

240 WEST 5TH STREET
P.O. BOX 120
MINSTER OH 45865-0120

MINSTER®

THE MINSTER MACHINE COMPANY

PAGE- 1

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CUSTOMER
ORDER NO. MO32532-A

INVOICE NO. 000081
INVOICE DATE 4/26/94

PROJECTED SHIPMENT
SOLD BY LUTHER & PEDERSEN INC.

ORDER DATE 7/20/93

SHIPPED 5/04/94

ORDER NO.
MS CODE GC

RELEASED 9/08/93 ROUTE ACE DORAN

REVISED 3/07/94

DUNS NO. 00-506-7111
SOLD TO CONCORD LEASING CO.
10450 WAVELAND AVE.
FRANKLIN PARK, IL 60131

SHIP TO BETHLEHEM TOOL & MFG CO
10450 WAVELAND AVE.
FRANKLIN PK. IL 60131

TERMS: SEE LAST PAGE FOB MINSTER, OHIO REM:RDG OUR ORDER NO. 28157

| ORD. | SHIPPED | DESCRIPTION | UNIT | AMOUNT |
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| 1 | | <p>MINSTER P2H-160 Straight Side Press</p> <p>Tons Capacity 180 U.S. Stroke/SPM 3.94"/250 Die Area 63" x 33.5" Slide to Single Bolster SDAU..... 17.72" Slide Adjustment 3.94" Slide Lift5" min., 4.50" max. Upright Opening 25" Bed Opening 51.2" x 14.6 Floor Space/Height 118" R-L x 80" F-B/171" High</p> <p>Weight 60,000 lbs. Paint Birch White</p> <p>Slide includes F-B 1" T-slots on 6" centers starting on center. Steel bolster is 4.92" thick, with 1.00" T-slots on 6" centers starting on center. Flywheel/clutch/brake located on L.H. end with crank extension located on R.H. end. 40 HP, 1800 RPM, T.E.F.C., eddy current drive motor, 480 Volts, 3 Phase, 60 Hertz. Controls located in NEMA Type 12 enclosure built to Minster's interpretation of ANSI-B11.1-1988 and to NFPA #79 specifications. Floor mounted vertical control enclosure 28" x 26" x 78" high has operator set-up units and 8-digit electronic counter located in the door. Press mounted operator's units include: Inch/set-up cycle buttons, slide adjust buttons, with stop control button and barrier guard receptacle on front and rear, and (2) 24 volt DC stop control die receptacles mounted on front.</p> | | |

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| | | Minster 16-Pole Programmable Limit Switch including the following features: Automatic Top Stop through full press speed range. Digital Stroke Position Actual Press Speed Press Stopping Time Motion Detection Programmable for (64) Complete Setups Minimum of 11 Auxiliary Poles Press Serial No.: P2H-160-28157 <u>OPTIONS INCLUDED:</u> 1 Press Leveling & Vibration Mounts. Mounts integral with press feet. 1 Auxiliary flywheel, belt driven and mounted to top of crown. Unit doubles available energy and increased the rated distance off bottom. 1 8-digit production counter with lock reset. Total Price, Control, Drive Motor and Options..... | | |

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| 1 | | <p>MEF4-20 MINSTER AUTOMATION Single Roll Electric Feed</p> <p>Mounting is free standing cabinet. Heavy welded steel stress relieved construction. Foot pads include anchor bolt holes and jack screws. Machined surfaces on press side for tie bar connections to press. A mechanical jack screw mounted in the cabinet positions the height of the feed rolls. The jack screw is driven by manual ratchet. Leveling and shock mounts are provided.</p> <p>Press model/tonnage: P2H-160 Minimum feed line over floor: 50" Maximum feed line over floor: 59" Floor to bed dimension: 41" Feed roll diameter: 4.000" Maximum stock width: 20.00" Minimum stock thickness: .020" Maximum stock thickness: .187" Maximum thickness at full width: .090" Maximum width at full thickness: 9.00" Roll opening for threading: .30" Electrical: 480-3-60 Line Direction: Left to Right Display Readout (Metric or Inch): Inch</p> <p>The following <u>sample rates</u> are based on .090" thick x 20.00" wide mild steel strip with a 16" minimum, 48" maximum loop height and a 144" maximum loop length. Actual production rates will vary with any deviation from the above parameters and may be limited by other factors such as roll lifter rates and maximum line speed of ancillary equipment.</p> <table><tr><th>Feed Length</th><th>Press 120</th><th>Press 150</th><th>Press 180</th><th>Press 210</th><th>Press 240</th></tr><tr><td>1"</td><td>218</td><td>261</td><td>362</td><td>343</td><td>381</td></tr><tr><td>4"</td><td>127</td><td>151</td><td>174</td><td>196</td><td>217</td></tr><tr><td>8"</td><td>95</td><td>112</td><td>129</td><td>145</td><td>160</td></tr><tr><td>12"</td><td>79</td><td>93</td><td>107</td><td>121</td><td>134</td></tr><tr><td>18"</td><td>64</td><td>76</td><td>88</td><td>100</td><td>110</td></tr><tr><td>24"</td><td>53</td><td>64</td><td>75</td><td>85</td><td>95</td></tr></table> <p>The feed may be programmed for 0 to 99.99" feed lengths in increments of .001" with a feeding accuracy of plus/minus .002". A pre-set feed length is set to 25" as standard. Specify on order if a maximum length greater than 25" is required.</p> <p>The feed angle is totally adjustable through a <u>separately</u> supplied programmable rotary limit</p> | Feed Length | Press 120 | Press 150 | Press 180 | Press 210 | Press 240 | 1" | 218 | 261 | 362 | 343 | 381 | 4" | 127 | 151 | 174 | 196 | 217 | 8" | 95 | 112 | 129 | 145 | 160 | 12" | 79 | 93 | 107 | 121 | 134 | 18" | 64 | 76 | 88 | 100 | 110 | 24" | 53 | 64 | 75 | 85 | 95 | | |
| Feed Length | Press 120 | Press 150 | Press 180 | Press 210 | Press 240 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1" | 218 | 261 | 362 | 343 | 381 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4" | 127 | 151 | 174 | 196 | 217 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8" | 95 | 112 | 129 | 145 | 160 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12" | 79 | 93 | 107 | 121 | 134 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18" | 64 | 76 | 88 | 100 | 110 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24" | 53 | 64 | 75 | 85 | 95 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| | | <p>switch, thus enabling feeding to begin relevant to when the die is open to permit stock entry. The position and total degrees of the feed angle with respect to press crankshaft rotation may be adjusted as necessary for production optimization of each part being stamped.</p> <p>Low inertia feed rolls are .50" longer than maximum stock width. Standard feed roll finish is hardened and ground smooth. Feed rolls and shaft are one piece welded construction to assure positive feeding and concentricity during grinding. Both upper and lower rolls are mounted in anti-friction bearings and are driven through precision square anti-backlash gearing to maintain full tooth engagement during roll lift and varying material thicknesses for maximum roll grip and drive on the stock. Rolls are conveniently removable for maintenance.</p> <p>Electro-pneumatic actuated automatic roll lifters raise the upper roll for die piloting. Roll lift dwell and position is totally adjustable with respect to press crankshaft rotation through the press rotary limit switch. A selector switch control is provided to open the rolls for strip threading. The strip is automatically clamped by the rolls in the event of power loss. No set-up is required for change of strip thickness. 80 PSI minimum shop air required.</p> <p>Standard lubrication is one grease fitting located in a convenient position for lubrication of the feed roll gearing. The feed rolls are mounted in sealed bearings and lubrication is not required.</p> <p>The stock catenary supports incoming strip from the loop on a 3 position fixed radius. Handwheel operated double roller stock guides may be adjusted for offset or centerline positioning of the strip stock.</p> <p>An AC Servo Motor drives the lower feed roll through a timing belt. The motor is sealed and cooled by air over the outside to eliminate contamination. The motor uses a permanent magnet rotor with no brushes for minimized maintenance and improved performance characteristics. The steel braided timing belt drive eliminates gear backlash, wear, noise, lubrication, and improves production rates.</p> | | |

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| | | <p>The feed controls are mounted in a pedestal (console) located adjacent to the feed. The feed length and feed roll velocity are set by operator's SOT menu control and may be adjusted with the feed in motion. Control allows storage of up to 99 jobs. A microprocessor control manages the feed roll motion through a feedback (servo) system monitoring speed and position. A display indicates operating status and diagnostic messages.</p> <p>Operator's controls include jog forward and jog reverse pushbuttons and a set-up selector switch. With the set-up switch on, the jog pushbuttons may be used to advance stock up to one feed progression prior to the press being cycled. This feature is for operator's convenience in die threading.</p> <p>The standard mounting of these three set-up switches is on a hand held station with flexible coiled cable mounted on operator's side of feed.</p> <p>Guarding is supplied per Minster's interpretation of OSHA safety codes and ANSI B11.18 safety standards.</p> <p>Paint: Birch White</p> <p>Feed Serial No.: 18-50340</p> <p><u>FEED OPTIONS:</u></p> <p>1 END OF STOCK DETECTOR INCLUDED: A sensor is mounted on the entry side of the feed rolls to detect when material is present. When trailing end of strip uncovers the sensor, the press is signaled to top-stop.</p> <p>Feed and Options, Installed on Press.....</p> | | |

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| 1 | | <p>MS 20-20-7 MINSTER AUTOMATION STRAIGHTENER</p> <p>Capacity (Based on Mild Steel)</p> <p>Maximum Strip Thickness: .187"</p> <p>Minimum Strip Thickness: .012"</p> <p>Maximum Strip Width: 20.00"</p> <p>Maximum Width at Max. Thickness: 4.00"</p> <p>Maximum Thickness at Full Width: .090"</p> <p>Line Speed: 80-800 IPM</p> <p>Electrical supply: 480-3-60</p> <p>Pneumatic supply: 80 PSI shop air.</p> <p>Feed direction: Left to Right.</p> <p>Paint: Birch White</p> <p>Furnished with seven (7) work rolls mounted in anti-friction bearings 2.00" diameter x 22.12" wide, hardened and ground finish.</p> <p>Upper rolls adjustable individually by manual handwheel with indicator.</p> <p>Two (2) sets of air actuated pinch rolls mounted in anti-friction bearings; 3.33" diameter x 22.12" wide, hardened ground finish.</p> <p>Pinch rolls and work rolls (upper and lower) driven through a gear train by a 5 HP, variable speed, eddy current drive through a speed reducer. Also furnished is an eddy current proportional brake.</p> <p>Overstock loop arm signals the drive control to maintain the stock loop between the straightener and feed.</p> <p>All wiring to common terminal box.</p> <p>Pushbutton station on operator's side.</p> <p>Free standing NEMA 12 control panel with disconnect.</p> <p>Interconnections for hydraulic, pneumatic and electric not supplied as standard.</p> <p>Feed line height - 48" at exit end of 15 degree inclined head.</p> <p>Includes stock catenary support on exit end and individually operated stock guides for centerline or offset positioning of strip on entry side.</p> <p>Class D lubrication system. A minimum of 34 individual points plumbed to a common location for convenient manual grease lubrication of each point.</p> <p>Price, each</p> <p>Serial No. 13-50186</p> | | |

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| | | <u>STRAIGHTENER OPTIONS:</u> | | |
| 1 | | DIGITAL ROLL POSITION READOUT Price | | |
| 1 | | ULTRASONIC LOOP CONTROL Emits acoustical pulses which are reflected back from strip loop and are processed by the controller to develop a proportionate speed signal to control the straightener drive for non-contact loop sensing. Replaces standard over arm loop control. Price | | |
| 1 | | CLASS "A" LUBRICATION SYSTEM Fully automatic centralized grease lubrication system. Consists of interlocked progressive grease distribution circuit. Provides self-monitoring operation. A control panel energizes the pneumatic pump and provides fault detection and operation status. Includes 5 lb. reservoir with low level fault detection integral to the pump. Replaces standard class "D" lubrication. Price | | |

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| 1 | | <p>MR6-20D MINSTER AUTOMATION Double Reel</p> <p>Coil Weight, Max. on Center: 6,000 Per Side Coil Width, Maximum: 20" Coil I.D. Range: 16" to 20" Coil O.D., Maximum: 60"</p> <p>Any combination of coil O.D., I.D., and width should not exceed the rated maximum capacity with coil on center.</p> <p>Manual expansion of mandrel is through bearing mounted lead screw and handcrank at front of mandrel. Each mandrel consists of an SAE 4140 alloy steel shaft mounted in anti-friction bearings with a cast sleeve, three cast coil shoes, and expanding links. Manual grease fitting provided. Coil shoes are wide circumferential segments designed to minimize distortion of coils at small outside diameter.</p> <p>Mandrel assemblies are mounted in a common turret head on a large diameter turntable bearing for 180 degree mandrel indexing. Turret is constructed of heavy cast construction. Base is a cast cylinder for maximum rigidity. Base must be securely anchored to floor for safe operation. Anchor bolt and leveling screw provision in feet. A pneumatically released locking pin secures turret in payoff position. Pin is released by manual valve.</p> <p>Pneumatic brake is assembled to rear of mandrel shaft. The drag tension is adjustable through a precision pressure regulator with gauge. 80 PSI shop air supply required.</p> <p>Adjustable back keeper arms are provided to guide the strip during unwinding. Three adjustable keeper arms per mandrel are included for the front of the coil. These keeper arms are clamped onto the coil shoes by quick release locks for fast coil removal and loading.</p> <p>Guarding is to Minster's interpretation of ANSI B11.18 Safety Standards for coil processing equipment.</p> <p>Payoff position: L-R; Position "B" load side towards operator.</p> <p>Paint: SHOW FINISH, Birch White F63-COM-6189-136A Electrical: 480 Volt-3 Phase-60 HZ</p> <p>Price</p> <p>Serial No. 13-70138</p> | | |