

**Change:**

Od 1.1.2017 upravené parametry:

- Stronger drive of a blade (5,5 kW)
- Stronger cone gearbox
- Stronger mechanism of blade tightening (130 mm)
- Sturdier turntable and vice jaws
- New upgraded blade guides without any clearance of blade and hard metal plates. Tension by plate springs

Od 3/2018

- hřeben natáčení točny uložený na lineárním vedení

**500x750 HORIZONTAL X (II.GENERATION – version 3)**

Semiautomatic, hydraulically manipulated two column band saw machine.

The band saw machine is designed for cutting in semiautomatic cycle perpendicularly as well as angularly. It enables angle cuts to the left (60 grades) and to the right (60 grades).

It is suitable for serial production and thanks to its robust construction enables to cut wide range of materials including stainless steels and tool steels 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.
- Colored touch display – HMI SIEMENS TP 700 COMFORT enable easy communication with operator.
- SEMIAUTOMATIC CYCLE: The machine cuts the material immediately in a semiautomatic mode. The operator uses the feeder of the machine for the manipulation with the material and for the exact feed of the material into the cutting zone. The movement of the feeder is realized by manual buttons or by GTO function. After starting GTO function the operator sets the position of the feeder, presses START GTO button and feeder goes to the set position.
- 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 ergonomical control panel is mounted on the movable console and its position does not depend on the turntable position at any angle. The control of the machine is optimized with our control panel and the field of view is better for an operator. The control panel is equipped with mechanical buttons and digital display of the machine control system. Mechanical buttons controls basic saw movements (arm, vice, feeder and turntable movements) 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. A robust construction of machine includes vice allows to take advantage of bimetal blades maximally.
- 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.
- Drive pulley and tighten pulley are both metal castings.
- The arm uses sensor and magnetic tape for position evaluation 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 with long stroke hydraulic cylinder with divided jaw, which clamps material in front as well as behind the cut (perpendicular cuts).
- 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 in steel 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.
- Turn table is massive weldment. Turn table for angular cuts with milled leading parts of base. Turn table enables comfortable clamping of cut material. Accurate rotating of turntable is ensured by using hydr. cylinder and the linear leading, the movement of the turntable is transferred via gears and rack.
- Hydraulic angle setting:
  - a) move with the arm using the button to needed angle ( fast speed/micro speed)
  - b) using RTO function (rotate to position) with automatic setting of needed angle arm position.
- Hydraulic position fixation by a "lock"
- The angles indicated on the digital display on the control panel SIEMENS. Reading of angle by incremental sensor and magnetic tape.

#### Basic equipment of machine:











- The blade leading in guides with hardmetal plates and leading bearings and along cast iron pulleys.
- The blade is 6 grades sloped regarding the level of the vice => higher performance when cutting, profiles, longer blade life, higher performance when cutting full materials.
- 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 guide 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.
- The guide beam of the blade is placed in linear rails (2 linear rails and 4 bearings) with high bearing capacity.
- Machine blade is covered by metal sheets which protect an operator of emulsion and swarfs
- Manual tightening of band. Optional: Hydraulic tightening of band.
- Automatic indication of blade tension.
- A cleaning brush for perfect cleaning and function of blade, passive driven by pulley.
- Band drive of machine is solved by cone gear box with maintenanceless oil filling. Three-phases electromotor with double winding, with a frequency converter for a fluent regulation of the blade speed from 20 to 100 m/min. Sturdy flange with shaft. Thermoprotection of engine.
- Cooling system of emulsion, led to the guides using lock line system
- Massive base with a tank for chips. Base is designed for manipulation with machine by pallet truck and also by any high lift truck or by crane.
- control by 24V
- Hydraulic unit out of machine – better cooling and comfortable access. It handles machine movements: pressure to the cut, arm up movement, vices movements, turning of the turntable. It contains a valve for setting of vice pressure.

#### Basic accessories of machine:

- Two massive cylinders support material to be cut. Movable by linear leading.
- Spray gun for chip rinsing
- Lighting of work space.
- Band saw blade.
- Set of spanners for common service.
- Manual instructions in electronic form (CD).

#### Operating cycle:

After starting the machine, vices are clamped automatically, cut is made by selected cutting speed, in the end position microswitch is on, arm goes to selected upper position and vices open automatically. The operator only handles material.

Cutting parameters							
		 0°	 45°	 60°	 45°	 60°	 $\frac{b}{a}$
	D [mm]	500	500	330	500	300	x
	D [mm]	400*	280*	200*	280*	190*	x
	axb [mm]	750x480	500x480	330x480	500x480	300x480	750x450

\* 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.

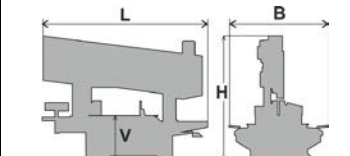
° Cutting of the bundle without upper vice HP. HP = accessory for additional price. The cutting parameters are limited when using.

**CAUTION:** In case the machine is with heating (option), the possible angle to the right is 45° only. It is necessary to remove heating covers before turning the bigger angle than 45°, but pay the strong attention to avoid of collision!!

the shortest cutting	18	mm
the smallest divisible diameter	40	mm
the shortest rest during one cut	15	mm

performance parameters		
drive of the blade	kW	5,5
drive of the hydraulic aggregate	kW	2,2
pump of the cooling emulsion	kW	0,12
total input	kW	13,0
cutting speed – fluently set	m/min	20-100
diameter of the blade	mm	6500x41x1,3
The blade is sloped regarding the level of the vice		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	Manually/ hydraulically -accessories
cleaning of the blade	cleaning brush driven by a pulley

Parameters								
length		width		Height			height of the table	weight
[Lmin]	[Lmax]	[B]	[Hmax]	[Hmin]	[V]		(kg)	
3100	3600	1760	2400	2210	815	2000		