

DURMA

TP SERIES Turret Punch



- Strong
- Precise
- Efficient
- Fast
- High Repeatability



DURMA The Winning Force





As a total supplier for sheet metal manufacturing with almost 60 years of experience, Durma understands and recognizes the challenges, requirements and expectations of the industry. We strive to satisfy the ever higher demands of our customers by continuously improving our products and processes while researching and implementing the latest technologies.

In our three production plants with a total of 150.000 m², we dedicate 1,000 employees to delivering high quality manufacturing solutions at the best performance-to-price ratio in the market.

From the innovations developed at our Research & Development Center to the technical support given by our worldwide distributors, we all have one common mission: to be your preferred partner.

Present Durmazlar machines with **DURMA** name to the world.



1

High technology,
modern production
lines



3

High quality
machines designed
in R&D Centre

2

Top quality
components



TP SERIES Turret Punch

- Small, medium and large format sheet processing
- Punching, forming, tapping, and wheel technology capabilities
- Stress relieved O frame
- Flexible turret configurations to eliminate tool setups
- Auto lubrication of moving parts
- Rigid guides
- One of the best controller with functionality & flexibility
- Powerful control with user friendly CAD-CAM Software
- Programmable sheet clamping system decreases set-up times and scrap ratio
- Automation can be easily integrated for efficient and lean operations while also
- Increasing operator safety and as well as decreasing operator fatigue.





Precise and High Speed Turret

The punching head stroke rates of 1200 strokes per minute during punching and 3200 per minute during marking. Also can be forming at punching speed. The machine control adjusts stroke travel speed and position.

With its dynamic design, it is possible to obtain speeds of
116 m/min in X axis
80 m/min in Y axis
140 m/min simultaneously
High acceleration (1g) is possible across the whole working range without any restriction.



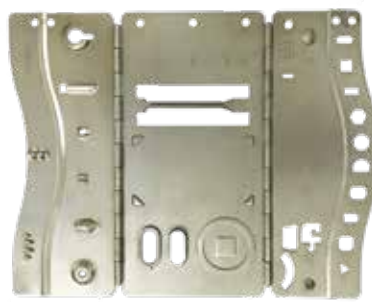
Intelligent Hydraulics

- Highly dynamic punch drive with closed loop control
- New valve technology DECV: Direct Electronic Copy Valve
- Based on proven Voith H + L copy valve
- Rugged against mechanical stress
- Simple oil filtration is sufficient
- Directly operated, no hydraulic control circuit
- Very fast step response
- Very accurate proportional response
- Predefined machine cycles with programmable stroke parameters
- Process safety by feedback monitoring
- Improved diagnostics by pressure sensors
- Optimized power consumption with load-controlled active "two-pressure-system"

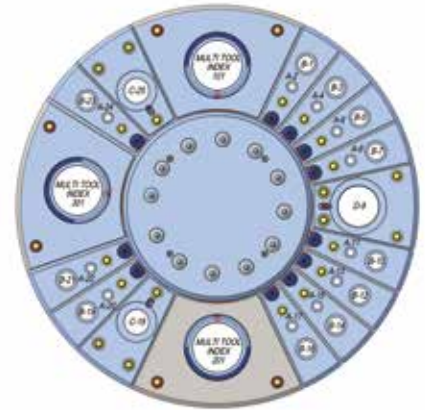
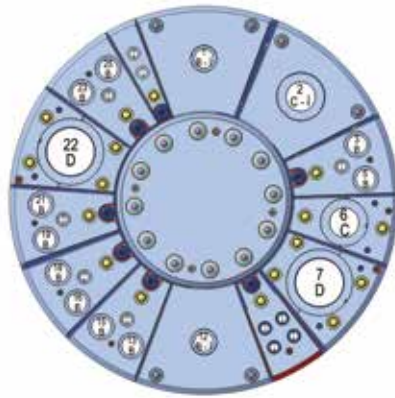


High Quality Forming

Simplifies setup of progressive forms, flanges, and embossments. With roller technology are possible not only on straight geometries but also on curved and round areas. This method is of particular interest for sectors such as air conditioning technology. (Wheel tools, tapping tools) High speed marking



Turret



| Station | Sizes | TP6-9 | TP-123 TPL-93 TPL 93 Servo |
|-----------|----------------|-------|----------------------------|
| A - fix | 0.8 - 12.7 mm | 11 | 11 |
| B - fix | 12.8 - 31.7 mm | 10 | 11 |
| C - fix | 31.8 - 50.8 mm | 1 | 2 |
| D - fix | 50.9 - 88.9 mm | 2 | 1 |
| B - index | 12.8 - 31.7 mm | 2 | - |
| C - index | 31.8 - 50.8 mm | 1 | - |
| D - index | 50.9 - 88.9 mm | - | 3 |

3 Auto Index Stations

Provide maximum flexibility by simplifying tooling inventories and reducing tool setup time.

Tools are rotatable in 0.01° increments enabling the processing of complex shaped parts with the minimum number of tools. Tool change takes less than 3 seconds to complete total turret movement and just 0,6 seconds for single tool.

Forming almost at punching speed by closed loop hydraulic by H+L Hydraulic. A variable forming position ensures that forming operations can be carried out with minimal stroke travel. The dies are positioned below the table surface, preventing sheets from being scratched or caught, therefore micro tags can be reduced to minimum for more precision parts.



Reposition

It is possible to process sheet length over table length without need to reposition.



Workchute

To evacuate parts during punching also with sorting and stacking capacity.

The parts chute, small parts up to 400 x 600 mm can be ejected directly into a parts container. An optional conveyor system. (optional)



Motion and Table

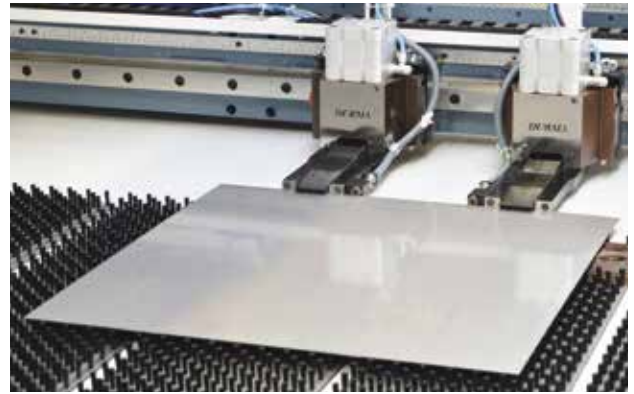
A new design of X and Y axis, direct drive technology is used. This will increase the performance and eliminates any losses from belts, gears or any transmission systems.

Ball table mainly easy movement of the sheet, brush table is generally for sensitive and soft material punching for not to scratch the sheet. Both is available according to customer demands.



Automatic Clamps

When punching thinner material, one of the problem is to control the sheet movement at non clamping area. To eliminate this matter 3 clamps or more is available.



Cadcam Software

Programming time minimized by using fast and easy CAD-CAM software (cncKAD) metalix. By choosing the effective position of the tool automatically to use maximum area of the sheet, additional reposition and work strips is eliminated.



Control System

Siemens Sinumerik 840 DSL control system is applied for punching. Controls and screen are mounted on a mobile control panel. The control system and other hardware are mounted in a separate cabinet. Machining can be started with just a few steps. Network (ethernet) connection is available as well as programming on the control panel. UPS system prevents the control unit from the voltage fluctuations and cuts.

Integrated online help messages answer all questions at the location they arise. The diagnostic concept provides visual depictions of any function faults. Remote diagnostics is a matter of course over Internet for diagnostics for machine controller.



TP SERVO Turret Punch

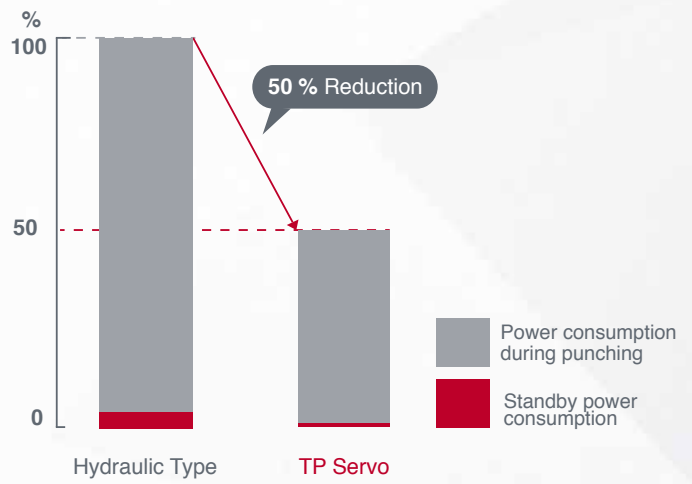
Providing energy efficiency, mineral oil does not require, green, Servo control Punch Machines

- TP Servo series utilizes an two servo linear motor to drive the ram (eliminating the hydraulic power supply and chiller).
- Electrical consumption is less than one-half of comparable hydraulic machines.
- TP Servo offers significantly faster punching speeds than mechanical turrets.
- Space-saving design makes the most of valuable floor space.

The TP Servo series turret punch press is packed with a wide variety of standard features to help produce parts faster, easier and more economically.



Power Consumption Comparison



TP Series

Standard & Optional Equipment

Standard Equipments

Command pedal
CAD-CAM software & Activator(Dongle)
Control unit, Siemens Sinumerik 840 D SL Windows 7 operating system
Remote diagnostic function
Programming on the control panel
Automatic clamp positioning.
Sheet set switches on clamps
Network, Ethernet communication.
Automatic tool lubrication
UPS for control panel
Movable scrap box
Brush table
Oil Cooler
USB Driver
Reposition on X axis
Alignment Tools for Index Stations (C+B Station) - (for TP6, TP9)
Alignment Tools for Index Stations (D Station) - (for TP63, TPL63, TP93, TPL93, TP123, TP Servo, TPL Servo)
Manual nesting
Light barriers for CE

Optional Equipments

Additional clamps
Table (brush&ball)
Tools, Tool holders, reducers
CAD-CAM SW Second activator (dongle)
SW for Autonesting, Wheel and Tapping tools
Sheet deformation alert switch
Turret cover for perforated sheets
Vacuum slug remover
Workchute
Automatic lubrication for the machine
Air condition for electrical box
Loading- Unloading preparation
Loading- Unloading system
Additional table
Special table
Transformer
UPS for machine (30KvA - 10 min)
Additional alignment tool

Technical Details

| TP Series | Unit | TP9 | TP123 | TPL93 | TP 123 Servo |
|---|-----------------|-----------|-----------|-----------|--------------|
| Maximum tonnage | Ton | 20** | 30** | 30** | 20** |
| Frame type | - | O frame | O frame | O frame | O frame |
| X axis movement | mm | 2000+ R | 2500+ R | 3000+ R | 2500+ R |
| Y axis movement with single tool | mm | 1250 | 1250 | 1500 | 1250 |
| Automatic Repositioning range * | mm | 10000* | 10000* | 10000* | 10000* |
| Speed of Y axis | m/min | 70 | 80 | 60 | 80 |
| Speed of X axis | m/min | 90 | 116 | 70 | 116 |
| Lateral speed Y + X | m/min | 114 | 140 | 120 | 140 |
| Max. Hit rate (1mm pitch, 1mm thickness) | 1/min | 1100 | 1200 | 1200 | 535 |
| Max. Hit rate (25mm pitch, 1mm thickness) | 1/min | 375 | 425 | 325 | 325 |
| Max. Hit rate : Marking | 1/min | 2800 | 3200 | 2800 | 820 |
| Main cylinder stroke | mm | 40 | 40 | 40 | 40 |
| Maximum punching stroke | mm | 25 | 25 | 25 | 25 |
| Max. cutting thickness (Fixed Station) | Mild Steel | 6 | 6 | 6 | 6 |
| | Stainless Steel | 3 | 3 | 3 | 3 |
| Max. cutting thickness (Index Station) | Mild Steel | 3 | 3 | 3 | 3 |
| | Stainless Steel | 1,5 | 1,5 | 1,5 | 1,5 |
| Positioning accuracy | mm | ± 0,1 | ± 0,1 | ± 0,1 | ± 0,1 |
| Repeatable accuracy | mm | ± 0,05 | ± 0,05 | ± 0,05 | ± 0,05 |
| Turret rotation speed | rpm | 30 | 22 | 22 | 22 |
| Auto index rotational speed | rpm | 150 | 150 | 150 | 150 |
| Max. weight of sheet | kg | 100 | 120 | 200 | 120 |
| Hard disk | Gbyte | 80 | 80 | 80 | 80 |
| RAM | Gb SDRAM | 4 | 4 | 4 | 4 |
| Network system | - | Windows 7 | Windows 7 | Windows 7 | Windows 7 |
| Interactive Flat Panel | inch | 19" | 19" | 19" | 19" |
| USB | - | 2 | 2 | 2 | 2 |
| Ethernet | - | 10/100 | 10/100 | 10/100 | 10/100 |
| Height (H) | mm | 2310 | 2310 | 2310 | 2135 |
| Width (without light barrier) (W) | mm | 4200 | 5360 | 6300 | 5260 |
| Width (with light barrier) | mm | 6200 | 7360 | 8300 | 6260 |
| Length (without light barrier) (L) | mm | 5600 | 5750 | 6650 | 5260 |
| Length (with light barrier) | mm | 6600 | 6800 | 7650 | 6260 |
| Table height | mm | 940 | 940 | 940 | 940 |
| Weight approx. | kg | 11000 | 12960 | 18250 | 14000 |
| Hydraulic System Motor | kw | 7.5 | 15 | 15 | - |
| Oil tank | lt | 180 | 240 | 180 | - |
| Air pressure | bar | 6 | 6 | 6 | 6 |
| Number of Clamps | pcs. | 2 | 3 | 4 | 3 |
| Holding force of clamps | - | 1000 | 1000 | 1000 | 1000 |
| Table type | | Brush | Brush | Brush | Brush |
| Energy Consumption | Kw/h | 7,5 | 15 | 15 | 6,21 |
| A - fix 0.8-12.7 mm | Qty | 11 | 11 | 11 | 11 |
| B - fix 12.8-31.7 mm | pcs | 10 | 11 | 11 | 11 |
| C - fix 31.8-50.8 mm | pcs | 1 | 2 | 2 | 2 |
| D - fix 50.9-88.9 mm | pcs | 2 | 1 | 1 | 1 |
| B - indeks 12.8-31.7 mm | pcs | 2 | - | - | - |
| C- indeks 31.8-50.8 mm | pcs | 1 | - | - | - |
| D- indeks 50.9-88.9 mm | pcs | - | 3 | 3 | 3 |

* : Special table must be added to the machine and the light barriers must be located the correct position. Max.weight 100 kg.

** : Please pay attention to tool's spring forces while considering about machine tonnage.

Loading & Unloading System

TP CELL automates efficiently raw material loading and unloading of ready components along with skeleton. TP CELL allows mixing of automatic and manual operations as needed from production point of view.



Sheet Thickness Measurement System

Precision measurement system that preventing multi sheet loads.



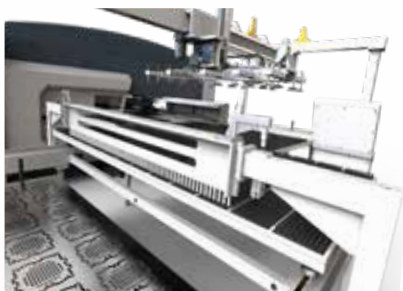
Sheet Separation System

Effective sheet separation system, separating sheets from each other.



Sheet Loading System

The Loading system, enables the reliable , therefore gets precision reference for 0,5 -6 mm sheet thicknesses while loading sheet metals.



Sheet Unloading System

Stacking up together in the same position of produced sheet metals due that handle up to simple carrying.

TP CELL

- Compact layout
- Process efficiency
- Unmanned production
- Automatic material loading and unloading of part along with skeleton
- Allows full manual process with machine as with stand-alone solutions.



| Technical Specifications | Unit | TP Cell |
|--------------------------------------|------|-------------|
| Positioning Accuracy | mm | ± 0,1 |
| Repeatable Accuracy | mm | ± 0,1 |
| Max. Weight Of Sheet | kg | 120 |
| Air Pressure | bar | 6 |
| Cycle Time For Loading And Unloading | sec | 32 |
| Max. Size Of Sheet | mm | 1250x6x2500 |



TPL CELL



| Technical Specification | Unit | TPL Cell |
|--------------------------------------|------|-------------|
| Positioning accuracy | mm | $\pm 0,1$ |
| Repeatable accuracy | mm | $\pm 0,1$ |
| Max. weight of sheet | kg | 200 |
| Air pressure | bar | 6 |
| Cycle time for loading and unloading | sec. | 32 |
| Max. size of sheet | mm | 1500x6x3000 |

Fast on Service and Spare Parts

DURMA provides the best level of service and spare parts with qualified personnel and spare parts in stock. Our experienced and professional service personnel are always ready at your service. Our professional training and application enriched courses will give you an advantage to use our machinery.



Consultancy



Spare Parts



R&D Center



After Sales Service



Service Agreements



Software



Training



Flexible Solution

DURMA



PANEL BENDER



PUNCH



PLASMA



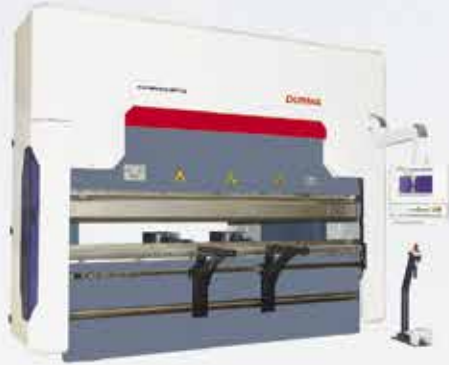
L ANGLE PROCESSING CENTER



IRON WORKER



POWER OPERATED SHEAR



PRESS BRAKE



VARIABLE RAKE SHEAR



LASER CUTTING



FIBER LASER



ROLL BENDING



PROFILE BENDING



CORNER NOTCHER

DURMA

TP SERIES
Turret Punch