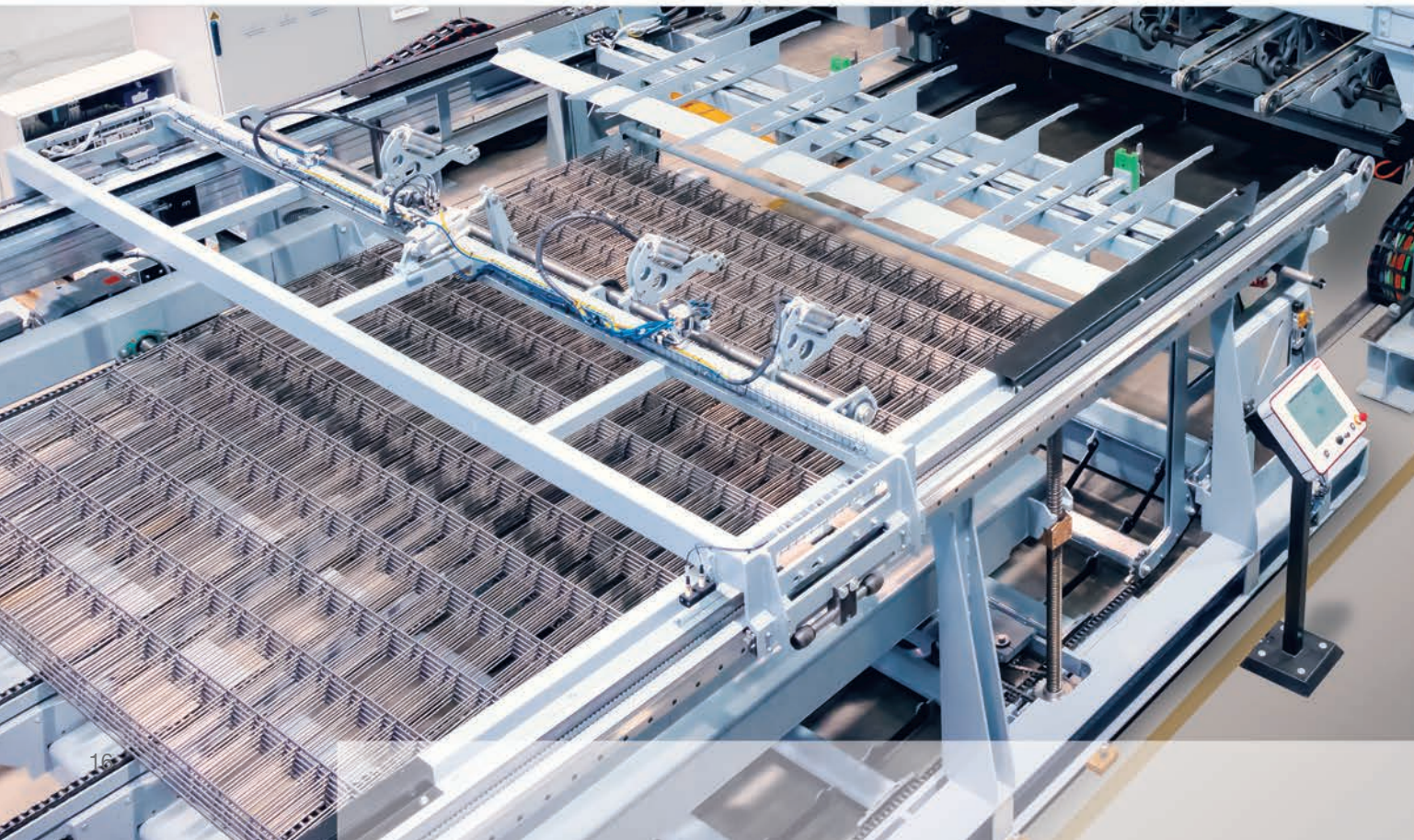
■ Sheet stacker with mobile mesh support

The sheets are taken over by a belt conveyor and are transferred to the downstream components.

A sheet transporter equipped with pneumatically actuated grippers ensures reliable pick-up of the sheet from the belt conveyor.

The sheet to be deposited is held in place by mobile mesh supports that can be shifted in production flow, and transported into stacking position by the sheet.

Once stacking position has been reached, the mesh supports will be retracted again and the sheet will be deposited on the lifting table located below. The servo-electric drive of the transporter ensures best possible positioning accuracy of the individual sheets and, therefore, also perfect stack quality irrespective of mesh geometry. For the most part, there is no more need of time-consuming adjustment jobs as otherwise customary at product change-over.



The lifting table consists of the actual lifting mechanism and a driven chain conveyor mounted to it. It can be used also for the production of short sheets or sheets with cross wires welding below the line wires. Once the programmed number of sheets has been reached, they will be transported from the stacking area onto the outlet-side chain conveyor.

In the simplest version, the individual sheets are deposited on the sheet supporting table for manual pick-up.

Ancillaries



■ Sheet Bending Station

With the use of a fully automatic sheet bending station including the required sheet transfer and positioning systems relevant fencing mesh types can be produced in a very efficient and highly precise way.



Line Control

■ Control unit

The control unit ensures fully automatic operation of the entire production line. Easy handling through central data input via an input computer of state-of-the-art industrial PC design. Monitoring of the line via a diagnostic program with plain text display. Tabular input of product data, production lists, welding parameters and line-dependent functions. Graphical presentation of mesh types.

Owing to an integrated network communication feature it is possible to execute telemaintenance at the line.

■ WIRE UP - Digitale Plattform für EVG Maschinen

This optional software allows gathering, updating and editing comprehensive production data exact to the minute. It provides useful decision guidance for the optimization of production in real time.

We can offer not only an individual license package for maintenance management but also a smartphone app for location-independent information. Anytime. Anywhere.



Competence



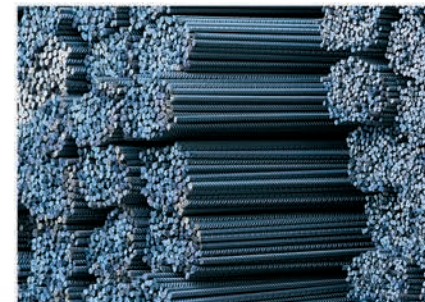
■ Group of Companies

The group of companies EVG - AVI - MARIENHÜTTE with its complete program for the production of reinforcing steel and welded mesh is your reliable and experienced partner when it comes to reinforcement of concrete, wire products, production equipment and knowhow.

- EVG as manufacturer of production lines
- AVI and BSTG as producers of reinforcing steel sheets, cold-rolled reinforcing steel, truss girders, spacer strips and reinforcing cages
- The steel and rolling mill MARIENHÜTTE as producer of reinforcing steel
- H&S Zauntechnik as supplier of industrial and fencing mesh as well as complete fencing systems.

The cooperation within our network of companies allows EVG to become aware of all major challenges inherent in the production and application of mesh and reinforcing products also from a machine operator's point of view. Any knowledge gained this way is constantly introduced in our new projects.

The most important foundations of our success are close cooperation with our customers based on partnership, highly-qualified staff and ongoing innovations.



EVG

Entwicklungs- u. Verwertungs-
Gesellschaft m.b.H.
Gustinus-Ambrosi-Str. 1-3
8074 Raaba
AUSTRIA
Phone: +43 316 4005-0
e-mail: evg@evg.com
www.evg.com

EVG, Inc.

220 East, 42nd Street
Suite 3100
New York, NY 10017
USA
Phone: +1 212 6970770
e-mail: general@evg-usa.com
www.evg.com

Представительство EVG в России

ул. Дубининская, 90
115093, г. Москва
РОССИЯ
Тел.: +7 495 789 9666
e-mail: russia@evg.com
www.evg.com

Subject to modifications.

„The figures shown are of exemplary nature and do not allow to draw any conclusions on the configuration of the line acquired by the buyer.“