

Automatic Push-Feed Cross-Cut Saw Line

Servo-driven optimizing cross-cutting line

Fully automatic cutting line for squared timber, boards and strips: chain infeed, buffer conveyor, servo push-feed, upcut sawing unit, six-position sorting conveyor and waste conveyor — operated from a single touch screen.

MODEL HE 300 C

Ø 550 mm

saw blade

300 x 150 mm

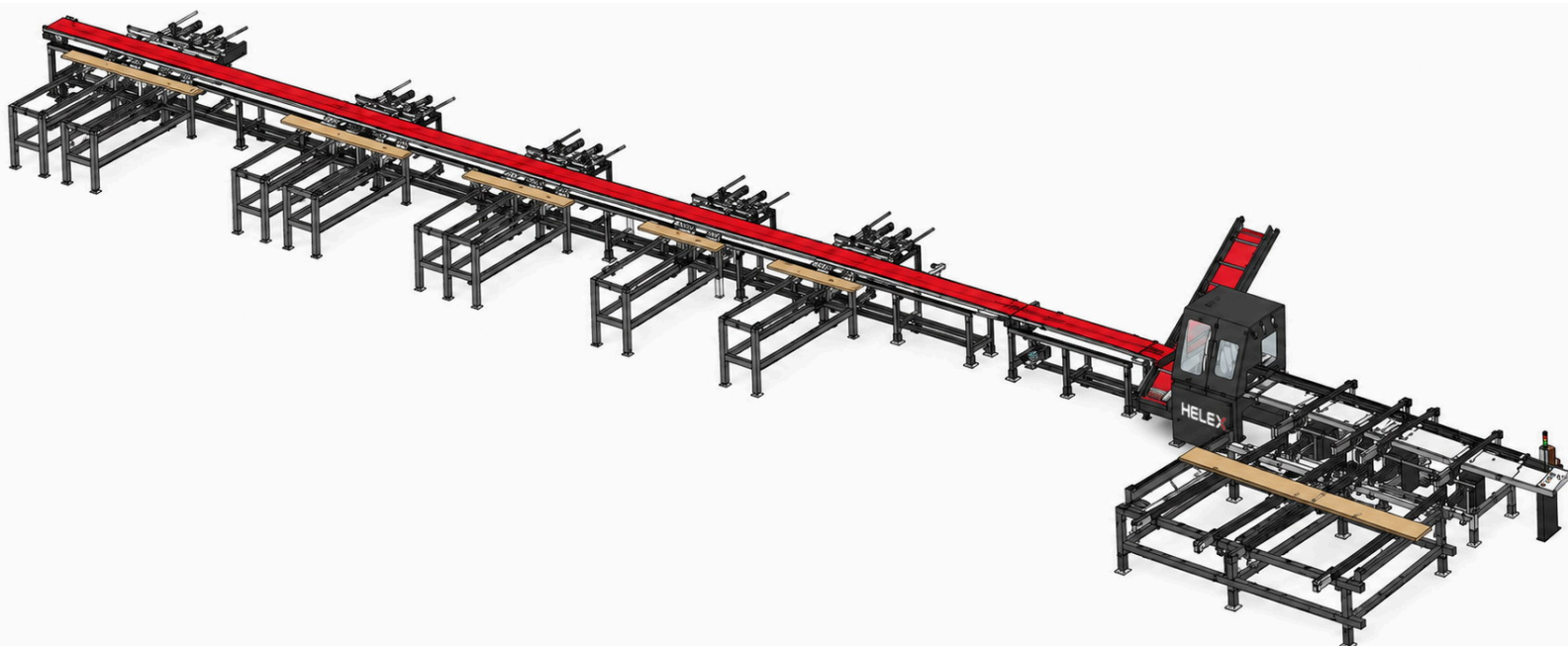
max. cross-section

40 m³

per 8-hour shift

+/- 0.3 mm

positioning accuracy



/ Application & Use

The HE 300 C is an automatic cross-cut saw line built around an upcut sawing unit and a servo-driven push-feed system. The feeding arm aligns the stock, feeds it through the saw blade and delivers the finished pieces to the outfeed table, so the operator only loads and unloads material.

The line is designed for high-volume workshops. Pallet manufacturers and packaging producers who process large quantities of timber use it to reduce labour, improve safety and run fully automated cutting programs. It is equally suited to joinery shops that need high accuracy combined with high output, and to lamella, glulam and construction timber preparation. Squared timber, boards and strips can be loaded in several layers at a time, with several pieces in each layer, and cut in a single stroke, which raises productivity considerably compared with single-piece cutting.

/ Key Features

- Servo push-feed with ground helical rack and pinion, positioning accuracy +/- 0.3 mm
- Multi-layer cutting: several layers and several pieces per layer in one stroke
- Four cutting modes, up to 40 different lengths from one stock piece
- Storage for 150 cutting lists, recalled directly from the touch screen
- Dimensional compensation function for blade wear and length corrections
- Enclosed saw blade box, exposed only during the cut
- Six-position automatic sorting conveyor and waste conveyor
- Electrically adjustable conveyor and feeding speeds

/ Raw Materials

- Softwood and hardwood squared timber
- Boards, strips, laths and battens
- Rough-sawn or planed material
- Maximum cross-section 300 x 150 mm
- Maximum stock length 4.2 m
- Maximum workpiece weight 100 kg

/ Typical Output

- Up to 40 m³ per 8-hour shift
- Feed speed 60 m/min, return 70 m/min

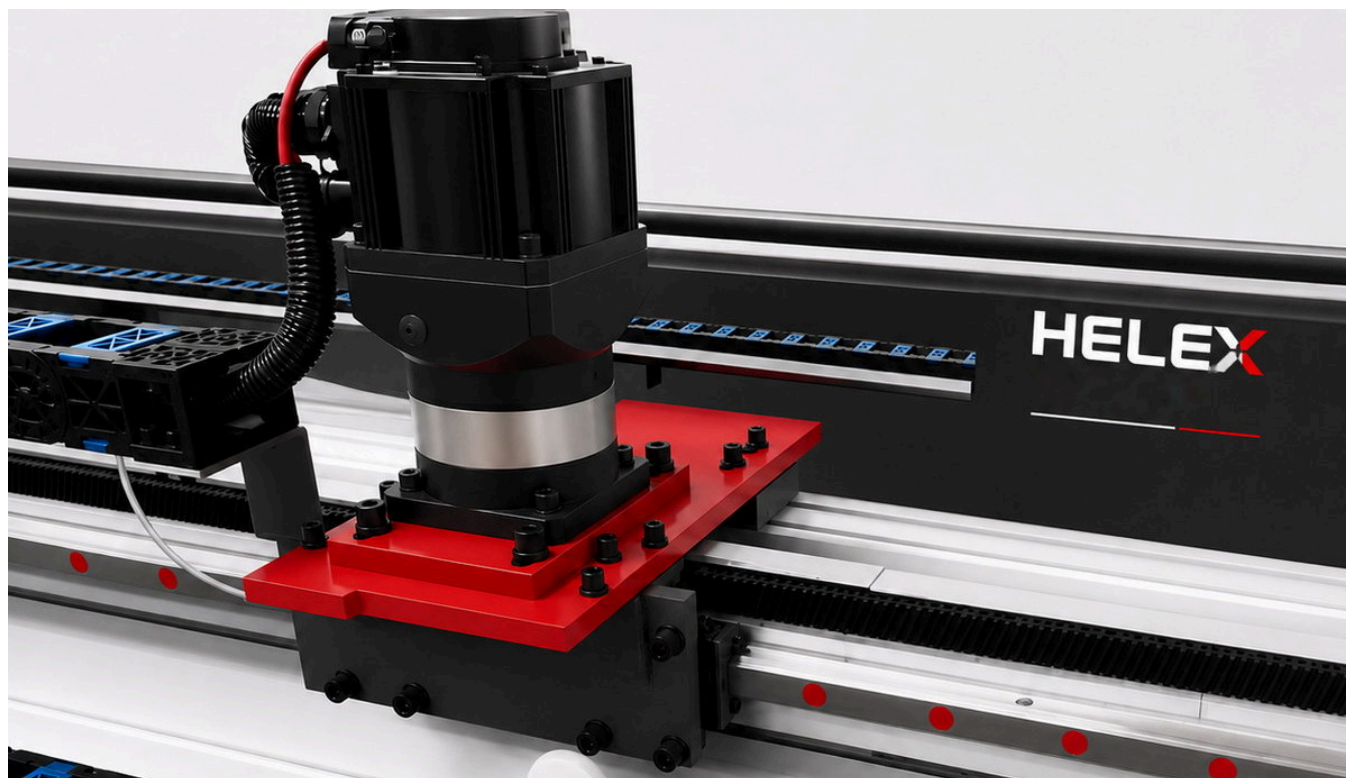


Sawing unit with infeed table and servo push-feed carriage on the outfeed side.

/ Structure and Configuration

The line is built from eight functional groups arranged in the material flow direction: automatic infeed, buffer conveyor, servo push-feed, upcut sawing unit, pneumatic clamping, control system, sorting conveyor and waste conveyor.

- 1 Automatic feeding line**
 Chain conveyor with 12A feeding chain driven by a 3 kW motor, footprint 4120 x 3270 mm. Feeding speed adjustable from 0 to 20 m/min, maximum feeding size 4.2 m and maximum workpiece weight 100 kg. The bundle is loaded onto the magazine and separated automatically towards the buffer line.
- 2 Buffer chain conveyor line**
 Intermediate chain conveyor, footprint 3160 x 1700 mm, 3 kW motor, 12A chain, 0-20 m/min adjustable, 4.2 m maximum feeding size. It decouples loading from cutting so the saw keeps working while a new bundle is being prepared.
- 3 Servo push-feed system**
 1.3 kW servo motor with reducer driving a hardened, precision-ground helical rack and pinion. The carriage runs on a linear guide rail with flange-type slider and hardened steel ball track, protected by a heavy-duty drag chain. Forward speed up to 60 m/min, return up to 70 m/min, positioning accuracy +/- 0.3 mm.
- 4 Upcut sawing unit**
 Hard alloy saw blade of 550 mm diameter driven by a 9 kW motor at 3060 rpm. The spindle box is made of precision-machined cast iron for heat dissipation, damping and balance; motor and spindle are connected by a multi-wedge belt for stable power transmission. The blade is enclosed in a box and exposed only during the cut, and the box is connected to a 110 mm dust outlet.



Servo motor, reducer and precision-ground rack of the push-feed carriage, running on a linear guide rail with protected drag chain.

/ Structure and Configuration (continued)

5 Pneumatic clamping system

Upward pressure cylinder, side pressure cylinder and upper pressing device at the feeding end, completed by a side pressure roller and a swinging side pressure unit. At the discharge end the material is held by an upward pressure cylinder, an upper pressure roller, a side pressure roller and an elastic side pressure unit. The air filtration valve is fitted with a pressure gauge and adjustable regulator, with filtered oil and a hand-pulled oil pump; a dust blower gun is supplied for cleaning.

6 Control and electrical system

Touch screen operation: the sizes are entered on the screen and the machine pushes and cuts the timber automatically. Start, saw blade start, reset and emergency stop switches are provided, together with a magnetic remote start switch that can be placed anywhere on the line so the operator can start from the loading position. The cabinet contains the main switch, PLC, drive, relays, contactors and breakers and is built to CE rules. Proximity switches, travel switches and photoelectric sensors are Omron and Panasonic. Standard supply voltage 380 V; a transformer can be added for other voltages.

7 Sorting conveyor

Belt conveyor 18.5 m long with 350 mm belt width and 3 kW drive, fitted with six ejectors. Six preset lengths are sorted automatically — 740, 800, 1220, 1600, 1920 and 2340 mm. Conveying speed adjustable from 0 to 100 m/min.

8 Waste conveyor

Inclined belt conveyor with 450 mm belt width and 0.75 kW drive, discharge height 2100 mm, speed adjustable from 0 to 80 m/min. Off-cuts and trimmings are evacuated directly into a container.

All feeding, sorting and waste conveyor speeds are electrically adjustable from the control system, so the line can be matched to the cutting program and to the downstream workstations.



Pneumatic clamping group with upward and side pressure cylinders.



Sorting conveyor with pneumatic ejector.



Inclined waste conveyor at the discharge end.

/ Sawing Functions

Four cutting modes are available from the touch screen. Up to 40 cuts — identical or different lengths — can be programmed from one stock piece. The sum of all sizes, plus the saw kerf multiplied by the number of cuts, plus the trimming length, must not exceed the length of the raw material.

/ 1. Rear positioning mode

The servo motor position is used as the positioning reference and the tail material stays at the front end. Several pieces of different length can be cut at the same time without affecting the result, and the line keeps running normally even if a photoelectric sensor fails. Cutting follows the order of the list, without entering planned quantities.

/ 2. Optoelectronic sequential mode

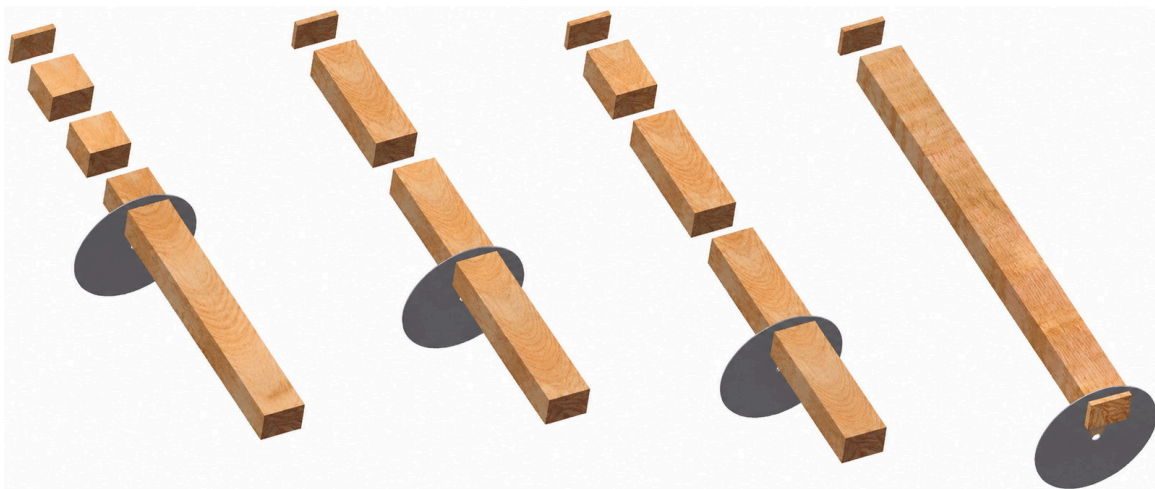
Photoelectric sensors are used for positioning and the tail material stays at the rear end. The pieces are cut in the order of their serial numbers, after a trimming cut of adjustable length.

/ 3. Optoelectronic mode

Planned quantities are entered for each size. The line cuts the complete quantity of the first size, then moves to the next one and so on. This mode is intended for production runs where certain sizes are required in large quantities.

/ 4. Optoelectronic / selective mode

When the list is not to be processed in sequence, the required serial numbers are selected directly on the screen and marked with a check mark. The planned quantity of the first selected size is cut first, then the next selected size, and so on.



Cutting examples: finished pieces of different length produced from the same stock section.



Touch screen with cutting list, planned and actual lengths, position readout and dimensional compensation; 150 lists can be stored and recalled.

/ Technical Data

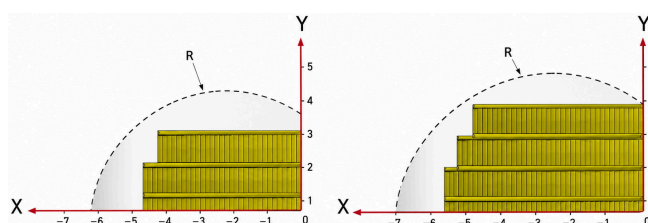
CROSS-CUT SAW UNIT	
Model	HE 300 C
Type	Automatic push-feed cross-cut saw
Saw blade diameter	Ø 550 mm
Saw motor power	9 kW
Timber cross-section (W x H max.)	300 x 150 mm
Main workstation dimensions	1100 x 1000 x 1700 mm
Length of infeed table	6.2 m
Longest length of wood placed	4.2 m
Length of outfeed table	2.5 m
Accuracy	+/- 0.3 mm
Drive type	Rack and pinion
Feeding push servo motor	1.3 kW
Max. forward speed	60 m/min
Max. reverse speed	70 m/min
Saw blade speed	3060 rpm
Air pressure	0.6 MPa
Voltage	380 V +/- 10 V, 50 Hz, 3 ph
Dust outlet diameter	Ø 110 mm
Max. output	40 m³ / 8 hours
Max. workpiece weight	100 kg

SORTING CONVEYOR	
Length	18.5 m
Motor	3 kW
Conveyor belt width	350 mm
Number of ejectors	6
Sizes to be sorted	740 / 800 / 1220 / 1600 / 1920 / 2340 mm
Conveying speed	0-100 m/min (adjustable)

AUTOMATIC FEEDING LINE	
Footprint (L x W)	4120 x 3270 mm
Motor power	3 kW
Delivery method	Chain conveyor
Max. workpiece weight	100 kg
Feeding speed	0-20 m/min (adjustable)
Feeding chain	12A
Max. feeding size	4.2 m

BUFFER CHAIN CONVEYOR LINE	
Footprint (L x W)	3160 x 1700 mm
Motor power	3 kW
Delivery method	Chain conveyor
Max. workpiece weight	100 kg
Feeding speed	0-20 m/min (adjustable)
Feeding chain	12A
Max. feeding size	4.2 m

WASTE CONVEYOR	
Height	2100 mm
Conveyor belt width	450 mm
Motor	0.75 kW
Conveying speed	0-80 m/min (adjustable)



Sawing capacity diagram — cross-section envelope for the Ø 450 mm blade (left) and the Ø 550 mm blade (right). Grid units of 50 mm; R is the blade radius.

SUPPLIER

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