

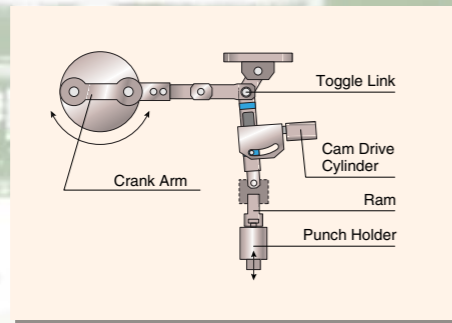
# CNC Servo Motor Driven Ram Turret Punch Press

## MOTORUM-2044EZ



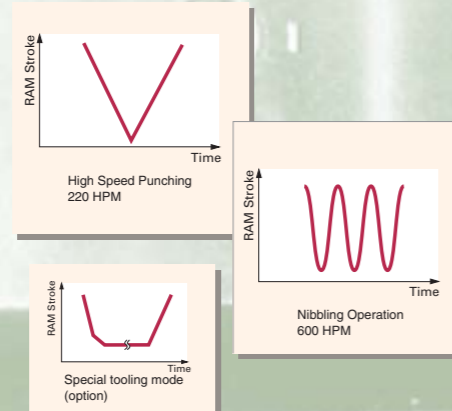
### The Servo Motor Driven Punching Mechanism

The MURATEC ram drive technology incorporates a toggle mechanism driven by an AC servo motor. This innovative technology has resulted in achieving higher productivity, an environment friendly operation, and energy efficient production. A single rotation of the crank arm gives two punching strokes. The ram drive technology gives higher power at ram than motor generated power.



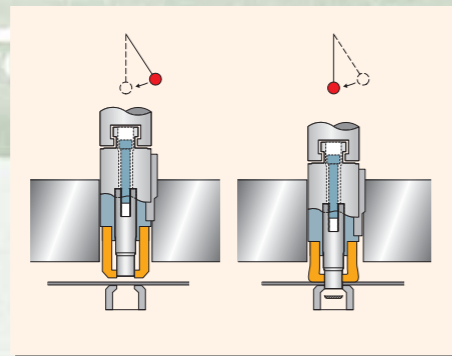
### Ram Operation Patterns

The ram operation programs are designed to give accurate, high quality punching. In punching operation mode, the servo motor is driven alternately in clockwise and in counter clockwise direction to swing the toggle mechanism. In nibbling operation mode, the servo motor is driven continuously in one direction to swing the toggle between two top dead centers and bottom dead center repeatedly for high speed nibbling operation. A special tooling mode is available for specific tooling applications.

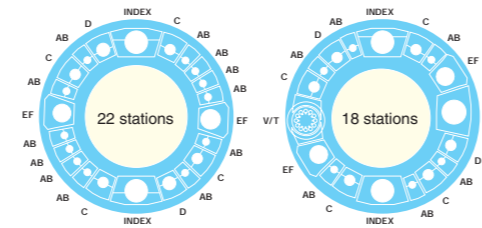


### Punch-in, Pull-Out Type Wiedemann Tooling

The positive Punch-in and Pull-out design of the ram, which is mechanically linked to the punch holder during the punching cycle, guarantees positive punching. This design has already been field proven for its high strength, precision and simplicity of tooling. By combining this feature with the newly innovated servo motor driven ram, the reliability of the machine has been greatly enhanced.



### Standard Turret Layout



### Tooling Range

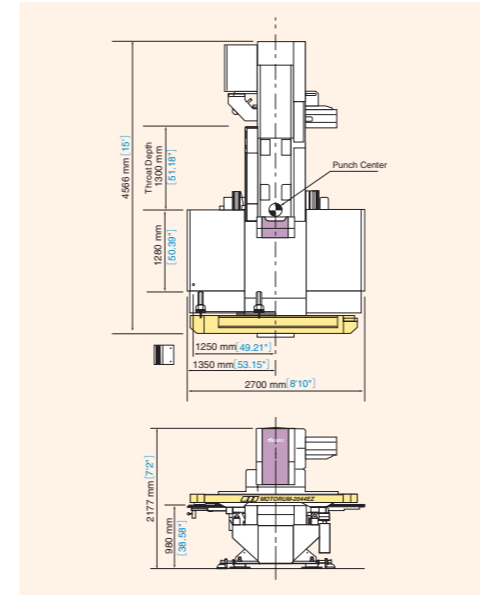
Range	Round punch size	No. of stations	
		22st/2-index	18st/3-index
X	~12.7 mm [0.5"]	12	6
B	~25.0 mm [1.0"]		
C	~38.0 mm [1.5"]	4	4
D	~50.0 mm [2.0"]	2	2
E	~64.0 mm [2.5"]	2	2
F	~75.0 mm [3.0"]		
G	~89.0 mm [3.5"]	—	1
I/T	~76.0 mm [3.0"]		
VT	~12.7 mm x 12 [0.5" x 12]	2	3
VM	20,40 characters		

\* X range is round only.  
\* With Auto-index station, Index tool (I/T), varitool (VT) or VARIMARK (VM) can be selected as options in desired combination.

### Specifications

Punching capacity	20 metric ton (196kN) [22 US ton]	
Maximum sheet thickness	6.35 mm [0.250"]	
Y-axis stroke	1335 mm [52.56"]	
X-axis stroke	1300 mm [51.18"]	
Maximum sheet size (Y x X)	Without repositioning	1250 mm x 1250 mm [49.21' x 49.21']
	With one reposition	1250 mm x 2500 mm [49.21' x 98.43']
Throat depth	1300 mm [51.18"]	
Maximum allowable sheet weight	105 kg [231 lbs]	
Hit rate	25 mm pitch	220 hpm
	16.5 mm stroke 1 mm pitch	600 hpm
Axis speed ( X and Y-axis)	75 m/min [2953 in/min]	
Simultaneous axis speed	106 m/min [4173 in/min]	
Punching accuracy	±/− 0.1 mm [±0.004"]	
Turret index speed	33 rpm	
Compressed air	Volume	100 NL/min [35 ft <sup>3</sup> /min]
	Pressure	0.5 MPa [71 PSI]
Power Supply	18 KVA	
Machine weight	8.8 Ton	

### Floor Plan



■ Safety Specification  
For EU countries, machines are built with CE-safety conformity.

\* Machine appearance may differ to that shown in the catalogue pictures.  
\* All specifications are subject to change without advance notice.

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Ecology



Easy to operate

Economy



# MURATEC introduces the next generation of *Environment Friendly, Energy Efficient* and *Operator Friendly* turret punch presses



## Ecology

### Environment-friendly Design MOTORUM-2044EZ

MURATEC for the first time in punch press history, introduced in 1994, a new concept in ram drive technology, which incorporated a toggle mechanism driven by an AC servo motor. Hydraulic oil-less sheet metal processing on the MOTORUM-2044EZ enables ecological machine operations saving environmental natural resources.

## Economy

### Energy-efficient Operation

In the MOTORUM-2044EZ, the punching energy is generated instantaneously using an advanced servo motor controlled ram drive. The ram servo motor consumes power only during the punching process, thus reducing running costs drastically.

### Hydraulic Oil-less Operation

The absence of a hydraulic unit on the MOTORUM-2044EZ gets rid of hydraulic unit and oil maintenance, disposal of waste oil, and periodic oil replacement. This saves on hydraulic oil and maintenance costs, thus reducing running costs.

### Energy Saving NC Control

The MOTORUM-2044EZ machine's LCD screen goes in energy saving mode when the NC keyboard is not in operation for a parametric set time period. The screen can be displayed again if any NC operation key is touched.

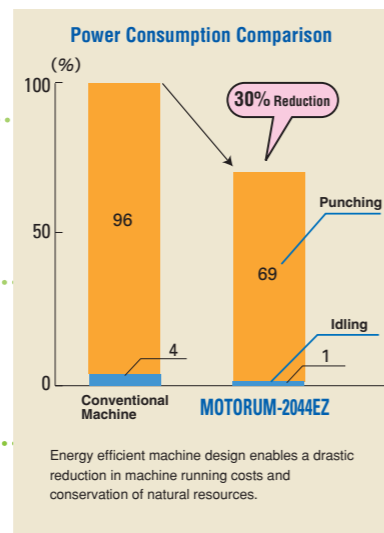
## Easy to operate

### User-friendly Machine Operation

The MOTORUM-2044EZ incorporates all the basic necessary functions for sheet metal processing with simple operations for easy and quick machine utilization.

### Quick Machine Start

The MOTORUM-2044EZ does not require machine warming-up cycle. The operator can start the production without waiting for the machine warming-up period like hydraulic or conventional machines.



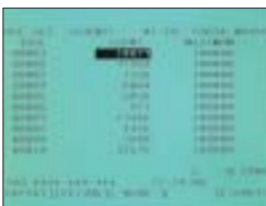
### Tool Alignment Confirmation Function

The MOTORUM-2044EZ servo ram control features a monitoring ram motor torque that enables the operator to detect punch and die nonalignment due to incorrect settings, avoiding damages to the punch and die. In this function, the ram slowly lowers at set positions and monitors torque on the servo motor when the punch touches the die. If the torque exceeds what is required for the smooth passage of the punch in the die, the ram movement is stopped instantaneously.



### Tool Life Monitor Function

For high quality sheet metal processing, the punch and die regrinding after certain operation periods is very important. The MOTORUM-2044EZ incorporates an auto tool life monitor function, that when tool life has reached a set hit number the "Tool Life Caution" message is displayed to capture the operator's attention to carry out the punch and die regrinding.



### Conversational NC Programming and Editing

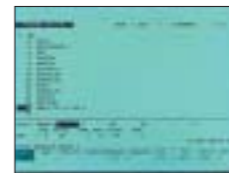
The MOTORUM-2044EZ incorporates our highly appraised "TALKATIVE", a conversational simple and quick programming system. The programs can be written or modified on the machine for quick requirements.

With the availability of various geometrical patterns, even first time users can program without the need of an auto programming unit through interactive programming. The programs can also be created in the background while the machine is in operation. The NC operation keyboard is designed for easy and quick programming by rearranging keys suitable for WIEDEPOINT programming, eliminating the use of SHIFT key.



#### A Variety of Geometrical Patterns

Various standard sheet metal processing operation geometrical patterns are displayed on the screen for a visual selection of required patterns for easy and quick programming.



#### Program Creation & Background Editing

Programs can be created using the conversational mode. Simply input data following the guide message on the screen to create programs.



#### Program Checking

Programs created by conversational mode can be fully checked on the display for part shape, over travel, safety zones etc.

### Single Part Testing

This function enables single part punching in a nested layout program. It allows the operator to review part dimensions and tool set-up.

The processing can be resumed for remaining parts once satisfactory results have been reached. This avoids wastage of worksheet.



### 20 Ton Punching Capacity

The MOTORUM-2044EZ is designed to meet the sheet metal challenges of the new millennium. This rugged punch press delivers 20 metric tons of punching force, which is sufficient to process standard fabricating requirements of punching and forming. The design has been successfully tested for continuous 100,000 hits in 6 mm thick work sheet for full tonnage.

#### Maximum Sheet Metal Processing Tool Size (Unit: mm)

Thickness	Round	Square	Rectangle
3.2	Dia.88	57	10×78 *1
4.5	Dia.54	42	10×75 *1
6.0	Dia.37	29	10×48

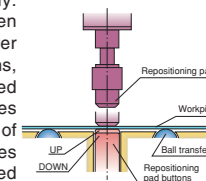
(Punch with shear)



\*1 : 18 stations turret required

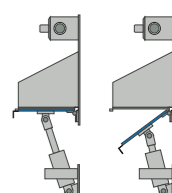
### Retractable Repositioning Pad Buttons

Retractable repositioning pad buttons are raised automatically for clamping the worksheet during the repositioning operation only. During normal punching when the worksheet is moving over the repositioning pad buttons, the buttons are retracted downward which eliminates scratches on the under side of the worksheet. This enhances the quality of the finished worksheet.



### Slug Suction Unit (Option)

The slug suction unit allows for better punching quality and minimizes the slug pull-back problem for thin worksheets. This function is extremely useful while processing worksheets having scratch prevention films. The air suction helps to detach cut films from the workpiece.



### VARITool / VARIMARK (Option)

The VARITool is available in 12 and 18 tool configurations. Using VARITool in the Auto-index station increases the turret tool capacity. The 12-station tool configuration has tool sizes up to 12.7 mm dia., while the 18-station has a maximum tool size of 9 mm dia.

The VARIMARK is built-in with 20 or 40 standard alphanumeric and punctuation characters for stamping on the worksheet.

