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FMB Hercules+CN1000 Fully Automatic Bandsaw
Dual-Column Bandsaw with Full Enclosure

The Hercules+CN1000 is dual-column, fully automatic production bandsaw. The machine comes standard with a full enclosure. It has one main column that is filled with polymer concrete to adsorb vibration and support the large cast saw head and a secondary column for additional support. The machine has a large 10" touchscreen control that gives full visibility of the machine's operation. The control can store 100 programs. Each program stores the cut lengths, quantities, material dimension, material shape, and material grade (with feed rate and saw blade speed). The material table with recommended feed rates and saw blade speeds allows for easy setup. The machine has ECO, Normal, FAST, and automatic saw blade break-in modes.

Saw Head Design and Construction:
The heavy saw head is comprised of a special cast alloy. The saw head absorbs the vibrations generated during the saw cut. This stops the vibrations from traveling into the saw blade.
The saw head is machined in a single setup. This ensures that all critical points line up without the use of shims. With all the critical points machined in a single setup, the machine can deliver accurate, square cuts.

Dual-Column Design and Construction:
The machine has one large support column that is filled with polymer concrete and a secondary column for additional support. The heavily constructed columns have the rigidity to support the large cast saw head.

Saw Head Cant
The saw head sits on a 4-degree cant, so it has the optimal approach for sawing structural steel material. The saw head cant allows the machine to cut structural material faster because all the teeth are engaged in the material at one time. This is better for high rates of chip removal in structural steel.

Blade Rotation Sensor
A sensor monitors the drive wheel. If the sensor detects any deviation or too much resistance, the machine will shut down. This system also includes an AMP meter to help with ensuring the proper feed rate is set and maintained.

Saw Blade Drive System
The Direct drive reduction gear box features gears with inclined ground teeth that are induction hardened. The gear box is an enclosed system greased for long life. The direct drive gear box transmits power directly to the band wheel. This feature delivers 95% of the generated torque to the saw cut. The machine is equipped with a 4 HP Saw Motor.

Saw Blade Speed Control
An inverter controls the saw blade speed. The blade speed is infinitely variable from 52 to 393 FPM. The operator enters the saw blade speed into the HMI Touchscreen Control.

Saw Head Rapid Approach
The saw head rapids down to a little above the material before moving at the programmed cutting rate. The rapid approach is controlled by a laser system and the material size entered in the machine's control.

Saw Head Feed Rate – Cutting Control
The feed rate control assembly consists of a linear encoder, CPU, servo proportional valve, and hydraulic cylinder. The feed rate is set through the HMI touchscreen control. The machine has a material table with common material grades. Based on the material dimensions, shape, and grade selected by the operator, the machine will automatically select the proper feed rate. The touchscreen displays the real-time cutting rate in inches/min (or mm/min). The CPU checks the position of the linear encoder every millisecond, so the reading is exact.

Material Table:
The machine comes standard with a material table. The material table has all common material grades. Within the material table, there are recommended feed rates and saw blade speeds for the different grades based by material shape and size. When programming the machine for a job, the operator will select the material grade and enter the material dimensions, so the machine can provide the recommended cutting parameters. The material table can be customized with new materials or different parameters based on the customer's experience.

Cutting Modes:
The machine has Normal, ECO, FAST, and Break-In feeds and speeds. Normal is the standard mode for best performance while maintaining regular cutting rates. ECO is for extending the saw blade life, so the machine runs at slower rates. FAST is for faster cut times, so the machine will run at higher cutting rates

to achieve faster cut times. Break-In is the saw blade break-in period. Once the saw blade break-in period is complete, the machine will automatically ramp up to the programmed cutting rate.

HMI Touchscreen and Control:

The machine has a 10" HMI touchscreen control. It provides a visual of all machine operations, I/O's, diagnostics, alarms, programming, and manual machine movements.

The machine has semi-automatic and automatic modes.

In the automatic mode, the control will store up to 100 programs. Each program can have up to 30 different steps (unique cut lengths). When entering a program, the operator will input the required cut length and quantities for each step in the cut list. Based on the entered cut lengths and quantities, the machine will provide an estimate for the required amount of material to complete the cut list. The material dimension, material shape, feed rate, and saw blade speed are saved with each program. Each program can be saved with a unique alpha-numeric name.

The control monitors the machine as it cuts the parts to length in automatic mode. It ensures that parts are cut to the programmed dimensions.

Saw Blade Guide System:

The saw blade guide system consists of 4 carbide guides, 4 side roller bearings, and 2 top roller bearings. The precision guide arm can be set close to the cut to ensure it keeps the saw blade stable. The blade has a reduced amount of twist as it enters the blade guides to put less stress on the blade backing.

Material Index System:

The material index system consists of a ball screw, motor, encoder with VFD, and hydraulic gripper vise. The ball screw indexing system ensures precision movements of the carriage vise. The clamps slide on 2 linear rails. The vise has a full stroke cylinder, so there is no manual adjustment. The carriage gripper vise has a two-speed system. Once it is close to the programmed dimension, it slows to a creep mode to ensure proper position.

The carriage vise is self-centering, so it can feed a bent bar without issue. The single stroke of the indexing vise is 40 inches. It will automatically do more strokes when cut lengths are over 40 inches.

When the machine completes a cut, the carriage vise retracts to protect the saw blade and the material. The retraction helps extend saw blade life and avoid excessive recut as the saw head raises to start the next cut.

The minimum drop end is 2 inches.

Fixed Saw Vise:
The fixed saw vise has large plates that secure the material. The clamp has a large hydraulic cylinder that positions the movable clamp jaw to secure the material. The full stroke cylinder does not require any manual adjustment. The fixed vise secures the material on the exit side of the saw blade, so the material is secured on both sides of the cut.

Powered Chip Conveyor
The machine comes standard with a powered chip conveyor to remove chips from the saw. It is a screw style conveyor.

Saw Blade Brush:
The chip brush is driven with a motor and gear box. It runs at the same speed as the saw blade. It removes the chips from the saw blade, so they are not carried back into the saw head or cut. It extends saw blade life.

Saw Blade Tensioning:
The saw blade is tensioned with a hydraulic cylinder. When the machine is in operation, the blade is held at the proper tension level. When the machine is not in operation with the hydraulic system off, the tension is automatically lowered, so the blade is not always sitting under full tension.

Flood Coolant:
The flood coolant system lubricates the saw blade and reduces heat in the cut. The machine is equipped with two 0.25 HP coolant pumps to ensure the proper amount of coolant is placed on the saw blade and part. The machine has 3 coolant nozzles. One in each saw blade guide block and one additional nozzle that can be adjusted to the material size.

Electrical Cabinet:
The electrical cabinet has 24v control voltage.

Full Machine Enclosure:
The machine comes standard with a full enclosure. The enclosure has windows to see into the cutting area and access doors for saw blade changes and machine maintenance. The access doors have interlock switches, so the machine will not run with these doors open.

Remote Assistance Module:
The factory can log into the machine for troubleshooting or potential machine updates. The machine must be connected to the internet for this function to work.

Technical Data:

Saw Blade Size	**13'6" x 1-1/4" x 0.042"**
Saw Blade Speed	**52 to 393 FPM**
Saw Motor	**4 HP**
Indexing Stroke	**40"**
Hydraulic Motor	**2 HP**
Coolant Pump Motor	**2 x 0.25 HP**
Voltages	**440v/3PH (220v/3PH available with transformer)**
Machine Weight	**4500lbs**
Footprint	**98" x 106"**
Worktable Height	**29.53"**

Cutting Capacity:

Round Capacity	**13"**
Square Capacity	**13" x 13"**
Rectangle Capacity	**13" x 20"**
Bundle Capacity – Maximum	**6" x 18.90"**
Bundle Capacity – Minimum	**5.5" Width**