9 I Welding/Cleaning

Our selection of products, variants and options is large and can always be adapted to suit the needs of any plastic window manufacturing task. We offer stand-alone machines as well as single and multi-head machines. Our portfolio also includes automated welding and corner cleaning production lines for parallel welding or for high-temperature or high-speed welding. All our products are subject to a continuous improvement process as well as consistent development. Consequently, our machines and variants are always state-of-the-art and are available in the highest quality.

9.1 | Welding and corner cleaning production lines

Turbo Line

The powerful, exclusive automation concept for your PVC window production. The Turbo Line sets new standards and operates at the highest level of quality.

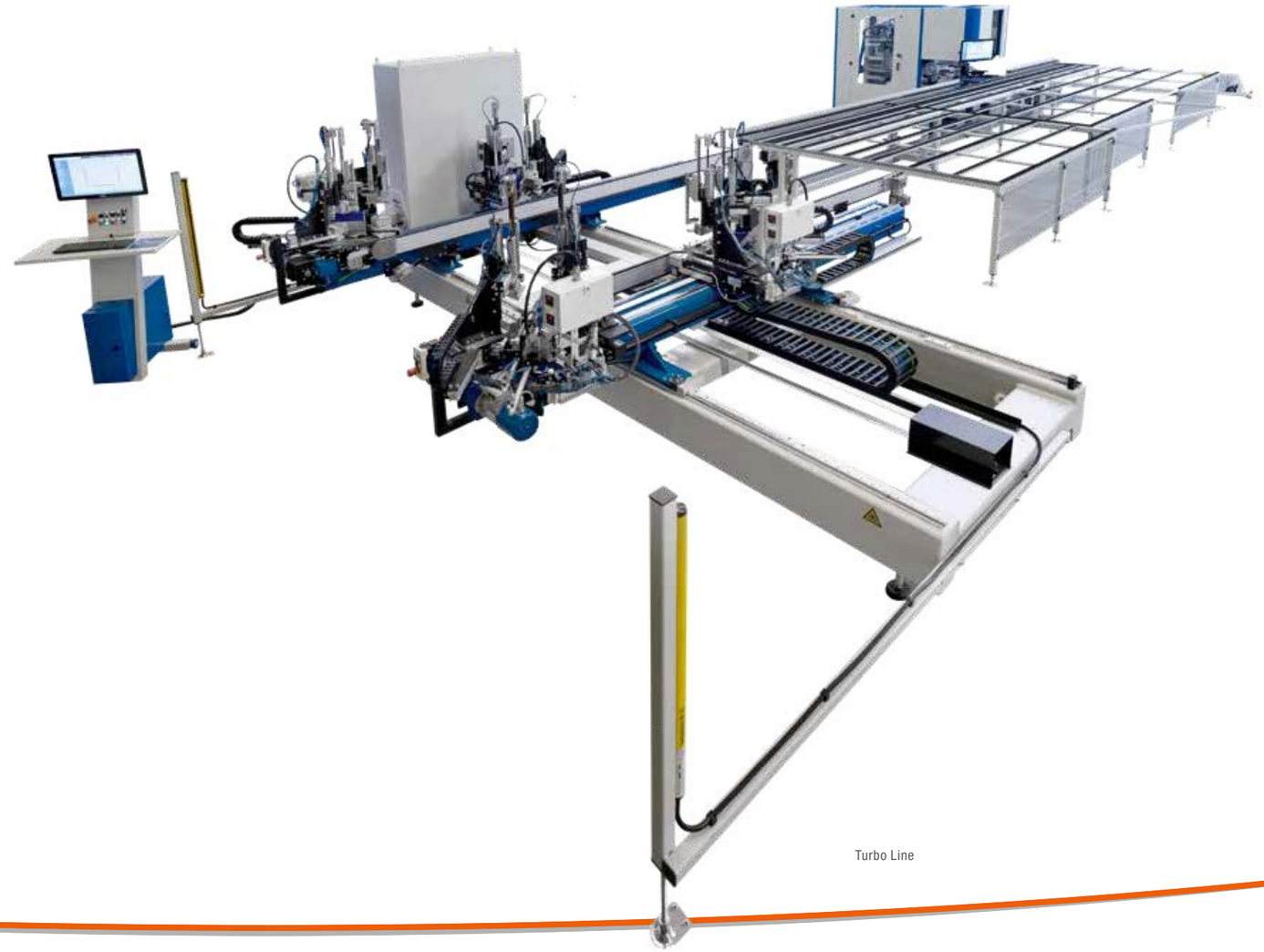
- A productivity increase of up to 50% on your existing floor space
- Up to 170 window units per eight hours
- The welding cycle of less than 60 seconds is the guaranty for the concept of this line (welding cycle alone without loading or unloading of the profiles)

Consisting of:
- Horizontal 4-head welding machine
- Diagonal and parallel joining process
- Horizontal buffer station as a cooling area and transport unit
- 4-axis corner cleaning machine

- High-temperature welding
- Welding foil quick change system
- Fixture block quick change system
- Elastic intermediate plates for tolerance compensation
- Heated limitation plates
- Welding bead limitation on support and clamping plates, 2 mm (0.2 mm possible as an option)
- Heated welding bead limitation
- Welding parameters can be programmed individually
- Protection equipment complies with CE
- Horizontal outfeed unit
- Individually programmable welding parameters
- Data management via a database

Technical specifications

- Min. depth, 45 mm
- Max. depth, 120 mm
- Min. facing width, 25 mm
- Max. facing width, 130 mm
- Min. element size 330 x 325 mm (When the gasket limitation with blade system is used, 470 x 470 mm)
- Max. element size 3,000 x 4,000 mm



Turbo Line

9.1 I Welding and corner cleaning production lines

Welding and corner cleaning production line ES-CL-P-4AML-0-HSM-30/26

All lines also available with HSM-40/26.

Consisting of:
- Horizontal 4-head welding machine 30/26
- Diagonal and parallel joining process
- Horizontal buffer station 26/30 as a cooling area and transport unit
- 4-axis corner cleaning machine, medium

Technical specifications

- Min. depth, 40 mm (20 mm after technical inspection/evaluation)
- Max. depth, HSM 120 mm / 4AML 160 mm
- Min. facing width, 40 mm
- Max. facing width, 130 mm
- Min. element size (clear inner dimension): 190 x 190 mm
- Further welding dimensions on request

Optional

- Table supporting surfaces ready for nail fins

Welding and corner cleaning production line ES-CL-P-2AML-HSM-30/26

Consisting of:
- Horizontal 4-head welding machine 30/26
- Diagonal and parallel joining process
- Horizontal buffer station 26/30 as a cooling area and transport unit
- 2-axis corner cleaning machine, medium

Technical specifications

- Min. depth, 40 mm (20 mm after technical inspection/evaluation)
- Max. depth, HSM 120 mm / 2AML 160 mm
- Min. facing width, 40 mm
- Max. facing width, 130 mm
- Min. element size (clear inner dimension): 190 x 190 mm
- Further welding dimensions on request

Optional

- Table supporting surfaces ready for nail fins

Welding and corner cleaning production line ES-CL-P-4ABL-HSM-30/26

Consisting of:
- Horizontal 4-head welding machine 30/26
- Diagonal and parallel joining process
- Horizontal buffer station 26/30 as a cooling area and transport unit
- 4-axis corner cleaning machine, basic

Technical specifications

- Min. depth, 40 mm (20 mm after technical inspection/evaluation)
- Max. depth, HSM 120 mm / 4ABL 120 mm
- Min. facing width, 40 mm
- Max. facing width, 130 mm
- Min. element size (clear inner dimension): 190 x 190 mm
- Further welding dimensions on request

Welding and corner cleaning production line ES-CL-P-2ABL-HSM-30/26

Consisting of:
- Horizontal 4-head welding machine 30/26
- Diagonal and parallel joining process
- Horizontal buffer station 26/30 as a cooling area and transport unit
- 2-axis corner cleaning machine, basic

Technical specifications

- Min. depth, 40 mm (20 mm after technical inspection/evaluation)
- Max. depth, HSM 120 mm / 2ABL 120 mm
- Min. facing width, 40 mm
- Max. facing width, 130 mm
- Min. element size (clear inner dimension): 190 x 190 mm
- Further welding dimensions on request

ES-CL-P-4AML-HSM

9.1 | Welding and corner cleaning production lines

Welding and corner cleaning production line ES-CL-4AML-O-HSM-30/26

All lines also available with HSM-40/26.

Consisting of:
- Horizontal 4-head welding machine 30/26
- Diagonal joining process
- Horizontal buffer station 26/30 as a cooling area and transport unit
- 4-axis corner cleaning machine, medium

Technical specifications

- Min. depth, 40 mm (20 mm after technical inspection/evaluation)
- Max. depth, HSM 120 mm / 4AML 160 mm
- Min. facing width, 40 mm
- Max. facing width, 130 mm
- Min. element size (clear inner dimension): 190 x 190 mm
- Further welding dimensions on request

Optional

- Table supporting surfaces ready for nail fins

Welding and corner cleaning production line ES-CL-2AML-HSM-30/26

Consisting of:
- Horizontal 4-head welding machine 30/26
- Diagonal joining process
- Horizontal buffer station 26/30 as a cooling area and transport unit
- 2-axis corner cleaning machine, medium

Technical specifications

- Min. depth, 40 mm (20 mm after technical inspection/evaluation)
- Max. depth, HSM 120 mm / 2AML 160 mm
- Min. facing width, 40 mm
- Max. facing width, 130 mm
- Min. element size (clear inner dimension): 190 x 190 mm
- Further welding dimensions on request

Optional

- Table supporting surfaces ready for nail fins

Welding and corner cleaning production line ES-CL-4ABL-HSM-30/26

Consisting of:
- Horizontal 4-head welding machine 30/26
- Diagonal joining process
- Horizontal buffer station 26/30 as a cooling area and transport unit
- 4-axis corner cleaning machine, basic

Technical specifications

- Min. depth, 40 mm (20 mm after technical inspection/evaluation)
- Max. depth, HSM 120 mm / 4ABL 120 mm
- Min. facing width, 40 mm
- Max. facing width, 130 mm
- Min. element size (clear inner dimension): 190 x 190 mm
- Further welding dimensions on request

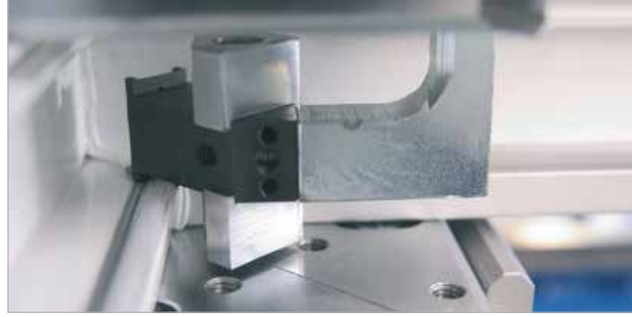
Welding and corner cleaning production line ES-CL-2ABL-HSM-30/26

Consisting of:
- Horizontal 4-head welding machine 30/26
- Diagonal joining process
- Horizontal buffer station 26/30 as a cooling area and transport unit
- 2-axis corner cleaning machine, basic

Technical specifications

- Min. depth, 40 mm (20 mm after technical inspection/evaluation)
- Max. depth, HSM 120 mm / 2ABL 120 mm
- Min. facing width, 40 mm
- Max. facing width, 130 mm
- Min. element size (clear inner dimension): 190 x 190 mm
- Further welding dimensions on request

ES-CL-4AML-O-HSM



9.2 | Single and multi-head welding machines

4-head welding machine ES-HSM-4-T-40/26

Turbo

Consisting of:
- Horizontal 4-head welding machine
- Diagonal and parallel joining process
- Elastic intermediate plates for tolerance compensation
- Heated limitation plates

Technical specifications

- Min. depth, 45 mm
- Max. depth, 120 mm (optional, 180 mm)
- Min. facing width, 25 mm
- Max. facing width, 130 mm
- Min. element size (clear inner dimension): 330 x 320 mm
- Max. element size 4,000 x 2,600 mm
- Further welding dimensions on request

Options

- Automatic welding bead limitation
- Gasket limitation with blades
- Gasket limitation with plungers
- House entry door welding (with or without pre-mounted threshold)
- Barcode scanner
- Alternating welding of frames and sashes within a profile series
- Welding of oversizes

4-head welding machine ES-HSM-4-T-30/26

Turbo

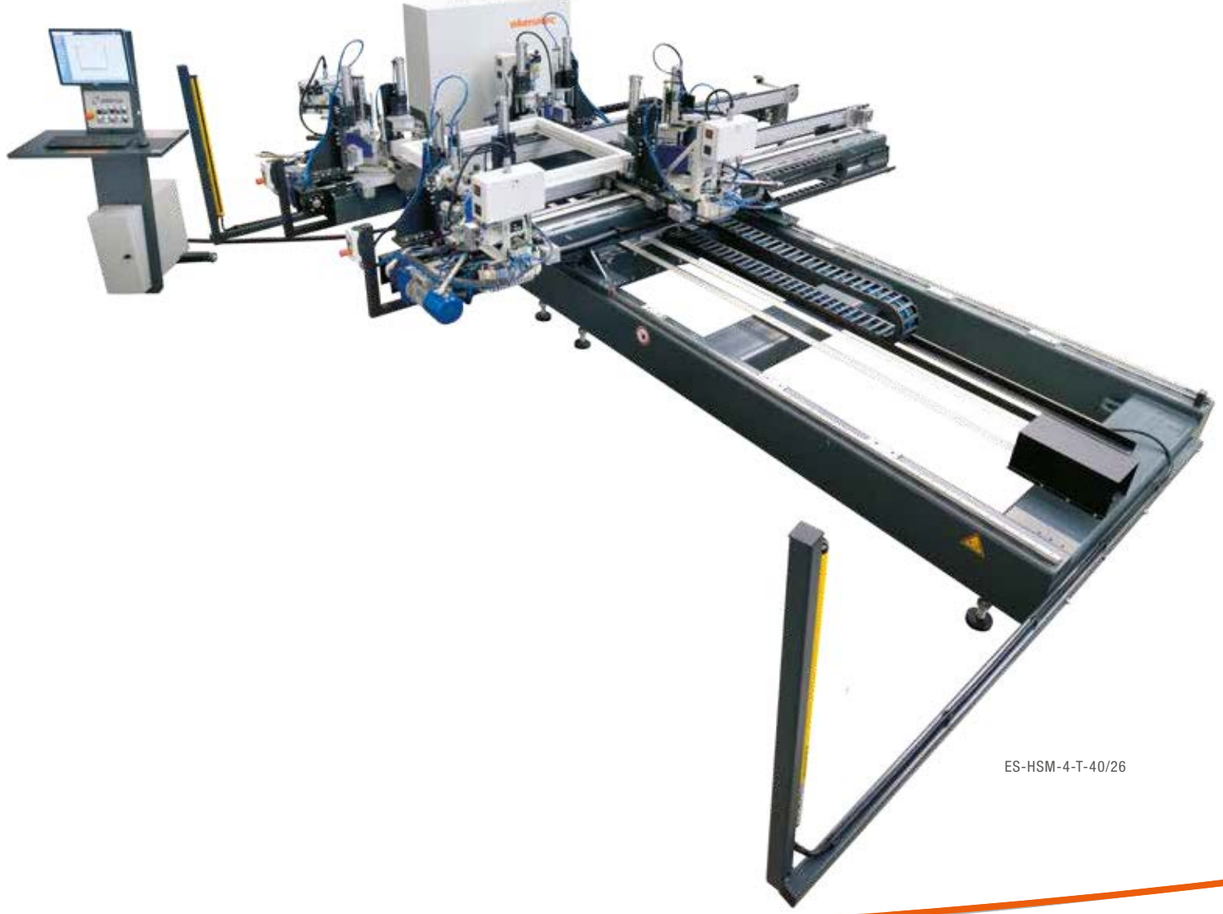
Consisting of:
- Horizontal 4-head welding machine
- Diagonal and parallel joining process
- Elastic intermediate plates for tolerance compensation
- Heated limitation plates

Technical specifications

- Min. depth, 45 mm
- Max. depth, 120 mm (optional, 180 mm)
- Min. facing width, 25 mm
- Max. facing width, 130 mm
- Min. element size (clear inner dimension): 330 x 320 mm
- Max. element size 3,000 x 2,600 mm
- Further welding dimensions on request

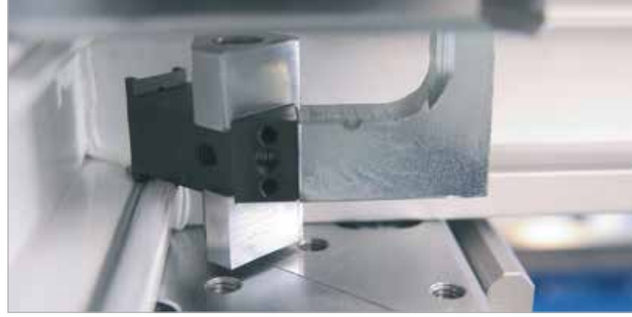
Options

- Automatic welding bead limitation
- Gasket limitation with blades
- Gasket limitation with plungers
- House entry door welding (with or without pre-mounted threshold)
- Barcode scanner
- Alternating welding of frames and sashes within a profile series
- Welding of oversizes



ES-HSM-4-T-40/26

9.2 | Single and multi-head welding machines



4-head welding machine ES-HSM-40/26-P

Consisting of:
- Horizontal 4-head welding machine
- Diagonal and parallel joining process
- Screen dialogue system under Windows
- Data management via a database
- Outfeed unit operates in production flow direction or laterally
- Welding parameters can be programmed individually
- Heated welding bead limitation
- Integration in a welding/cleaning line possible

Technical specifications

- Min. depth, 40 mm (clamping path, 145 mm)
- Max. depth, 120 mm (clamping path, 145 mm)
- Max. facing width, 130 mm
- Min. element size 330 x 320 mm (330 x 340 mm with lateral outfeed)
- Max. element size 4,000 x 2,600 mm
- Further welding dimensions on request
- Double stack on request
- Multi-head welding machines on request

Options

- Transom machining on request
- Automatic welding bead limitation
- Gasket limitation with blades
- Gasket limitation with plungers
- House entry door welding (with or without pre-mounted threshold)
- Barcode scanner
- Alternating welding of frames and sashes within a profile series
- Welding of oversizes

4-head welding machine ES-HSM-30/26-P

Consisting of:
- Horizontal 4-head welding machine
- Diagonal and parallel joining process
- Screen dialogue system under Windows
- Data management via a database
- Outfeed unit operates in production flow direction or laterally
- Welding parameters can be programmed individually
- Heated welding bead limitation
- Integration in a welding/cleaning line possible

Technical specifications

- Min. depth, 40 mm (clamping path, 145 mm)
- Max. depth, 120 mm (clamping path, 145 mm)
- Max. facing width, 130 mm
- Min. element size 330 x 320 mm (330 x 340 mm with lateral outfeed)
- Max. element size 3,000 x 2,600 mm
- Further welding dimensions on request
- Double stack on request
- Multi-head welding machines on request

Options

- Transom machining on request
- Automatic welding bead limitation
- Gasket limitation with blades
- Gasket limitation with plungers
- House entry door welding (with or without pre-mounted threshold)
- Barcode scanner
- Alternating welding of frames and sashes within a profile series
- Welding of oversizes

4-head welding machine ES-HSM-40/26

Consisting of:
- Horizontal 4-head welding machine
- Diagonal joining process
- Screen dialogue system under Windows
- Data management via a database
- Outfeed unit
- Welding parameters can be programmed individually
- Integration in a welding/cleaning line possible

Technical specifications

- Min. depth, 40 mm (clamping path, 145 mm)
- Max. depth, 120 mm (clamping path, 145 mm)
- Max. facing width, 130 mm
- Min. element size (clear inner dimension): 330 x 320 mm
- Max. element size 4,000 x 2,600 mm
- Further welding dimensions on request

Options

- Heated welding bead limitation
- Gasket limitation with plungers
- Automatic welding bead limitation

4-head welding machine ES-HSM-30/26

Consisting of:
- Horizontal 4-head welding machine
- Diagonal joining process
- Screen dialogue system under Windows
- Data management via a database
- Outfeed unit
- Welding parameters can be programmed individually
- Integration in a welding/cleaning line possible

Technical specifications

- Min. depth, 40 mm (clamping path, 145 mm)
- Max. depth, 120 mm (clamping path, 145 mm)
- Max. facing width, 130 mm
- Min. element size (clear inner dimension): 330 x 320 mm
- Max. element size 3,000 x 2,600 mm
- Further welding dimensions on request

Options

- Heated welding bead limitation
- Gasket limitation with plungers
- Automatic welding bead limitation

9.2 | Single and multi-head welding machines

4-head welding machine ES-VSM-40/26-P

Consisting of:
- Vertical 4-head welding machine
- Diagonal and parallel joining process
- Parallel welding process
- Suitable for production lines
- Screen dialogue system under Windows
- Data management via a database
- Heated welding bead limitation
- Welding parameters can be programmed individually
- Integration in a welding/cleaning line possible

Technical specifications

- Min. depth, 30 mm (clamping path, 120 mm)
- Max. depth, 120 mm (clamping path, 120 mm)
- Max. facing width, 130 mm
- Min. element size (clear inner dimension): 325 x 320 mm
- Max. element size 4,000 x 2,600 mm
- Further welding dimensions on request

Options

- Unloading handling system
- Automatic welding bead limitation
- Gasket limitation with blades
- Gasket limitation with plungers
- House entry door welding (with or without pre-mounted threshold)
- Barcode scanner
- Alternating welding of frames and sashes within a profile series
- Welding of oversizes

4-head welding machine ES-VSM-30/26-P

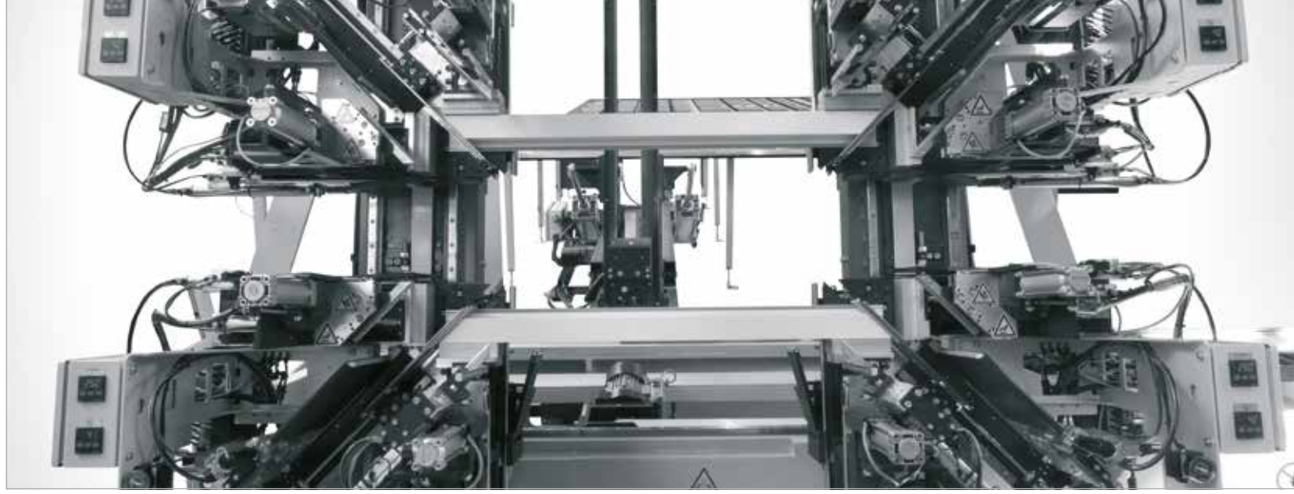
Consisting of:
- Vertical 4-head welding machine
- Diagonal and parallel joining process
- Parallel welding process
- Suitable for production lines
- Screen dialogue system under Windows
- Data management via a database
- Heated welding bead limitation
- Welding parameters can be programmed individually
- Integration in a welding/cleaning line possible

Technical specifications

- Min. depth, 30 mm (clamping path, 120 mm)
- Max. depth, 120 mm (clamping path, 120 mm)
- Max. facing width, 130 mm
- Min. element size (clear inner dimension): 325 x 320 mm
- Max. element size 3,000 x 2,600 mm
- Further welding dimensions on request

Options

- Unloading handling system
- Automatic welding bead limitation
- Gasket limitation with blades
- Gasket limitation with plungers
- House entry door welding (with or without pre-mounted threshold)
- Barcode scanner
- Alternating welding of frames and sashes within a profile series
- Welding of oversizes



ES-VSM-40/26-P

9.2 | Single and multi-head welding machines

4-head welding machine ES-VSM-30/19-C-S

Consisting of:

- Vertical 4-head welding machine
- Compact stand-alone solution (plug & play)
- Diagonal joining process
- Diagonal welding process
- Not suitable for production lines
- Double stack on request
- Screen dialogue system under Windows
- Data management via a database
- Welding parameters can be programmed individually

Technical specifications

- Min. depth, 40 mm (clamping path, 85 mm)
- Max. depth, 130 mm (clamping path, 85 mm)
- Max. facing width, 130 mm
- Min. element size (clear inner dimension): 305 x 300 mm
- Max. element size 3,000 x 1,900 mm

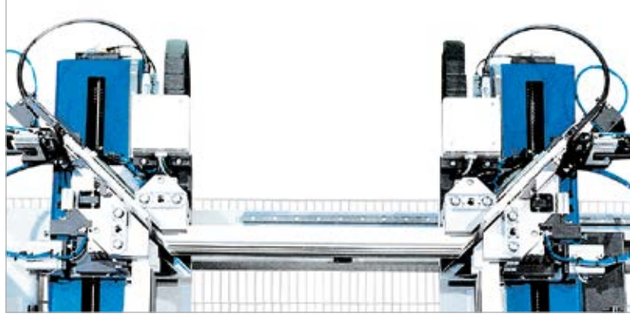
4-head welding machine ES-VSM-20/19-C-S

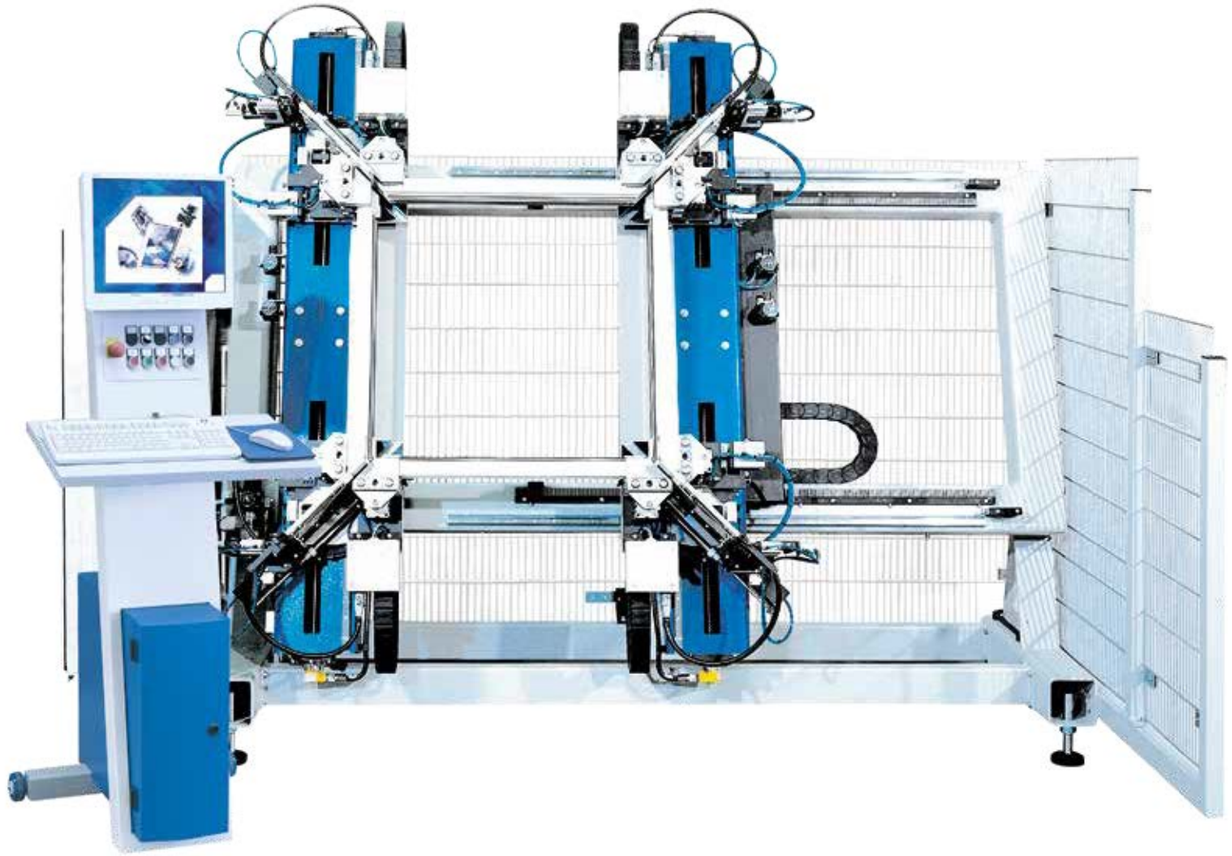
Consisting of:

- Vertical 4-head welding machine
- Compact stand-alone solution (plug & play)
- Diagonal joining process
- Diagonal welding process
- Not suitable for production lines
- Double stack on request
- Screen dialogue system under Windows
- Data management via a database
- Welding parameters can be programmed individually

Technical specifications

- Min. depth, 40 mm (clamping path, 85 mm)
- Max. depth, 130 mm (clamping path, 85 mm)
- Max. facing width, 130 mm
- Min. element size (clear inner dimension): 305 x 300 mm
- Max. element size 2,000 x 1,900 mm





ES-VSM-20/19-C-S

9.2 | Single and multi-head welding machines

2-head welding machine ZS 720 LV

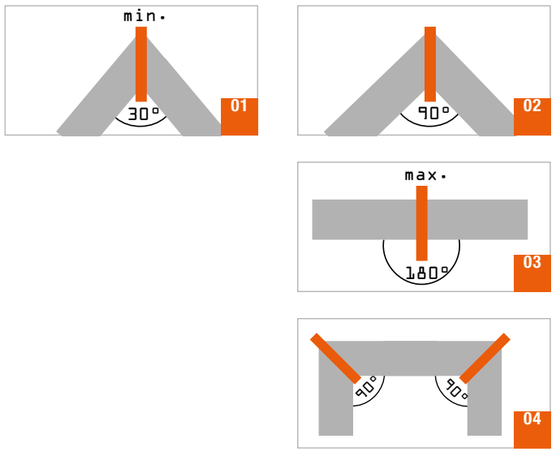
- Fixed L-head (90°)
- Variable L-head (30° – 180°)
- Continuously adjustable stops make it possible to weld any angle from 30° – 180°
- Heated welding bead limiting blade, configurable for a welding bead limitation of 0.2 to 2.0 mm, for welding profiles covered with a film or acrylic coating
- Also suitable for welding large-volume profiles (monobloc)
- Automatic adjustment for different profile cross-sections by means of a sensor-controlled melting time
- Easy maintenance, e.g. through simple cleaning of the welding plates, special clamping springs for fast Teflon film changing
- Changing the profile stop plate for different melting losses is easy (standard, 6 mm)
- Corrosion-resistant welding carriage guide
- Height-adjustable support arms included as standard

Options

- Gasket downholder for the inside corner area
- Welding supports
- Welding supports for profiles with gasket already installed
- Profile stop for small frames (melting loss) results in smallest frame dimension, 300 mm
- Support arms

Technical specifications

- Purpose of use [01, 03, 04]
- Right head in single-head mode, also [01-03]
- Two L-plates
- Width of L-plate 340 mm
- Height of L-plate 300 mm
- Profile width at 90° max. 180 mm
- Profile width at 180° max. 220 mm
- Profile height max. 210 mm
- Profile height min. 40 mm
- Profile height with special adapter min. 20 mm
- Profile length max. 2,520 mm (special lengths optional)
- Smallest frame dimension 480 mm
- Power supply 230/400 V, 3~, 50/60 Hz
- Power output 5.2 kW
- Compressed air supply 6 – 8 bar
- Air consumption per weld 120 l
- Length 3,265 mm, depth 750 mm, height 1,800 mm, weight 950 kg

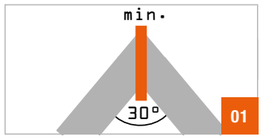


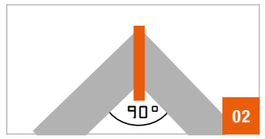
ZS 720 LV

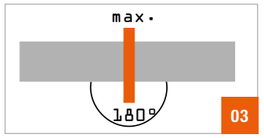
9.2 | Single and multi-head welding machines

1-head welding machine ES 710 LV

- Suitable for welding large-volume profiles (monobloc profiles)
- Heated welding bead limiting blade, configurable for a welding bead limitation of 0.2 to 2.0 mm, for welding profiles covered with a film or acrylic coating







Technical specifications

- Intended uses [01 – 03]
- Welding bead limitation 0.2 – 2.0 mm
- Welding bead temperature control 0° – 70°C
- Profile height max. 210 mm
- Power supply 230 V, 1~, 50/60 Hz
- Power output 2.7 kW
- Air consumption per weld 60 l
- Length 920 mm, depth 950 mm, height 1,875 mm, weight 320 kg

Options

- Welding supports
- Welding supports for profiles with gasket already installed
- Gasket downholder for the inside corner area

ES 710 LV

9.3 | Corner cleaning machines

Corner cleaning machine ES-4MXL

4-axis corner cleaning machine

- For multi-functional machining of 90° inside and outside corners
- MotionControl ensures a work sequence with optimised cycle times
- Highly-dynamic axis drive
- User programmable under Window operating system
- Modular tooling with up to 17 tool positions
- Customer-specific machining solutions are possible, such as arrowhead routing, sash overlap routing, tilt/turn hinge drilling, disk milling cutter units, etc.
- The 4MXL can be equipped with an automatic turning station

Technical specifications

- Min. depth, 25 mm
- Max. depth, 130 mm (optional, 220 mm)
- Min. facing width, 25 mm
- Max. facing width, 130 mm
- Min. element size 290 x 290 mm
- Max. element size 3,000 x 3,000 mm (in turning mode)

Options

- Automatic profile recognition
- Tilt/turn hinge drilling
- Mullion or arrowhead routing
- Sash hinge drilling

Corner cleaning machine ES-4AML-X

4-axis corner cleaning machine, medium

- For multi-functional machining of 90° inside and outside corners
- MotionControl ensures a work sequence with optimised cycle times
- Highly-dynamic axis drive
- User programmable under Window operating system
- Modular tooling with up to 17 tool positions
- Customer-specific machining solutions are possible, such as arrowhead routing, sash overlap routing, tilt/turn hinge drilling, disk milling cutter units, etc.
- The 4AML can be equipped with an automatic turning station

Technical specifications

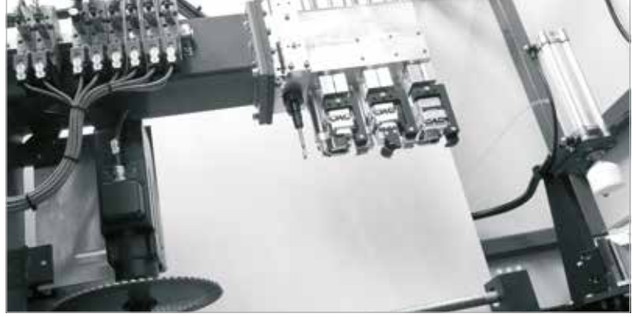
- Min. depth, 40 mm (20 mm after technical inspection/evaluation)
- Max. depth, 160 mm
- Min. facing width, 40 mm
- Max. facing width, 130 mm
- Min. element size (clear inner dimension): 190 x 190 mm

Options

- Table supporting surfaces ready for nail fins
- Tilt/turn hinge drilling
- Mullion or arrowhead routing

ES-4MXL

9.3 | Corner cleaning machines



Corner cleaning machine ES-4AML-0

4-axis corner cleaning machine, medium

- For machining of 90° inside and outside corners
- Flexible outer contour machining using a circular saw blade
- Highly advanced control technology
- User programmable under Window operating system
- The 4AML can be equipped with an automatic turning station

Technical specifications

- Min. depth, 30 mm (20 mm after technical inspection/evaluation)
- Max. depth, 160 mm
- Min. facing width, 30 mm
- Max. facing width, 130 mm
- Min. element size (clear inner dimension): 290 x 290 mm
- Max. element size 3,000 x 3,000 mm (in turning mode)

Corner cleaning machine ES-4ABL

4-axis corner cleaning machine, basic

- For machining of 90° inside and outside corners
- Flexible outer contour machining using a circular saw blade
- Highly advanced control technology
- User programmable under Window operating system
- The 4ABL can be equipped with an automatic turning station

Technical specifications

- Min. depth, 30 mm (20 mm after technical inspection/evaluation)
- Max. depth, 120 mm
- Min. facing width, 30 mm
- Max. facing width, 130 mm
- Min. element size (clear inner dimension): 290 x 290 mm
- Max. element size 3,000 x 3,000 mm (in turning mode)

ES-2ABL

Corner cleaning machine ES-2AFL

2-axis corner cleaning machine, medium

Technical specifications

- Min. depth, 40 mm (20 mm after technical inspection/evaluation)
- Max. depth, 205 mm
- Min. facing width, 40 mm
- Max. facing width, 130 mm
- Min. element size (clear inner dimension): 190 x 190 mm

Optional

- Mullion routers

Corner cleaning machine ES-2AML

2-axis corner cleaning machine, medium

- For machining of 90° inside and outside corners
- Flexible outer contour machining using a circular saw blade
- Highly advanced control technology
- User programmable under Window operating system
- Integration in a welding/cleaning line possible
- The 2AML is the production line capable version of the 2AM and can be equipped with a turning station

Technical specifications

- Min. depth, 40 mm (20 mm after technical inspection/evaluation)
- Max. depth, 160 mm
- Min. facing width, 40 mm
- Max. facing width, 130 mm
- Min. element size (clear inner dimension): 190 x 190 mm

Optional

- Table supporting surfaces ready for nail fins

Corner cleaning machine ES-2ABL

See ES-2AML, however:
- 2-axis corner cleaning machine, basic
- Max. depth, 120 mm
- Without table supporting surfaces, ready for nail fins

9.3 | Corner cleaning machines

Corner cleaning machine ES-2AM

2-axis corner cleaning machine, medium

- Stand-along corner cleaning machine
- Not suitable for production lines

Technical specifications

- Min. depth, 40 mm (20 mm after technical inspection/evaluation)
- Max. depth, 160 mm
- Min. facing width, 40 mm
- Max. facing width, 130 mm
- Min. element size (clear inner dimension): 190 x 190 mm

Options

- Table supporting surfaces ready for nail fins
- Profile support table for corner cleaning machine

Corner cleaning machine ES-2AC

2-axis corner cleaning machine, compact

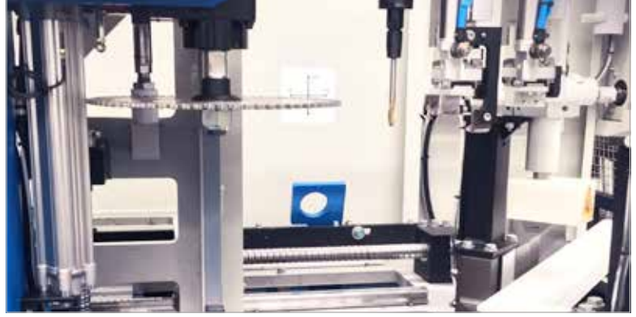
- Stand-along corner cleaning machine
- Not suitable for production lines

Technical specifications

- Min. depth, 40 mm (20 mm after technical inspection/evaluation)
- Max. depth, 120 mm
- Min. facing width, 40 mm
- Max. facing width, 130 mm
- Min. element size (clear inner dimension): 190 x 190 mm

Optional

- Profile recognition



ES-2AC

9.3 I Corner cleaning machines

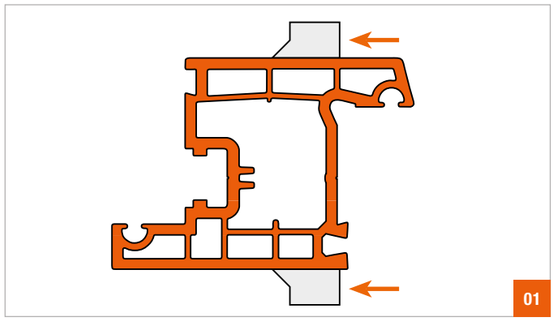
Corner cleaning machine EV 834

See EV 832, however:

- Four milling cutter positions for freely-configurable cutter sets
- Four router spindles for cutter diameters up to a maximum of 260 mm
- Error minimisation through intelligent, automatic profile distinction between frames and sashes at milling positions 1 and 2

Technical specifications

- Router spindle diameter 32 mm
- One router spindle for cutter packages up to a height of 200 mm
- Length 980 mm, depth 1,700 mm, height 1,670 mm, weight 590 kg



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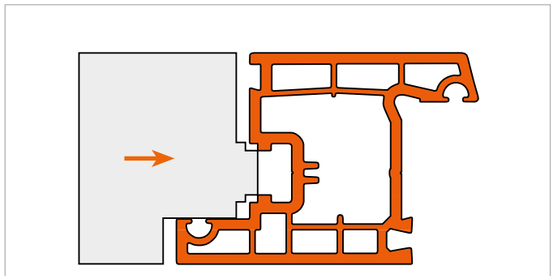

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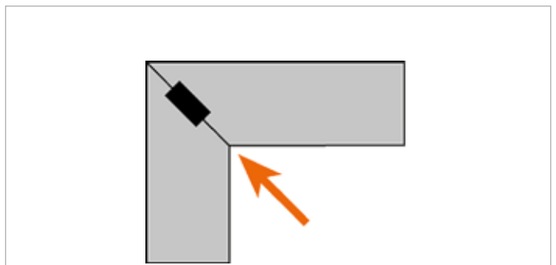


03

Corner cleaning machine EV 832

- Simultaneous machining of outer contours and the welding beads on the top and bottom
- Two milling cutter positions for freely-configurable cutter sets
- Optimal groove quality on convex and concave profile surfaces thanks to spring-loaded groove knife
- Adjustable infeed draws even heavy and high profile elements (e.g. entry doors) in accurately and reliably
- No twisting of the profiles thanks to horizontal and vertical profile clamping
- Cutter diameters up to 260 mm for profiles with extreme depth dimensions possible
- Equipped as standard with unit for blowing off chips which prevents inaccuracies due to chips becoming stuck
- Versatile due to groove knives and milling cutters which can be switched on individually as well as cutter combinations that can be changed quickly

Technical specifications

- Intended uses [01 – 03]
- Maximum frame size is theoretically unlimited
- Min. frame size outer dimension 290 x 290 mm
- Min. frame size inner dimension 160 x 160 mm
- Max. profile height 200 mm
- Profile height min. 25 mm
- Cutting tool diameter max. 260 mm
- Spindle speed 3,200 rpm
- Router spindle diameter 32 mm
- Power supply 230/400 V, 3~, 50 Hz
- Power output 2.5 kW
- Compressed air supply 7 bar
- Air consumption per working cycle 100 l
- Length 980 mm, depth 1,700 mm, height 1,670 mm, weight 495 kg

Options

- Router spindle 200 mm
- Cleaning miller

EV 832

10 | Hardware/Assembly/Logistics

Hardware assembly on sash and frame elements is another indispensable process – especially in the production of plastic windows. We can provide you with all of the relevant products, such as sash assembly tables, automatic sash hardware screw driving units or complete frame assembly centres. Various storage and sorting racks and automatic racking and storage systems round out our hardware assembly range. All of these products can be adapted flexibly to meet your individual needs.

10.1 I Sash hardware

Fully automatic sash hardware screw driving unit FBS-SpeedStar-4S

Screw driving unit and stacker can be adapted to customer specifications

- Four highly-dynamic electric screw driving units
- Processing of up to eight different Euro groove heights – independently of the profile and hardware system
- Maximum processing quantity through the use of highly dynamic modules and intelligent control technology
- Gentle screw placement in the sash hinges
- The highly innovative control technology connects the database-oriented screen dialogue system with the powerful controllers
- Operation of the information management system is intuitive and offers a visualisation of all hardware data, a diagnostics and reporting tool and maintenance management as well as other options
- The integrated remote maintenance feature avoids on-site visits of service technicians
- Suitable for integration in a production line
- Hardware pre-mounting table with compartments for long hardware components and corner linkage gears
- To ensure a continuous material flow in the production process, the sash scissor stay is folded into place via a clamping arm
- After completion of screw placement, the sashes are automatically sorted and transferred to a vertical buffer rack
- Non-slip conveyor belts and guide rollers ensure gentle transportation of the sashes

Technical specifications

- Min. depth, 60 mm
- Max. depth, 100 mm (incl. mullion profile)
- Min. facing width, 69 mm (for mullion profile of 49 mm)
- Max. facing width, 130 mm (150 mm incl. mullion profile)
- Min. Euro groove height, 30 mm
- Max. Euro groove height, 50 mm
- Min. sash rebate width, 320 mm (incl. mullion profile)
- Max. sash rebate width, 1,600 mm (incl. mullion profile)
- Min. sash rebate height, 320 mm
- Max. sash rebate height, 2,600 mm
- Min. sash glazing rebate width, 220 mm
- Min. sash glazing rebate height, 220 mm
- Max. sash weight, 100 kg
- Cycle time < 1 minute (depending on the type of hardware)
- Profile systems: PVC / PVC steel reinforced, profiles / composites

Options

- Automatic stacking
- Sash hinge drilling
- Corner hinge screw driving
- Scissor stay closing function

FBS-SpeedStar-4S

Fully automatic sash hardware screw driving unit FBS-SpeedStar-2S

- Two highly-dynamic electric screw driving units
- Processing of up to eight different Euro groove heights – independently of the profile and hardware system
- Maximum processing quantity through the use of highly dynamic modules and intelligent control technology
- Gentle screw placement in the sash hinges
- Operation of the information management system is intuitive and offers a visualisation of all hardware data, a diagnostics and reporting tool and maintenance management as well as other options
- The integrated remote maintenance feature avoids on-site visits of service technicians
- Suitable for integration in a production line
- Hardware pre-mounting table with compartments for long hardware components and corner linkage gears
- To ensure a continuous material flow in the production process, the sash scissor stay is folded into place via a clamping arm
- After completion of screw placement, the sashes are automatically sorted and transferred to a vertical buffer rack

Technical specifications

- Min. depth, 60 mm
- Max. depth, 100 mm (incl. mullion profile)
- Min. facing width, 69 mm (for mullion profile of 49 mm)
- Max. facing width, 130 mm (150 mm incl. mullion profile)
- Min. Euro groove height, 30 mm
- Max. Euro groove height, 50 mm
- Min. sash rebate width, 320 mm
- Max. sash rebate width, 1,600 mm (incl. mullion profile)
- Min. sash rebate height, 320 mm
- Max. sash rebate height, 2,600 mm
- Min. sash glazing rebate width, 220 mm
- Min. sash glazing rebate height, 220 mm
- Max. sash weight, 100 kg
- Cycle time < 1.5 minutes (depending on the type of hardware)
- Profile systems: PVC / PVC steel reinforced, profiles / composites

Options

- Automatic stacking
- Sash hinge drilling
- Corner hinge screw driving
- Scissor stay closing function

Fully automatic sash hardware screw driving unit FBS-SpeedStar-1S

- One electric screw driving unit
- Processing of up to eight different Euro groove heights – independently of the profile and hardware system
- Maximum processing quantity through the use of highly dynamic modules and intelligent control technology
- Gentle screw placement in the sash hinges
- The integrated remote maintenance feature avoids on-site visits of service technicians
- Suitable for integration in a production line
- Hardware pre-mounting table with compartments for long hardware components and corner linkage gears
- To ensure a continuous material flow in the production process, the sash scissor stay is folded into place via a clamping arm
- After completion of screw placement, the sashes are automatically sorted and transferred to a vertical buffer rack

Technical specifications

- Min. depth, 60 mm
- Max. depth, 100 mm (incl. mullion profile)
- Min. facing width, 69 mm (for mullion profile of 49 mm)
- Max. facing width, 130 mm (150 mm incl. mullion profile)
- Min. Euro groove height, 30 mm
- Max. Euro groove height, 50 mm
- Min. sash rebate width, 320 mm (incl. mullion profile)
- Max. sash rebate width, 1,600 mm (incl. mullion profile)
- Min. sash rebate height, 320 mm
- Max. sash rebate height, 2,600 mm
- Min. sash glazing rebate width, 220 mm
- Min. sash glazing rebate height, 220 mm
- Max. sash weight, 100 kg
- Cycle time < 2 minutes (depending on the type of hardware)
- Profile systems: PVC / PVC steel reinforced, profiles / composites

Options

- Automatic stacking
- Sash hinge drilling
- Corner hinge screw driving
- Scissor stay closing function

10.1 I Sash hardware

Semi-automatic sash hardware screw driving unit, FBS-1S-M

- Automatic screw placement for pre-mounted, clip-on sash hardware components
- Independent of profile and hardware systems
- CNC controlled screw driving unit axis
- Automatic height adjustment for up to eight Euro groove heights
- Graphical visualisation of operations
- Length stop positioned automatically
- Suitable for integration in a production line

Technical specifications

- Working height, 960 mm ± 50 mm
- Min. depth, 60 mm
- Max. depth, 100 mm
- Min. facing width, 69 mm (for mullion profile of 49 mm)
- Max. facing width, 130 mm
- Min. sash rebate size, 280 x 280 mm (FFB x FFH, facing width 70 mm)
- Max. sash rebate size, 1,500 x 2,450 mm (FFB x FFH)
- Min. Euro groove height, 30 mm
- Max. Euro groove height, 50 mm
- Cycle time < 2 minutes (depending on the type of hardware)

Options

- Sash hinge drilling unit
- Sash hinge screw driving
- Automatic stacking

FBS-1S-M

10.1 I Sash hardware

Sash assembly centre FAZ 2800

Sash assembly centre for installing hardware on plastic and aluminium window sashes

- Ergonomic screw driving of hardware in a very short time
- Sash assembly table for measuring and cutting to length of hardware components
- Optimisation of sash processing by bundling various work tasks at a single workstation
- Assembly table can be tilted pneumatically
- The sash, measurement and centring units can be moved pneumatically
- Gear cropper with stops for a centred or constant handle position
- Two stop blocks for different sash widths
- Mobile screwing unit with pneumatic height adjustment [01]
- Manual insertion funnel for second screw length
- Automatic depth shutoff
- Screw feed unit
- Table supporting surface with plastic slide bars

Technical specifications

- Table length 2,800 mm
- Table width 1,400 mm
- Total length 3,400 mm
- Total width 2,000 mm
- Weight 450 kg
- Table height adjustable 850 – 1,000 mm
- Table inclination approx. 15°
- Sash inside dimensions approx. 280 – 2,300 mm
- Compressed air supply 7 bar
- Air consumption:
  - Screw driving unit approx. 250 l/min.
  - Clamping unit approx. 35 l/min.
- Screw dimensions:
  - Head diameters 5.0 – 9.0 mm
  - Shank diameters 3.5 – 4.5 mm
  - Length approx. 10.0 – 35.0 mm
- Power supply 230/400 V, 3~, 50 Hz
- Electrical connected load approx. 3 W

Options

- Corner hinge drilling unit [02]
- Handle hole drilling unit [03]
- Lock case milling unit [04]
- Hardware rack
- Punching tool [05]
- Drilling and screwing-in unit (Anuba)

Hardware rack BR 36

Hardware rack with 36 compartments for orderly hardware storage at the sash assembly station [06]

- Stable steel construction
- Hardware rack with 36 compartments
- With six angled supports for corner linkage gears
- Space for a monitor, with keyboard holder

Technical specifications

- Length 3,100 mm
- Width 1,525 mm
- Height 2,100 mm
- 36 compartments
- Lower compartment size 265 x 200 mm
- Upper compartment size 265 x 100 mm
- Safe load approx. 800 kg
- Weight 400 kg

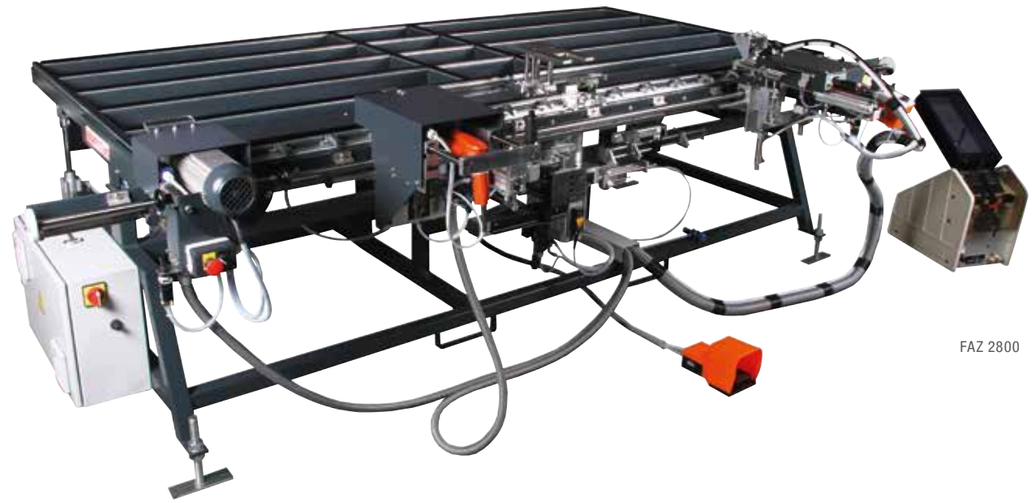
Hardware rack BR 40

Hardware rack with 36 compartments for orderly hardware storage at the sash assembly station [06]

- Stable steel construction
- Hardware rack with 40 compartments
- With six angled supports for corner linkage gears

Technical specifications

- Length 3,100 mm
- Width 1,525 mm
- Height 2,100 mm
- 40 compartments
- Lower compartment size 265 x 200 mm
- Upper compartment size 265 x 100 mm
- Safe load approx. 800 kg
- Weight 400 kg



FAZ 2800

10.2 I Frame hardware

Frame assembly centre RMZ 4000

- The innovative and highly efficient hardware drilling and screw driving station for frame hinges and pivots
- Work quickly and accurately – this machine enables an amazing productivity boost in window manufacturing
- Thanks to the easy handling and ergonomically designed work sequence, drilling, assembling, and screwing of the tilt/turn hinges can be performed by a single operator
- Due to the movable stop system, the time-consuming drilling of locating and screw holes with a template can be omitted
- The unit can be rotated by 90° for machining multi-sash frames
- The adjusting device can be positioned in the Y-direction using grid dimensions for drilling pivot bolts into multi-sash frames
- The hinges and pivots are screwed to the closed frame by the vertical screwing feed unit which is manually moveable on moving carrier plates
- The unit is equipped with an automatic screw infeed, a screwdriver turbine for screwing self drilling screws, and a pneumatic screwing depth stop
- Pneumatic frame clamping and positioning device can be moved beyond table centre
- Frame rebate dimensions from 360 to 3,400 mm
- Two pneumatically lowerable rebate stops with revolver for up to four different frame depths
- Laser unit shows the screw driving position

Technical specifications

- Table length 4,040 mm
- Table width 1,700 mm
- Total length 4,220 mm
- Total width 2,010 mm
- Height 1,720 mm
- Table height adjustable 950 – 1,050 mm
- Frame dimension min. 560 x 200 mm
- Frame dimension max. 3,800 x 1,700 mm
- Profile height min. 54 mm
- Max. profile height 110 mm
- Weight 650 kg
- Compressed air supply 7 bar
- Air consumption:
  - Screw driving unit approx. 250 l/min.
  - Clamping unit approx. 40 l/min.
- Screw dimensions:
  - Head diameters 5.0 – 9.0 mm
  - Shank diameters 3.5 – 4.5 mm
  - Length approx. 10.0 – 35.0 mm
- Power supply 230/400 V, 3~, 50 Hz
- Motor power of 1.1 kW at 2,825 rpm

RMZ 4000

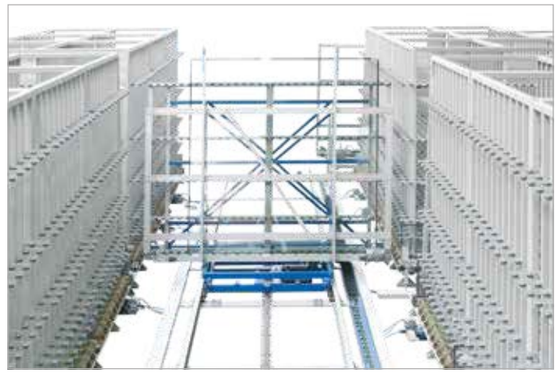
10.3 I Glass sorting

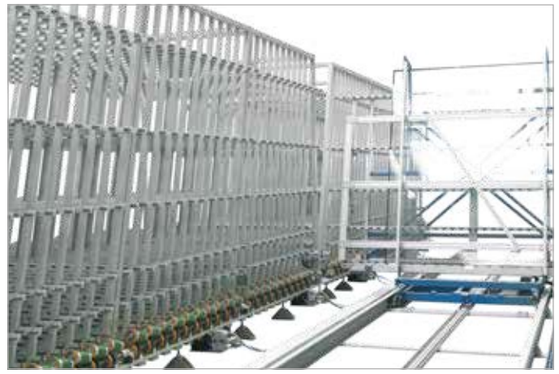
Fully automatic glass handling system

- Eliminates search and sorting tasks
- Continuous material flow in the window production process
- Safeguards the delivered quality of the glass
- Module arrangement for integration into any size of operation with variable buffer capacities
- Expansion options for foreseeable capacity increases

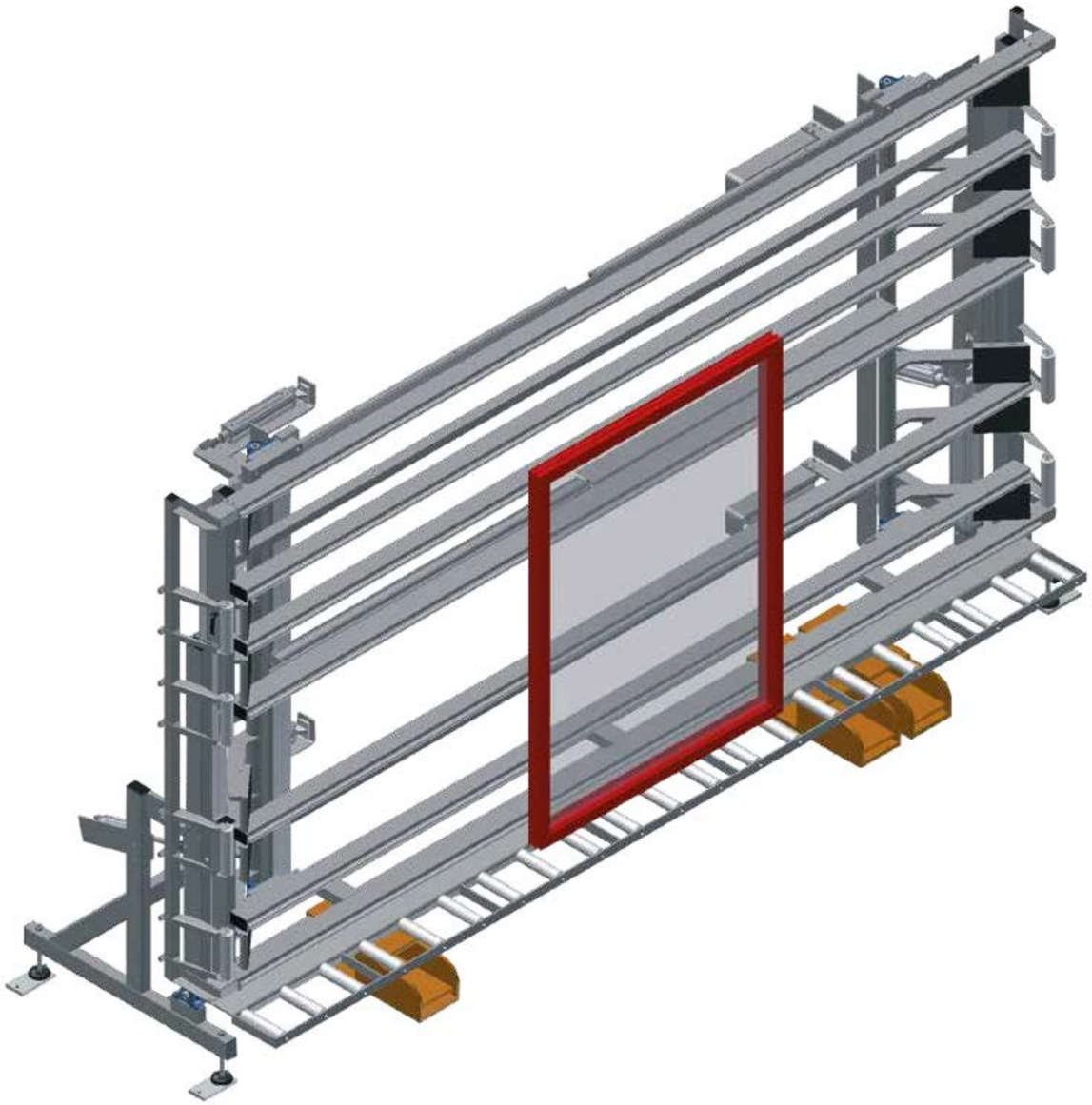
Technical specifications

- Min. glass pane size, 240 x 240 mm
- Max. glass pane size, 2,500 x 2,500 mm
- Min. glass pane thickness, 12 mm
- Max. glass pane thickness, 52 mm (double and triple glazing)
- Max. glass pane weight, 250 kg
- Further automatic buffer and stacking systems on request





Fully automatic glass handling system



11 | Inspection and glazing units

Quality inspection is an important step – not only in the production of plastic windows. That is why our inspection and glazing units have proven to be the perfect tool in terms of flexibility, robust construction and precision.

11 | Inspection and glazing units

Inspection and glazing unit VE 3000

Inspection and glazing unit for glazing and final inspection in individual and serial assembly line production

- Stable steel construction
- Quick and precise assembly of windows, doors and elements
- Precision ensured through parallel clamping bar pressing technique
- For glazing and functional checks
- For connecting frames and sashes
- Height continuously adjustable
- Two pressing bars which fold down and can be moved pneumatically
- Easy operation by means of foot switch
- 4-fold compressed air supply

Technical specifications

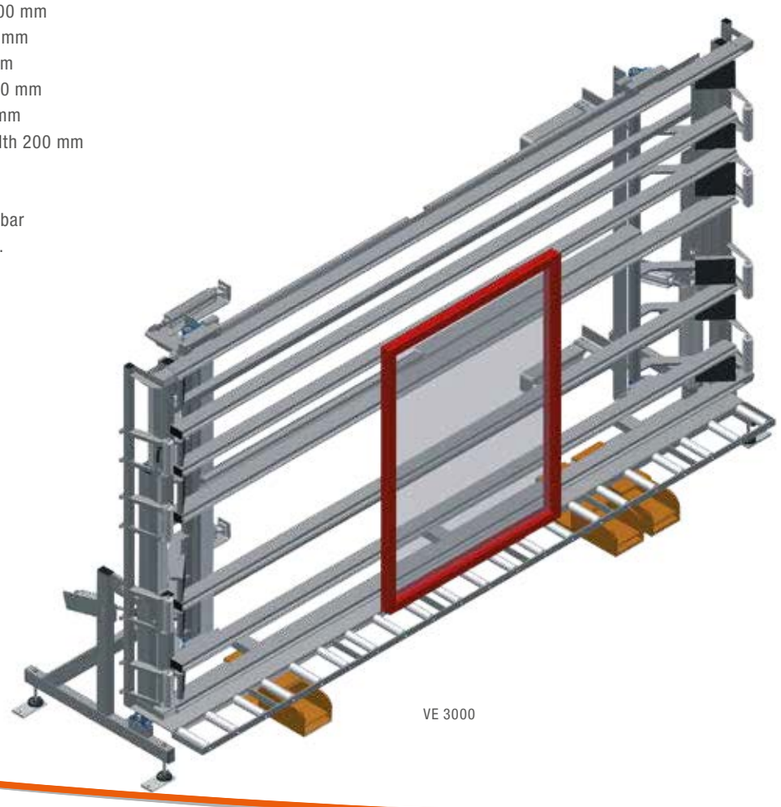
- Length 4,410 mm
- Width 1,180 mm
- Height 2,600 mm
- Max. clamping width 3,000 mm
- Min. clamping width 400 mm
- Height adjustment 500 mm
- Clamping bar height 2,300 mm
- Clamping bar width 120 mm
- Lower roller conveyor width 200 mm
- Weight 470 kg
- Load 200 kg
- Compressed air supply 7 bar
- Air consumption 35 l/min.

Options

- Lead-in rollers, cmpl., right
- Lead-in rollers, cmpl., left
- Profile protectors for support rollers
- Tilt adjustment of 0° – 8°

Inspection and glazing unit VE 4000

See VE 3000, however:
- Max. clamping width 4,000 mm
- Length 5,440 mm
- Weight 580 kg



VE 3000

Inspection and glazing unit VE 3000/60

Inspection and glazing unit for glazing and final inspection

- Stable steel construction
- Quick and precise assembly of windows, doors and elements
- Precision ensured through parallel clamping bar pressing technique
- For glazing and functional checks
- For connecting frames and sashes
- With manually operated pressing bars
- Opening for weatherboard
- Pneumatic centring
- Easy operation by means of foot switch
- Storage area for tools
- 4-fold compressed air supply

Technical specifications

- Length 3,050 mm
- Width 900 mm
- Height 2,600 mm
- Max. clamping width 2,800 mm
- Min. clamping width 390 mm
- Clamping bar height 2,300 mm
- Clamping bar width 100 mm
- Lower roller conveyor width 120 mm
- Weight 370 kg
- Load 150 kg
- Compressed air supply 7 bar
- Air consumption 35 l/min.

Optional

- Height adjustment VE 3000/60

VE 3000/60

12 | Production planning – Optimised production processes

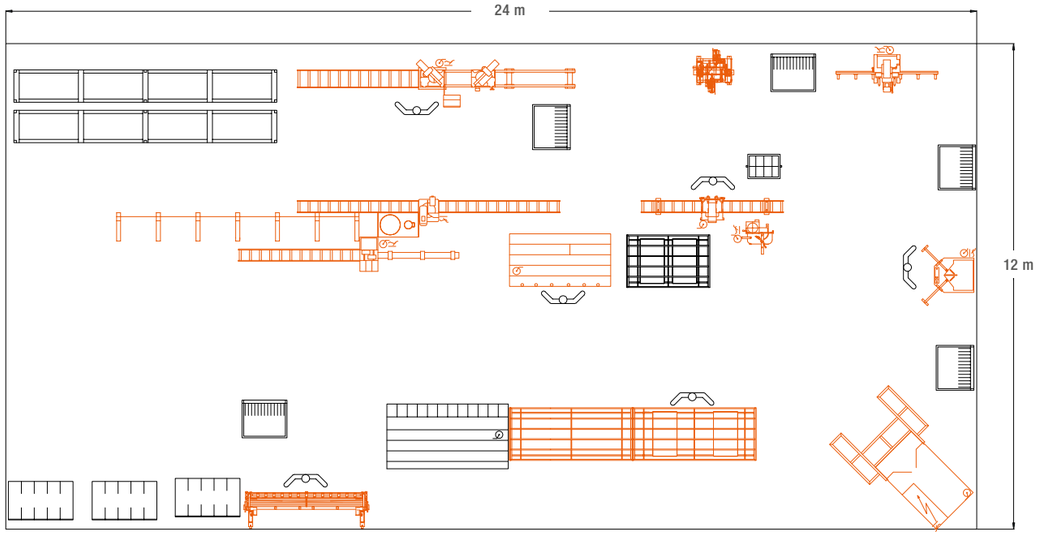
When selecting the ideal product, one of the most important things to consider is which machine(s) can be integrated most easily and economically into your existing production process.

We offer you comprehensive solutions combined with international experience. Whether you are engaged in series or job production, we can always assist you in setting up suitable production structures.

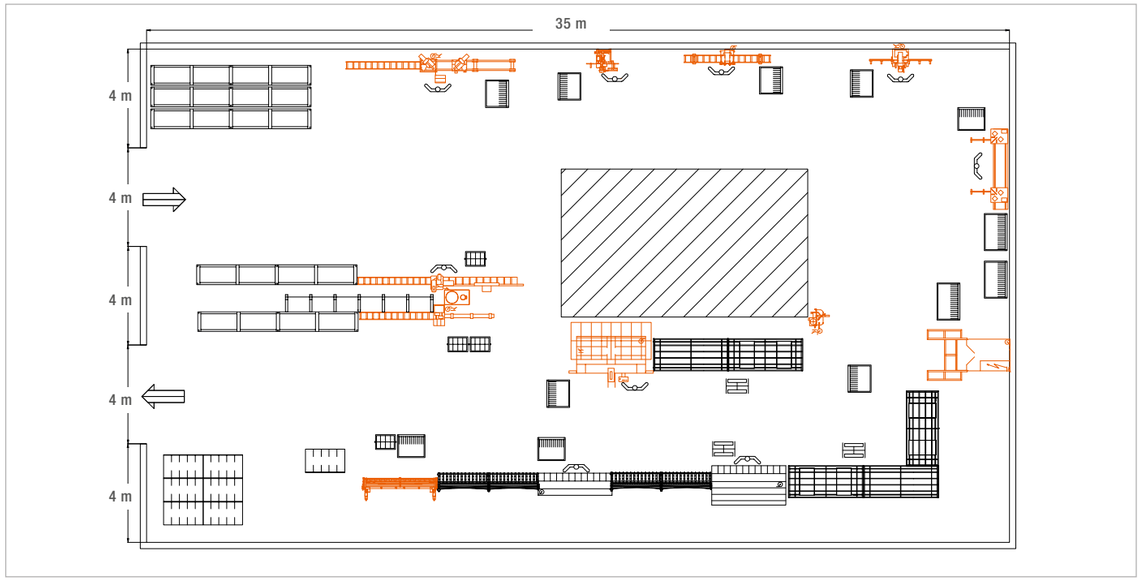
Together, we will examine your shop or production facility, analyse your environment and assist you in the subsequent design or optimisation based on the results. Short paths, material supply and material flow are only a few of the characteristics of an optimised production process. Other factors are covered by our broad product portfolio ranging from work tables to profile machining centres and on to glass handling systems, including sorting, for effective production planning. Everything we provide is perfectly compatible – and you can have it all from a single source.

This is a foundational element for the economic longevity of your company, whether for new planning or for change processes.

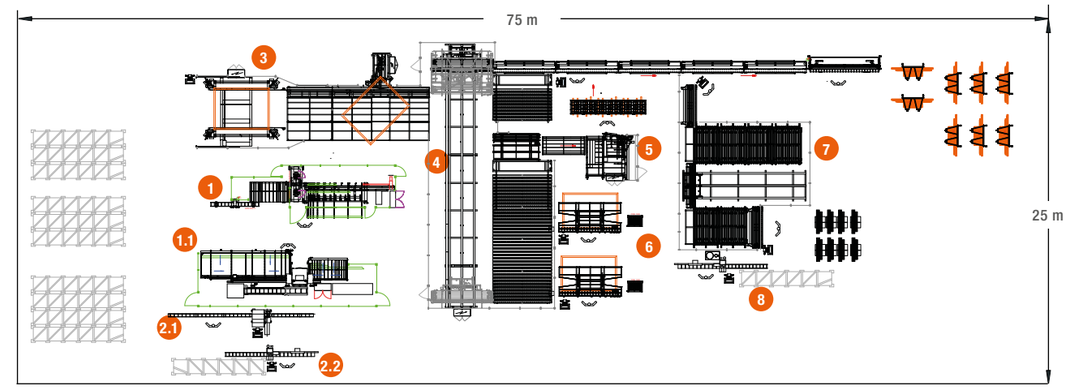
You can find all of the elumatec operating and assembly equipment in our separate catalogue, “Assembly and logistics”.



30 windows and doors in 8 hours



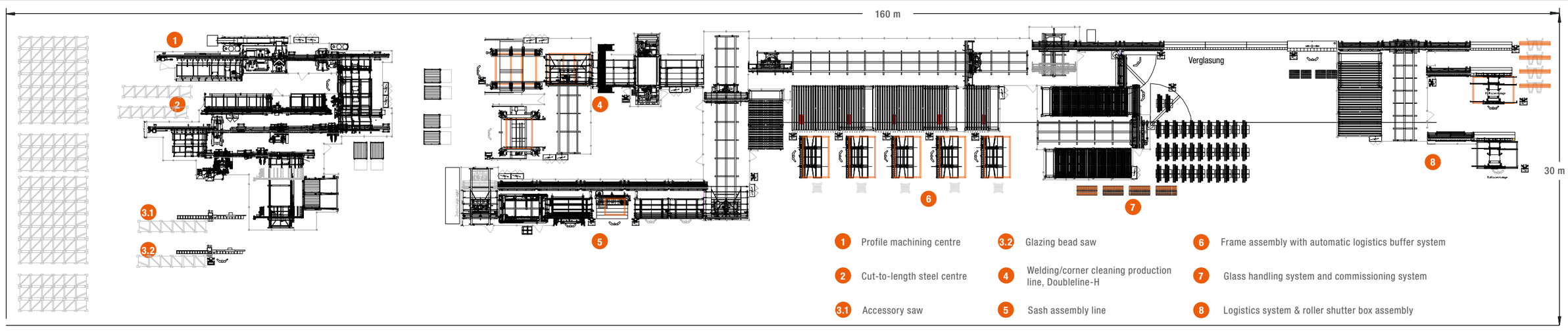
60 windows and doors in 8 hours



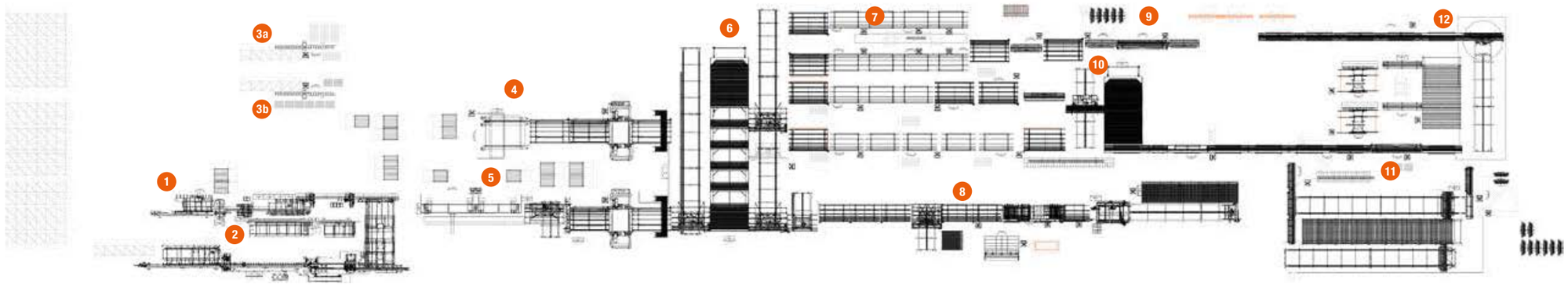
1 Cut-to-length centre
1.1 Downstream centre
2.1 Cut-to-length steel
2.2 Accessory saw
3 Welding and corner cleaning production line
4 Frame/sash assembly arrangement with buffer system
5 Sash assembly line
6 Frame assembly
7 Glass handling system and commissioning system
8 Glazing bead saw

100 – 120 windows and doors in 8 hours

12 | Production planning – Optimised production processes



200 windows and doors in 8 hours



300 windows and doors in 8 hours

13 I Software

eluCad software from elusoft

elusoft GmbH – Solutions for intelligent and economical profile machining

elusoft GmbH develops software solutions which allow you to create machining programs for elumatec profile machining centres quickly and easily. Among these is “eluCad”, a software package for profile machining that has proven itself in practice and is used worldwide in many different industry sectors. The range of services elusoft offers includes support, seminars and production consulting.
elusoft GmbH is a subsidiary of elumatec AG.

eluCad makes it easy to program profile machining centres.
This user-friendly software is designed so that the user does not have to program using ISO code directly – all that is required is the entry of the data in a logically structured graphic user interface. Operating the program is intuitive, can be customised and is characterised by practical functionality. A 3D view provides a clear overview by displaying the designed parts realistically on the screen. A collision check prevents expensive machine crashes and associated down times. New tools can be created quickly and easily in the software.

elusoft’s range includes software products such as Bar Machining, Clamp Management and interfaces as well as supplementary software modules. The spectrum of services includes: Support by experienced application engineers, seminars on the eluCad profile machining software and the supplementary modules, product consulting on the customer’s premises, the development of specialised production software or special solutions, the integration of optional features on the machine, support with problematic jobs, ISO-code training, start-up of programs and monitoring the quality of the milling and routing results. See www.elusoft.de for more information.

Support by experienced application engineers

The greatest advantage of a business relationship with elusoft is the team that stands behind the products: Experienced practitioners that stand out due to their creativity, know-how and passion for the development of targeted solutions. These characteristics have enabled the team to take and maintain a leading role in what they do best. The constantly changing variety of products our customers offer requires continuous innovation and adaptability on the part of elusoft. The team is both ready and able to meet this challenge.


01

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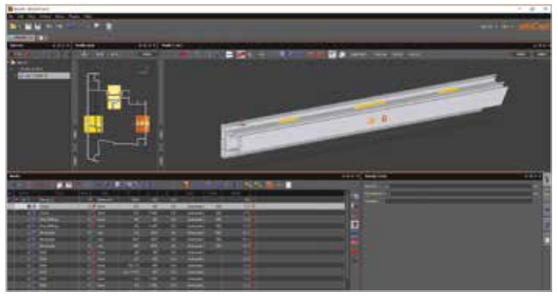
eluCad in the PVC sector

Data records for the processing of plastic profiles and reinforcing steel used in windows and doors can easily be created and stored in a profile database. Individual machining tasks or groups of machining tasks can quickly be set up as macros, providing a clear overview. eluCad takes data from the upstream window production programs and then creates the required machining program. If a company has several profile processing machines or pass-through centres in their machine pool, eluCad provides the appropriate machining program for the selected target machine.


02



01 The elusoft headquarters are in Dettenhausen near Stuttgart.

02 Lock machining: Macros can be created easily in eluCad

03 Intuitive operation, clear presentation, customisable to your needs. Profiles and machining programs can be created quickly and easily with eluCad.

Perfect profile machining – since 1928.

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