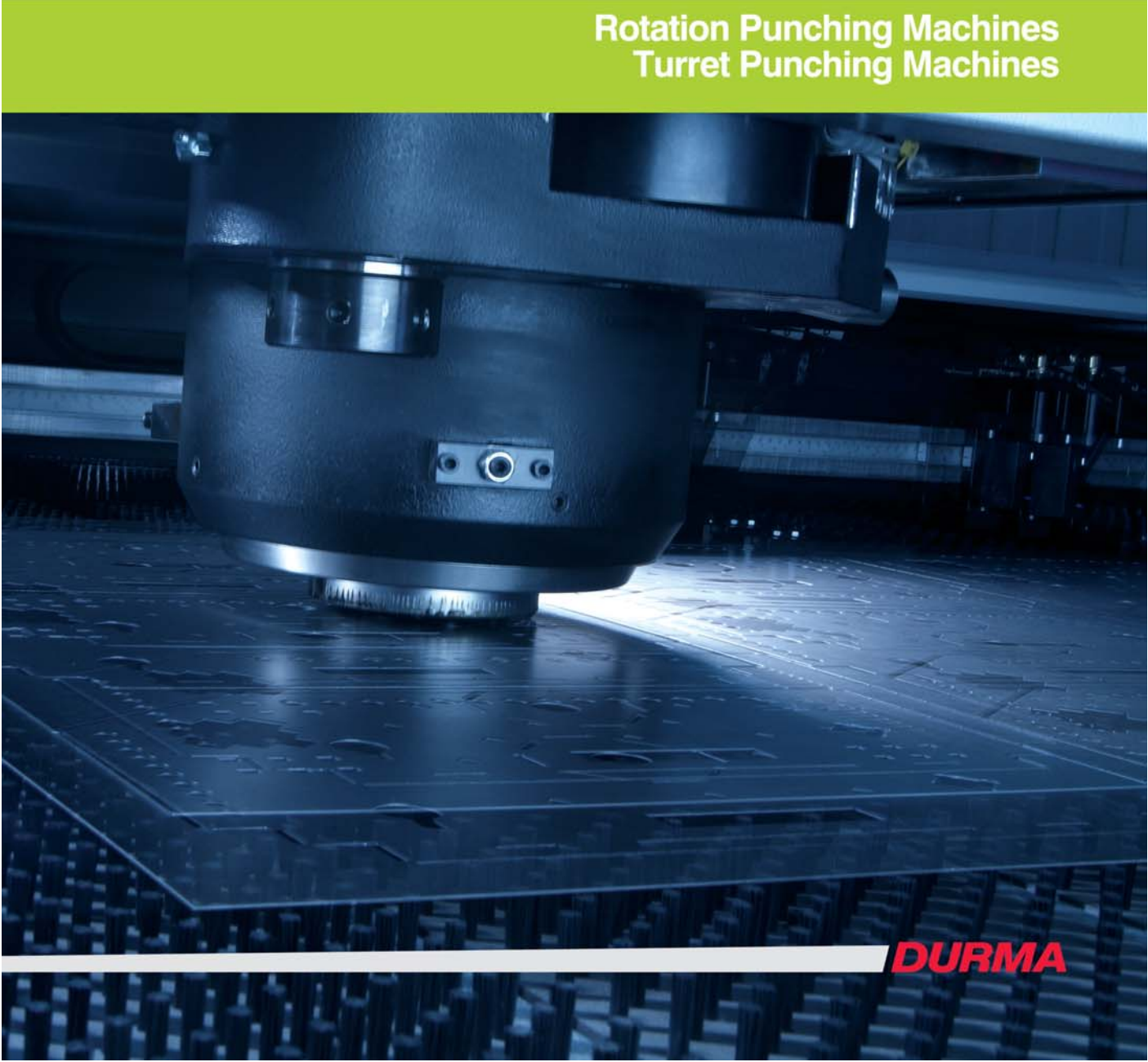


DURMA
RP - TP SERIES

Rotation Punching Machines
Turret Punching Machines



DURMA

RP SERIES Rotation Multi-Tool Punch

Durma rotation punch is cost effective machine by using few numbers of tools (3, 6, 8, 10 tools) you can punch every type of angular shapes.

Specially designed for

- High flexibility
- Maximum efficiency
- High productivity
- Fast simple operation
- Strong and reliable construction

Material up to 6 mm can be punched and clamped easily. The machine frame is made of welded steel construction. Frame is fully stress relieved during and after welding. Positioning accuracy $\pm 0,1$ mm and repeatability $\pm 0,05$ mm



Control System

Siemens Sinumerik 840 DI control system is applied for punching with strategic alliance with Siemens. Controls and screen are mounted on a mobile control panel. The computer and other hardware are mounted in a separate cabinet. Machining can be started with just a few steps. Network (Ethernet or RS 232), COM-Port 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 answers all questions at the location they arise. The diagnostic concept provides visual depictions of any function faults. Tele service is a matter of course over Internet for diagnostics options for machine controller.

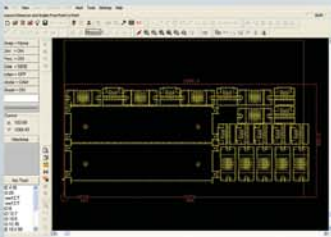
The control ensures that optimal acceleration values can be attained at every stage of machining, depending on the actual masses that need to be moved.

DURMA Punch Press is equipped with infra-red barrier system according to CE conformity



DURMA Punch Press is equipped with infra-red barrier system according to CE conformity

RP SERIES Rotation Multi-Tool Punch



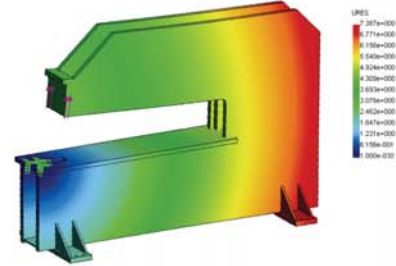
Durma rotation punch press machine top and bottom tools work synchronize to obtain all required angular punching and forming operation. The angular pitch can be $\pm 0,02^\circ$.

- High rotational speed 50 rpm makes the machine one of the fastest in the market.
- By using zero backlash Harmonic Drive Gear system for index position punching.
- Automatic reposition in the X axis enables to punch longer than 2 meters and eliminate the death area on the sheet.

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 customer demands.

- Adjustable clamp positioning system and sheet removable sensor is optional.

- Programming time minimized by using fast and easy CAD-CAM software (cncKAD, Linea 5)
- By choosing the effective position of the tool automatically to use maximum area of the sheet, additional reposition and work strips is eliminated.



- Upper and lower index groups have no mechanical connections which means they can be perfectly aligned, even defect in the tools can be adjusted. It has a wide tooling usage capacity with 3, 6, 8, 10 tools multi tool selection.

RP SERIES

Rotation Multi-Tool Punch

Standart Equipment

- 2 Pieces Clamps
- 1 Pieces command pedal
- Standart tool customer demand
- 6 pieces Durma tool and Fguide (gap 0.3 mm)
- Round ø5
- Round ø6
- Round ø8
- Round ø12.7
- Rectangle 4x20
- Square 7
- Square 17
- 1 piece software cncKad and 1 piece software key
- 1 piece USB driver
- Automatic lubrication
- Scrab box
- Control panel pendant
- Cooler
- UPS (uninterruptable power supply) for control panel
- Workchute for RP9
- Automatic clamps for RP9

Optional Equipment

- Cutting and forming tools in different kinds of dimensions and forms
- CE Mechanical protection system and safety bar around the machines
- Additional clamps
- 3,10 stationed multi tool and PLC support
- Different kinds of software options
- CD-ROM driver
- Adapters for different stations (like B-C-D)
- Rewired adapters for different connectionsystem (please check with your Durma counter part)
- Coated tools, to be used especially for stainless steel material cutting
- Second software key
- 8 pieces Wilson tool and guide (gap 0.2 mm)
- Round ø5
- Round ø6
- Round ø8
- Round ø12.7
- Rectangle 5x10
- Rectangle 3x14
- Square 7
- Square 10
- Additional tables (brush, ball) v
- Workchute for RP6
- Autoclamp for RP6
- Autonesting
- Transformator

FP6/RP6 SERIES		FP6 12530	RP6 12530
Maximum tonnage	ton	30	30
X axis movement	mm.	2000 + R	2000 + R
Y axis movement with multiple tool	mm.	1250	1250
Y axis movement with single tool	mm.	1285	1285
Automatic positioning range	mm.	10000*	10000*
Speed of Y axis	m./min.	50	50
Speed of X axis	m./min.	60	60
Lateral speed Y + X	m./min.	75	75
Max. working cycles (in 1 mm. step, 1 mm. thickness)	stroke/min.	600	600
Max. working cycles (in 25 mm. step, 1 mm. thickness)	stroke/min.	280	280
Accuracy for positioning	mm.	± 0.1	± 0.1
Tool setting time	sec.	15 - 20	15 - 20
Quantity of station	pcs.	6	8 or 6
Max. weight of sheet	kg.	100	100
Hard disk	Gbyte	40	40
RAM	Mb EDO	256	256
Network system	-	Windows XP	Windows XP
LCD colorscreen Super VGA	-	12.1"	12.1"
Floppy disk	-	3.5"	3.5"
Working height	mm.	980	980
Table width	mm.	2400 x 3600	2400 x 3600
Machine sizes	mm.	3600 x 4100 x 2450	3600 x 4100 x 2450
Motor	kw.	15	15
Oil tank	lt.	250	250
Weight	kg.	~ 11100	~ 11100
Maximum punching stroke	mm.	25	25
Maximum punching diameter (for Multitool)	mm.	24	16 or 24
Workholder number	pcs.	2	2
Workholder force	kg.	1000	1000
Table type	-	Brush	Brush
	-	Ball **	Ball **
	-	Ball + Brush **	Ball + Brush **

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

** : Optional

TP6 & TP9 SERIES

Hydraulic Turret Punch Press

Invest in Durma TP9 To Maximize Your Profits

With its high-tech TP6, TP9 Hydraulic Turret Punch Press; DURMA has embarked on the productive punching are with long term durability and affordable purchase price.

DURMA TP6 offers you more profitable production capabilities in market place by;

Low Machining Cost

Reduced maintenance, by lubrication of moving parts, and ensuring maximum possible material utilization.

Reliability

robust body frame,
hydraulics and control systems



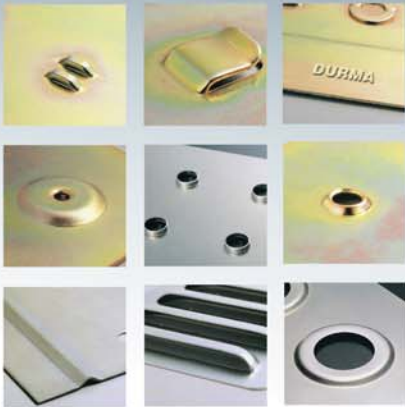
High Speed

The punching head stroke rates of 900 strokes per minute during punching and 1800 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
96 m/min in X axis
75 m/min in Y axis
121 m/min simultaneously
High acceleration 10m/min² (1g) is possible across the whole working range without any restriction.

Precision

Advanced ram positioning control by closed loop hydraulic Hartmann Lammle, table axis drive by Siemens servo motors acquire $\pm 0,1$ mm positioning accuracy and $\pm 0,05$ mm repeatable accuracy. Accurate index incremental ($0,02^\circ$) is provided by very precision bewel gears. Mechanical couplings and time belts eliminate the difference between upper and lower angular position.

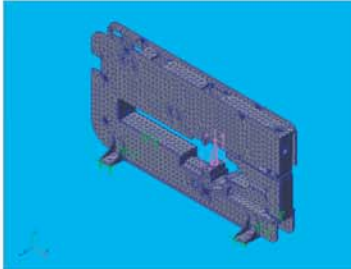


High Quality Forming

Variable dwell time at bottom of stroke provides high quality, press brake-like forming, often eliminating secondary processing
Electronic adjustment 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 pat. Wilson)
High speed marking.

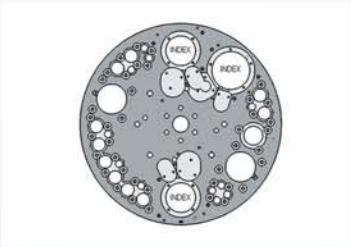
TP6 & TP9 SERIES

Hydraulic Turret Punch Press



Robust Body Frame

Portal (O) type body frame consists of two fully enclosed box fabrications. Finite element analysis on high performance computers was used to simulate the design and thoroughly minimize openings, twist, deflection and shift of the frame. Body frame is also treated by high load and stress relieve during and after the welding. The result is rigid frame that keeps vibration to minimum, allowing greater precision in punching, while substantially reducing tool wears and lowering noise levels. The body is robust and very strong, consists of two different parts. Because of its special design, the turret and tools are not affected from punching force even at maximum tonnage. No deflection occurs on the turret and tools, so the tool life become longer.



Turret

Turret consists of 27 stations as below:

- 11 pieces A station fix 0.8 mm to 12.7 mm
- 10 pieces B station fix 12.8 mm to 31.7 mm
- 2 pieces B station index 12.8 mm to 31.7 mm
- 1 piece C station fix 31.8 mm to 50.8 mm
- 1 piece C station index 31.8 mm to 50.8 mm
- 2 pieces D station fix 50.9 mm to 88.9 mm



3 Auto Index Stations

Three AI 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 Bosch - Rexroth. 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.



Coordinate Table

It is possible to process up to 2000x1250 mm sheets without need to reposition. 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.



Work chute 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 in to a parts container. An optional conveyor system.



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 customer demands.

Control System

Siemens Sinumerik 840 DI control system is applied for punching with strategic alliance with Siemens. Controls and screen are mounted on a mobile control panel. The computer and other hardware are mounted in a separate cabinet. Machining can be started with just a few steps. Network (Ethernet or RS 232), COM-Port 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 answers all questions at the location they arise. The diagnostic concept provides visual depictions of any function faults. Tele service is a matter of course over Internet for diagnostics options for machine controller.

The control ensures that optimal acceleration values can be attained at every stage of machining, depending on the actual masses that need to be moved.

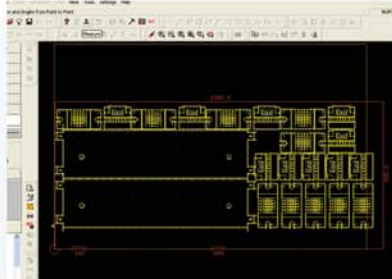


The automatic repositioning system

DURMA

TP6 & TP9 SERIES

Hydraulic Turret Punch Press



SOFTWARES

Metalix CNC CAD
Computes Punch 5

With the programming system, Durma provides a start to finish concept for flexible production, software's, controller and TP6 precisely tailored to one another.

Steps to the NC program;

- Generate & import drawings
- Sheet layout and automatic machining definition.
- Auto Nesting

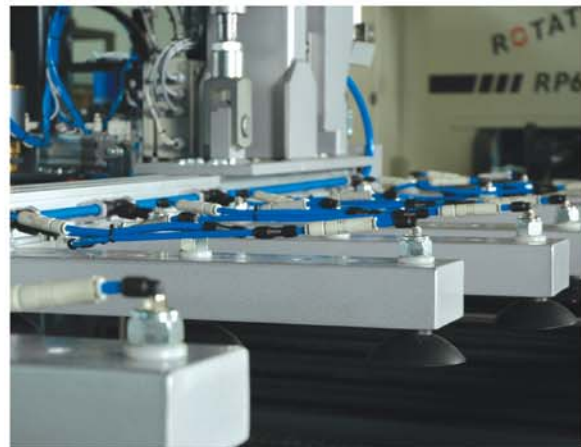
Automatic generation of NC program

Standard Equipment

- Sheet Clamps
- 1 piece command pedal
- 1 piece CAD, CAM software and activator
- Control unit, Siemens Sinumerik 840 DI
- Programming on the control panel
- Auto check clamp position.
- Network, Ethernet communication.
- Automatic lubrication system for tooling.
- Movable scrap box
- Warning lamp
- Ball and brush table.
- External Cooler unit
- Floppy driver + USB Driver
- Windows Xp operating system
- CNC controlled unit: Pentium 3,500Mhz.12" screen
- UPS uninterruptable power supply for control panel
- Reposition on X axis

Optional Equipment

- Tools
- Tool holders
 - A station
 - B station
 - C station
 - D station
- Additional clamps
- Coated tool
- Trumpf tool adaptor for D station
- Different types of software options
- Second activator (dongle)
- Extra table
- Auto Nesting
- CE certificate and light barriers
- Light barriers three sides



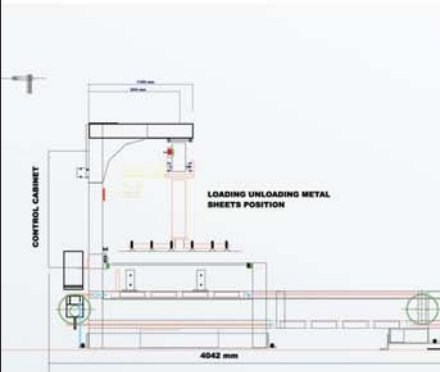
Durma Punch Loading Unloading System

The loading-unloading systems in the range free the operator from working at the same speed as the machine and make the processing of sheet steel more economically viable and rational. Manipulators are available. The loading and unloading cycles of the punching machine are completely automated and they can also be integrated into more complex processing systems.

OPTIMISATION OF RESOURCES

Using manipulators fitted to new or pre-existing (NCT) punching machines can increase production and optimise machine use.

- 1) Machine down-time is reduced and production can be organised continuously over different shifts and also during work breaks;
- 2) Unit costs are lower: the increased number of work hours/year, compared to the use of an NCT alone leads to high earnings.
- 3) The entire production flow can be planned.



TECHNICAL SPECIFICATIONS		1225
Dimensions sheet steel max		1250x2500
Min		500x1000
Material		Ferrous/non ferrous
Thickness of steel		0.5 – 6
Max weight of sheet		150
Loading pallet		
Max loading capacity (Kg/pallet)		3000
Max height of stack (mm/pallet)		300
Separating magnets per pallet		3
Sheet separation:		
Magnetic/shaking/air		Standard
Loader		
No. suction pads		28
Motor power kW		0.75
Unloader		
Clamps (No)		2
Motor power kW		0.25
SPT table		
Motor power kW		0.25
Stacking table		
Max load capacity (kg)		3000
Control unit		PLC
Compressed air supply		6 bar – 600 lt/min
Electrical supply (three phase + neutral)		380V/50Hz 10A
Weight approx (Kg)		1900
Dimensions of base (LxPxH) approx mm		5300x4042x2400



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DESCRIPTION OF THE MANIPULATOR

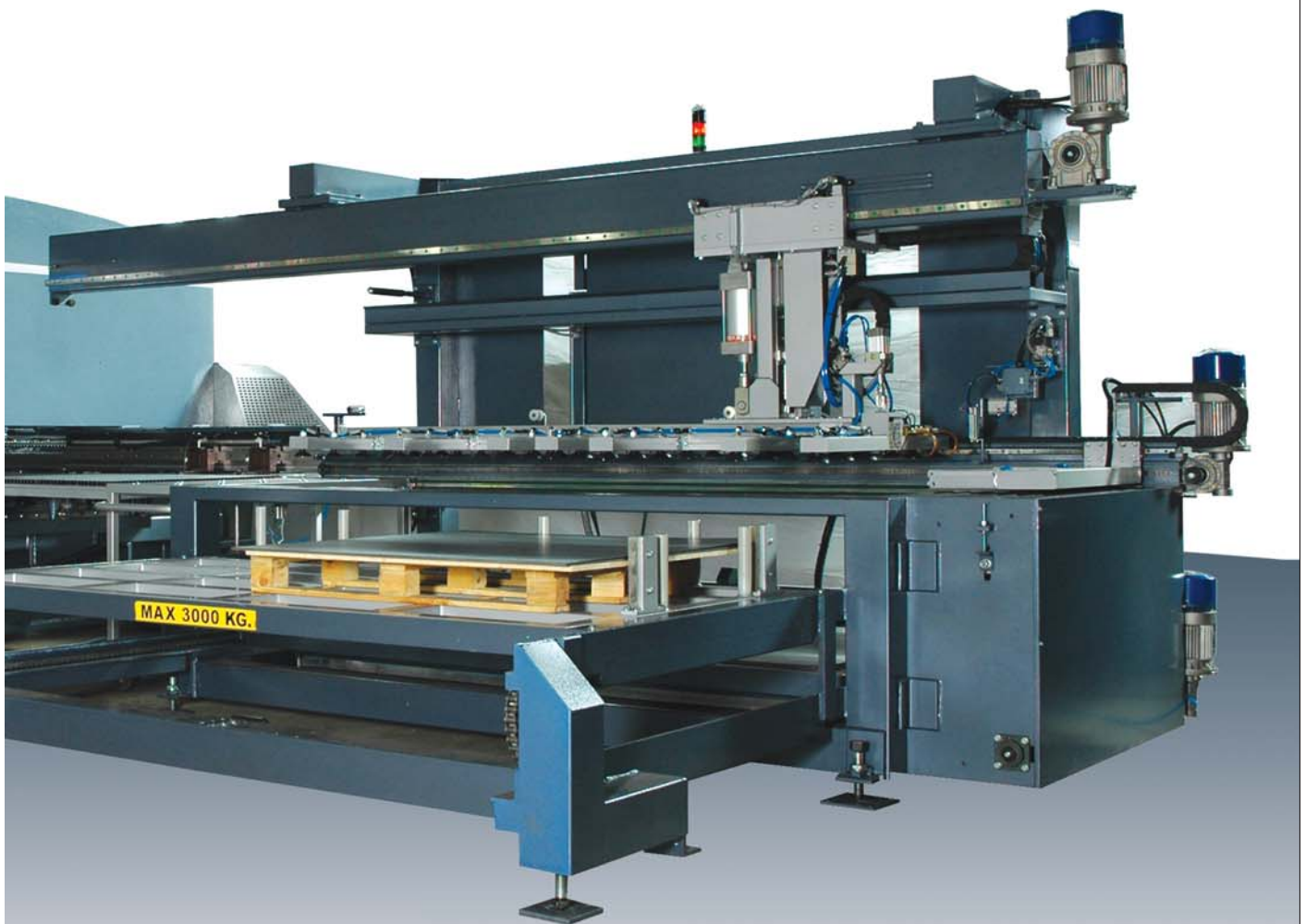
The manipulator is installed on the loading side of the punching machine and consists of two synchronised but independent units; a work section (with two loading carriages and a work surface) and a processed steel storage rack.

This versatile, modular system offers significant advantages.

1) loading and unloading formed steel in the work area of the punching machine is simplified and there is no interference with the NCT work area.

2) loading-unloading packs of sheet steel is simple and straight forward.

3) logistics operations, handling and any possible servicing can be carried out easily and safely.



TP SERIES		TP6	TP9	TP63	TP93	TP123	TPL63	TPL93
Maximum tonnage	ton	30	20	30	20	20	30	20
Frame type	—	0 frame	0 frame	0 frame	0 frame	0 frame	0 frame	0 frame
X axis movement	mm.	2000 + R	2000 + R	2000/2500 + R	2000/2500 + R	2000 + R	3000 + R	3000 + R
Y axis movement	mm.	1250	1250	1250	1250	1250	1500	1500
Automatic positioning range	mm.	10000*	10000*	10000*	10000*	10000*	10000*	10000*
Speed of Y axis	m/min	60	75(0.6 g)	70	70(0.6 g)	70	96	96
Speed of X axis	m/min	75	96(1.2 g)	90	90/70(1.2 g)	90	80	80
Lateral speed Y + X	m/min	90	121	114	114/96	114	124	124
Max. working cycles (in 1 mm step, 1 mm thickness)	strok/min	600	800	600	900	1200	600	900
Max. working cycles (in 25 mm step, 1 mm thickness)	strok/min	300	350	350/300	350/300	400	300	300
Max. Marking speed	strok/min	—	1200	600	900/850	—	—	—
Main cylinder stroke	mm.	40	40	40	40	40	40	40
Maximum punching stroke	mm.	25	25	25	25	25	25	25
Workchute for scrap removal	X = Y =	mm. mm.	600 400	600 400	600 400	600 400	— —	— —
Max. cutting thickness with fix station	mild steel	6 mm	6 mm	6 mm	6 mm	6 mm	6 mm	6 mm
	Stainless steel	3 mm	3 mm	6 mm	6 mm	6 mm	6 mm	6 mm
Max. cutting thickness with auto index station	mild steel	3 mm	3 mm	4 mm	4 mm	4 mm	4 mm	4 mm
	Stainless steel	1.5 mm	1.5 mm	2.5 mm	2.5 mm	2.5 mm	2.5 mm	2.5 mm
Turret (27 station without tool and holder)		11 pieces A station fix 0.8 mm to 12.7 mm 10 pieces B station fix 12.8 mm to 31.7 mm 2 pieces B station index 12.8 mm to 31.7 mm 1 piece C station fix 31.8 mm to 50.8 mm 1 piece C station index 31.8 mm to 50.8 mm 2 pieces D station fix 50.9 mm to 88.9 mm			11 pieces A station fix 0.8 mm to 12.7 mm 11 pieces B station fix 12.8 mm to 31.7 mm 2 piece C station fix 31.8 mm to 50.8 mm 1 pieces D station fix 50.9 mm to 88.9 mm 3 pieces D station index 50.9 mm to 88.9 mm			
Positioning accuracy	mm.	± 0.1	± 0.1	± 0.1	± 0.1	± 0.1	± 0.1	± 0.1
Repeatable accuracy	mm.	± 0.05	± 0.05	± 0.05	± 0.05	± 0.05	± 0.05	± 0.05
Turret rotation speed	rpm	22	22	22	22	22	22	22
Auto index rotational speed	rpm	75	75	75	75	75	75	75
Stroke and stroke position control	—	Control by LVTD and HNC 100 control card	Control by LVTD and HNC 100 control card	—	—	Control by LVTD and HNC 100 control card	Control by LVTD and HNC 100 control card	Control by LVTD and HNC 100 control card
Max. weight of sheet	kg	100	120	120/150	120/150	120	200	200
Hard disk	Gbyte	40	40	40	40	40	40	40
RAM	mb SDRAM	256	256	256	256	256	256	256
Network system	—	Windows XP	Windows XP	Windows XP	Windows XP	Windows XP	Windows XP	Windows XP
LCD colorscreen Super VGA	—	12.1"	12.1"	15.1"	15.1"	15.1"	15.1"	15.1"
Floppy disk	—	3.5"	3.5"	3.5"	3.5"	3.5"	3.5"	3.5"
USB	—	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Ethernet	—	10/100	10/100	10/100	10/100	10/100	10/100	10/100
Machine dimension								
Height (H)	mm.	2500	2500	2500	2500	2310	2310	2310
Width (without light barrier) (W)	mm.	4200	4200	4300/5360	4300/5360	4270	6300	6300
Width (with light barrier)	mm.	6200	6200	6270/7260	6270/7260	6270	8300	8300
Length (without light barrier) (L)	mm.	5200	6000	5750	5750	4800	6650	6650
Length (with light barrier)	mm.	6200	7000	6800	6800	5800	7650	7650
Table height	mm.	940	940	940	940	940	940	940
Weight approx.	kg	12500	12500	12500	12500	13800	19500	19500
Motor	kw	11	7.5	11	7.5	15	11	7.5
Oil tank	lt	180	200	180	180	180	200	200
Air pressure	bar	6	6	6	6	6	6	6
Maximum punching diameter (D station)	mm.	88.9	88.9	88.9	88.9	88.9	88.9	88.9
Workholder number (standard)	pcs	2	2(3)	2	2	2	4	4
Workholder force	kg	1000	1000	1000	1000	1000	1000	1000
Table type	—	Brush**	Brush**	Brush**	Brush**	Brush**	Brush**	Brush**
	—	Ball	Ball	Ball	Ball	Ball	Ball	Ball
	—	Ball+Brush**	Ball+Brush**	Ball+Brush**	Ball+Brush**	Ball+Brush**	Ball+Brush**	Ball+Brush**

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

* : Optional

DURMA

Durmazlar Makina San. Tic. A.Ş. keeps its right to change the specs without notice

DURMA

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