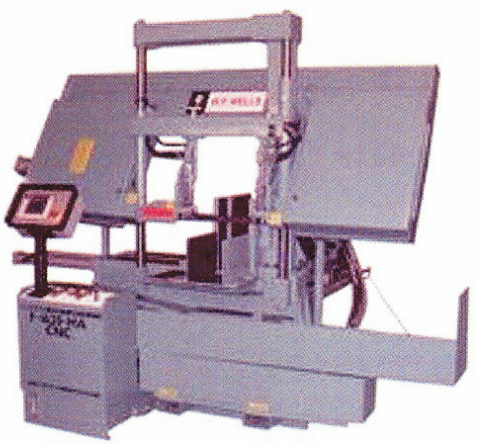
PURCHASING YOUR NEXT BANDSAW

The concept that cutting-to-length bar stock, structural steel or tubing is not considered a significant profit centre in manufacturing, has changed dramatically in past years. Choosing the right type of metal-cutting bandsaw for your application can become critical to your total manufacturing process. However exclusive your product is, or the type of steel used in its manufacture, there is a bandsaw or a bandsawing system to meet or exceed your requirements. Choosing the proper saw, however, is complex. Some general "rules of thumb" to consider when purchasing a bandsaw are:

OPTIMUM CROSS SECTION:

Before you buy a bandsaw, you should consider the optimum cross section of the blade it uses. For each blade size, there is an optimum size of material that can be cut, a size that allows the saw to cut quickly, efficiently and provide maximum blade life. A one inch blade generally is good for cutting material under four inches wide, a one inch blade is good for five inches to nine inches etc. This is the optimum cross section. Using the proper optimum cross section range will give you the most production and best blade life that you can expect from a particular size blade. An example of the wrong reasons for machine selection would be: "One manufacturer's brochure says that their machine has a 16 x 20 inch capacity. This saw will be perfect for cutting those 12,000 16 x 20 inch die blocks." This comment makes about as much sense as seeing if that fancy new one ton pickup truck will actually carry 4 000 pounds 365 days a year. Even the best quality machine cannot cut efficiently if the blade is attempting to cut through a larger piece of material than it is designed to. That is why different size saws are made using different blade widths. The optimum machine/blade combination gives you accurately cut parts, better blade life, and higher production rates.

MANUAL, SEMI-AUTOMATIC OR FULLY AUTOMATIC BANDSAWS:



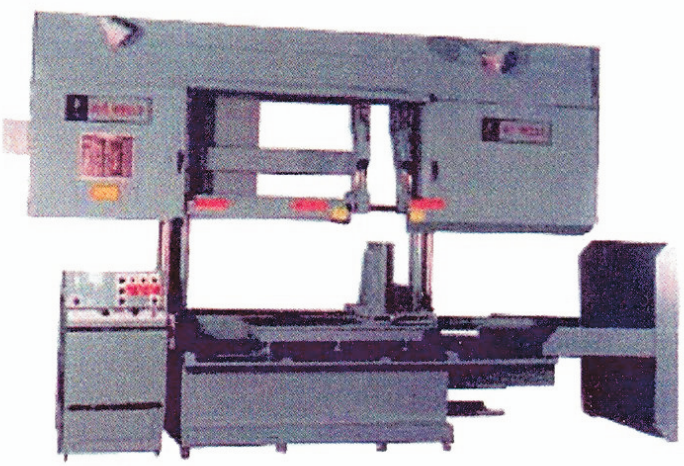
WF Wells Model F-1620-1A Colour Touch CNC

Consider the saw's production rates to fit your manufacturing requirements. Manual bandsaws, where the operator raises the saw head and closes the vises manually are designed for light to medium production of smaller material with less than 10 or 20 cuts of each piece. Although semi-automatic saws with automatic adjustable head return and automatic vises offer faster and easier operation, their production rates can hardly compare with those achieved by fully automatic bandsaws.

BAND GUIDE SYSTEM:

Guides faced with carbide or solid circular carbide guides are accurate, long lasting and they minimize band deflection. Consider roller bearing guides when dry cutting is required or high blade speeds are necessary. A combination of carbide and roller guides offers the most versatility.

MAIN DRIVE MOTOR HORSE POWER:



WF Wells Model B-25-1

The main drive motor horsepower rating must fully utilize the capabilities of the bandsaw blade width. For example on the WF Wells Series "B" bandsaw machines, the B-25-1 with a 7.5 HP main drive motor uses a 1 1/4 inch blade, the B-25-2 with 10 HP uses a 1 1/2 inch blade, the B-25-3 and B-25-4 with 15 HP motors use two inch and 2-5/8 inch blades respectively. The wider the blade, the greater the blade's beam strength; for example, the difference in beam strength between a 1 1/4 inch blade and a 1 1/2 inch blade is 184 percent. This allows larger pieces to be cut faster and with greater accuracy.

AUTOMATIC MATERIAL FEED SYSTEM TYPES:

For high production rates to feed CNC lathes etc., consider a bandsaw with an automatic material feeding mechanism. Automatic bandsaws usually include one of two types of material feed systems; pusher type systems, which mechanically or hydraulically "push" material against a limit switch, offer high

speed feeding of long lengths at an economical price. Hydraulic push-type systems generally can cut bundles without the need for expensive extra top clamping. Shuttle-type systems always have at least one vise holding the material during the entire shuttle process thereby offering higher precision. Both types come with numerous standard features and options to reduce setup time, increase production, facilitate the operator's work and maximize the quantity and quality of the finished pieces.

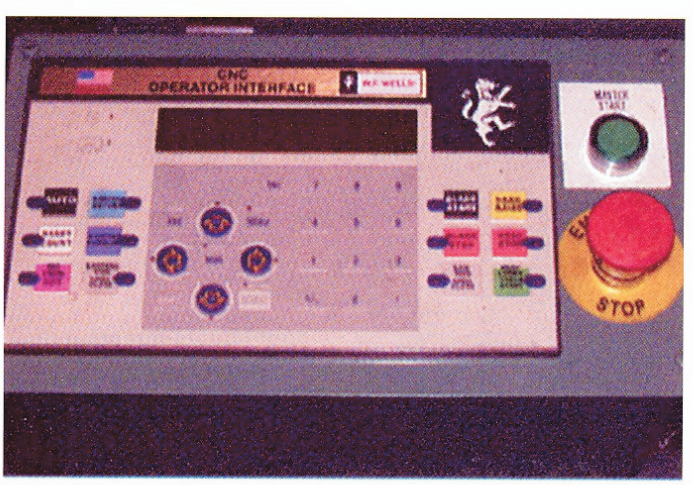
BLADE DOWNFEED SYSTEMS:

Take into account the downfeed system that best suits your application. Downfeed systems differ in how they control feed rate and the traverse rate. Feed rate is the force applied against a saw blade to make it penetrate the work piece. Traverse rate is the rate at which a saw machine allows the saw blade to travel without cutting resistance.

Manual and most semi-automatic machines use what is commonly called gravity feed. The feed rate is preset at the factory and is usually controlled by a compensation spring to reduce gravitational pull at the bottom of the stroke. (Some manufacturers offer a chip load sensor, which is basically a mechanical or hydraulic devise that regulates the chip load at the tooth of the blade). Traverse rate is the only adjustment under operator control. Because the feed rate is preset, tooth selection can be critical when cutting interrupted or widely varying cross sections unless the saw includes a chip load sensor.

On most heavy-duty fully automatic and semi-automatic saws, feed rate is the primary control. Traverse rate is controllable but the traverse valve is not entirely accurate. This type of system allows the most flexibility in tooth selection. Still, on other systems the traverse rate is the primary control and is restricted by a very accurate flow control valve, however, the feed rate can be reduced. A coarser than normal pitch can increase cutting performance on this system.

CNC CONTROLS:



CNC Operator Interface Touch Screen.

To increase production on an automatic saw, consider CNC controls with either Digital membrane push button screens or the new Colour Touch Screens. Both have features such as complete machine diagnostics, automatic kerf compensation and an automatic "out of stock" shut off switch. Length of cut along with number of cuts can be pre-programmed and up to 999 job selections can be stored in memory eliminating the need for individual job setups. The ability to record the time of cut and the number of cuts for each individual blade makes competitive blade testing an easy task. It also allows the operator to keep an eye on the time of cut to replace the blade before ruining a piece due to crooked cutting.

The bandsaw you buy should have the following features, either standard or as available options, to prolong blade life, increase production and improve piece finish.

VARIABLE BLADE SPEED CONTROL:

The greater your ability to change blade speeds for different materials, the better the quality of the cut and the longer the blade will last. Most manufacturers use hydraulic motors or expanded pulley systems to vary the blade speed, however, the more progressive manufacturers are now using AC inverter systems.

POWERED CHIP BRUSH:

Longer machine band wheel life, longer blade life and smoother cuts will result if the machine has a powered chip brush. Most manufacturers power the blade brush by running an idler wheel on the band wheel itself to power the brush; the faster the band wheel turns the faster the brush turns. Hydraulic motors power the blade brush on top-end machines.

CUTTING FLUID SYSTEM:

Choose one that is easy to clean and the chip pans are easily accessible. The pump should have sufficient power to deliver a steady flow of coolant to both guide arms. A spray mist cooling system may be considered when cutting bundles of structurals and tubing. This eliminates coolant flowing out of each end of a tube and causing dangerous puddles on the shop floor.

AUTOMATIC CHIP CONVEYOR:

In constant production, an automatic bandsaw produces a large volume of swarf. Both hydraulic and electric systems are offered, the best being an auger type, which removes the most chips, is less likely to jam and separates the coolant as well.

VARIABLE VISE PRESSURE:

This is required if you will be cutting thin walled tubing. Standard vise pressure is likely to crush the tube or extrusion.

SAFETY FEATURES:

Make sure exposed blades are protected with guarding except in the cutting area. Electric band door interlocks, automatic blade breakage switches and electrical "lockout" switches are available for most high-end machines.

When purchasing a bandsaw, extra time should be taken to investigate the manufacturer's background. How long have they been manufacturing saws? What is their warranty policy and can they back it up? Is their local distributor committed to service? Does the local rep have the proper sawing experience and blade knowledge to help with special applications and problems? If these questions are answered to your satisfaction, you can purchase with confidence and expect years of productivity from the profit centre you just bought!

Mr. Robert Loiello, President of CanSaw Ltd., the new eastern Canadian distributor for W.F. Wells bandsaws, offers the above comments and suggestions for your consideration.

For any further information or if you have any questions, please contact him at www.cansaw.com.■