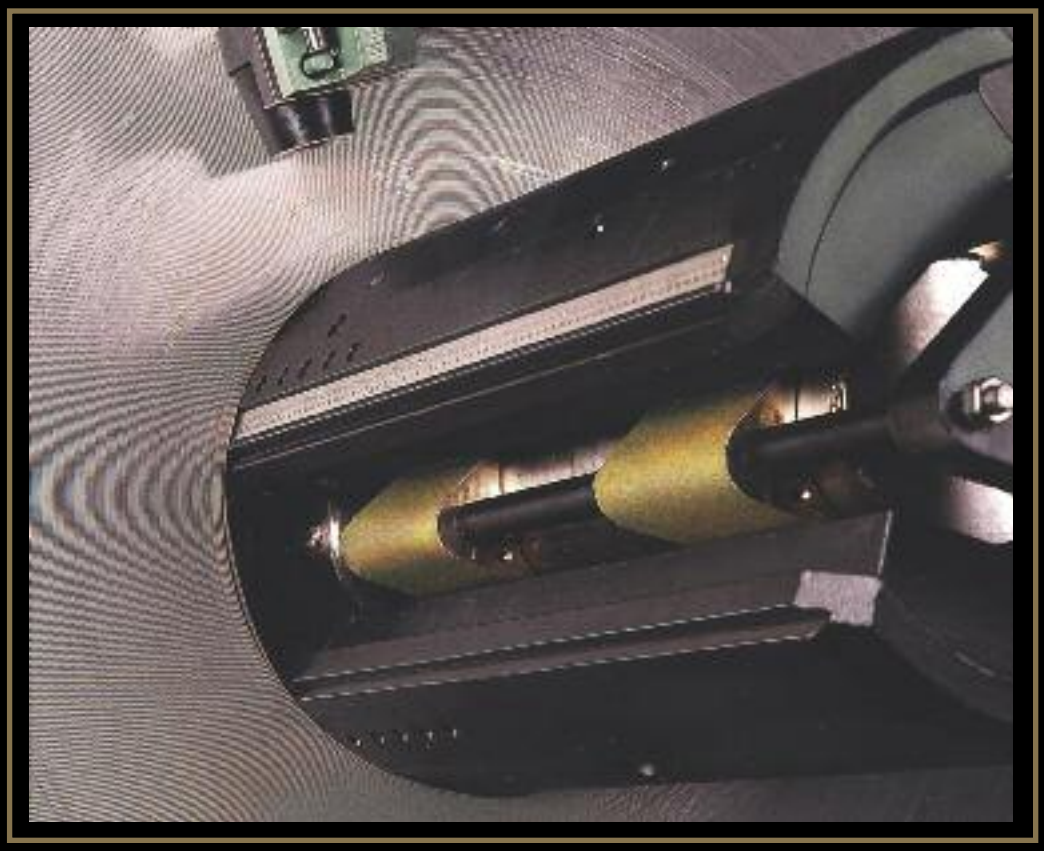
A Nidec Group Company

MINSTER®

All for dreams

BULLETIN 149C



# Material Handling Equipment

## COMPLETE LINE OF AUXILIARY EQUIPMENT

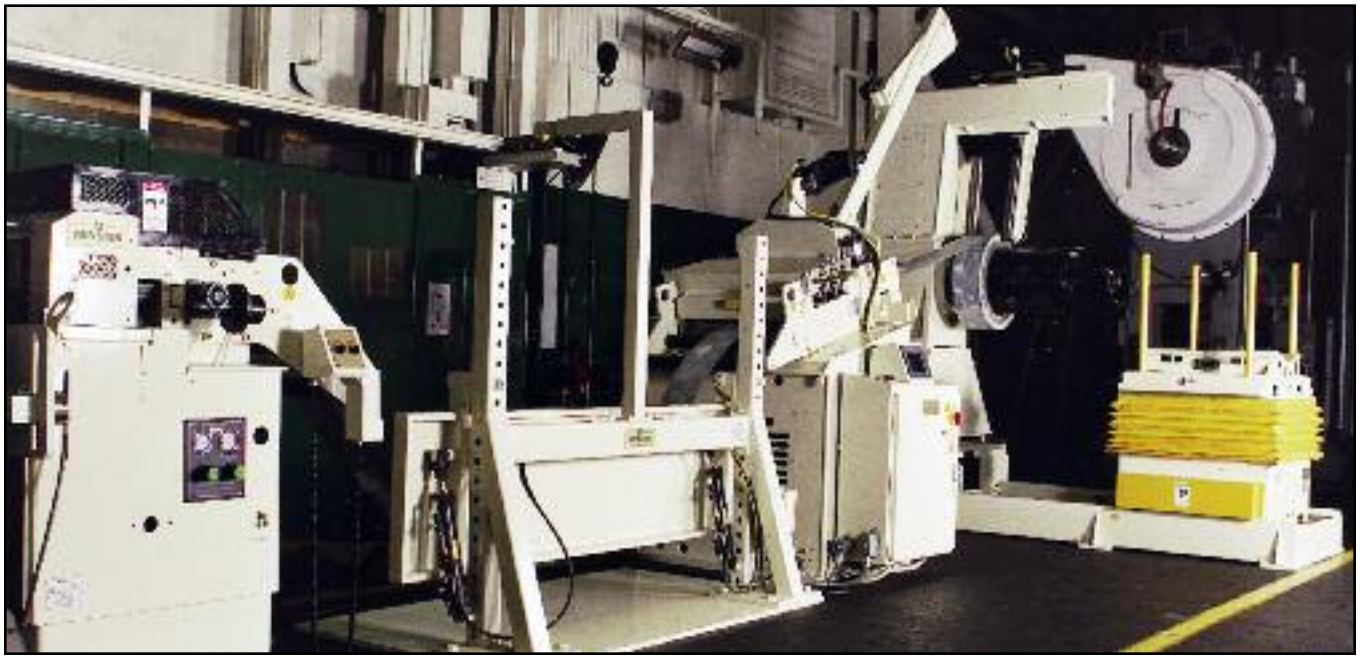
*Total Automation Solutions*

TECHNOLOGICALLY ADVANCED TO PROVIDE
GREATER FLEXIBILITY AND INCREASED PRODUCTION

# OVERVIEW

*The Minster Machine Company designs and manufactures a full complement of coil handling equipment at its Minster, Ohio facility. Coil handling capabilities range from 0.01 to 0.50 inches in thickness, 1.0 to 74.0 inches in width, and 6,000 to 60,000 pounds in weight.*

*Many features that are optional on other manufacturers' equipment are standard on Minster equipment, making Minster's standard offerings the perfect choice for virtually any coil line. Options are available to customize your Minster equipment to specific applications, further increasing material throughput, operator safety and convenience. Both new and existing presses alike will benefit when you include Minster coil handling equipment.*



*Minster Electric Feeds, Thread Tables, Straighteners, Reels, Coil Cars and Production Management Controls create the ideal material handling system for your stamping operation.*

All Minster coil handling equipment is designed and manufactured with the same quality and reliability you have come to expect from The Minster Machine Company. Minster equipment is protected by our industry's leading Three-Two-One Warranty: three years on structural components, two years on mechanical components, and one year on electrical, pneumatic, and hydraulic components.

002

# OVERVIEW

## Features Common To All Minster Coil Handling Equipment

- Minster offers the "Single Source Advantage" for your entire coil line. Sales, Applications, Engineering, Manufacturing, and Service are all handled by one company, insuring your press and coil line equipment are properly matched, installed, and maintained.
- All electrical, hydraulic, and pneumatic components are standard items from the same sources used on Minster presses. No new sources or special replacement parts are needed.
- All factory and field connections are labeled for ease of installation and maintenance.
- Labels correspond to manual and drawing nomenclature for easy reference.
- All valves, switches, etc. are equipped with function indicator lights and located for easy access and serviceability.
- All components requiring periodic lubrication are fitted with easily accessible lube points or with an optional Auto-Lube system.
- Careful inspection and a thorough pre-shipment audit insures that every piece of equipment meets Minster's high standards for quality.

*Labeled Connections*

*Optional Coil Line Interconnects*

*All Equipment is Carefully Inspected*

*Optional Auto-Lube System*

003

# PRODUCTION MANAGEMENT CONTROL

## Description

The Minster Production Management Control (PMC) is a PLC-based coil line control and diagnostic system utilizing touch screen technology. When a Minster feed line is installed on a press that has, or is being retrofit with a PMC control, this system will integrate the control and diagnostic functions of the press and entire coil line in the press's user-friendly touch screen. Additionally, the PMC will have the capability to store and download press and feed line information based on tool number. To aid in operator setup, a secondary touch screen is located on the Minster straightener to control specific functions in the back-half of the line.

When a Minster feed line is installed on a press that is not equipped with a PMC control, the feed operator interface is located in a free-standing podium. In this case, the customer may choose either a PMC or a basic operator interface. The PMC provides the customer with more in-depth diagnostics and the ability for increased automation while the basic interface provides a less-expensive alternative which is equipped with a connection port for ease of integration and third-party controls. In either case, a secondary touch screen is located at the Minster straightener to control specific functions in the back-half of the line.

## Standard Features

- Allen Bradley programmable logic controller provides versatile, reliable, industry-standard performance.
- Color touch screen display provides the ultimate in operator ease and user-friendliness.
- A "function enable" button enhances reliability and safety by confirming any potentially hazardous motion-producing events issued from the PLC.
- Minster-developed dedicated software is tailored to the needs of the stamping industry.
- Calibration screens provide step-by-step instructions for calibrating all transducers and the proportional valve.
- Full machine diagnostics allow the operator to monitor all functions with active faults arranged in order of importance.
- Storage for up to 200 tool and/or job settings is standard on the PMC. The storage feature cuts press setup time dramatically; and, the PMC can automatically set all job parameters based on the tool storage value, saving more time and increasing efficiency by reducing operator error.


*Feed Line Integrated Into Press PMC*

*Free-Standing Podium with basic Operator Interface*

*Straightener-Mounted Minster Production Management Control*

004

# PRODUCTION MANAGEMENT CONTROL


*Main Screen of Straightener PMC*


*Coil Line Functions on Straightener PMC*


*Work Roll Adjustment on Straightener PMC*


*Calibration Screen on Straightener PMC*

## Optional Features

### • PMConnect™

This option provides detailed monitoring of press room production equipment from remote locations and uses industry standard network and database infrastructure. The combination of an ethernet-based local area network, available Internet connectivity, and a relational database allows for easy migration of data to other systems/applications. Feature views include: press line summary; press detail; tool storage; production history; fault history; dial-up access and support; HTML help, etc.

### • Automatic Setup

Parameters such as feed progression, feed rate, feed angle, auto loop height, passline adjustment, stock guide adjustment, work roll penetration, and reel position can be stored, recalled and set automatically upon entry of a tool number.

005

# FEEDS

MEF2

## Description

All Minster Feeds are designed to accomplish three goals:

1. Protect your investment in tooling through accurate and reliable feeding.
2. Maximize coil line throughput.
3. Minimize material waste.

The result of Minster's approach is simple . . . you receive a maximum return on your investment dollars.

MEF6

## Specifications

| MODEL | | MEF2 | | | MEF3 | | | MEF4 | | | | | | MEF6 | | | | | MEF7 | | | | | MEF-HG | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DESIGNATION | | 8 | 14 | 20 | 14 | 20 | 26 | 14 | 20 | 26 | 32 | 38 | 50 | 26 | 32 | 38 | 50 | 62 | 32 | 38 | 50 | 62 | 72 | 38 | 50 | 74 |
| STD. MOUNTING ARRANGEMENT | | BRACKET | | | BRACKET | | | CABINET | | | | | | CABINET | | | | | CABINET | | | | | CABINET | | |
| NUMBER OF ROLLS DRIVEN | | 2 | | | 2 | | | 2 | | | | | | 2 | | | | | 2 | | | | | 2 | | |
| Stock Width - Maximum | In. | 8 | 14 | 20 | 14 | 20 | 26 | 14 | 20 | 26 | 32 | 38 | 50 | 26 | 32 | 38 | 50 | 62 | 32 | 38 | 50 | 62 | 72 | 38 | 50 | 74 |
| | *mm* | *205* | *355* | *510* | *355* | *510* | *660* | *355* | *510* | *660* | *810* | *965* | *1270* | *660* | *810* | *965* | *1270* | *1575* | *810* | *965* | *1270* | *1575* | *1829* | *965* | *1270* | *1880* |
| Stock Thickness - Maximum | In. | .125 | | | .188 | | | .250 | | | | | | .312 | | | | | .375 | | | | | .500 | | |
| | *mm* | *3,18* | | | *4,78* | | | *6,35* | | | | | | *7,92* | | | | | *9,53* | | | | | *12,7* | | |
| Stock Thickness - Minimum | In. | .010 | | | .010 | | | .020 | | | | | | .020 | | | | | .030 | | | | | .030 | | |
| | *mm* | *,25* | | | *,25* | | | *,51* | | | | | | *,51* | | | | | *,76* | | | | | *,76* | | |
| Stock Thick. - Max. @ Full Width | In. | .125 | .094 | .074 | .123 | .101 | .087 | .152 | .125 | .108 | .096 | .087 | .075 | .170 | .151 | .137 | .117 | .102 | .243 | .220 | .167 | .165 | .148 | .385 | .329 | .256 |
| (50,000 PSI Yield) | *mm* | *3,2* | *2,4* | *1,9* | *3,1* | *2,6* | *2,2* | *3,9* | *3,2* | *2,7* | *2,4* | *2,2* | *1,9* | *4,3* | *3,8* | *3,5* | *2,9* | *2,6* | *6,2* | *5,6* | *4,8* | *4,2* | *3,8* | *9,8* | *8,3* | *6,5* |
| Stock Width - Max. @ Full Thick. | In. | 8 | | | 6.375 | | | 5.53 | | | | | | 8.71 | | | | | 14.7 | | | | | 23.75 | | |
| (50,000 PSI Yield) | *mm* | *203* | | | *162* | | | *140* | | | | | | *221* | | | | | *373* | | | | | *603* | | |
| Roll Lift Strokes-per-Min. - Max. | | 425 | | | 425 | | | 400 | | | | | | 250 | | | | | 200 | | | | | 150 | | |
| Max. Roll Opening for Threading | In. | .250 | | | .250 | | | .300 | | | | | | .470 | | | | | .470 | | | | | .620 | | |
| | *mm* | *6,4* | | | *6,4* | | | *7,6* | | | | | | *11,9* | | | | | *11,9* | | | | | *15,8* | | |

**The MEF-HG (Heavy Gauge) Feed utilizes two (2) sets of feed rolls.*

## Standard Features

- Minster's larger feeds come standard with a free- standing feed cabinet and shock isolation mounts. These mounts reduce the transmission of press vibrations to the feed and provide an easy method for leveling the feed. The MEF2 and MEF3 are bracket mounted.
- Entry catenary supports the incoming stock and prevents the reintroduction of coil set.

*Cascading Catenary Entry Rolls*

*High Efficiency Belt Drive*

006

# FEEDS

## Standard Features

- Hand-held feed setup pendant.
- Minster's high-efficiency pneumatic roll lift system with user-friendly control panel for roll lift and pinch force adjustment.
- Roll lift adjusts without wrenches or use of fixed stops.
- Includes power-off spring-applied pinch pressure to maintain stock position whenever air pressure is removed.
- Square gear pattern retains accuracy by maintaining full gear tooth engagement during roll lift.
- State-of-the-art digital servo drive with easy-to-understand diagnostics. Motor is fan-cooled for maximum performance and includes a power-off holding brake to maintain stock position whenever power is removed.
- Hardened and ground feed and pinch rolls. Rolls on larger feeds are hollow to minimize inertia and maximize cycle rates.
- Adjustable stock guides.
- Manual passline adjustment.
- End-of-stock detector top-stops the press to prevent damage to the tooling.

*Hand Held Pendant*

*Pneumatic Roll Lift Control*

*Helical Gearset Designed With Zero Backlash*

## Optional Features

- Basic feed control interface with SmartPac/OmniLink 5000 connection.
- Powered passline adjustment.*
- Powered stock guide adjustment.*
- Automatic passline adjustment via PMC tool storage feature.*
- Automatic stock guide adjustment via PMC tool storage feature.*
- Automatic lubrication system.
- Chrome blast or smooth chrome roll finishes.
- Digital work roll readout
- TLC, high-speed, and "gagging" packages.
- Feed-to-bolster stock table.
- Coil line interconnects.
- Coil line awareness barrier.
- C.E. machine compliance.
- Non-English operator manuals and legend plates.
- Bracket mounting
- Exit stock table

** These options are not available on the MEF2/MEF3.*

*Tie Bar Clamps*

007

# FEEDS ~ HIGH SPEED

## Description

The Minster MHSF3 High Speed Servo Feed is a feature-packed solution for feeding material up to .118" *(3,0mm)* thick at high speeds. This bracket-mounted feed is designed to provide the user with the efficiency, accuracy, and high reliability that is required for the demanding high speed market.


**MHSF3**

*Multi-Functional Hand Held Set-Up Pendant*

## Standard Features

- Two-piece heavy cast bracket frame with vibration-isolated feed housing.
- Highly durable chrome blast feed rolls.
- Direct drive lower feed roll.
- Allen-Bradley low-inertia servomotor with high resolution feedback.
- Both upper and lower rolls driven.
- Upper roll driven by helical, zero-backlash gear set.
- Straight lead-in catenary.
- Minster's high speed pneumatic roll lift.
- Automatic material thickness adjustment.
- Automatic roll lift height adjustment.
- Programmable feed settings.
- Programmable pinch roll force.
- Micro feed length adjustment during operation.
- Allen-Bradley drive control.
- Multi-functional hand-held set-up pendant.
- Electronically-cammed feed motion.
- 200 tool storage capability.
- Motion analysis software.
- Adjustable passline height.


*Minster exclusive PMC operator interface.*

## Specifications

| Model | | MHSF3-355 | MHSF3-510 | MHSF3-660 | MHSF3-1000 |
|---|---|---|---|---|---|
| **Maximum Stock Width** | In. | 14.0 | 20.0 | 26.0 | 40.0 |
| | *mm* | *355* | *510* | *660* | *1000* |
| **Minimum Stock Width** | In. | 1.0 | 1.0 | 1.0 | 1.0 |
| | *mm* | *25* | *25* | *25* | *25* |
| **Max. Stock Thick. x Width** (50,000 PSI Yield) | In. | 0.118 x 9.0 | 0.118 x 9.0 | 0.118 x 9.0 | 0.118 x 19.0 |
| | *mm* | *3,0 x 230* | *3,0 x 230* | *3,0 x 230* | *3,0 x 483* |
| **Max. Stock Thick. @ Full Width** (50,000 PSI Yield) | In. | 0.90 x 14.0 | 0.075 x 20.0 | 0.064 x 26.0 | 0.064 x 40.0 |
| | *mm* | *2,3 x 355* | *1,9 x 510* | *1,6 x 660* | *1,6 x 1016* |
| **Minimum Stock Thickness** | In. | 0.010 | 0.010 | 0.010 | 0.010 |
| | *mm* | *0,25* | *0,25* | *0,25* | *0,25* |
| **Feed Roll Face Diameter** | In. | 3.31 | 3.31 | 3.31 | 3.31 |
| | *mm* | *84* | *84* | *84* | *84* |
| **Feed Roll Face Width** | In. | 2.75 | 3.75 | 4.75 | 6.75 |
| | *mm* | *70* | *95* | *120* | *171* |
| **Number of Rolls Driven** | | 2 | 2 | 2 | 2 |
| **Roll Opening For Threading** | In. | 0.20 | 0.20 | 0.20 | 0.20 |
| | *mm* | *5* | *5* | *5* | *5* |
| **Feed Roll Position Accuracy** | In. | ±0.002 | ±0.002 | ±0.002 | ±0.002 |
| | *mm* | ±0,05 | ±0,05 | ±0,05 | ±0,05 |
| **Maximum Speed** | | 800 SPM | 800 SPM | 800 SPM | 400 SPM |

008

# THREAD TABLES

## Description

Minster's heavy-duty thread table provides a safe, efficient, and hands-off means of spanning the distance between the straightener and the feed during the threading operation. It is designed and built to be installed and ignored, requiring no further attention of any kind . . . a truly maintenance-free design.

*Hydraulic Actuation*

## Specifications

- Standard widths are: 26, 32, 38, 50, 62, and 74 inches. Table lengths will vary per application, ranging from 6 to 22 feet.

## Standard Features

- Heavy-duty construction provides a reliable, and maintenance-free table.
- Heights of entry and exit ends are independently-adjustable and factory set to accommodate height differences between the straightener and the feed.
- Hydraulic actuation provides smooth,controlled motion when raising or lowering.
- Controls integrated into the Minster Production Management Control (PMC), providing full control and diagnostic capabilities from straightener or feed. This allows "One-Time Walk-Through" strip threading.

## Specifications

- C.E. machine compliance.
- Non-English operator manuals and legend plates.

009

# STRAIGHTENERS

## Description

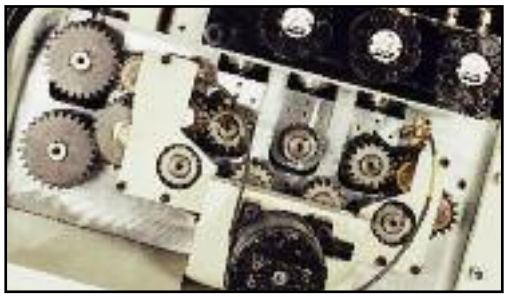
The Minster straightener, equipped with our Production Management Control (PMC), is the core of a stock preparation system. In its basic form, this multi-function machine provides straightening of the stock and accurate control of the storage loop. When equipped with the optional hold-down arm and peeler table, it facilitates safe and efficient threading of the coil. When installed along with a complete Minster coil line, it controls and supplies hydraulic power to the thread table, reel, and coil car. It also communicates via its PMC with the press and feed PMC, providing complete coil line control and diagnostics.

| MODEL | | MSH20 | MSH30 | MSH40 | MSH50 | MSH-HG |
|---|---|---|---|---|---|---|
| **Width Range** | In. | 14-50 | 26-62 | 32-74 | 38-74 | 38-74 |
| | *mm* | *355-1270* | *660-1575* | *810-1880* | *965-1880* | *965-1880* |
| **Maximum Thickness** | In. | 0.250 | 0.312 | 0.375 | 0.500 | 0.500 |
| | *mm* | *6,35* | *7,92* | *9,53* | *12,7* | *12,7* |

*MSH-HG (Heavy Gauge) Straightener Rolls Are Driven From Both Sides.

## Standard Features

*Production Management Control (PMC)*



*Drive Train Driving Both Work and Pinch Rolls*

- Production Management Control (PMC) communicates with other Minster equipment, providing complete control and diagnostics of the press and coil line.
- **Speed Sync.** This feature automatically synchronizes the straightener line speed with the average line speed of the feed to obtain consistent material flow through the straightener. This consistent flow results in: improved loop stability; reduced chances of slipping or marking; reduced chance of strip damage due to pull off from the reel; and reduced starting and stopping of the straightener which results in improved material flatness.

  This synchronization is achieved via communication betweenthe straightener and feed PMC controls. The straightener's line speed is displayed on the straightener PMC screen. If the feed does not have a Minster PMC control, the operator will have to manually adjust the maximum speed and acceleration rate of the straightener via the straightener PMC control to obtain the same benefits as noted above.
- Seven (7) close centered work rolls offer two distinct advantages:
  1. Seven rolls deliver consistent, flat stock regardless of material characteristics that may change throughout a coil or from coil to coil.
  2. Close roll spacing improves the machine's ability to straighten a broader range of material thickness and yield strengths.

010

# STRAIGHTENERS

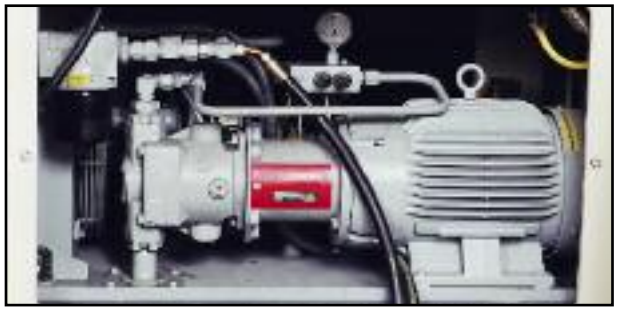
## Standard Features

- Heavy-duty drive train provides exceptional durability and reliability.
- Three (3) independently-adjustable upper rolls.
- Proportional hydraulic drive with intelligent non-contact loop control. Only Minster provides this advanced drive system as standard equipment on every straightener. It provides precise, hands-off loop control, and full torque regardless of operating speed, making it superior to other drive types.
- Air-actuated entry pinch rolls with a convenient, user-friendly control panel.
- A 15˚ inclined straightener head improves reel pull-off angle and loop fill angle. Combined with the exit catenary rolls, this reduces the possibility of induced coil set as the stock enters the storage loop.
- Adjustable stock guides.
- End-of-stock detector shifts straightener, reel, and coil car into manual mode. This allows reloading of the reel to begin immediately, while the press and feed continue production, thus reducing coil change-over times.
- Heavy-duty, precision ground end frames, mounted to a heavy-wall, structurally rigid base, provide the foundation for the Minster straightener

## Optional Features

- Hydraulically-actuated hold-down arm and peeler table includes end flattener and powered hold-down wheel.*
- Automatic lubrication system with additional lube supply to feed, eliminating the need to manually lubricate the system*
- Chrome blast or Smooth chrome roll finish.
- Powered stock guide adjustment.*
- Powered work roll adjustment.*
- Automatic stock guide adjustment via PMC tool storage feature.
- Automatic work roll adjustment via PMC tool storage feature.
- C.E. compliance.
- Non-English operator manuals and legend plates.
- Work roll cleaner.
- Auxiliary hold-down arm on reel*
- Automatic loop height adjustment.

** Standard on the MSH-HG and MSH50 Straighteners*



*Hydraulic Drive*

*Independently-Adjustable Work Rolls*

*End of Stock Detector*

- Solid, hardened and ground work and pinch rolls.
- Sealed heavy-duty roller bearings.
- Integral hydraulic power unit monitored by the Production Management Control (PMC). "Over-Temperature," "Low Oil Level," and "Dirty Filter" are among the conditions monitored by the PMC, providing full diagnostic capabilities.

*Driven Hold-Down Arm and Peeler Table with End Flattener.*

*Automatic Lube System*

011

# REELS

## Description

The MRH and MRM Reels combine Minster's considerable knowledge and experience with thoughtful customer feedback and extensive market analysis. The result is a line of reels featuring carefully thought-out improvements and very competitive pricing that will increase your productivity and profits. The MRM reels are manually-operated, offering a high-quality, low-cost alternative to our hydraulically-powered MRH reels.

## Specifications

| MODEL | | MRM6 | MRH6 | MRH10 | | MRH20 | | | MRH30 | | MRH40 | | | MRH60 | | | MRH-HG | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DESIGNATION | | 20 | 20 | 26 | 38 | 26 | 38 | 50 | 38 | 50 | 50 | 62 | 74 | 50 | 62 | 74 | 38 | 50 | 74 |
| **Material Width - Maximum** | In. | 20 | 20 | 26 | 38 | 26 | 38 | 50 | 38 | 50 | 50 | 62 | 74 | 50 | 62 | 74 | 38 | 50 | 74 |
| | *mm* | *510* | *510* | *660* | *965* | *660* | *965* | *1270* | *965* | *1270* | *1270* | *1575* | *1880* | *1270* | *1575* | *1880* | *965* | *1270* | *1880* |
| **Material Thickness - Maximum** (50,000 PSI Yield) | In. | .188 | .250 | .250 | .250 | .375 | .375 | .375 | .375 | .375 | .375 | .375 | .375 | .375 | .375 | .375 | .500 | .500 | .500 |
| | *mm* | *4,78* | *6,35* | *6,35* | *6,35* | *9,52* | *9,52* | *9,52* | *9,52* | *9,52* | *9,52* | *9,52* | *9,52* | *9,52* | *9,52* | *9,52* | *12,7* | *12,7* | *12,7* |
| **Coil Weight per Mandrel** (At Full Width) | Lbs. | 6,000 | 6,000 | 14,000 | 11,000 | 28,000 | 24,000 | 20,000 | 35,000 | 31,000 | 50,000 | 46,000 | 40,000 | 60,000 | 60,000 | 60,000 | 60,000 | 50,000 | 40,000 |
| | *kg* | *2.700* | *2.700* | *6.360* | *5.000* | *12.700* | *10.900* | *9.080* | *15.900* | *14.000* | *22.700* | *21.000* | *18.200* | *27.300* | *27.300* | *27.300* | *27.300* | *22.700* | *18.200* |
| **Coil O.D. - Maximum** | In. | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 |
| | *mm* | *1830* | *1830* | *1830* | *1830* | *1830* | *1830* | *1830* | *1830* | *1830* | *1830* | *1830* | *1830* | *1830* | *1830* | *1830* | *1830* | *1830* | *1830* |
| **Coil I.D. - Standard** | In. | 18-22 | 18-22 | 18-22 | 18-22 | 20-24 | 20-24 | 20-24 | 20-24 | 20-24 | 20-24 | 20-24 | 20-24 | 20-24 | 20-24 | 20-24 | 20-24 | 20-24 | 20-24 |
| | *mm* | *455-560* | *455-560* | *455-560* | *455-560* | *510-610* | *510-610* | *510-610* | *510-610* | *510-610* | *510-610* | *510-610* | *510-610* | *510-610* | *510-610* | *510-610* | *510-610* | *510-610* | *510-610* |
| **Coil I.D. - Optional** | In. | 16-20 | 16-20 | 16-20 | 16-20 | | | | | | | | | | | | | | |
| | *mm* | *405-510* | *405-510* | *405-510* | *405-510* | | | | | | | | | | | | | | |
| | In. | 20-24 | 20-24 | 20-24 | 20-24 | 18-22 | 18-22 | 18-22 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| | *mm* | *510-610* | *510-610* | *510-610* | *510-610* | *455-560* | *455-560* | *455-560* | | | | | | | | | | | |
| **Mandrel Centerline Height** | In. | 50 | 50 (72 Optional) | | | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 |
| | *mm* | *1270* | *1270 (1830)* | | | *1830* | *1830* | *1830* | *1830* | *1830* | *1830* | *1830* | *1830* | *1830* | *1830* | *1830* | *1830* | *1830* | *1830* |

* The MRH-HG (Heavy Gauge) Reel Has a Hold Down Arm With the Reel in Addition to the Hold Down Arm on the Straightener.

*Heavy-Duty Base*

*Quick Release Front Coil Keepers*

## Standard Features

- Heavy-duty base with extended footprint facilitates solid anchoring of the reel.
- Three wide mandrel segments provide six gripping points for uniform coil support.
- Lightweight, heavy-duty coil keepers adjust quickly and easily to any width and lock securely.
- Wedge-type mandrel expansion for durability, reliability, and low maintenance.
- Hydraulically-powered expansion on all MRH models.
- Pneumatically-actuated, and adjustable mandrel drag brake prevents over-running or jerking of the coil during payoff.

012

# REELS

## Standard Features

- Pneumatic brake adjustment ensures smooth, repeatable settings.
- Power-off mandrel holding brake on MRH models holds coil position whenever power to the reel is interrupted.
- Heavy duty, precision rotation bearing and hydraulically powered rotation via an integral gearset on all MRH dual reel models.
- Controls integrated into Minster Production Management Control (PMC) system, providing full control and diagnostic capabilities from straightener or feed.
- Precision machined mandrel shaft and bearing mounts.
- Hydraulically powered mandrel jogging on all MRH models.

## Optional Features

- Powered base adjustment permits coil alignment with downstream equipment when loading multiple coils onto a single mandrel. Coils are loaded against a fixed back coil keeper, eliminating the need for adjustable rear coil keepers.
- Automatic base adjustment maintains coil alignment with downstream equipment without operator input via the PMC tool storage feature.
- Powered keeper arm increases coil loading efficiency and reduces operator effort.
- Automatic keeper arm maintains proper position without operator input via the PMC tool storage feature.
- Remote operator's podium for coil lines where the standard operator's station is opposite the coil-loading side of the line.
- Coil I.D. ranges of 16"-20", 18"-22", and 20"-24" are available on selected models. Consult the specification table for details.
- Powered payoff with non-contact loop control for coil lines processing thin material that does not require a straightener.

*Wedge-Type Mandrel Expansion*

*Drag Brake Adjustment*

*Large Surface Area Drag Brake*

*Power Rotation Via Heavy Duty Turret Gear*

*Powered Adjustable Base with Powered Keeper Arm*

- C.E. compliance.
- Non-English operator manuals and legend plates.

013

# COIL CARS

## Description

The Minster Coil Car is one of the best ways to improve coil line throughput. The advantages of using a coil car include:

1. the ability to pre-stage coils while the reel is still in use;
2. quick and easy reloading of the reel after completion of the previous coil; and
3. elimination of damage to the reel that can result from direct loading using other methods.

## Specifications

| MODEL | | MCCH-14 | | | | MCCH-35 | | | | MCCH-60 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Capacity** | Lbs. | 14,000 | | | | 35,000 | | | | 60,000 | | | |
| | *kg* | *6.350* | | | | *15.900* | | | | *27.300* | | | |
| **Coil Size - Standard** | In. | Min: | 42 | Max: | 72 | Min: | 42 | Max: | 72 | Min: | 42 | Max: | 72 |
| | *mm* | | *1065* | | *1830* | | *1065* | | *1830* | | *1065* | | *1830* |
| **Coil Size with 6" Deck Riser** | In. | Min: | 30 | Max: | 62 | Min: | 30 | Max: | 62 | Min: | 30 | Max: | 62 |
| | *mm* | | *760* | | *1575* | | *760* | | *1575* | | *760* | | *1575* |
| **Coil Size with 9" Deck Riser** | In. | Min: | 24 | Max: | 58 | Min: | 24 | Max: | 58 | Min: | 24 | Max: | 58 |
| | *mm* | | *610* | | *1475* | | *610* | | *1475* | | *610* | | *1475* |

*Screw Jacks and Guide Post*

## Standard Features

- Heavy-duty fabricated frame and running gear.
- Heavy-duty track frame simplifies installation and maintains alignment.
- Hydraulically powered, self-locking screw jacks hold the load securely, even during a power interruption.

*Heavy-Duty Frame*

014

# COIL CARS

## Standard Features

- All hydraulic and electrical components are easily accessible, yet fully protected within the frame.
- Adjustable, removable coil restraints with convenient storage trays on each side of the coil car.
- Flexible bellows keeps out dust and debris while protecting the operator.
- Flexible cableway protects cables and hoses.
- Controls integrated into Minster Production Management Control (PMC), providing full control and diagnostic capabilities from straightener and/or feed.

*Accessible Components*

*Coil Restraints*

*Flexible Cableway*

## Optional Features

- 6" and 9" deck risers accommodate smaller coils (see chart).
- Rotating deck facilitates loading by forklift from any direction.
- C.E. compliance.
- Non-English operator manuals and legend plates.

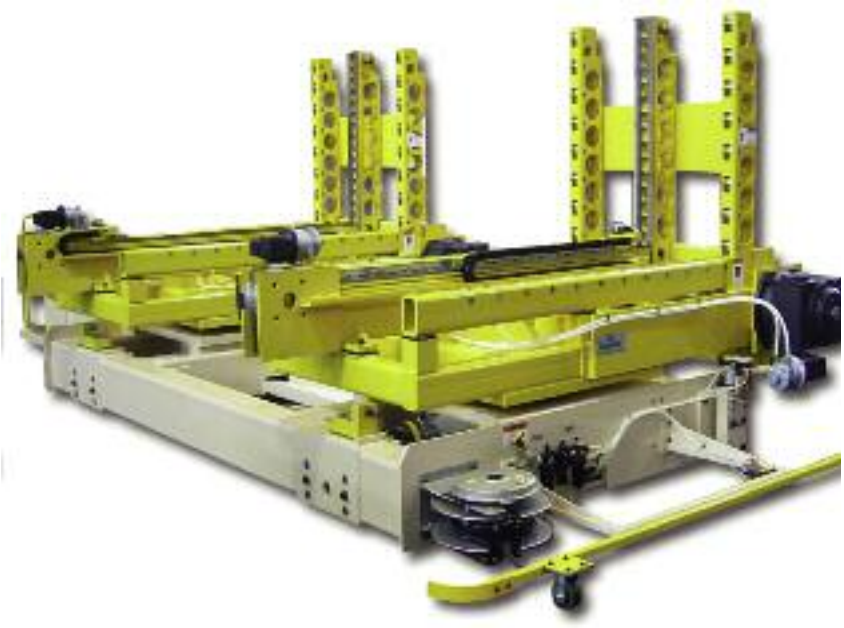
# DIE HANDLING

## Description

Minster die handling devices provide a highly-efficient means of staging, loading, and unloading die sets, thereby, maximizing press running time. Our track-mounted mobile units also facilitate the pre-staging of multiple die sets on auxiliary storage racks.

Three types are available:

1. Stationary carousel,
2. Stationary in-line, and
3. Tracked (Mobile) in-line. The carousel-type is a manual, dual-station design, meaning it supports two die sets simultaneously. The in-line models are pneumatically powered and available as either single- or dual-station models, depending on their size.



## Specifications

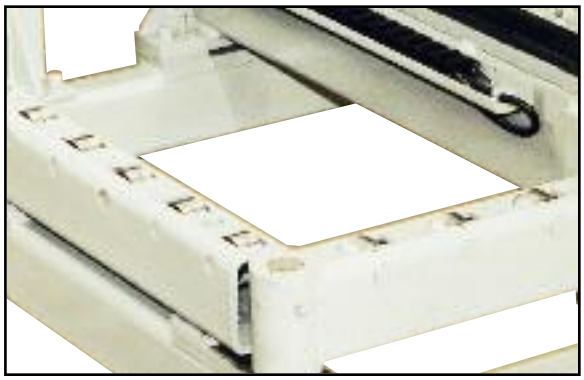
| MODEL | TYPE | STATIONS | CAPACITY | DIE SIZE, W x D |
|---|---|---|---|---|
| MDT4-48C | Stationary Carousel | 2 | 4,000 Lbs.<br>*1.800 kg* | 48" x 26"<br>*1220 x 660 mm* |
| MDT30-120S | Stationary In-Line | 1 | 30,000 Lbs.<br>*13.600 kg* | 120" x 48"<br>*3050 x 1220 mm* |
| MDT30-144S | Stationary In-Line | 1 | 30,000 Lbs.<br>*13.600 kg* | 144" x 60"<br>*3660 x 1525 mm* |
| MDT20-72DM | Tracked In-Line | 2 | 20,000 Lbs.<br>*9.100 kg* | 72" x 54"<br>*1830 x 1370 mm* |
| MDT20-96DM | Tracked In-Line | 2 | 20,000 Lbs.<br>*9.100 kg* | 96" x 54"<br>*2440 x 1370 mm* |
| MDT20-120DM | Tracked In-Line | 2 | 20,000 Lbs.<br>*9.100 kg* | 120" x 60"<br>*3050 x 1525 mm* |
| MDT30-72DM | Tracked In-Line | 2 | 30,000 Lbs.<br>*13.600 kg* | 72" x 54"<br>*1830 x 1370 mm* |
| MDT30-96DM | Tracked In-Line | 2 | 30,000 Lbs.<br>*13.600 kg* | 96" x 54"<br>*2440 x 1370 mm* |
| MDT30-120DM | Tracked In-Line | 2 | 30,000 Lbs.<br>*13.600 kg* | 120" x 60"<br>*3050 x 1525 mm* |

# DIE HANDLING

## Standard Features

- Heavy-duty bearing-mounted rollers provide for effortless movement of die set.
- When not in use, extensions on stationary models can be retracted, providing maximum access to the press.
- Powered models utilize a unique, self- storing push-pull chain mechanism that allows complete transfer of the die set in a single stroke.
- Pre-staging of multiple die sets is easy with auxiliary storage racks.
- Powered models are pneumatically-operated, requiring only one utility connection. This simple and reliable system is unique to Minster die handling equipment and virtually maintenance-free.
- Design includes provision for precise height adjustment during installation, insuring smooth transfer of the die set.
- Tracked models include 42 feet of track tength with longer lengths available upon request.

*Heavy-Duty Construction*



*Heavy-Duty Bearing-Mounted Rollers*

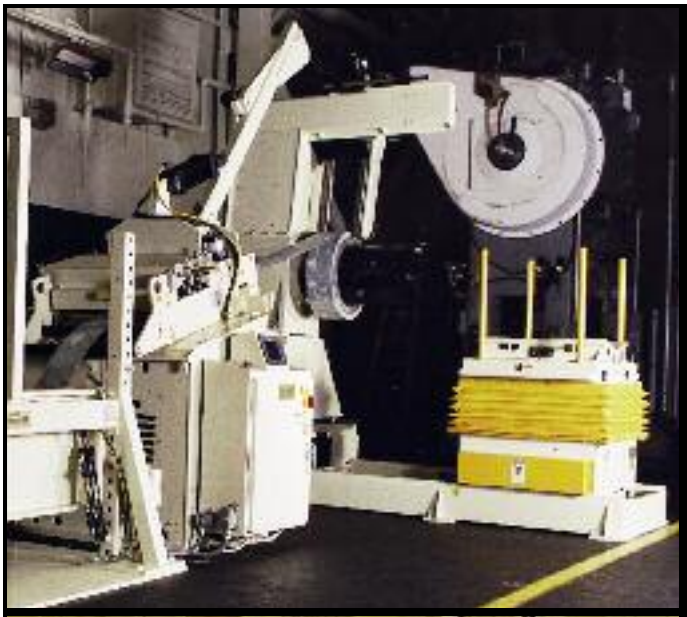
*Self-Storing Chain Mechanism*

*Pre-Staging With Auxiliary Storage Racks*

## Optional Features

- Storage racks.
- Rotating deck.
- Additional die latches.
- Extended track lengths.
- C.E. compliance.

*Note: All options are model-dependent. Contact Minster Sales for specifics.*



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