540 HORIZONT X

Technical data

- Highly productive, semi-automatic dual column band saw machine.
- The saw is designed for cutting material in both straight and angular cuts, angular cuts adjustable 150° left, 90° perpendicular, 30° right (+/- 60 degrees).
- The saw is designed for cutting bars of solid material and profiles.
- Saw is used in series production in industrial plants. The saw is designed for cutting straight bars of steel material.

Control system:

- The machine is equipped with programmable PLC SIEMENS SIMATIC S7-1500. The saw blade drive and arm movement are completely controlled by SIEMENS technology.
- The colour touch screen HMI SIEMENS TP 700 COMFORT allows easy communication with the machine operator. It shows working states such as blade speed, cutting feed and the status of individual working movements.
- Display size 7´ (93 mm x 153 mm)
- The saw immediately cuts the material in semi-automatic mode
- The regulation of the cutting feed is realized by the control system using a servo driver, servomotor, ball screw and a pre-tensioned nut located on the saw arm. This achieves a very precise cutting feed. The saw operator enters the desired cutting feed (mm/minute) into the program and the saw accurately adjusts the feed.
- Two basic modes of automatic system regulation (ASR): ARP and RZP.
  - RZP = Zone Control. The system allows the optimum cutting feed and saw blade speed to be set in 5 zones of the material to be cut, depending on the position of the blade.
  - ARP = Automatic cut regulation system depending on the cutting resistance of the material or the saw blade dullness. The system offers two basic ARP modes: BIMETAL and CARBIDE.
- RTO function to automatically set the desired arm rotation position.
- The control panel is located on the console in a safe position. The control panel includes a digital display of the saw control system and a high quality foil keypad. The keypad is used to control the basic movements of the saw (movement of the arm, turntable and vice) and to start the saw's working cycle. The control panel is also equipped with a safety button to stop the saw.
- Safety module with self-diagnosis.
- 24 V control

Construction:

- The band saw has a robust design to withstand extreme stresses in production conditions. All machine components are designed and optimized to minimize vibrations and allow maximum cutting performance of the machine.
- Saw blade speed range 15 – 150 m/min.
- The saw arm moves via 2 linear guide rails with 4 trolleys with pre-tensioned ball bearing. The linear guide is mounted on sturdy columns.
- The arm is a robust weldment and is designed to ensure the necessary rigidity and cutting accuracy
- Arm movement by linear guide, ball screw, preloaded nut, worm gearbox and servo drive.
- The saw blade is guided on robust cast iron pulleys.
- WRS - Reinforcement of pulley mounting - drive pulley mounted directly on the output shaft of the gearbox. The pulley is supported on both sides by a bearing seat =minimizing the load on the shaft seat. The tension pulley is held/tensioned by two hydraulic cylinders at both ends of the centre pin =significant reduction of stress and extension of the life of the bearing. The tension pulley mounting is with zero play=conical bearings secured by KM nut.
- The arm uses a metering system to evaluate the position of the arm above the material. The working positions of the arm (upper and lower) are set numerically by the saw operator in the cutting program
- The saw uses an absolute rotary encoder to determine the position = no need to reference the position when the machine is switched on.
- The lower position is determined by an adjustable stop and a microswitch. The lower working position of the arm can also be entered directly into the saw control system.
- Main vise with split clamp for fixing the workpiece before and after the cut (straight cuts). The clamps ensure secure clamping of the material.
- Movement of the clamp of the main vise in the rigid steel guide by means of a long-stroke hydraulic cylinder.

- Two robust vise support clamps
- Control valve for vise pressure adjustment, pressure indication on pressure gauge
- The turntable is a robust weldment. Rotary table for angle cuts with machined base guide surface. The rotary table adds a large space for supporting the material and clamping it precisely. Rotation of the angle cutting table by means of a hydraulic cylinder and a linear guide, driven by gear and rack.
- Angle adjustment control:
  o Rotation via the button to the desired angle (fast-shift / slow-shift)
  o Using the RTO (rotate to position) function with automatic adjustment of the desired arm rotation position
- Hydraulic position "lock"
- Turntable angle displayed on the Siemens control panel display. Indication of set angle by incremental sensor and magnetic tape.
- Optimisation of the chip movement to the chip box or chip conveyor, which is offered as an accessory
- Blade guidance in guides with hardmetal plates, bearings and on cast iron pulleys. Adjustable guides with zero cutting clearance, preloaded by plate springs.
- Robust flange with drive shaft mounting via roller bearing.
- The inclination of the saw blade against the plane of the vise is 7 degrees. This ensures higher performance when cutting profiles and bundles and at the same time increases the life of the saw blade
- The saw has a guide on the drive side mounted on a fixed beam. On the tensioning side, the guide is mounted on a sliding beam.
- Blade guide beam adjustable over the entire working range. The movement of the guide is linked to the movement of the vice clamp. It is therefore not necessary to manually adjust its position.
- The guide beam moves by means of a linear guide (2 rails, 3 trolleys) with high load capacity.
- A new way of mounting the guides - a solution with a regulated spacer.
- BGT-S - mechanical pressure of the saw blade in the guides by means of disc springs.
- The space between the saw blade guide and the pulley is provided with a cover to protect the operator from the moving saw blade. The covers also protect the surrounding area from falling chips and cooling emulsion.
- Automatic Indication of correct saw blade tension by means of a pressure sensor.
- Cleaning brush passively driven by a pulley in the basic version, electric motor as optional.
- Cooling system for cutting emulsion, fed into the blade guides and directly into the cutting channel using the flexible LocLine system.
- Robust base with chip tray. The base is designed for handling the saw with a crane.
- Microswitches for opening pulley covers.
- Hydraulic unit located outside the base - better cooling and access. The hydraulic unit controls the functions of the saw: opening and closing the main vice, rotating the turntable for angle cuts and fixing the turntable in the set rotation. The hydraulic oil pump is located outside the oil tank.
- Two rollers for supporting the cut material. Retractable via linear guide. Positioning on the output side.
- Cover bodywork that covers the movements of the rear of the arm. The cover minimises the risk of injury and contamination of the saw's surroundings with chips and cutting emulsion.
- A safety optical barrier ensures operator protection throughout the entire range of movement of the turntable and arm. Optical line along the entire length of the saw at the operator's position.
- Chip rinsing pistol
- LED strip for work area lighting.

Basic equipment of the machine:

- Saw blade
- Tool set for routine machine maintenance.
- Operating instructions in electronic form on CD.

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Cutting parameters							
		0°	45°	60°	45°	60°	b a o
○	D [mm]	540	510	350	510	310	750 x 450
●	D [mm]	400*	280*	200*	280*	190*	750 x 450
b a	a x b [mm]	750 x 490	510 x 490	350 x 490	510 x 490	310 x 490	750 x 450

*recommended value. If the recommended maximum diameter is exceeded, the performance of the saw blade cannot be guaranteed!

o Cutting bundles without vertical clamp. HP = accessory at extra cost. When HP is used, the cutting parameters will be limited.

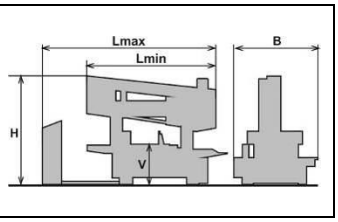
Cutting parameters		
The shortest cutting	mm	25
The smallest divisible diameter	mm	10
The shortest rest during one cut	mm	30

Movement speeds		
Frame up	m/min	2
Frame down	m/min	2
Vise	m/min	2,5
Turntable	°/min	240

Performance parameters		
Blade:		
Blade dimensions	mm	6880 x 41 x 1,3
Blade speed	m/min	15-150
Blade drive	kW	5,5
Blade inclination		7°
Drive of the hydraulic agregate	kW	0,75
Pump of the cooling emulsion	kW	0,12
Motor of the blade drive cooling	kW	0,06
Frame ballscrew motor	kW	0,5
Control system	kW	0,35
Installed power Ps	kW	
Electrical connection		3 x 400V, 50Hz, TN-S

Working movements	
Cutting feed	Servomotor + ball screw - BSB
Clamping of material	Hydraulically
Blade tension	Hydraulically
Cleaning of the blade	Cleaning brush driven by a pulley (optionally electric motor)
Cooling	Pump, nozzles at the saw blade guides and flexible distribution to the cutting area.

Saw dimensions						
Lenght		Width	Height		Height of the table	Weight
[Lmin]	[Lmax]	[B]	[Hmax]	[Hmin]	[V]	(kg)
	4696	1756	2510	2400	810	2400



Note: the dimensions are valid for the saw without optional accessories

Filling volumes	
Cooling emulsion	60 l
Hydraulic oil	45 l
Gear oil	5 l

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