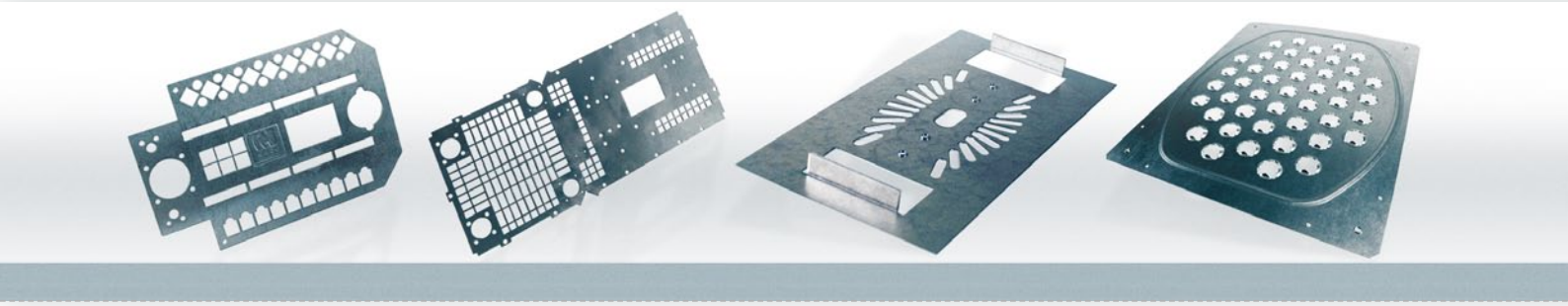
HACO

for impressive

performances

HACO Q5

CNC TURRET PUNCHING MACHINE



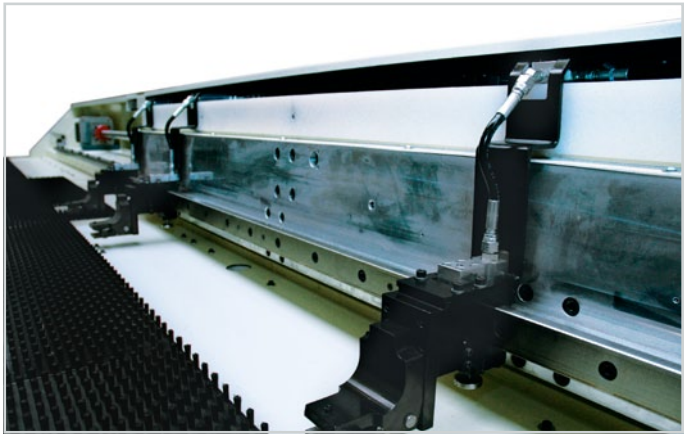
The Haco Q5 is based on over 50 years of experience in manufacturing of CNC punching Machines. With its 22 or 30 tons high -speed servo hydraulic punching head , Y-axis (throat) of 1525 mm (60") and rotation axis for all tools, the Haco Q5 is the perfect and most flexible CNC turret punching machine. The Haco Q5 series converts your workshop into one with the highest productivity and flexibility that can be achieved with CNC sheet metal punching machines, without high investments, but also without the compromises of the conventional turret punching machine. Its optimum price/quality ratio translates itself into a profitable investment.

The overdimensioned mecano-welded frame is stress-relieved by thermal treatment before machining, thus resulting in performant high accuracy. The user friendly graphical programming system, the automatic tool change system, the rotation of all tools, the comfortable sheet loading, the large sheet support tables… are just one of the characteristics of the Haco Q5.

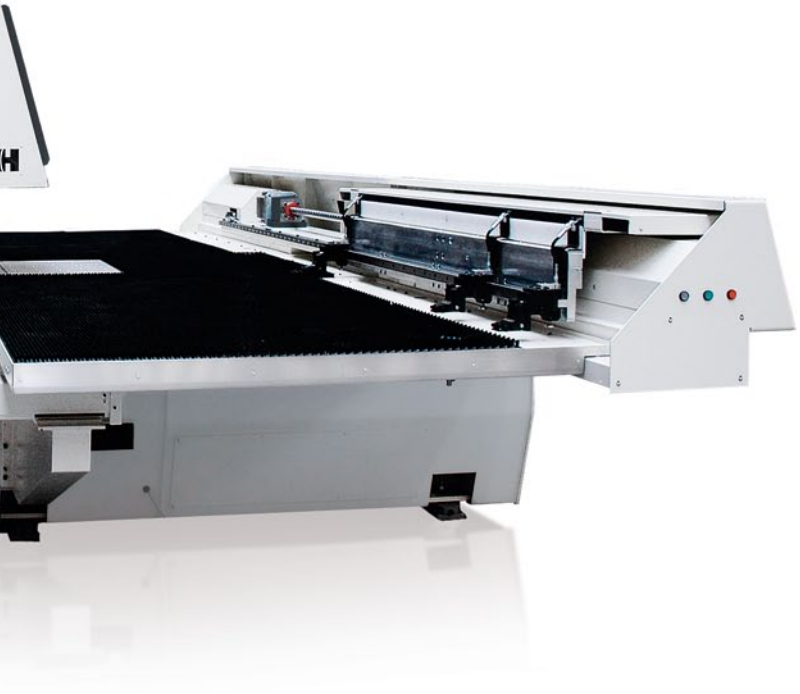
HACO Q5 CNC TURRET

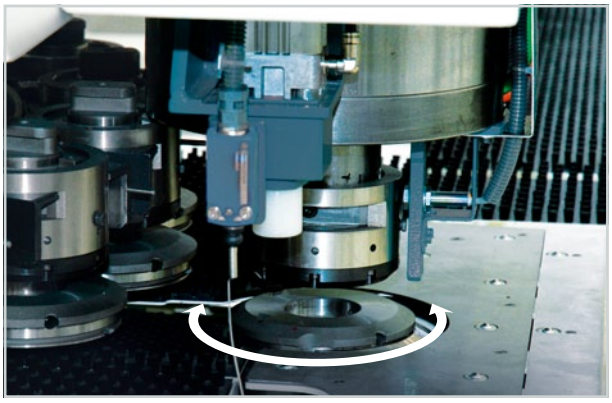
STANDARD EXECUTION

- High speed Servo-hydraulic punching head.
- 7 axis CNC TPS 84S graphics control with Touch screen.
- 4 repositioning cylinders (2 upper and 2 lower).
- 3 hydraulic, CNC movable sheet clamps.
- 6 vibration dampers.
- 12 (20) station tool turret complete with 12 (20) tool holders (tools not included).
- Slug suction device.
- Large Part chute door 730x770 mm (28.7" x 30.3"). with part detection sensors.
- Quick tool set for tool alignment.
- CE optical safety system around machine.
- Automatic oil spray system.
- Double Y axis drive system (Y1, Y2).



The 3 hydraulic plate clamps with minimum 'dead zone' are automatically set by the CNC

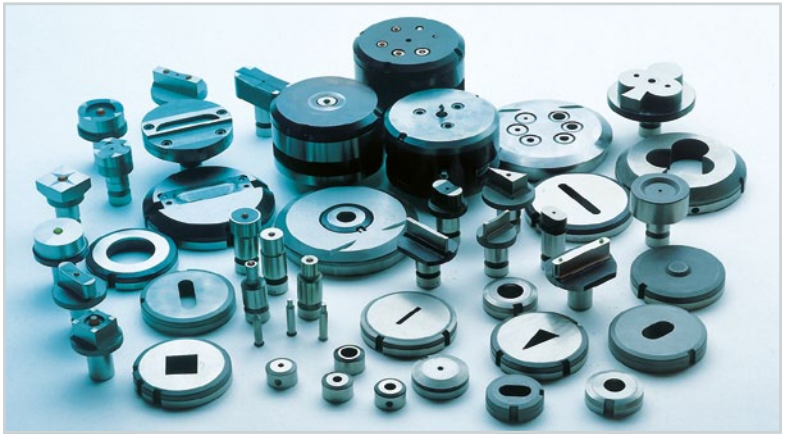




HIGH SPEED C-AXIS ROTATION
122 ms/90°

The robust high-speed servo-hydraulic punching head ensures 22 or 30 tons of punching capacity through material thicknesses up to 6.5 mm. The programmable punching stroke, tonnage and speed, as well as the indexability of all tools turn the Haco Q5 into a highly flexible CNC turret punching machine. With the large fully-brushed sheet support tables and the standard repositioning cylinders, all standard sheet sizes can be processed without any problem.

PUNCHING MACHINE



A wide range of standard and special tooling is available.

We can offer a complete range of tools for special applications, such as louvering, embossing, forming, bending, tapping, marking, rolling and all wheel tools.

PRODUCTIVITY THROUGH FLEXIBILITY... AND INDEXABILITY

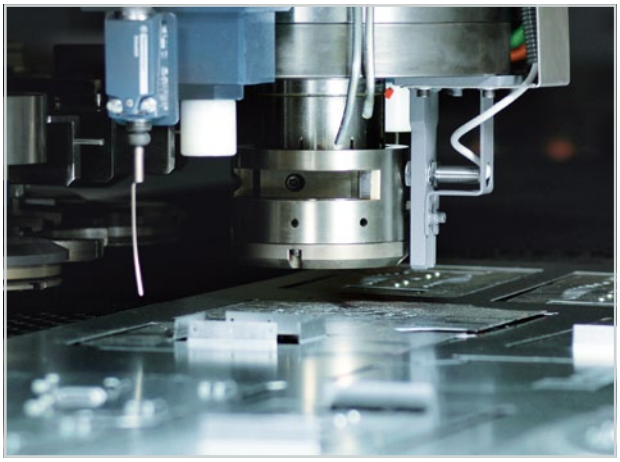
POSITIVE TOOL-CLAMPING

The punch-holder is clamped automatically into the punching head during the tool change. A hydraulic quick-clamping-system is pulling the punch-holder into the punching head, by which the lower part of the punching head (ram) is a mechanical gauge, thus avoiding clearance between punch holder and punching head. While punching, the punch holder and punching head are always connected. The stripper, which is fixed to the punch holder, has two functions:

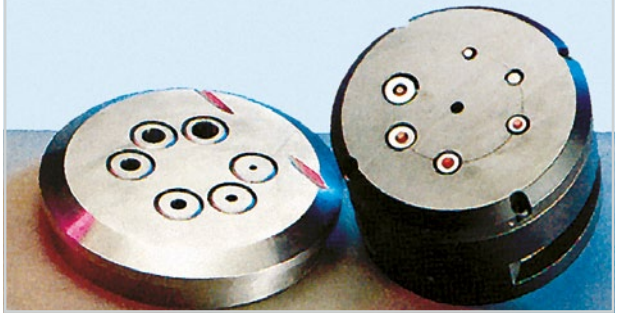
- It pushes the plate onto the die holder during the punch stroke, thus serving as a hold-down, thus leading to minimum material deformation.
- It ensures that the plate is stripped from the punch during the return stroke.

As the punch is connected to the punching head, it always returns to the same position. This prevents the punch to stick in the plate, an inconvenient but unavoidable problem with the traditional spring-forced return stroke of most classic turret machines.

A similar system by means of a precise hydraulic quick-tool change is used for clamping and positioning of the die (in the die holder) into the punch head during the automatic tool change.



TO INCREASE EVEN MORE ITS FLEXIBILITY, THE HACO Q5 SERIES CAN TAKE ONE OR MORE MULTITOOL UNITS WITH 6 PUNCHES AND DIES. THE TOOL ROTATION AXIS AUTOMATICALLY SELECTS THE PROGRAMMED MULITTOOL PUNCH AND DIE.



On the large standard brush tables, various workpieces can be nested on standard sheet sizes. The fast AC-servo driven X- and double Y-axis with resp. stroke of 2540 by 1524 mm (100" by 60") and 3 standard hydraulic CNC movable sheet clamps with minimal 'dead zone' 215 by 95 mm (8.46" by 3.74") ensure the highest accuracy on all workpieces. The high-speed punching head and the possibility of fast rotating all tools result in the shortest production times with a minimum number of tools. The Haco Q5 has a standard turret with 12 (20) tool station. Each tool station can take any kind of tool (small or large) including Multi-tools. Loading of the turret is fast and easy. The fast automatic tool change system places the active tool from the turret into the punching head. Traditional 'turret wear' is thus eliminated, The Q5 concept allows the rotating (auto-indexing) of all tools at a speed of 122 ms for 90° tool rotation witch is considerably increasing the use and flexibility of the tooling.

Moreover, the number of necessary tools can be reduced with 40 up to 70%! The rotation is accomplished by means of a torque-motor. This direct drive system without any mechanical transmissions results in a 'clearance free' rotation and guaranties high precession and high speed positioning. The assembly of the tool holders is done 'off-line' and does not affect production runs.

ADVANTAGES

- All tools are 360 ° auto indexable.
- Easy and fast loading of tools into the turret.
- Any tool station takes any tool (also MultiTool).
- No complex turret composition = faster turret set-up.
- No turret station wear, No turret adjustments.
- Better adjustment for punch and die clearance than classic turret punching machines.
- Positive tool clamping (no springs).
- Full control of stroke (Z-axis).
- Axis interpolation (use of wheel tools and ridged tapping is possible).
- Stripping plate has also hold down function.
- Urethane strippers can be used for scratch free production.
- Programs can be nested under every angle which results in optimal sheet usage and minimum rest sheet.
- No limitations in clamp setting.
- Automatic clamp setting by CNC = faster production times.
- Possibility of making big formings (Z axis stroke of 37 mm).
- Fast toolchange done by bidirectional rotation of the floating tool-turret that select automatically shortest rotation to the next tool.
- Standard slug suction device avoids the use of expensive 'slug stop dies'.
- Double Y axis for maximum speed and accuracy.
- Big part chute door with protection system and integrated conveyor belt.
- Energy saving via energy recovering from the motor drivers.

USER-FRIENDLY GRAPHICAL PROGRAMMING

THE USER FRIENDLY TPS 84S GRAPHICS CONTROL WITH TOUCH SCREEN

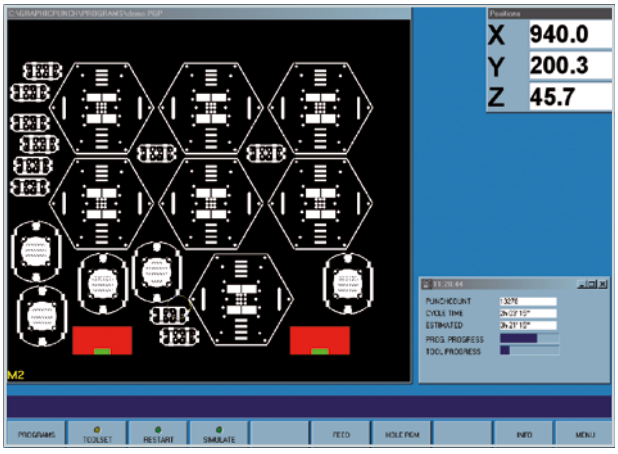
The TPS 84S Graphics offers you openness, flexibility, a uniform structure for operation, programming and visualization, and optimum integration into networks. It provides a system platform with trendsetting functions for punching applications. TPS84S Graphics strongly innovative Designed using the know-how and experience of many years, the TPS 84S offers everything you need to fit the high demands in contemporary punching. The high-speed control, fast processing and intuitive user-interface result in an innovative system capable of handling simple as well as complex tasks. The controller is driven by high performance, PC-based hardware, allowing very fast processing of data and highly accurate calculation of punching operations. From the initial idea to the production of parts, The TPS 84S Graphics controller is your ideal partner for punching productions.

- 15" color TFT display (optional Touch Screen).
- 1024 x 768 pixels.
- High-performance PC-based hardware.
- Windows ® - type user interface.
- Edit and import of program code.
- Unlimited graphical tool database.
- Mm or Inch.
- Network support.
- USB port.
- Language support.
- Tele support.
- Graphical simulation of program code.
- …

ADVANCED CONTROLLER SOFTWARE

The highly advanced controller software offers a vast amount of features, making it one of the most complete packages available today.

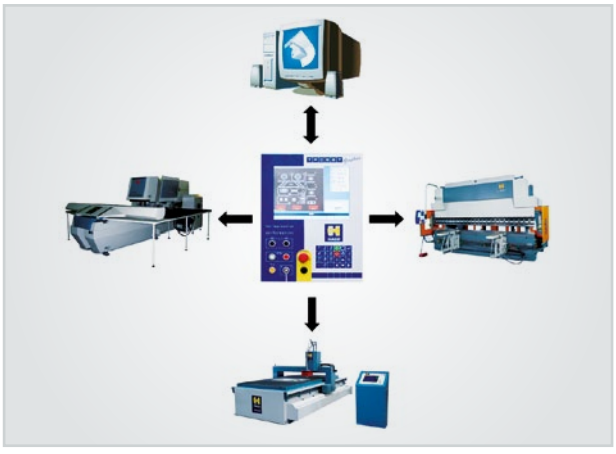
The simple layout of the user-interface allows direct access to the desired functions, thus creating optimum operator convenience. Graphical visualisation and adjustable settings guarantees a continuous monitoring of the entire production process, along with immediate response to possible problems.



NETWORK SUPPORT

The TPS 84S Graphics can easily be connected to any new or existing network, resulting in easy data transfer (programs) and machine monitoring between the controller and one or multiple PC's. Access to the control is possible from anywhere on the network.

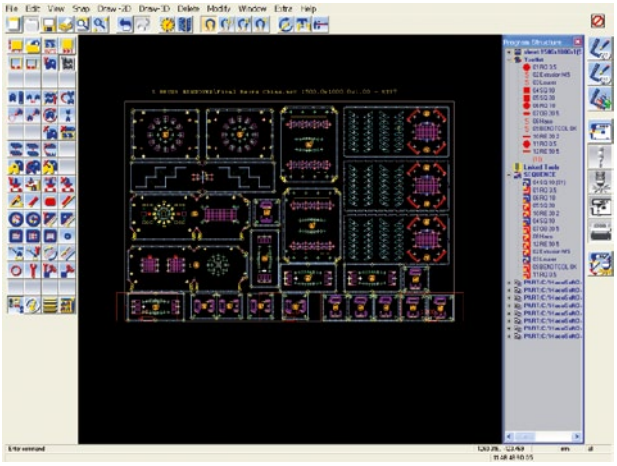
The extensive networking even allows communication between the punching machine and other sheetworking machines, such as press brakes, plasma cutters and guillotine shears.



OPTIONS

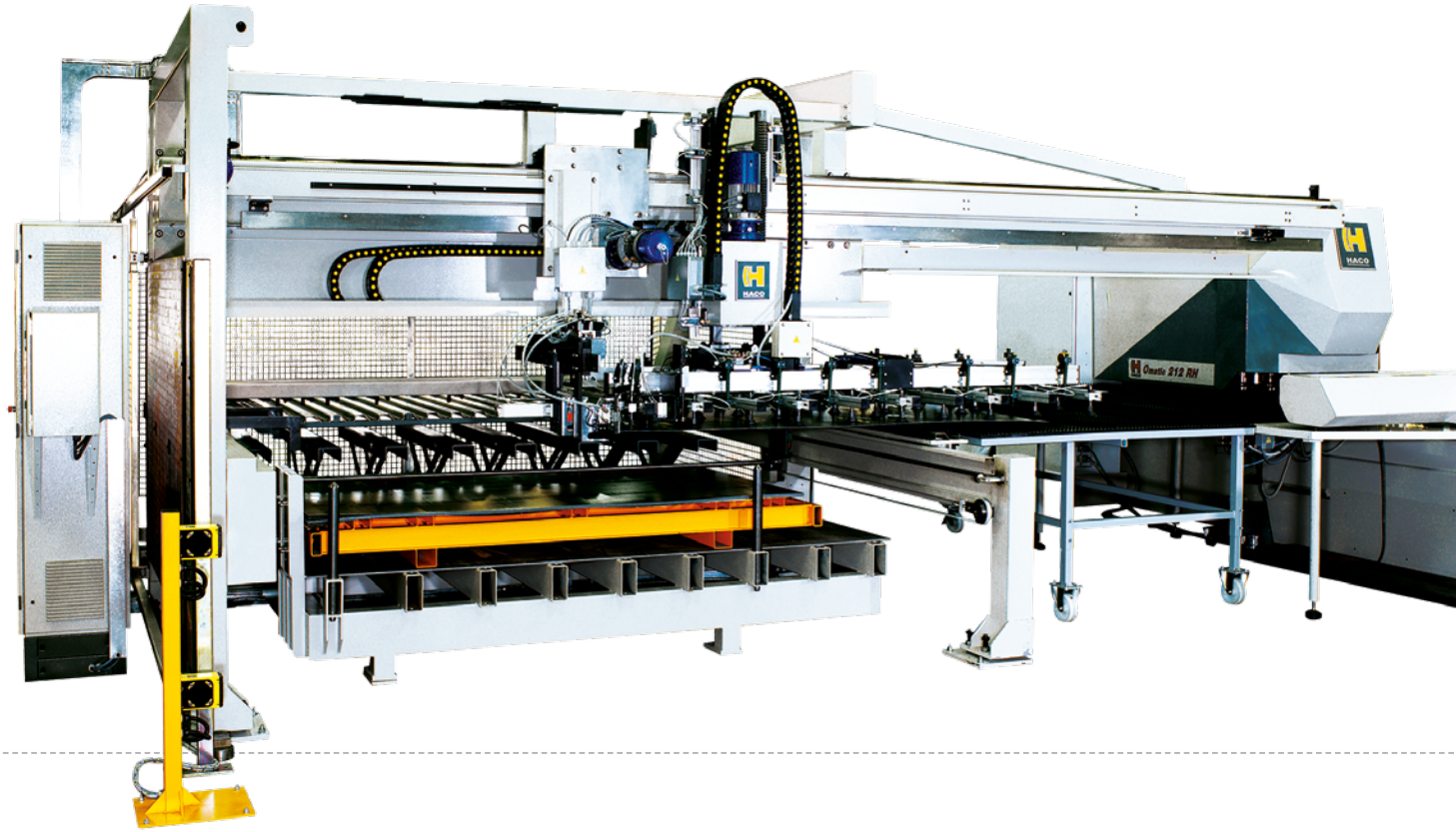
FAST AND SIMPLE PROGRAMMING WITH HACO OFF-LINE SOFTWARE HACO PUNCH PRO

A user-friendly Windows® based software package has been developed for controlling the integrated work-flow and interaction between the different sheetmetal working machines of your workshop. It is available in different flexible modules. In this way, you only need to invest in that software-configuration witch suits your specific work-shop situation. Additionally, packages can be integrated in case of combination of several machines. From 3D design of the work-piece, over tool-assigning, to nesting and editing of the necessary machine programs and parameters, your work-preparation can be done by one software package.



- Windows ® based software.
- Importing of different drawing formats Dxf, Dwg, Dstv…
- Common cut.
- Linking of tools (punch, extrusion, tapping).
- Different nesting possibilities (manual / semi automatic / automatic).
- Simulation and time calculation.
- Generating of nest report.
- Automatic repositioning.
- Automatic part evacuation.
- Pons sequence optimalisation.
- Auto tool function.
- Special programmable functions (delays, speed changes, setting of extra outputs…).

An automatic and semi-automatic sheet loading and unloading system is available on request. The loading and unloading can be done at the same machine side, witch result in a minimum space requirement.



for impressive performances

TECHNICAL SPECIFICATIONS

		Q5 2522-12	Q5 2522-20	Q5 2530-12	Q5 2530-20
GENERAL	Capacity in ton	22 Ton (24 US tons)	22 Ton (24 US tons)	30 Ton (33 US tons)	30 Ton (33 US tons)
	Maximum plate thickness	6,5 mm (0.256")	6,5 mm (0.256")	6,5 mm (0.256")	6,5 mm (0.256")
	Number of indexable tools (standard)	12	20	12	30
	Punching mechanism	servo hydraulic	servo hydraulic	servo hydraulic	servo hydraulic
	CNC control	TPC 84S Graphics (touch screen)	TPC 84S Graphics (touch screen)	TPC 84S Graphics (touch screen)	TPC 84S Graphics (touch screen)
TOOL CONCEPT	Standard	Trumpf® style	Trumpf® style	Trumpf® style	Trumpf® style
	Maximum tool diameter/diagonal	70 mm (2 ¾")	70 mm (2 ¾")	70 mm (2 ¾")	70 mm (2 ¾")
STRIPPER PLATES	Standard	Haco	Haco	Haco	Haco
	Optional	Trumph ®	Trumph ®	Trumph ®	Trumph ®
HITRATES (depending on material thickness, nibbling step, sheet weight)	Punching/nibbling	max. 1200 hpm	max. 1200 hpm	max. 1200 hpm	max. 1200 hpm
AXES STROKES	X-axis	2540 mm (100")	2540 mm (100")	2540 mm (100")	2540 mm (100")
	Y-axis	1535 mm (60,4")	1535 mm (60,4")	1535 mm (60,4")	1535 mm (60,4")
	C-axes (tool rotation)	360°	360°	360°	360°
	Z-axis (programmable in stroke and speed)	37 mm (1 7/16")	37 mm (1 7/16")	37 mm (1 7/16")	37 mm (1 7/16")
AXES SPEEDS (depending on material type and thickness, nibbling steps)	X-axis	120 m/min (4724 ipm)	120 m/min (4724 ipm)	120 m/min (4724 ipm)	120 m/min (4724 ipm)
	Y-axis	80 m/min (3150 ipm)	80 m/min (3150 ipm)	80 m/min (3150 ipm)	80 m/min (3150 ipm)
	Traverse speed	144 m/min (5669 ipm)	144 m/min (5669 ipm)	144 m/min (5669 ipm)	144 m/min (5669 ipm)
ROTATION TIME	C-axes	122 ms/90° rotation	122 ms/90° rotation	122 ms/90° rotation	122 ms/90° rotation
MAX. ACCELERATIONS	X-axis	15 m/s² (590 i/s²)	15 m/s² (590 i/s²)	15 m/s² (590 i/s²)	15 m/s² (590 i/s²)
	Y-axis	10 m/s² (393 i/s²)	10 m/s² (393 i/s²)	10 m/s² (393 i/s²)	10 m/s² (393 i/s²)
	C-axes	500 rev./s²	500 rev./s²	500 rev./s²	500 rev./s²
SHEET DIMENSIONS	X-axis (without repositioning)	2540 mm (100")	2540 mm (100")	2540 mm (100")	2540 mm (100")
	Y-axis (throat depth)	1525 mm (60")	1525 mm (60")	1525 mm (60")	1525 mm (60")
	Max. workpiece weight	200 kg (440 lbs)	200 kg (440 lbs)	200 kg (440 lbs)	200 kg (440 lbs)
PROGRAMMING ACCURACIES	X-Y axes	0,01 mm (0.0004")	0,01 mm (0.0004")	0,01 mm (0.0004")	0,01 mm (0.0004")
POSITIONING ACCURACIES	X-Y axes	±0,05 mm (0.002")	±0,05 mm (0.002")	±0,05 mm (0.002")	±0,05 mm (0.002")
	X-Y axes after repositioning	±0,15 mm (0.006")	±0,15 mm (0.006")	±0,15 mm (0.006")	±0,15 mm (0.006")
POSITION METHODE	Standard	interpolation	interpolation	interpolation	interpolation
SHEET CLAMPS	Clamping system	hydraulic	hydraulic	hydraulic	hydraulic
	Number of clamps	3	3	3	3
	Position checked by CNC-control	yes	yes	yes	yes
	Displacement	automatic	automatic	automatic	automatic
FURTHER STANDARD EQUIPMENT	Automatic sheet repositioning	yes	yes	yes	yes
	Incl. optical safety system according to CE regulations	yes	yes	yes	yes
FURTHER MACHINE SPECIFICATIONS	Weight	13 T	13 T	14 T	14 T
	Width (X-direction)	5600 mm (220,5")	5600 mm (220,5")	5600 mm (220,5")	5600 mm (220,5")
	Length (Y-direction)	5400 mm (212,6")	5400 mm (212,6")	5400 mm (212,6")	5400 mm (212,6")
	Height	2270 mm (90")	2270 mm (90")	2270 mm (90")	2270 mm (90")
	Max. power consumption (50 Hz)	34 kW (46 hp)	34 kW (46 hp)	34 kW (46 hp)	34 kW (46 hp)
	Max. power consumption (60 Hz)	41 kW (55,70 hp)	41 kW (55,70 hp)	41 kW (55,70 hp)	41 kW (55,70 hp)
	Average power consumption ca (50 Hz)	8 kW (10.73 hp)	8 kW (10.73 hp)	8 kW (10.73 hp)	8 kW (10.73 hp)
	Average power consumption ca (60 Hz)	11 kW (14.75 hp)	11 kW (14.75 hp)	11 kW (14.75 hp)	11 kW (14.75 hp)
	Standby-consumption	0.6 kW (0.8 hp)	0.6 kW (0.8 hp)	0.6 kW (0.8 hp)	0.6 kW (0.8 hp)
	Compressed air supply	6 bar (87 psi)	6 bar (87 psi)	6 bar (87 psi)	6 bar (87 psi)

Specifications can be changed without prior notice.

HACO OFFERS ALSO:

01

HYDRAULIC PRESSBRAKES

Hydraulic conventional pressbrakes, type PPM. Up to 10 axis CNC controlled hydraulic Pressbrakes, type Euromaster, Synchromaster.

Capacity of 40 up to 3000 tons. Single or tandem configuration.

02

CNC PLASMA CUTTING MACHINES

CNC plasma and oxy-fuel cutting machines type Kompakt and Proxima. From 2 x 1 meter (6' x 3') up to 30 x 6 meter (98' x 20').

03

AUTOMATIC CNC DRILLING LINE

Type drillflex for sections and profiles. Max. drilling diameter 40 mm (1.57"). Travelling column with supporting table. Length: 12 - 24 m (40' - 80')

for impressive performances

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