

850x1000 HERKULES X (III.GENERATION – version 4)

Highly productive semi-automatic, hydraulically manipulated two column band saw machine.

The machine is designed for vertical cuts.

It is suitable for serial production in industrial premises. Thanks to its robust construction enables to cut wide range of materials including stainless and tool steels, nonferrous metals both profiles and full materials.

Control system:

- Machine is equipped with programmable PLC SIEMENS SIMATIC S7-1200. Drive of band blade and movement of arm are completely controlled and drive by SIEMENS technology.
- The coloured touch screen HMI SIEMENS TP 700 COMFORT enables easy communication with an operator. It shows working conditions (blade speed, moving to the cut, cutting parameters etc.)
- SEMIAUTOMATIC CYCLE: The machine cuts the material immediately in a semiautomatic mode.
- Regulation of cutting feed is realized by controlled system by the servo-motor and throttle valve of hydraulic. Then is reached very precise cutting feed. Operator will input into program required cutting feed (mm/min) and bandsaw this cutting feed precisely set.
- Two basic regimes of automatic system regulation (ASR): ARP a RZP.
 - RZP = Zone regulation. System enable to cut material in 5 zones, because of setting optional cutting feed and blade speed according on blade position. Operator can choose from 2 strategy settings: DEFENSIVE setting is appropriate for cutting very hard materials with use of carbide band blade. Cutting feed is in beginning and in the end reduced. OFENSIVE settings supports executive cutting logs. Cutting feed and band speed are in the beginning and in the end of cut increased. It's about similar principle as ARP mode. Advantage is regulation of blade speed.
 - ARP = System of the automatic regulation of the cutting feed rate depending on the cutting resistance of the material or blunting the blade. System offers two basic modes of ARP: BIMETAL and CARBIDE.
 - BIMETAL mode is suitable for optimization of the cutting feed when cutting profiles by bimetal blades. The cutting feed is higher if the blade cuts sides of the profile. As the blade reaches the full material, the system reduces the cutting feed automatically so that teeth gap of the blade would not be filled.
 - CARBIDE mode is suitable for cutting of full bars. If the blade is old (blunt), loaded is the cutting feed reduced Reaction time is slower than in mode BIMETAL.
- The control panel is placed in the tightening pulley cover. The control panel is equipped with mechanical buttons and digital display of the machine control system. Mechanical buttons controls basic saw movements (arm, vice) and cutting cycle start. The safety button is present on the panel aswell. All buttons are highly resistant in anti-vandal version.
- Safety module with autodiagnosics.

Construction:

- The machine is constructionally designed in that way, so that it corresponds to extreme exertions in productive conditions. Massive construction enables using of carbid blades comfortably.
- The arm of machine with columns situated as near the clamping vice as possible minimizes vibrations and enables max. cutting performance.
- The arm of the machine is robust, heavy weldment and it is designed so that a toughness and a precision of cut was ensured.
- The arm moves along two columns using a four row linear leading with a high loading capacity. Arm movement using two hydraulic cylinders.
- The robust steel pulleys sloped of 25 degrees regarding the level of the cut. Thanks to sloped arm the twist of the blade is eliminated and these is possibility to bring the blade closer to the minimal distance from the linear leading on columns. This arrangement eliminates vibrations and enables the max. cutting performance of the machine.
- The arm uses incremental sensor for evaluation of current position above material. Upper working position of the arm is possible to set in control system.
- Down working position is set with adjustable mechanical stop and microswitch. Down working position of the arm is also possible to set in the saw control system. After reaching bottom working position the arm stops in the position set in the system.
- Vice is robust steel weldments.
- Main vice with divided jaw that clamps the material in front of as well as behind the cut. The jaws allow a safe grip. The optimization of the chip movement through the fixed jaw directly to the chip extractor.
- Jaws of the main vice move on two rails of linear leading using hydraulic cylinder. One jaw is longstroke (the movement by longstroke hydraulic cylinder), one is fixed.
- Regulation valves for setting a vice pressure in hydraulic system.

Basic equipment of machine:

- The blade leading in guides with hardmetal plates and leading bearings and along cast iron pulleys.
- Blade leading though the guides solved by "clearanceless blade leading" – blade is push to guide by hydraulic clinder, which enables comfortable blade exchange
- There is a guide situated on the firm beam on the drive side. On the tightening side there is the guide situated on the moving beam.
- The guide beams of the blade are adjustable in the whole working range. A giude moving is connected with a vice-jaw movement so that to achieve the minimum distance of the guide and material. That is why it is not necessary to set the position manually.
- Hydraulic tightening of band.








- Automatic indication of blade tension.
- A cleaning brush is driven by an electroengine and ensures perfect cleaning of a blade.
- There is a planet gear box drive and a three-phase electroengine, a fluent regulation of a blade speed by a frequency converter for a fluent change of blade speed.
- The cooling system for emulsion, leaded to the guides of the blade and by LocLine system directly to the cut groove.
- Massive base with a tank for chips and with chip extractors. Base is designed for manipulation with machine by crane.
- Indication of blade tightening and opening of the cover.
- Controlling 24 V.
- Maschine is equipped with hydraulic system which controls all functions of that machine. It pushes the arm to cut, pulls up the arm and opens and closes vices.

Basic accessories of machine:

- Chip extractor
- Lighting of work space.
- Band saw blade.
- Set of spanners for common service.
- Manual instructions in electronic form (CD).

Operating cycle:

The saw clamps the material and do the cut with set speed after starting the cycle with START buttons. In bottom position, which is set by software or microswitch the cut is ended and the arm with the blade moves according the settings. Operator only manipulates with the material.

cutting parameters				
		 0°	 b	 b + HP max
	D [mm]	850	x	x
	D [mm]	850*	x	x
	axb [mm]	1000x850 ⁺	1000x450	1000x840

* Recommended values. Recommendations of band blade producers are to be followed when choosing to cut full material, their dimensions are limited by available size of the teeth for the specific type of the band.

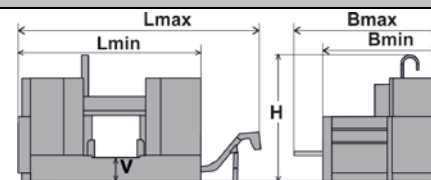
° Cutting of the bundle without upper vice HP. HP = accessory for additional price. The cutting parameters are limited when using.

the shortest cutting	mm	10	
the smallest divisible diameter	mm	100	set by the size of bar for blade groove – possibility to order special bar for clamping into the vice since zero position
the shortest rest during one cut	mm	110	

performance parameters		
drive of the blade	kW	11,0
drive of the hydraulic aggregate	kW	4
pump of the cooling emulsion	kW	0,155
electroengine of the cleaning of the blade	kW	0,12
electroengine of the drive of the worm chip extractor	kW	0,12
Chlazení	kW	0,06
Řídicí obvod	kW	0,5
total input	kW	16
cutting speed – fluently set	m/min	15-80
diameter of the blade	mm	9490x67x1,6 (9490x80x1,6)
electric connection		3x400V, 50 Hz, TN-S

control	
feed of the Frame to the cut	hydraulically
feed of the material	manually
clamping of material	hydraulically
bend tension	hydraulically
cleaning of the blade	A cleaning brush is driven by an electroengine

Parameters						
length		width	Height		Height	height of the table
[Lmin]	[Lmax]	[B]	[Hmax]	[Hmin]	[V]	(kg)
4460	6000	2000	3260	2820	620	7800



Lmin = the saw without the chip extractor