



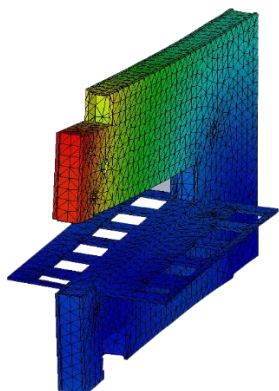
# Servo-electric Punching Machine

## TP ALPHA

(Technical specifications)



## “C” FRAME:



Electro-welded monolithic structure subjected to heat treatment for normalisation, which enables all the tensions generated by welding to be spread, thus obtaining homogeneous rigidity and guaranteeing maximum stability and precision in machining.

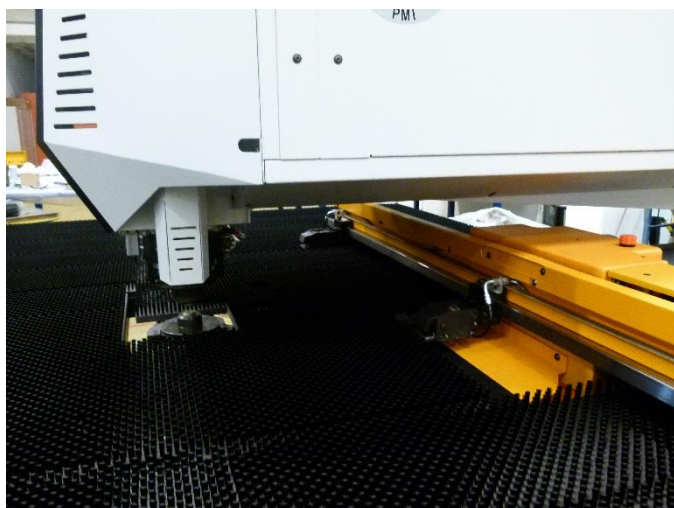
The structure of TECHNOLOGY punching machines is supplied with **15 YEARS WARRANTY**.

It allows front and / or side loading, as well as the processing of non-standard sizes thanks to the possibility to overturn and reposition the sheet.



## X-Y AXES MOVING SYSTEM:

The sheet metal handling system is a rack and pinion system connected to a FANUC AC servo motor. The axes have the possibility to position themselves in negative up to -40 mm.



X-axis



Y-axis

## SERVO-ELECTRIC PUNCHING UNIT:

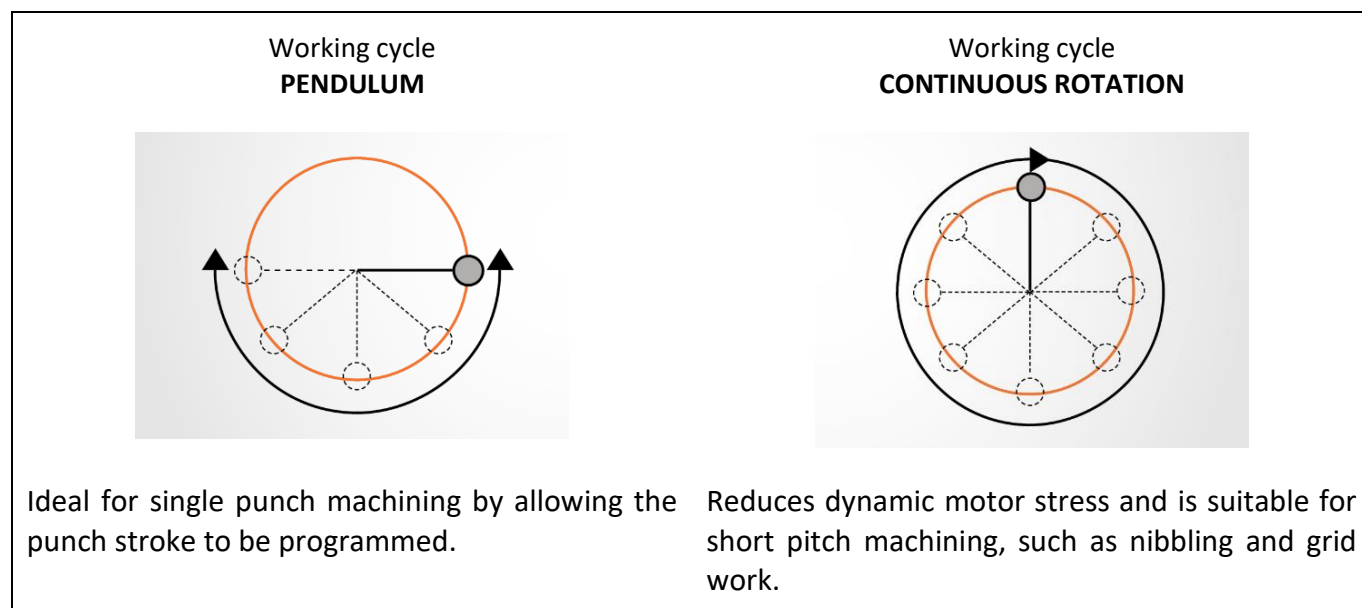
The movement of the punching unit is generated by a CNC-controlled FANUC brushless servo-electric motor.

- 25 Ton
- 600 stroke/min

This system allows lower consumption, high productivity, acceleration control combined with reduced maintenance.

The **DualCam** system allows high-frequency machining without overheating problems.

**DualCam** allows the machine's servo-electric unit to work in two modes:



**Automatic tool sharpening compensation:** increases tool life by automatically managing the penetration depth for each individual station.

**Noiseless punching:** the SoftPunch function reduces the noise level of the machining up to 50% based on the type and thickness of the material.

**Stand-by mode:** in this phase the engines stop, reducing energy consumption to 0.4 Kw; moreover, a regenerative system recovers energy during the braking phase of the engine.

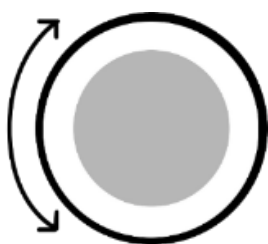
## “FAST CHANGE” TOOL CHANGE SYSTEM:



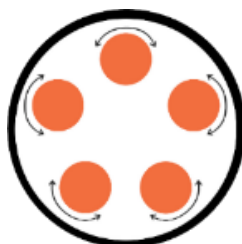
The **Fast Change** tool change system is based on the use of holders with a self-centring system that allows rapid loading of the tool into the machine head.

The connection of the tool to the machine head is fully automatic, thanks to a pneumatic system.

SINGLE TOOL



MULTI-TOOL 5



MULTI-TOOL 10



Setting up the station is done in just 12 seconds, simply and intuitively.

A series of tool holders are used to house the tools in the machine.



## FULL AUTO-INDEX SYSTEM:



System fully integrated inside the punching unit and managed by the CNC, allows to orient any type of tool, single or contained in the Multi-tools, from 0° to 360° with minimum programmable steps of 0.01°.

## COMPATIBLE TOOLS:

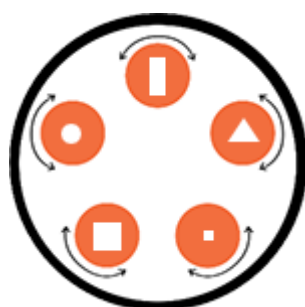
The TP Alpha punching machine is compatible with TECHNOLOGY style tools and all TRUMPF style tools.

## MULTI-TOOLS:

The punching unit can be fitted with Multi-tools, i.e. special containers that can house 4, 5 or 10 tools of different shapes and sizes in a single station, thus considerably reducing production times and tool purchasing costs. All the tools inside the Multi-tool benefit from auto-index technology, which allows each tool to be oriented from 0 to 360° with an accuracy of 0.01°.



Multi-tool  
with 4 auto-index tools

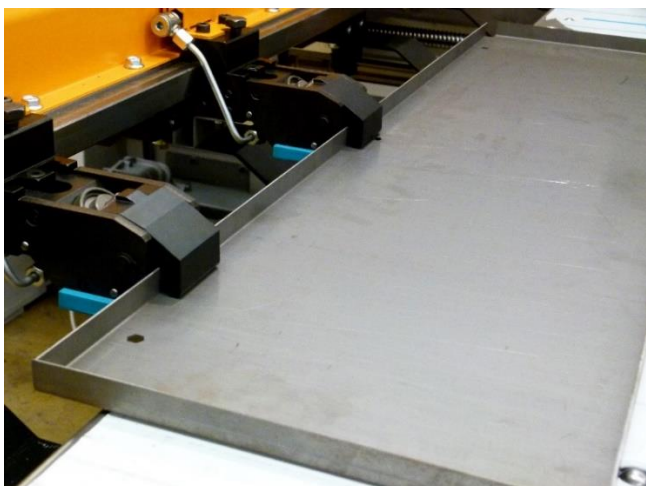


Multi-tool  
with 5 auto-index tools



Multi-tool  
with 10 auto-index tools

## SHEET LOCKING CLAMPS:



The clamping force is adjustable (maximum force 15 KN each) depending on the material and thickness to be processed. They can block sheets with already bent edges up to a maximum height of 22 mm.

## FANUC MOTORS, DRIVES AND CNC:



The electronic management of the machine is entrusted in addition to the numerical control also to the drives and motors FANUC, world leader in the sector, which guarantees the availability of spare parts for 25 years through the widespread assistance network.

## CONSOLE WITH 18.5" TOUCH-SCREEN MONITOR:



The machine console is equipped with a large 18.5" monitor with touch-screen system to facilitate operator interaction with the machine.

The PC has the following specifications:

- Windows 10 operating system
- Processor: i5 5200U
- 4GB RAM
- 128GB SSD
- 2 USB 3.0 ports | 2 USB 2.0 ports
- 2 LAN ports

## TECNOCONTROL HMI :

Interface created by TECHNOLOGY to be used with the touch-screen that leads to simplify the use of the machine with pages dedicated to the individual functions and a description of the commands that doesn't require the use of codes.

The TECNOCONTROL HMI allows the punching machine to be used in three modes:

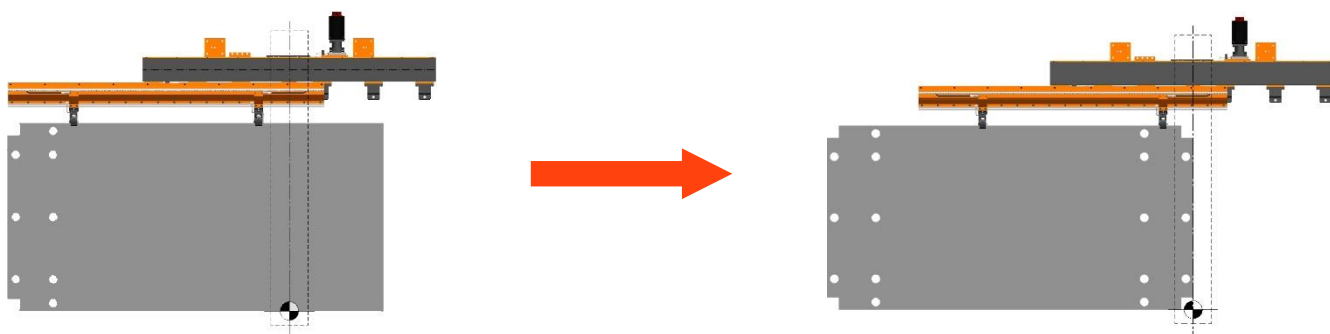
- Manual: Punching and moving the axes is done manually, using the pedal and joystick on the console.
- Semi-automatic: automatic axis movement (based on programming) and manual punching using the foot pedal.
- Automatic: Once the program has been created with TECNOCAM graphic software, punching and movement of the axes takes place automatically..

The interface also provides a user-friendly panel to keep various useful information available at all times with dedicated links:

- Punching machine tool catalogue;
- Online shop for purchasing spare parts or tools;
- Automatic calculators: Punching force calculation, Die clearance calculation and Sheet metal weight calculation;
- Operator's manual for machine use;
- TECHNOLOGY website
- YouTube channel

## AUTOMATIC REPOSITIONING:

Possibility of processing extra-large sheet formats by repositioning the sheets along the X-axis with the machine head. The number of repositionings is potentially infinite in both positive and negative directions.



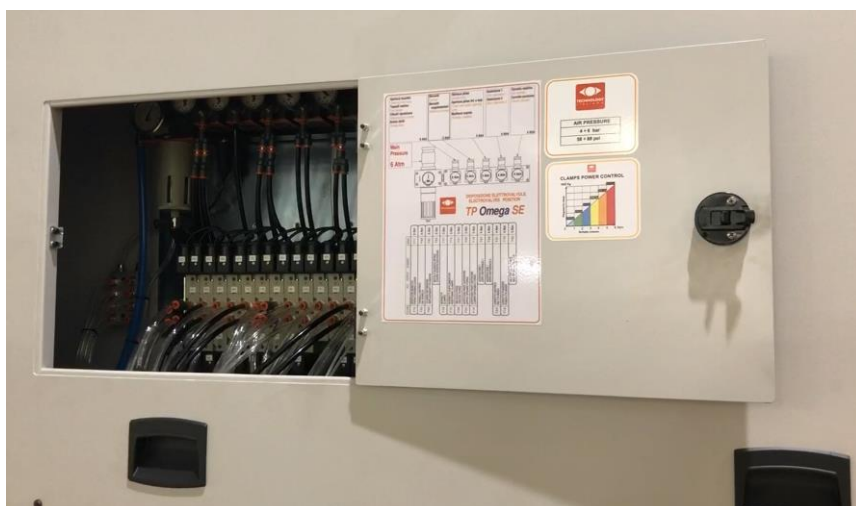
## SHEET METAL SUPPORT TABLES:



Made of the highest quality brushes.

They are fixed and allow the sheet metal to be moved without scoring it.

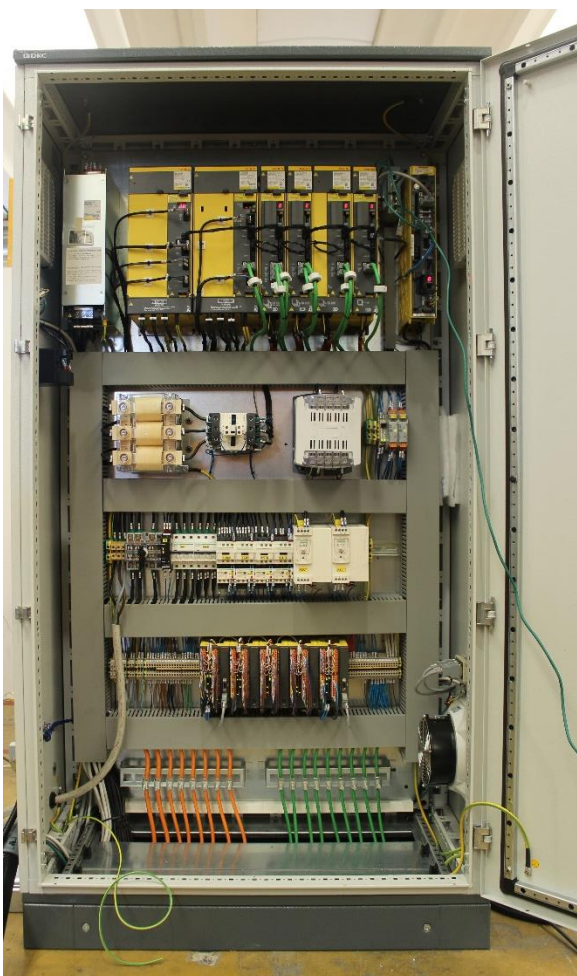
## CENTRALISED PNEUMATIC SYSTEM:



The machine's pneumatic system, which is used to operate the various services of the punching machine, is centralised and easily accessible through a practical door on the left-hand side of the machine. This allows simple and immediate intervention in case of maintenance.



## GROUNDING ELECTRICAL CABINET:



The electrical cabinet is positioned on the ground to prevent stress on the electronic components due to the vibrations generated by the punching machine during the machining phases.

It is equipped with a cooling system and composed only of high quality materials, produced by suppliers such as Schneider, Legrand and Baumer.

## MANUALS:

The punching machine is supplied with operation and maintenance manuals.

## TECHNICAL SPECIFICATIONS:

<b>TP ALPHA</b>		
<b>Model:</b>	<b>U.M</b>	<b>256</b>
Working range	mm	1250 x 1500
With one repositioning	mm	1250 x 3000
Max. punching force	Ton	25
Max. workable thickness	mm	6,5
Max. sheet weight	Kg	150
Y-axis stroke	mm	-40 / 1270
X axis stroke	mm	-40 / 1550
Simultaneous speed	m/min	90
Max. punching frequency	stroke/min	600 stroke/min step 1mm 480 stroke/min step 20mm 310 stroke/min step 25,4mm
Number of stations	N°	1 auto-index
Max. number of auto-index tools	N°	from 1 to 10* Auto-index
Tool change time with Multitool	sec	0,5
Positioning accuracy	mm	+/- 0,05
Punching accuracy	mm	+/- 0,1
Minimum C-axis rotation increment ( <b>auto-index</b> )	°	0,01
Absolute axes	n°	6
Motor absorption in stand-by	Kw	0,4
Electrical absorption during operation	Kw	8
Weight	Kg	8000

\* using the Multi-tool

## OVERALL DIMENSIONS

<b>Models:</b>	<b>U.M</b>	<b>256</b>
Width	mm	3200
Depth	mm	4700
Height	mm	2300

## OPTIONALS:

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### **Safety photocells according to CE standards (REQUIRED IN EU COUNTRIES)**

Necessary to create a safety zone around the machine during work operations

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### **Die scrap suction system with hatch (RECOMMENDED)**

Ensures correct cleaning of the die of the scraps produced during processing.

*(Recommended for high frequency punching operations on thin thicknesses (e.g. grids))*

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### **Punch missed extraction sensor (RECOMMENDED)**

Intervenes to block the machine if the punch is not extracted from the sheet metal

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### **Special CNC functions**

A system that allows to perform a number of special functions (wheel tools, engraving and threading)

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### **Automatic lubrication system for the working area**

CNC-controlled oil nebulizer that keeps the sheet metal and tools lubricated during processing.

*(Ensures longer tool life and facilitates the punching of sheets over 3 mm thick)*

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### **Electropump lubrication system for threading tools and rodents**

*(Necessary for internal lubrication of the threading tool or nibbler type TECHNOLOGY)*

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### **Reclining front surface with manual actuation and pneumatic locking**

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### **Reclining front surface with automatic actuation and pneumatic locking**

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### **Automatic repositioning in X-axis with sheet metal clamping by pneumatic cylinders**

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### **21-inch touch monitor**

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### **5-station tool cart**

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### **Additional sheet metal support tables for processing 1250x2500**

Required to support sheets larger than the working area of the machine.

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### **Tele Assistance**

*(Necessary to enable remote machine servicing)*

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### **Industry 4.0 Ready**

*(Necessary to enable functionality suitable for Industry 4.0 systems)*

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