MORGAN VEE MINI-BLOCK
INCREASING PRODUCTIVITY
BY UP TO 50 PERCENT
One of the major questions you face as a rolling mill operator is: How do you improve quality and boost productivity without incurring substantial new equipment costs and lengthy installation times?

This calls for a solution that can be integrated into your existing mill layout and that minimizes interference with other equipment.

Flexibility is a crucial criterion in this solution – you want to be able to roll a wide range of product sizes and improve the processing capacity through thermomechanical rolling.

The Morgan Vee Mini-Block is an innovative two- or four-stand mill that allows for expansion through the use of multiple units, with a host of benefits for rod and bar producers. In numerous existing installations around the world, Morgan Vee Mini-Block mills have increased productivity by as much as 50 percent, permitted the rolling of various diameter rod and bars, and dramatically improved control of product dimensions.

The compact Morgan Vee Mini-Block provides flexibility, precision and productivity with multiple mill applications.

### Advantages of Morgan Vee Mini-Block Installed as a Mini-Finishing Mill (MFM)
- Increases exit speed, producing more tons per hour, particularly on small sizes.
- Rolls sizes in diameters as small as 4.0 mm and as large as 35 mm.
- Serves as a standalone finishing block in a bar mill to produce small squares, rounds and rebar.
- Produces non-normalized and short-time spheroidized rod for automotive and fastener customers by rolling at temperatures as low as 750°C.

### Advantages of Morgan Vee Mini-Block Installed as a Pre-Finishing Mill (PFM)
- Enables multiple-strand mills to do single strand rolling.
- Produces a wider range of sizes than with current equipment.
- Allows for greater precision of the finished rod by improving the tolerance for the rod entering the finishing block.
A WIDE RANGE OF SIZES AND DIAMETERS
Ideally suited for mills producing wire rod in the range of 4.0 mm to 26 mm in diameter, the Morgan Vee Mini-Block positioned after a Morgan No-Twist® Mill provides dramatic increases in rolling rates, especially for 5.5 and 6.0 mm rod. The Morgan Vee Mini-Block is also capable of producing bar sizes up to 35 mm. These blocks are available in five different roll diameter ranges from 140 mm up to 300 mm.

MAKE EXISTING MILLS MORE PROFITABLE
When the Morgan Vee Mini-Blocks are used in place of your conventional stands, the use of carbide rolls and the ease of pass and roll changing greatly contributes to minimize mill downtime. Based on the same technology found in our world standard 10-stand ultra heavy-duty Morgan Vee No-Twist Mills, the Morgan Vee Mini-Block offers many of the same advantages. It rolls to close tolerances, offers rapid start-up, permits lower-temperature rolling and is highly reliable.

PROVEN TECHNOLOGY STRENGTHENS COMPETITIVENESS
By utilizing proven Morgan Vee Mill technology, our engineers have created a single compact unit that can be added to your existing rod and bar mills with minimal changes. Many mills have found that the addition of a Morgan Vee Mini-Block made them more competitive in speed, quality, size range and price, while improving profitability.

The modular Morgan Vee Mini-Block is based on the latest patented Morgan Modular No-Twist Mill and Morgan Reducing/Sizing Mill technology. The modular two-stand units can reduce mill downtime and maintenance with fast dummying of roll units when producing larger diameter products and off-line roll changes. You can select these modular units in sizes that will be identical to units of a Morgan Modular No-Twist Mill and a Morgan Reducing/ Sizing Mill, thus reducing spare parts and simplifying maintenance.

HIGH LOAD CAPACITY
The exceptional ability of the ultra heavy-duty roll housings to handle high separating forces differentiates the Morgan Vee Mini-Block units from our competition. With a capacity of more than 470 kN, the roll units can handle production of hard-to-roll alloys and thermomechanical rolling of carbon and low alloy steels. Thus, you have the ability to make products with better mechanical and metallurgical properties. The high stiffness of the housings also enables you to achieve very good tolerances consistently from billet to billet.

FLEXIBILITY THROUGH INTERCHANGEABILITY
Your operation gains more flexibility thanks to the interchangeability of the popular 250 mm, 230 mm and 160 mm roll housings throughout the complete family of high speed pre-finishing, Morgan No-Twist®, mini-block and Morgan Reducing/Sizing Mills. You can minimize your spare parts inventory and simplify maintenance.

When rolling difficult alloys and/or at low temperatures, ultra heavy-duty housings are available to enable high separating forces.
GREATER FLEXIBILITY, PRECISION AT HIGH SPEEDS
Customer
Hangzhou Iron & Steel Co., Ltd., Hangzhou, China
Plant type
High-speed rod mill
Our solution
Use of two 2-stand, 250 mm Morgan Vee Mini-Blocks as pre-finishing mills ahead of the Morgan No-Twist® Mill and Morgan Reducing/Sizing Mill on the high speed rod mill.
Technical data
630,000 tpy, 120 m/s maximum speed, 5.5 - 25.0 mm plain rod in low to high carbon steels, alloy, spring, bearing and cold heading qualities
The result
With ease of maintenance and consistent feed sections to the Morgan Vee No-Twist Mill, this high-speed rod mill makes high quality products with a high level of equipment reliability.

MODERNIZED MILL PRODUCES SMALLER SIZES FASTER
Customer
ArcelorMittal Monlevade No. 1, Monlevade, Brazil
Plant type
Two-strand rod mill
Our solution
Modernization of the 2-strand rod mill in phases: the addition of a 2-stand 230 Morgan Vee Mini-Block as a pre-finishing mill, and the addition of a 2-stand 230 Morgan Vee Mini-Block after the Morgan No-Twist Mill for increased finishing speeds on small size products.
Technical data
100 m/s maximum, increased from 75 m/s, 4.5 - 16.0 mm plain rod in low, medium and high carbon steels, plus low alloy steels
The result
The addition of the pre-finishing mill block provided increased load capacity and reduced maintenance costs. With an increase in speed on small-diameter products, monthly production increased more than 20%.

RECORD-SETTING REBAR MILL
Customer
Votorantim Metais, Resende, Brazil
Plant type
Single-strand rod mill (future two-strand)
Our solution
A 2-stand 300 Morgan Vee Mini-Block followed by two 2-stand 230 Morgan Vee Mini-Blocks serve as the pre-finishing train ahead of the 10-stand Morgan Vee No-Twist Mill.
Technical data
130 tph, plain rod from 5.5 – 24.0 mm, ribbed rod in coil from 6.3 – 12.5 mm, plain carbon steel
The result
Production expectations quickly exceeded after commissioning. The 6.35 mm rebar was rolled at 85 m/s - the fastest in the world for quenched and tempered rebar products.

MECHATRONIC SOLUTIONS
The optional bearing temperature monitoring system provides a means to detect excessive wear or lubrication problems and prevent unnecessary downtime for your mill. Lube oil monitoring continuously checks temperature and water content to aid in maintenance.

PREDICTIVE MAINTENANCE WITH VIBRATION MONITORING
Vibration monitoring tracks and trends the operating conditions of your critical bearings and gears to allow for planned maintenance activities. The removal of unplanned downtime also provides cost control and allows your equipment to operate for the full life-cycle of the mill bearings to keep your mill producing.

SPARE PARTS MANAGEMENT
Custom-tailored spare parts programs allow for minimum inventory levels and spares planning to control your operating cash flows. Critical mill spares are readily available in stock in our globally located parts warehouses to ensure key components are available when ever you need them.

RECONDITIONING AND REBUILDING SERVICES
Get the most from your initial mill investment without having the capital expense of full replacement. Many critical machines can also be simultaneously upgraded to newer technologies focused on increased reliability and design capacities.
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