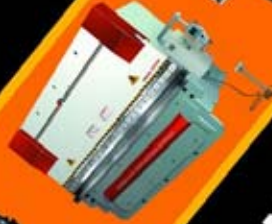




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VALUE PRICED WITH QUALITY AND CAPABILITY
MASTEEL CNC BRAKE AND SHEAR



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MODERN WELL-EQUIPT MANUFACTURING FACILITIES



**MASTEEL
FACILITY IN CANADA**



**MASTEEL
MANUFACTURING FACILITY**



30 Ft G&L Horizontal Boring Mill provides greater capability for machining of large welded and stress-relieved structure ensuring highest degree of accuracy



ENGINEERING

SOLID FIRST CLASS

MODERN FACILITY

01

MODERN FACILITY

02

MBHS SERIES HYDRAULIC SYNCHRONIZED CNC BRAKES

STANDARD CONTROL FEATURES:

- Standard KV-2004 CNC control with 11" TFT screen and graphical display
- 0.0004" high resolution linear scales provide precision dual ram position feedback.
- Bosch-Rexroth Closed-loop Proportional Hydraulic position control: repeatability at $\pm 0.0004''$ and parallelism at $\pm 0.0004''$
- Y1, Y2 Programmable independently in angle or position.
- Ram tilt adjustment at $\pm 0.5''$
- Hydraulically Synchronized ram parallelism control compensates uneven force on the bend by means of hydro-electrical technique.
- Programmable ram delay control at bending position under adjustable pressure
- Servo CNC back gauge with precision ball screw and double linear guide way ensures unsurpassed rigidity and high productivity speed.
- Back gauge position speed at 1000 IPM, repeatability at $\pm 0.001''$
- Automatic or programmable back gauge retract feature.
- Auto and programmable pressure control
- Programmable ram top stop and slow bending position
- Programmable bending speed
- Automatic conversion: Inch / mm
- Promecam punch clamping system with quick release on brake under 320Ton.



Standard Masteel
KV-2004 CNC control

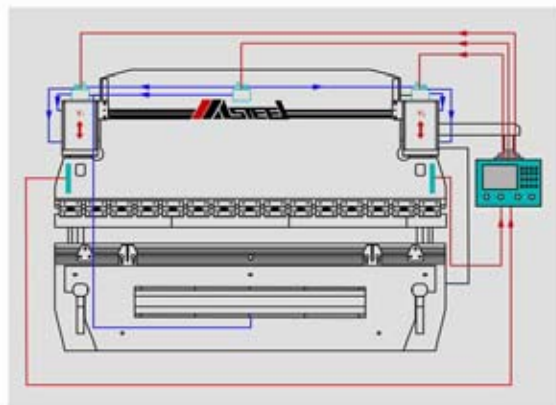


MBHS - 20500 500Ton x 20'
with optional Hydraulic CNC Crowning

MASTEEL CNC BRAKE

MASTEEL CNC BRAKE

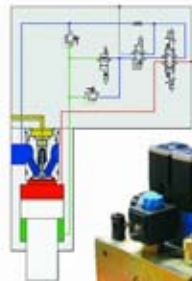
03



STATE OF THE ART
HYDRO-ELECTRICAL COMPONENTS
AND OPERATING CONTROL SYSTEM

04

MBHS SERIES SERVO HYDRAULIC CNC BRAKES WELL-BUILT WITH QUALITY COMPONENTS



**Bosch-Rexroth Closed-loop
Proportional Hydraulic position control**
repeatability at $\pm 0.0004''$ and parallelism at $\pm 0.0004''$

**05**

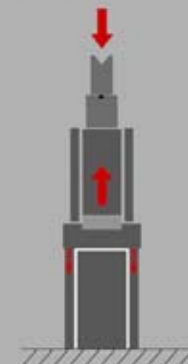
0.0004" high resolution linear scales
provide precision dual ram position feedback.



Various Optional Tooling
American and European Tooling Packages



MBHS - 14280 280Ton x 14'
with standard Hydraulic CNC Crowning



Hydraulic CNC auto Crowning System
Crowning cylinder mounted in bed and
provides automatic anti-deflection compensation
correlated to tonnage

06

OPTIONAL DELEM DA-56 OPTIONAL DELEM DA-69W

MASTEEL CNC BRAKE**MASTEEL CNC BRAKE**

MASTEEL CNC BACKGAUGE

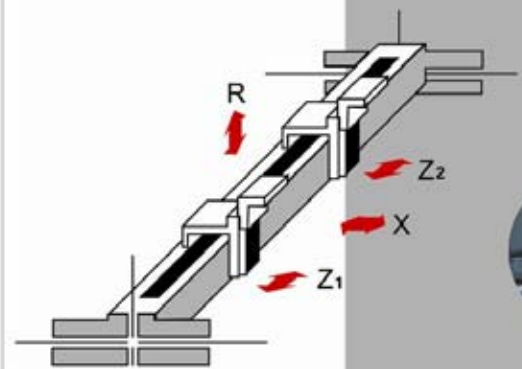


Standard backgauge
 for Masteel MBHS Series
 Hydraulic Synchronized CNC Brakes

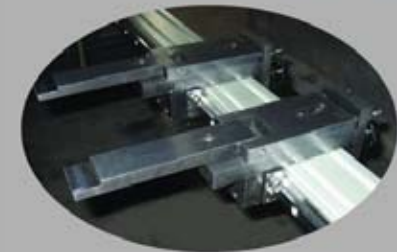
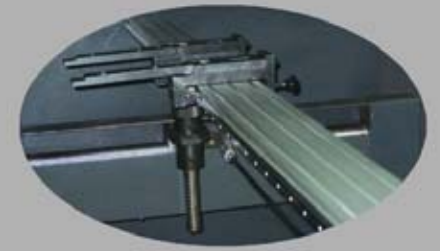


Servo CNC back gauge with precision ball screw and double linear guide way ensures Maximum rigidity for high productivity speed and high accuracy:

- Positioning Speed at 1000 IPM
- Repeatability Accuracy at $\pm 0.001''$



Optional multi-axis configurations:
 X1, X2, Z1, Z2, R1, R2
 allow up to six different movements
 to be automatically calculated and
 set by the control



Standard backgauge
 for Masteel MBHA Series Hydraulic Synchronized CNC Brakes

MASTEEL CNC BRAKE

MASTEEL CNC BRAKE

MASTEEL KV-2004 CONTROL FEATURES



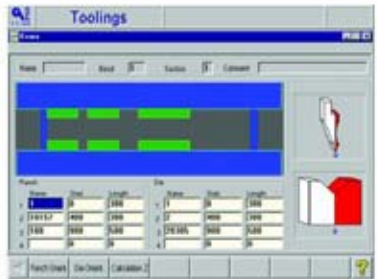
■ **Simulation and optimum bending sequence with back gauge position**

The optimized bending sequence can be simulated in the graphic window prior to the actual production of a part thereby avoiding costly damage or collisions.



■ **Easily draw a work piece**

The cursor may be placed within the screen field to allow operator easy entry of desired angles and/or dimensions.



■ **4 tooling work stations in a program (across the bed)**

Excellent feature for various bending applications requiring different tooling setup within a single job under one program, no need to change program or re-set tooling

- Interactive 2D graphic editor for work piece, parts and tool data entries
- 2D graphic display of machine frame, backgauge finger, work-piece and tooling
- 2D graphic identification of optimum bending sequences
- Automatic calculation of crowning tonnage
- Automatically calculate back gauge position
- Automatically calculate material thickness and offset back gauge position according to the bend
- Optimum bend sequence
- Collision detection
- Up to 4 tooling stations in each program
- Machine set-up preparation for pre-drawing and testing new fixture
- Programmable Y1, Y2 by position and angle
- Unlimited tool memory
- Unlimited job memory
- Off-line programming system with similar user interface as CNC Control
- Off-line programming system 2D profile view and simulation
- Up and down load program and tooling data as well as machine parameters from floppy disk driver or optional USB port
- Print-out capabilities
- Keyboard interface adaptor
- Built in Ethernet internal communications port for up/down load from office
- Web enabled monitoring function for service, trouble shooting and data transfer



■ **Create tooling:**

New tooling may be tested in your bend sequence prior to ordering from your tool supplier - saving time & money. Create your own custom tooling when needed.

MBHA SERIES HYDRAULIC SYNCHRONIZED CNC BRAKES



MBHA – 12175
175 Ton x 12'

STANDARD CONTROL FEATURES:

- Standard SIEMENS TP-700 control with 6" Touch Screen display.
- SIEMENS Two-Axis CNC controls on back gauge and ram bending position.
 - ▶ Bosch-Rexroth Closed-loop proportional Hydraulic position control: repeatability standard at $\pm 0.0006^{\circ}$, optional at $\pm 0.0004^{\circ}$.
 - ▶ Backgauge position control:
 - Standard CNC backgauge: speed at 200 IPM as per Demo Video repeatability at $\pm 0.003^{\circ}$.
- Programmable back gauge retract feature.
- CNC bending angle control : Only inputs of bending angle, material thickness & die opening.
- Two-way bending calibration controls : allow inexperienced operators to achieve desired angles with no time consuming multiple test bends. Save on costly skilled labor and test bend material.
 - ▶ By correction of test-bending angle, control system automatically sets itself to achieve desired angle.
 - ▶ By correction of bending position calculated automatically by control system.
- Dual ram position feedback with hydraulic Synchronized control compensates for uneven force on the bend.
- Tool memory for quick recall of tool setup.
- 200 Job memory with average of 10 bends in each program.
- Auto and programmable pressure control .
- Programmable ram delay control at bending position under adjustable pressure for bump bending or special heavy bending application.
- Maintenance plan auto-prompts service schedule.
- Operating hour meter.
- Operating prompts and Trouble shooting messages.
- Automatic conversion: Inch / MM.
- Optional Servo CNC backgauge with ball screw and linear guide way.
- Optional Y1, Y2 Programmable independently in angle or position.
- Optional CNC crowning bed for automatic anti-deflection according to the tonnage



MBHA – 10175
175 Ton x 10'

OPERATING FUNCTION

- Ram speed control:
 - ▶ Rapid approach and return speeds insure more efficient production.
 - ▶ Programmable Slow bending speed for better control of bending accuracy
 - ▶ Programmable return speed
- Ram stroke control:
 - ▶ Programmable ram top stop limit for more efficient production
 - ▶ Programmable slow working speed position and second stop position
- Four Operating Modes:
 - ▶ Jog mode: inching control of ram for tool setup
 - ▶ Single mode: one full bend cycle per control input.
 - ▶ Double stop mode: excellent for sight bend operations.
 - ▶ Follow bend mode: easy to follow bending and ram return on large sheet or with crane handling



SIEMENS TP-700 CONTROL
Standard for MBHA Series Brake



VALUE AND QUALITY STANDARD EQUIPMENT FOR MASTEEL MBHA SERIES CNC BRAKE

- Hardened and precision ground tool steel gooseneck punch: 53-58RC; 100Ton/M (30Ton/Ft) capacity
- Hardened and precision ground Masteel 10 openings, 4-way die: HB190-260



BOSCH-ROXROCH Hydraulic Valve Assy for MBHA Series CNC Brake



- American-made motors
- America-made hydraulics
Simple hydraulic system for reliable performance
- Quality America-made components:
Valves, pump, hoses and fittings



- Masteel special punch holders accept both American and European punches with no need of any ram adaptor.



- Fully equipped with Masteel Easily adjustable tooling and clamping system
- Versatile floating die clamping system
- Masteel Crowning punch holder
- Easily adjustable wear surface on the ram to maintain brake accuracy
- T-slotted bed for support arms or custom setups



- Front support arm

- SIEMENS Compact Control System
Siemens compact control system integrates CNC position control, hydraulics and electric control in one. Simple and uncluttered control component ensures years of quality performance on Masteel Brakes



- 12-3/4" throat depth with swing up clearance allows full length bend over bed up to 12" deep



MASTEEL CNC BRAKE

MASTEEL CNC BRAKE

OPTIONAL EQUIPMENT AND TOOLING



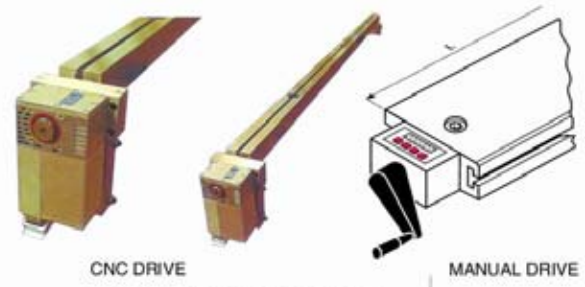
■ **ROBOTIC INTERFACE**



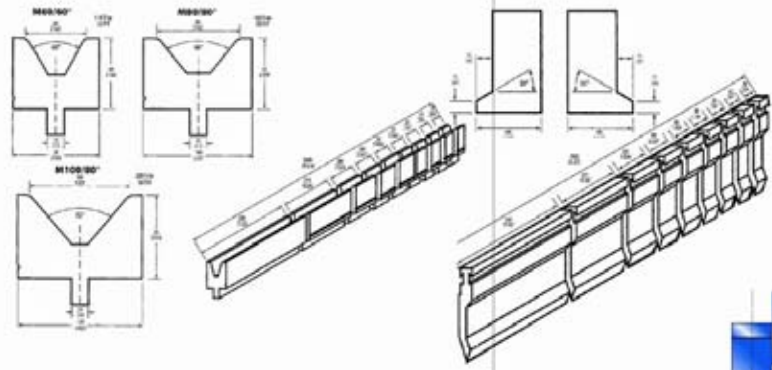
■ **SAFETY LIGHT CURTAIN**



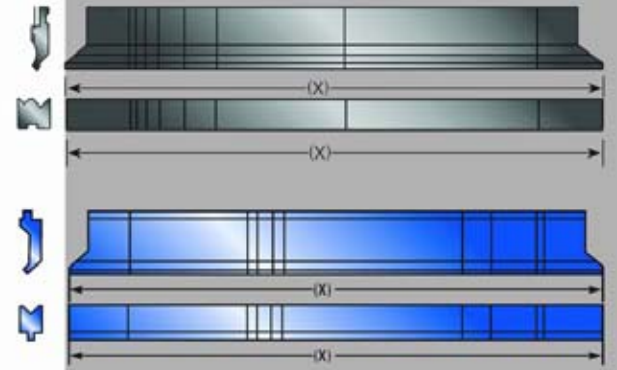
■ **LASER CHECK**
 BENDING ANGLE MEASURING DEVICE



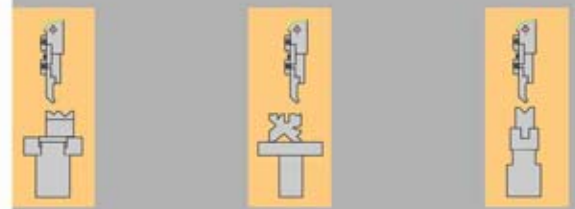
■ **CROWNING DIE HOLDER**



■ **BEYELER TYPE TOOLING**



■ **AMERICAN AND EUROPEAN STYLE**
 SEGMENTED PUNCH AND DIE



■ **OPTIONAL DIE HOLDER**



■ **OPTIONAL PUNCH HOLDER**

MASTEEL CNC BRAKE

MASTEEL CNC BRAKE

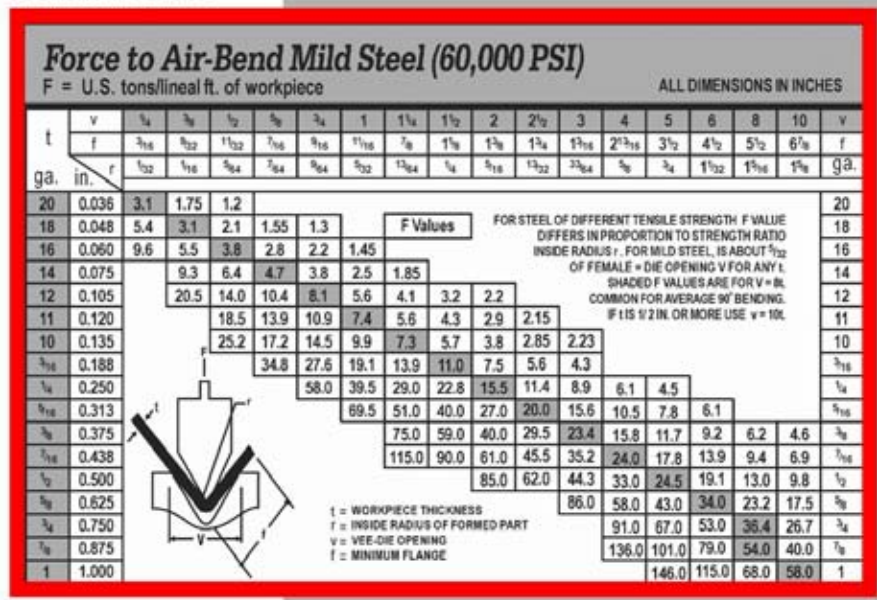


MBHS & MBHA Series Hydraulic Synchronized CNC Brakes

SPECIFICATIONS

Table with columns: MBHS Models, MBHA Models, Max. Capacity Tons, Max. Bending Length, Distance between Frames, Depth of Throat, Length of Ram Stroke, Max. Open Height, Main Motor, Rack Gauge Travel. Lists various models and their specifications.

TONNAGE CHART



NOTE: The chart below illustrates the appropriate tonnages to air bend mild steel with 60,000 p.s.i. Tensile properties. It must be noted that most North American steel mills are producing harder metals with typical mechanical properties of 44,000 p.s.i. yield and up to 80,000 p.s.i. tensile strengths.

BENDING PRESSURES FOR OTHER METALS ARE: Soft brass = 50% of pressure shown, Soft aluminum = 50% of pressure shown, Aluminum alloys heat treated = same as steel, Stainless = 50% more than steel.

COINING: When coining, it must be remembered that the tonnage requirements are three to five times greater than for air bending. Coining is normally only done in very high precision environments and on light gauge materials only.

TONNAGES: The tonnages indicated in the boxes are produced when using a female die opening eight times the metal thickness up to 3/8" plate, and ten times the metal thickness when bending 1/2" plate and more. This tonnage chart is based on air bend mild steel with 60,000 PSI tensile properties.

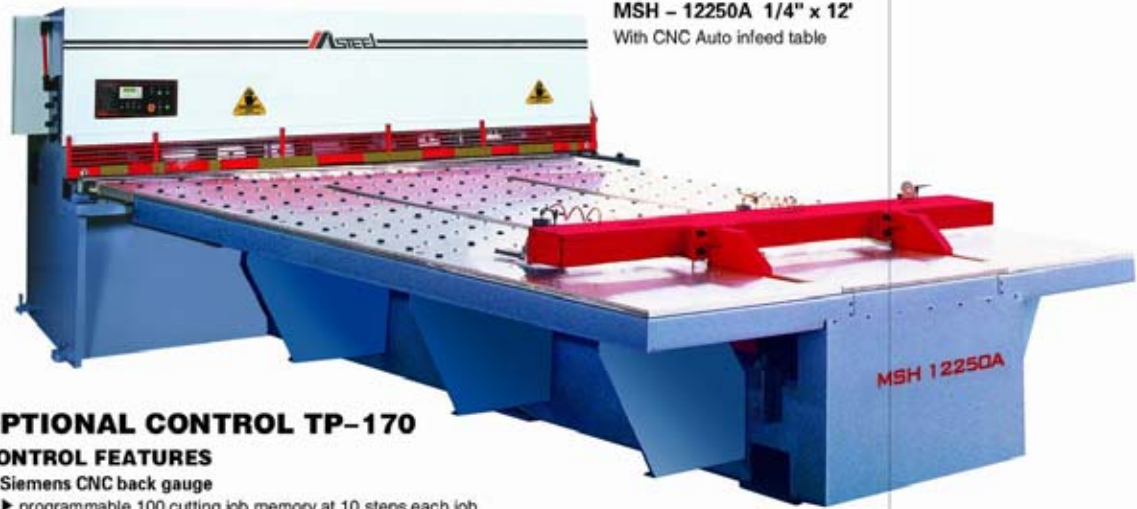
Please take consideration in that most North American steel mills are producing harder metal with typical mechanical properties of 44,000 yield and up to 80,000 tensile strength. The tonnages required for these metals are substantially higher.

Specifications subject to change without notice

MASTEEL CNC BRAKE

MASTEEL CNC BRAKE

MASTEEL CNC HYDRAULIC SWING BEAM SHEARS



MSH – 12250A 1/4" x 12'
 With CNC Auto infeed table



STANDARD CONTROL MSC-200

CONTROL FEATURES:

- SIEMENS CNC controlled 36" back gauge: accuracy to $\pm 0.002"$
- 60 position programmable back gauge memory
- One-step go-to position control on back gauge
- Automatic swing up of back gauge at full travel
- Programmable cutting width control
- Easily operated control console:
 - ▶ Prompting instructions for easy operation and service
 - ▶ Running status display on control console

Manual/Auto mode	Back gauge position
Cutting width	Number of cutting strokes
 - ▶ Blade gap setup operator prompt at start up

OPERATING FUNCTIONS:

- Steady cutting speed and rapid back stroke for higher production efficiency
- Multi – control mode
 - ▶ Console push button or foot switch control
 - ▶ Single cut/ continue cut mode
 - ▶ Multi-backgauge positioning and automatic multi-cut control mode
- Auto clamping pressure control on padded holddown feet, auto-adjusted to material thickness
- Complete hydraulic and electrical overload protection

OPTIONAL CONTROL TP-170

CONTROL FEATURES

- Siemens CNC back gauge
 - ▶ programmable 100 cutting job memory at 10 steps each job
 - ▶ stroke counter control
 - ▶ cutting width control
 - ▶ accuracy at $\pm 0.002"$
- 6" Touch screen display
- Numeric Keypad for easy data input
- Simple Easy operating control console with all the manual control functions on only one screen
 - ▶ Back gauge Position display in .001" inch
 - ▶ one-step go-to position control on back gauge
 - ▶ Manual push button adjustment on back gauge
 - ▶ Programmable back gauge retract function on each cutting step
 - ▶ Numeric keypad for easy –data input
 - ▶ Operating hour meter
 - ▶ Auto-swing up back gauge at full travel
 - ▶ Programmable cutting width control
 - ▶ Programmable cutting stroke control
 - ▶ and all the features of the MSC-200 control



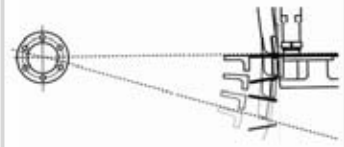
MASTEEL CNC SHEAR

MASTEEL CNC SHEAR

VALUE AND QUALITY STANDARD EQUIPMENT FOR MASTEEL CNC SHEAR



MSH - 12250 1/4" x 12'



ACCURACY

Top blade and back gauge swing together allowing the material to remain perpendicular to bottom blade then swing away from the bottom blade after the cut thereby preventing jamming of the material between the blade and the back gauge.

RELIABILITY AND FUNCTIONABILITY

Masteel swing beam shears do not require a relief angle therefore the force created by the hydraulic cylinder is applied directly against cutting load. Cutting loads do not deflect the cutting blades or beam mechanism and therefore blade clearance gap remains consistent through the cut. This feature allows Masteel shears to cut strips narrower than the material thickness without damage to the blades or machine structure.



QUALITY AND HEAVY-DUTY STRUCTURES

Mono-block type, welded frame and blade beam construction are optimized by computer-aided engineering to guarantee maximum rigidity. Heavy-duty taper roller bearings are located at swing beam centers so that cutting load is always perpendicular to blade beam rotational radius. This avoids cutting loads being transferred to the support bearings thereby insuring longer life and consequently better accuracy over the long term.



MASTEEL CNC SHEAR

MASTEEL CNC SHEAR

21

22

Movable pedestal with foot control switch and emergency stop



Independent holddowns automatically adjust holddown-pressure to various material. More holddown-pressure for heavier cutting and less pressure for delicate thin material.



Precision quick blade adjustment ensures proper blade clearance, variable position to suit for material thickness and properties in order to achieve quality cutting



American-made hydraulics Simple hydraulic system for reliable performance Quality American-made components: Valves, pump, hoses and fittings



Siemens Compact Control System integrates CNC backgauge, hydraulics and electric control in one. Simple and less complicated control ensures years of quality performance on Masteel Shears

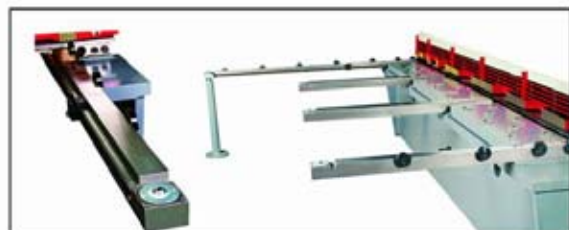


STANDARD EQUIPMENT:

- Two squaring arms c/w stainless steel rule (metric and standard scales) and disappearing stops
 - ▶ 7 Ft on left side to facilitate squaring of long sheet material
 - ▶ 4 Ft arm on right to provide even service life across full length of blades
- 4 Ft front support arms
- Ball transfers in table for ease of handling heavier materials
- Ball transfers on front support arms, front gauge bar and right squaring arm
- Shadow light and line for positioning on scribed line
- Rear sliding tray for ease of collecting cutoff materials
- Full length cage type safety guard
- Nylon padded pressure controlled material hold downs
- Movable pedestal with foot control switch and emergency stop
- Rapid precision manual blade clearance adjustment

QUALITY COMPONENTS AND STRUCTURAL DESIGN:

- SIEMENS programmable logic controller integrates hydraulic, electrical and CNC controls in one compact module for long-lasting reliable performance
- SIEMENS display screen with foil button controls
- SIEMENS frequency back gauge drive controller
- North-American made pump and back gauge control motors
- North-American standard hydraulic fittings, couplings and hoses
- Field serviceable hydraulic and electric systems
- Swing beam design for consistent precision cutting quality with low maintenance
- Fully hardened sectional upper and lower cutting blades. Bottom blade has four cutting edges, top blade has two
- Low-rake cutting angle for minimum material distortion
- Heavy-duty design, rigid stress relieved box construction


SPECIFICATIONS

Models	Capacity Mild steel	Cutting Length	Throat Depth	Back Gauge	Front Gauge	Rake Angle	Motor	Weight Lbs.	Dimensions L x W x H
MSH-08250	1/4"	8'4"	5-13/16"	36"	48"	1° 30'	15HP	14,200	122" x 64" x 65"
MSH-10250	1/4"	10'6"	5-13/16"	36"	48"	1° 30'	15HP	16,100	154" x 68" x 70"
MSH-12250	1/4"	12'	5-13/16"	36"	48"	1° 30'	15HP	22,000	175" x 70" x 71"
MSH-14250	1/4"	14'	4"	36"	48"	1° 30'	15HP	30,500	160" x 82" x 80"
MSH-16250	1/4"	16'	4"	36"	48"	1° 30'	20HP	39,600	235" x 92" x 80"
MSH-10375	3/8"	10'6"	4"	36"	48"	1° 30'	25HP	25,600	160" x 82" x 81"
MSH-12375	3/8"	12'	4"	36"	48"	1° 30'	25HP	28,500	194" x 82" x 81"
MSH-10500	1/2"	10'6"	8"	36"	48"	1° 30'	25HP	29,500	160" x 82" x 84"
MSH-12500	1/2"	12'	8"	36"	48"	1° 30'	30HP	35,200	194" x 96" x 84"
MSH-14500	1/2"	14'	8"	36"	48"	2°	30HP	39,500	160" x 82" x 84"
MSH-16500	1/2"	16'	8"	36"	48"	2°	40HP	61,600	235" x 104" x 100"
MSH-10625	5/8"	10'	8"	36"	48"	2°	50HP	53,000	164" x 94" x 108"
MSH-12625	5/8"	12'	8"	36"	48"	2°	40HP	46,600	196" x 86" x 86"
MSH-10750	3/4"	10'	8"	36"	48"	2° 30'	50HP	53,000	164" x 94" x 108"
MSH-12750	3/4"	12'	8"	36"	48"	2° 30'	50HP	61,000	196" x 96" x 111"

>Specifications subject to change without notice <

