340 KATANA A-CNC-R (version 3)

It is a highly efficient automatic hydraulically controlled band-saw with multiple material feed. Feeder movements using a ball screw. The arm as well as the vice movements using hydraulic cylinders.
Suitable for perpendicular cuts in automatic mode, angular cuts in semi-automatic mode It enables angle cuts to the right (0 - 60 grades). Angles setting is manual. Machine uses the GTO function (automatic movement of the feeder to set position).
The band saw machine suitable for cutting of steel constructions and profiles with a longstep feeder L=1000mm (one feeder step). The machine is constructed for automatic cutting of long bars. Whenn the machine is cutting Automatic programm with angle cuts and with lenghts shorter thann 500mm, the machine automatically interrupts the automatic cycle and is waiting.
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 systém:

- Machine is equipped with the control, programmable PLC MITSUBISHI FX5U. Blade drive as well as the feeder movements afe fully controlled by the frequency inverters MITSUBISHI.
- The coloured touch screen MITSUBISHI GT 2104 enables easy communication with an operator. It shows working conditions (blade speed, moving to the cut, cutting parameters etc.)
- The lenght and quantity are set via the control panel. The machine will optimize all calculations by itself. The system can save up to 20 programmes. Each programm has up to 15 lines (lenght+quantity)
- Machine enables semi-automatic and automatic mode (all movements are controlled automatically).
- Regulation of shaft speed (moving to cut) is manual and uses throttle valve placed beside control panel. Automatic (safety) regulation of shift speed PEGAS BRP. Principle: Machine will stop after exceeding set loading (defined in ampers).
- 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 optimalized with our control panel and the field of view is better for an operator. The control panel is equiped 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.

Construction::

- The machine is constructionaly 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 toughtness and a precision of cut was ensured.
- Arm moves on two columns by a help of a four row linear leading with a high loading capacity. Moving of arm using one hydraulic cylinder.
- Drive pulley and tighten pulley are both metal castings.
- T-bar - device used for upper possition of the arm. T-bar moves along linear leading, controlled by micro-switch
- 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.
- The main vice - iron casting with massive jaw for material fixing
- 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.
- Very rigid feeder with the feeding step 1000 mm moves along the linear leading
- Feeder drive: frequency inverter, electromotor + encoder, gear using belt, ball screw, nut of ball screw placed on feeder.
- The feeder placed ot a linear leading using prestressed carriages
- Feeder position is controled by rotatory encoder. An operator choose one of three feeder speeds. It uses micro speed for reaching the correct position. Acceleration and decelerate movements are controlled by a frequency invertor.
- Indication of material in the feeder: optic sensor - it notices that there is a material in the feeder. If there is no material in the feeder, the signal reflects on the glass that is situated on movable jaw and it goes back to the sensor. The machine stops feeding and waits for another bar.
- Material moved to the cut zone is suported by 4 cylinders. Three of them are movable, one os stationary. Moving cylinders help to move the material to the optimal position.
- The feeder vice - massive casting, a jaw enables safe material clamping
- The movement of feeder vice along of leading using long stroke hydraulic cylinder.The vicehas floating fixation to eliminate a crooked material.
- Turn table is massive weldment. It is placed and fixed on base using massive shaft and precision double row bearings.
- Bow rotation to angular cuts is manualy as well as angle seting.
- Angles (degrees are shown at the touch screen MITSUBISHI. Angle indication using incremental sensor and a magnetic tape.

Basic equipment of machine:

- The blade leading in guides with hardmetal plates and leading bearings.
- The blade is 4 grades sloped regarding the level of the vice => higher performance when cutting, profiles, longer

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bladelife, 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. Guide movement is manual, its fixation is manual too.
- The guide beam is moving along of linear leading (1 rail, 2 carriages) with high loading capacity
- The saw-band is equipped with a covers, which protect the operator from millings and cutting emulsion.
- Manuall tightening of band. Optional: Hydraulic tightening of band.
- Automatic indication of blade tension using micro switch.
- A passive driven cleaning brush for perfect cleaning and function of blade.
- Drive of machine is solved by worm 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. Termoprotection of engine.
- 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. Base is designed for manipulation manipulation with machine by any hight lift truck or by crane.
- Indication of blade tightening and opening of the cover.
- Controlling 24 V.
- Machine is equipped with hydraulic system which controles all functions of the machine.

Basic equipment of machine:

- Two massive cylinders for support of cutted materials. They are moving, so they are not a hinderance of arm turning. Theirs movements are along linear leading
- Spray gun for swarfs washing off
- Lighting of workink space.
- Band saw blade.
- Set of spanners for common service.
- Manual instructions in eletronic form (CD).

Operating cycle:

After start of the cutting machine clamp the vices, the cut will be done by ste speed. After reaching the down position, arm is going up automaticaly. Feeder move with next peace to the cuting zone (feeder vice is going between zero position and set position (length of cutted peaces). Main vice clamps the material, feeder vice is opening and moves to feed next peace. Whole cyclus starts again. Operator puts new material and remove cutted peaces only. It is possible change blade speed as well as shift speed during the cut.

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Cutting parameters:								
		0°	15°	30°	45°	60°	b a O	b a + HP
○	D [mm]	360	360	360	360	230	x	
●	D [mm]	250*	220*	220*	180*	130*	x	
b a	axb [mm]	500x340	500x340	500x340	400x340	220x340	500x180	

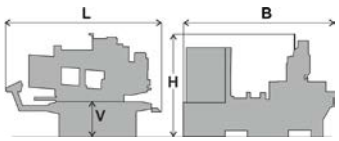
* Recommended values. Recommendations of band blade producers are to be followed when choosing to cut full material, their dimensions are limited by available size of the teeth for the specific type of the band.
O Cutting of the bundle withnout upper vice HP. HP = accesory for additional prie. The cutting parameters are limited when using.

the shortest cutting in automatic cycle	mm	250
the smallest divisible diameter	mm	30
the shortest rest durring one cut	mm	60

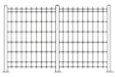
Power parameters		
drive of the blade	kW	3
drive of the hydraulic agregate	kW	0,75
pump of the cooling emulsion	kW	0,12
total input	kW	3,87
cutting speed – fluently set	m/min	20-100
diameter of the blade	mm	4780x34x1,1
electric connection		3x400V, 50 Hz, TN-S

feed of the Frame to the cut	Hydraulically
feed of the material	Ball screw, motor, gear using a cog wheel, unvertor
bow turning to angular cuts	Manually
Rotation fixing	Manually
clamping of material	Hydraulically
bend tension	Mechanically
cleaning of the blade	Cleaning brush with the drive by moving rollers
Cooling	Performance (l/s) – 0,27 Content tank (l) - 60

Parameters							
lenght		width		Height		height of the table	weight
Lmin]	[Lmax]	[Bmin]	[Bmax]	[Hmin]	[Hmax]	[V]	(kg)
2500	2910	2720	3150	1720	1990	800	2050



+ transport dimensions, dimensions without the safety fence


Front safety fence RNT is standart part of the saw, m= 395 kg

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