WIRE FLATTENING MILLS
Wire flattening today means:

Hold closer tolerances.
Run at higher speeds.
Run copper today, nickel-chrome tomorrow.
Above all, keep costs down.

Now is when you need Waterbury Farrel

Waterbury Farrel puts over a half a century of development and production-improving experience into every one of its wire flattening mills. Along the way, we have developed mills with single and multiple stands, built to run one type of product or with quick-changeover versatility, for a whole host of applications. That means that when your mill has Waterbury Farrel on the nameplate, you’re sure to have the kind of reliability to keep you running competitively at high output levels for years. Here is what you get:

High operating speeds. Waterbury Farrel wire flattening mills operate routinely at speeds in excess of 3,000 f.p.m. Day in, and day out, you have the kind of volume production capability that keeps your operation competitive in price as well as delivery. Moreover, the built-in dependability of Waterbury Farrel mills means you can maintain the tolerances you need at these higher speeds.

Multi-product versatility. Waterbury Farrel wire flattening mills offer you the versatility to process the entire range of your present product offering, plus the capability to let you produce conventional products now turned out by other, more expensive methods. And when you’re ready to develop new products, you’ll find that Waterbury Farrel mills can handle these, too. Typical wire capacity range for Waterbury Farrel mills runs from a few thousandths of an inch all the way up to an inch and a quarter in diameter.

Reliability-proven on the job. Waterbury Farrel wire flattening mills are at work in many different application areas. They produce rectangular copper wire for transformers and other electrical equipment, low-carbon steel ribbon for type BX cable, high-carbon wire for springs, as well as nickel-chrome flat wire for home appliance heater elements. These are just a few examples.

The broad range of Waterbury Farrel experience can be profitably put to work for you, with a complete wire flattening system which includes all accessory equipment. You’ll find that when you work with Waterbury Farrel, your production requirements for today, tomorrow, and the years to come, are economically satisfied.
Feature for feature, Waterbury Farrel mills are built to keep you competitive.

No matter how stiff the competition gets to be.

**Screwdown**

The screwdown is operated by a totally enclosed motor with a high torque brake and delivers precision roll settings instantly. The screwdown gearing is totally enclosed, while the parallel adjustment is positioned for maximum operator efficiency. A hydraulic motor drive is also supplied on all mills with automatic screwdown control.

**Housing**

Waterbury Farrel welds the roll housing together into a single unit before any machining is done. As a result, rolling loads, as well as all other elements, are contained within the housing and are permanently and accurately aligned.

**Lateral Housing Adjustment**

Since the housing is built as a single unit, it can be laterally adjusted. This feature provides a simple way to shift the wire track through a single mill strand, while keeping a straight wire track through the line. It also eliminates the need to shift the entire wire line when the rolls in one stand become worn. As a result, it reduces setup time while increasing roll life.

Lateral housing adjustment.
Double Cone

Designed for heavy reels, with smaller diameter center holes. It features two clamping heads to grip the reels securely, and an adjustable stop to locate reels securely. Capacities to 4,000 pounds.

Overhung

Designed for rolls on either plain or expanding arbors. Operates manually or can be power driven. Capacities up to 4,000 pounds.

High Hat

Designed to handle wire or rods in large diameters. Capacities to 4,000 pounds.

Waterbury Farrell entry equipment delivers smooth feeds and fast speeds.

Driven Feeders

For feeding heavy gauge wire, we offer a power-assisted driven feeder. It drives wire through the entry equipment and up to the first mill stand.

Two Plane Straightener

These six-roll units remove coil set and other bends before the wire enters the first mill stand.
Automatic Gauge Control

For applications that require both critical tolerances and maximum line speed, we offer automatic gauge control. It works with the hydraulic screwdown on all Waterbury Farrel system-controlled mills and edgers, and provides high-speed response to error signals. All roll adjustments are made proportional to the error and independent of the line speed. The complete system includes hydraulic screwdown with power unit, screwdown control interface, and width and thickness gauges.

Gear Drive

Consists of a combination pinion stand and gear reducer with an integral lubrication system. For long life, alloy steel herringbone gearing and anti-friction bearings are used throughout.

Rolls

As you would expect from Waterbury Farrel, a complete range of alloy steel and carbide rolls is available, sized and finished the way you want. Our rolls are available plain, grooved, solid or sleeved, with internal and external cooling.

Roll Neck Bearings

Precision-grade tapered roller bearings with tapered bore are standard. These pre-fitted bearings eliminate the need to make running clearance adjustments so bearing change time is reduced. In addition, all the bearings are protected from foreign matter or accidental damage because they remain in the chocks during removal from the roll.

We’ve cut the time it takes to change bearings and rolls.

A portable elevating table (left) with slide rails lets you change the rolls quickly and efficiently. It’s easy to align the rolls. So insertion is fast, safe and simple. Our bearing change device takes all the guesswork out of seating the bearing on the roll neck. Just watch the pressure gauge, and when it takes a sudden jump, the bearing is completely seated. To remove the bearings, just pump the handle a few times. It’s that fast and easy.
Edgers are placed between mills in a tandem train and serve to profile the edge of the wire to your exact specifications. Waterbury Farrel edgers automatically align the wire in the vertical plane, thus eliminating any need for adjustment.

Waterbury Farrel edgers are available in a full range of sizes to handle a full range of applications: For light work, we offer non-driven pull through edgers. They remain open until the mill rolls have taken hold, then close to the proper setting. For heavy work, we offer independently motor-driven edgers. They’re equipped with a heavy duty gear drive to handle maximum edger loads with a minimum of effort.

When light and heavy work loads have to be done on the same line, use our spindle driven edgers. They let you change over from power-driven to pull-through in seconds by isolating all the drive elements from the roll arbors.

All Waterbury Farrel edgers are available in a variety of roll sizes, from 3” to 15” in diameter. These rolls are made of hardened and ground alloy steel, with precision-ground bores. They also feature grooves cut to exact specifications, roll arbors mounted on precision-tapered anti-friction bearings, and oil-mist lubrication. All are standard.

Available in both driven and non-driven models, these units offer an exclusive roll adjustment arrangement that lets you roll any size square or rectangle from round wire. With Waterbury Farrel turksheads, you can also remove one roll assembly without disturbing the others, so roll change time is cut. Drastically.

Finally, Waterbury Farrel turksheads offer maximum lateral roll stability for improved product tolerance, shape control and bearing life.
Waterbury Farrel winders are mounted on roller bearings which run on hardened groundways attached to a fixed base. This design offers maximum support for the winder shaft, because the relative positions for the coil and shaft support bearings never change.

In addition, an exclusive hydraulic system guarantees precise wire traverse and high package quality by isolating the traverse from the winder motor at the instant of reversal. The winder hydraulic control lets you adjust the rate and total width of traverse, as well as position the coil to the track of the wire through the mill. The control includes a device for traversing the winder at the touch of a button. This eliminates the need for a travelling coil lift and sliding floor plates, making coil handling alot simpler.

Waterbury Farrel winders are available with a wide selection of spool chucks and collapsible reels. Chucks and reels can be expanded and collapsed either manually or by power. Winder capabilities range up to 4,000 pounds.

With a Waterbury Farrel traversing winder controller, you get tight parallel wrapping and uniform coil buildup every time. No matter what the strip speed. No matter whether the coil is wound on sleeves, or on collapsible reels with or without flanges. The Waterbury Farrel winder controller adjusts to handle a range of ribbon widths. And the total number of parallel wraps can be made to fit your needs. The winder itself is traversed using a hydraulic position servo mechanism. And the controller operates independently of the electric control of the winder motor and auxiliary functions. It can be added as a retrofit, if the basic winder traversing mode is compatible.
Waterbury Farrel dancer rolls help maintain constant tension between payoffs, mill and winder stands. They feature electrical controls that let you adjust the speed for maximum consistency.

Coolant Systems

On Waterbury Farrel mills, the coolant is circulated internally on the mill rolls, as well as externally on the mill and edger rolls. In addition, the wire is submerged through cooling troughs containing a soluble oil or mineral oil solution. This solution is also used for all external cooling. Every Waterbury Farrel mill comes complete with all the coolant piping already installed. All you have to do is connect the feed and return piping between your mill and the coolant system.

Electrics

Our electrical engineers work closely with electrical control manufacturers to design the best system for every installation. As a result, you can be sure your Waterbury Farrel mill will offer maximum performance, flexibility and reliability, yet will still be extremely easy to use.

Accessories to custom tailor your own wire mill.

* Feeders
* Two plane straighteners for removing curvature from incoming wire.
* Footage-recording counters that stop the line after a predetermined amount of wire has run.
* Entry wire guides.
* Air and contact wire wipers.
* Roll wipers.
* Bridle rolls and pressure pads for back tension.
* Continuous reading width and thickness gauges.
* Automatic control can be added to mill or edger screwdown.
* Wide variety of coil handling equipment.
* Special applications equipment.
Case Study: Greer Steel Company; Dover, Ohio
Type: Three-stand mill.
Application: Flattening low carbon steel.
Configuration: Includes one 12” x 2 1/2” mill, two 8 1/2” x 2 1/2” mills, one 4000# double cone payoff, one 4000# high hat payoff, one 8” x 2 1/2” driven feeder, two 6 1/2” x 1 1/2” driven edgers with automatic gauge control, four 12” diameter dancer control stands, one 4000# hydraulic traversing winder.
Speed: 2000 f.p.m.

Case Study: New Haven Copper Company; New Haven, Connecticut
Type: Three-stand tandem wire flattening mill.
Application: Rolling copper wire.
Configuration: Includes one 12” x 2 1/2” and two 8 1/2” x 2 1/2” mills with carbide rolls, 2000# driven payoff, 3000# high hat payoff, 6” turkshead, two 6” edgers, air-loaded dancers and a 2000# hydraulically-traversed winder.
Speed: 1500 f.p.m.
Case Study: Hynes Steel Products Co.; Youngstown, Ohio
Type: Two-stand tandem wire flattening mill.
Application: Shaping low carbon steel products.
Configuration: Includes two 8 1/2" x 2 1/2" mills with carbide rolls, one 2000# double cone driven payoff, two 4 1/2" turksheads, one 6" spindle driven edger, air-loaded dancers and a 2000# hydraulically-traversed winder.
Speed: 2650 f.p.m.

Case Study: U.S. Steel Corp.; Cuyahoga Works, Cuyahoga, Ohio
Type: Four-stand shape mill.
Application: Rolling a wide variety of products from low to high carbon steel.
Configuration: Includes four 11 1/2" x 8" mill stands, two 2500# vertical and one 3000# horizontal turnstile payoffs, three 8" turksheads, three 6" driven edgers, dancer roll control stands and a 3000# hydraulically-traversed winder.
Speed: 900 f.p.m.
Case Study: National Standard Co., Athenian Steel Plant, Clifton, New Jersey
Type: Three-stand high carbon mill.
Application: Flattening high carbon steel.
Configuration: Includes three 6 1/2" x 2 1/2" mill stands with carbide rolls, a 2000# overhung driven payoff, three 4" double supported edgers, air-loaded dancers and a 2000# hydraulically traversed winder.
Speed: 1500 f.p.m.

Case Study: Westinghouse Electric Corp.; Athens, Georgia
Type: Three-stand copper mill.
Application: Producing high quality copper magnet wire.
Configuration: Includes three 10" x 8" mills, a 4000# double cone payoff, two 6" driven edgers, dancer roll control stands and a 1000# traversing winder.
Speed: 2600 f.p.m.
CANADA

200 First Gulf Blvd.
Brampton, Ontario  L6W 4T5

Tel:  905.455.0106
Fax:  905.455.0422
N.A. Toll Free:  800.206.8822

email:  sales@magnum-integrated.com
web:  www.waterburyfarrel.com