

Q5



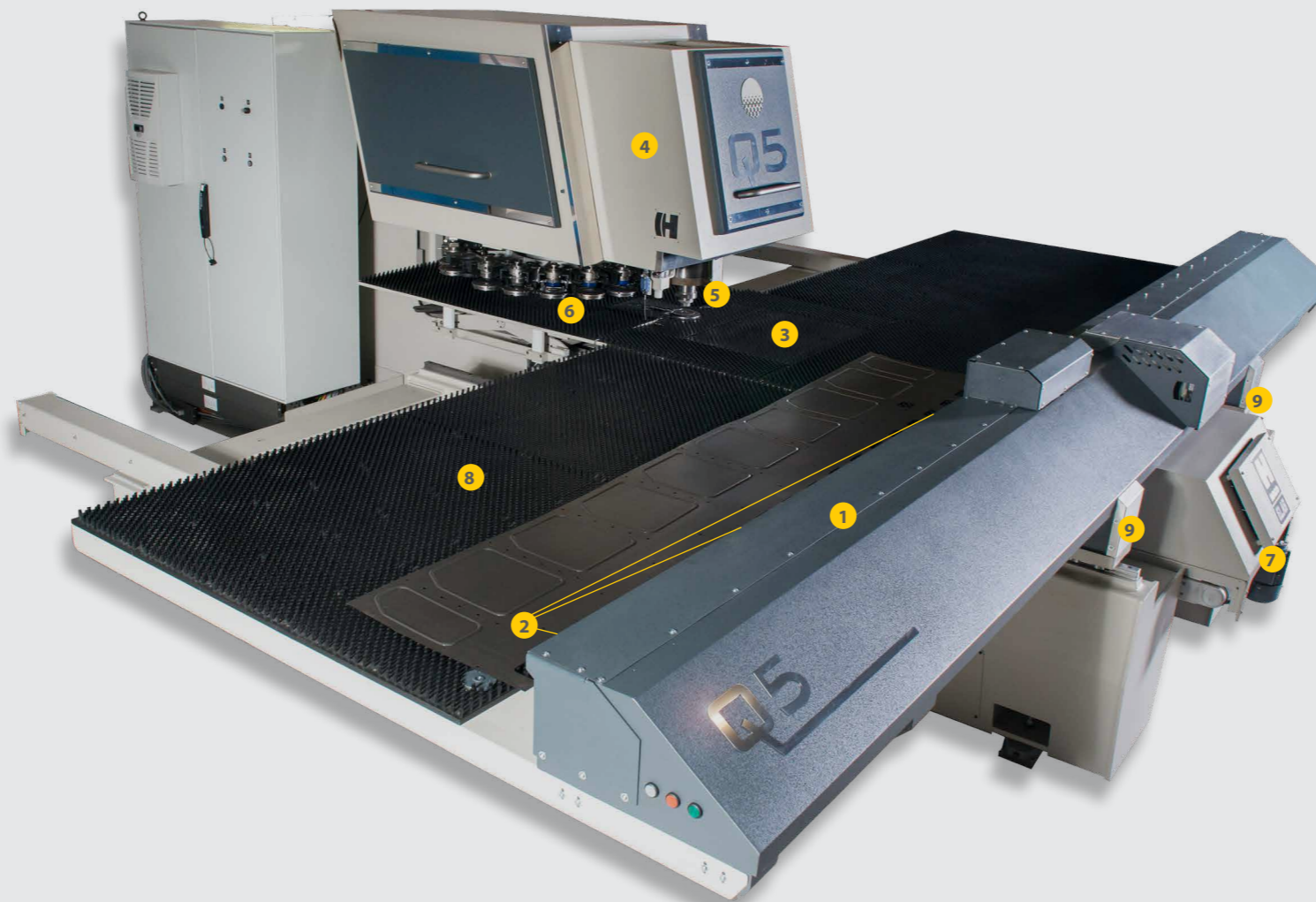
Q5
Punching Machines
Sheet Metal

Q5: SO MUCH MORE THAN JUST A PUNCH PRESS

With its 22 or 30 ton 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.

- 1 X-axis up to 3000 mm (rack & pinion)
- 2 3 CNC Movable Sheet Clamps
- 3 Big Part Chute Door (750 x 1500 mm)
- 4 22-30 ton HS Hybrid Servo-Electric Hydraulic Punching Head
- 5 All tools are 360° Auto Indexable
- 6 20 Station Automatic Bi-directional Tool Changer
- 7 Output Conveyor for evacuated parts
- 8 Fully supported Brush Table
- 9 Y-axes Gantry System (y1,y2)

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 brush tables... are just some of the characteristics of the Haco Q5.



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") or 3000 by 1524 mm (120" by 60") and 3 hydraulic sheet clamps with minimal 'dead zone' 225 by 95 mm (8.85" by 3.74") ensure the highest accuracy on all workpieces (optional CNC moveable)

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 Automatic Tool Changer (ATC). Each tool station can take any kind of tool (small or large) including indexable Multitools.

Loading of the toolchanger is safe, fast and easy. The fast automatic tool change system places the active tool from the toolchanger 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 'backlash 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 time.

STANDARD EXECUTION

- High speed Hybrid Servo-Electric-Hydraulic Punching Head.
- 7 Axis CNC TPS 84S Graphics Control with 15" Touch Screen.
- 4 Repositioning Cylinders (2 upper and 2 lower).
- 3 Hydraulic, CNC Movable Sheet Clamps.
- 6 Sibration dampers.
- 20 Station Automatic Tool Changer (ATC).
- Slug vacuum suction device.
- CE Optical Safety System around machine.
- Double Y axis Drive System (Y1, Y2).

OPTIONS

- Tool holder
- Part Chute door 700x500 mm with part detection sensors.
- Large Part Chute door 750x1500 mm with part detection sensors.
- Quick tool set for tool alignment
- Automatic oil spray system for tool lubrication
- Automatic CNC movable sheet clamps
- 7 Axis CNC TPS 84S graphics control with 22" full HD Touch Screen

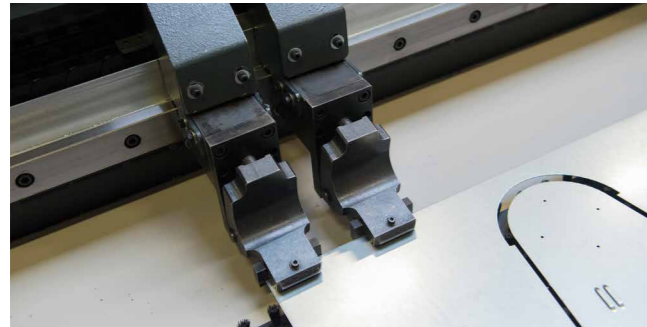
ADVANTAGES

- All tools are 360° high speed auto indexable.
- Easy, safe and fast loading of tools into the toolchanger.
- Each tool station takes any tool (also indexable MultiTool).
- No complex toolchanger composition = faster set-up.
- No toolchanger station wear, no toolchanger adjustments.
- Better adjustment for punch and die clearance than classic turret punching machines.
- Positive tool clamping (no spring forced returning stroke).
- 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.

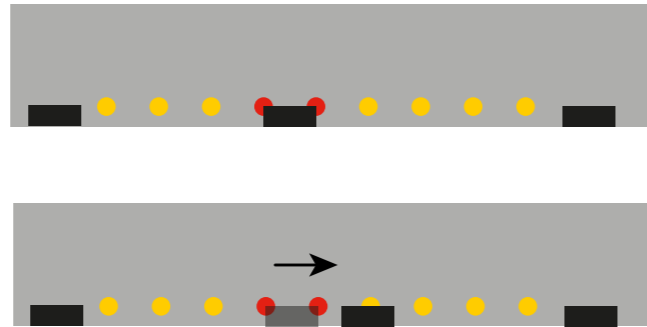
- Automatic clamp setting by CNC = faster production times.
- Fast toolchange done by bidirectional rotation of the floating tool-changer that selects automatically the shortest rotation to the next tool.
- Standard slug suction device avoids the use of expensive 'slug stop dies'.
- Double Y axes gantry for maximum speed and accuracy.
- Helical Rack and pinion drive for X-axis.
- Big part chute door with part sensor and integrated conveyor belt.
- Energy saving via energy recovering from the motor drivers.
- Up to 75 mm bending height

PRODUCTIVITY THROUGH FLEXIBILITY... AND INDEXABILITY

AUTOMATIC SINGLE CLAMP MOVE: PART ACCURACY

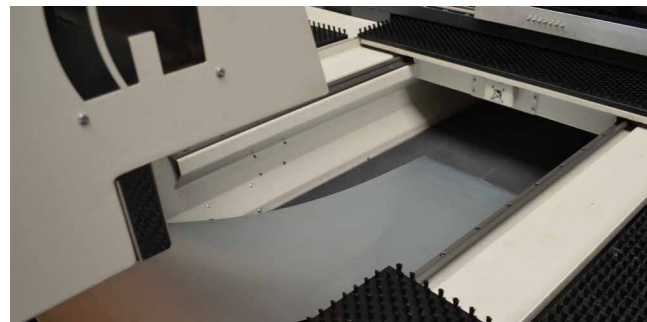


Optionally the clamps are set automatically according to the CNC program, minimizing clamp dead zones. When changing production from full size to small sheets, clamps settings can be made automatically without the risk of operator mistakes and without wasting operator time.



Every clamp is individually movable while the sheet is still clamped in the two other clamps, resulting in better part accuracy. Traditional reposition with all clamps together can be made as well.

GIANT PART CHUTE DOOR WITH CONVEYOR BELT



750mm x 500 or 1500mm

More flexibility and reduced labour costs with the Q5 optional giant part chute door. Automatic part chute door with part detection sensor and integrated conveyor belt to unload the finished parts automatically to the front of the machine.

360° INDEXABILITY OF ALL PUNCHING TOOLS



High speed bidirectional tool rotation

The robust high-speed hybrid 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 punching machine. With the large fully-brushed sheet support tables and the standard repositioning cylinders, all standard sheet sizes can be processed.

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.

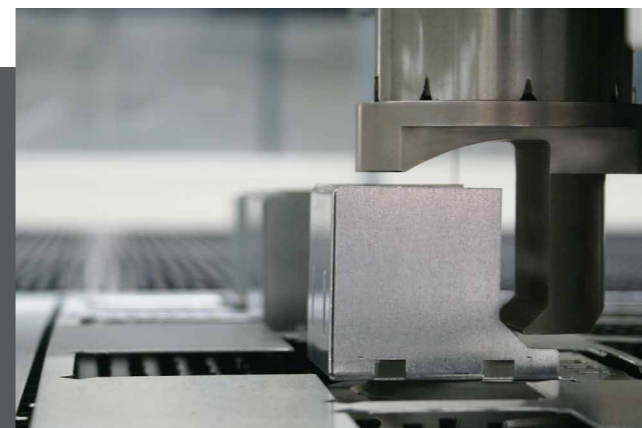
As the punch is connected to the punching head, it always returns to the same position. This prevents the punch to stick in the plate, an inconvenient but unavoidable problem with the traditional spring-forced return stroke of most classic toolchanger machines.

REDUCE TAPPING COSTS



Traditional float tapping or rigid tapping with interpolation, your choice. With the Q series single head punching machines you can use the traditional float tapping system, using a special tap holder. This special float tapping holder will generate the down and up movement for the tap while the C1 axis generating the tap rotation.

Revolutionary rigid tapping uses the interpolation capability of the Z and C1 Axis. The tap rotation is still generated by the C1 axis while the tap moves down/up by the use of the Z-axis. With rigid tapping you only need a standard punch holder and a tap insert.



The Q5: exceptionally fast forming capabilities. With a bending height of 75mm (3.0 Inches) in a variety of angles and even on parts which are nested in other locations than 0° - 45° and 90° your punch press becomes a multifunctional part processing machine.



To increase its flexibility even more, the HACO Q5 Series can take 5 or 10 station indexable multitools. We offer a complete range of tools for special applications such as louvers, embossing, forming, bending, tapping, marking and all wheel tools.

USER-FRIENDLY GRAPHICAL PROGRAMMING

The user friendly TPS 84S Graphics control with full 15" or optional 22" HD Touch Screen

The **TPS 84S** Graphics offers you 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 design using the know-how and experience of many years offers everything you need to fit the high demands in contemporary punching. The highspeed 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.

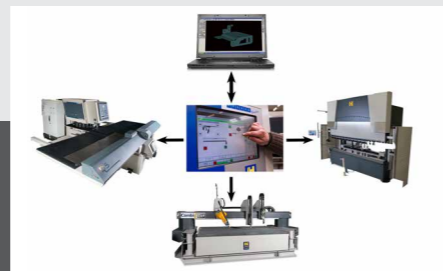


- 15" or optional 22" wide screen 16/9 full HD touchscreen.
- 1920 x 1080 pixels.
- High-performance PC-based hardware.
- Windows 7® - type user interface.
- Edit and import of program code.
- Unlimited graphical tool database.
- Mm or Inch.
- Network support.
- USB port.
- Language support.
- Tele support.
- Graphical simulation of program code.
- PDF manuals on CNC



ADVANCED USER INTERFACE

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

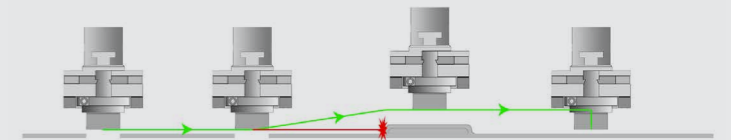


NETWORK SUPPORT

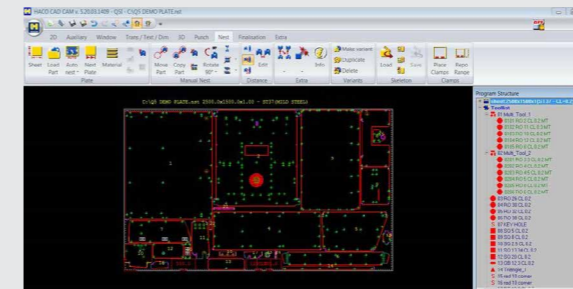
The TPS 84S Graphics can easily be connected to any new or existing network, resulting in easy data transfer (programs) and machine monitoring between the controller and one or multiple PC's. Access to the control is possible from anywhere on the network. The extensive networking even allows communication between the punching machine and other sheetworking machines, such as press brakes and plasma cutting machines.

Adaptive Stroke Optimizes Productivity and Safety

The software will automatically calculate the optimum retraction height for every ram stroke. This ensure that the tool is kept close to the sheet when travelling from one position to another, this in order to increase the productivity. The software automatically increases the ram stroke when travelling over deformations to avoid tool collisions.



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 workshop situation. Additionally, packages can be integrated in case of combination of several machines. From 3D design of the workpiece, 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.
- Tool linking (punch, extrusion, tapping).
- Different nesting possibilities (manual/semi automatic/automatic)
- Simulation and time calculation.
- Generating of nest report.
- Automatic repositioning.
- Automatic part evacuation.
- Punch sequence optimisation.
- Auto tool function.
- Special programmable functions (delays, speed changes, setting of extra outputs...).
- Wheel tool programming (option)
- Adaptive stroke

Automatic and Semi Automatic Sheet Loading, Unloading System

This automatic systems with part sorting capability and complete warehouse systems are available with the Q-series punching machines. The loading and unloading can be done at the same machine side, which results in a minimum space requirement.



TECHNICAL SPECIFICATIONS

* With indexable Multi-Tool

	* = optional	Q5 2522-20i	Q5 2530-20i	Q5 3022-20i	Q5 3030-20i
GENERAL	Capacity in ton	22 Ton (24US tons)	30 Ton (33US tons)	22 Ton (24US tons)	30 Ton (33US tons)
	Maximum plate thickness	6,5mm (0,256")	6,5mm (0,256")	6,5mm (0,256")	6,5mm (0,256")
	Number of indexable tools (standard)	20 - 200*	20 - 200*	20 - 200*	20 - 200*
	Punching mechanism	Hybrid servo electro-hydraulic	Hybrid servo electro-hydraulic	Hybrid servo electro-hydraulic	Hybrid servo electro-hydraulic
	CNC control	TPC 84S Graphics	TPC 84S Graphics	TPC 84S Graphics	TPC 84S Graphics
		Full HD touch screen	Full HD touch screen	Full HD touch screen	Full HD touch screen
TOOL CONCEPT	Standard	Trumpf® style	Trumpf® style	Trumpf® style	Trumpf® style
	Maximum tool diameter/diagonal	75mm (3")	75mm (3")	75mm (3")	75mm (3")
STRIPPERPLATES	Standard	Trumpf® Style steel strippers	Trumpf® Style steel strippers	Trumpf® Style steel strippers	Trumpf® Style steel strippers
	Optional	Urithane Strippers (2-4-1 Style)	Urithane Strippers (2-4-1 Style)	Urithane Strippers (2-4-1 Style)	Urithane Strippers (2-4-1 Style)
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")	3048 mm (120")	3048 mm (120")
	Y1-Y2-Axes	1535 mm (60,4")	1535 mm (60,4")	1535 mm (60,4")	1535 mm (60,4")
	C-Axis (Tool Rotation)	360°	360°	360°	360°
	Z-Axis (programmable in stroke and speed)	37mm (1,456")	37mm (1,456")	37mm (1,456")	37mm (1,456")
AXES SPEEDS (depending on material thickness, sheet weight)	X-Axis	150 m/min (5905 IPM)	150 m/min (5905 IPM)	150 m/min (5905 IPM)	150 m/min (5905 IPM)
	Y1-Y2-Axes	80 m/min (3149 IPM)	80 m/min (3149 IPM)	80 m/min (3149 IPM)	80 m/min (3149 IPM)
	Traverse speed	170 m/min (6692 IPM)	170 m/min (6692 IPM)	170 m/min (6692 IPM)	170 m/min (6692 IPM)
ROTATION TIME	C-Axes (Tool rotation)	122ms/90° tool rotaton	122ms/90° tool rotaton	122ms/90° tool rotaton	122ms/90° tool rotaton
MAX. ACCELERATIONS	X-Axis	3,57 G	3,57 G	3,57 G	3,57 G
	Y1-Y2-Axes	1,27 G	1,27 G	1,27 G	1,27 G
	C-Axes (Tool Rotation)	1256 rev/s ²	1256 rev/s ²	1256 rev/s ²	1256 rev/s ²
SHEET DIMENSIONS	X-Axis before repositioning	2540 mm (100")	2540 mm (100")	3048 mm (120")	3048 mm (120")
	Y- Axes (throat depth)	1524 mm (60")	1524 mm (60")	1524 mm (60")	1524 mm (60")
	Max. sheet weight	200 kg (440 lbs)	200 kg (440 lbs)	250 kg (550 lbs)	250 kg (550 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 - per meter	X-Y Axes	+/_ 0,1 mm (+/_ 0,003")	+/_ 0,1 mm (+/_ 0,003")	+/_ 0,1 mm (+/_ 0,003")	+/_ 0,1 mm (+/_ 0,003")
SHEET CLAMPS	Number of clamps	3 Hydraulic	3 Hydraulic	3 Hydraulic	3 Hydraulic
	Position checked y CNC control	YES	YES	YES	YES
	Clamp settings *	Automatic	Automatic	Automatic	Automatic
	Automatic repositioning of 3 clamps together	YES	YES	YES	YES
	Automatic Individual clamp repositioning *	YES	YES	YES	YES
PART SHUTE DOOR DIMENSIONS	Small part shute door *	700mm x 500mm (27,6" x 19,6")	700mm x 500mm (27,6" x 19,6")	700mm x 500mm (27,6" x 19,6")	700mm x 500mm (27,6" x 19,6")
	Small + big part shute door *	700mm x1500mm (27,6" x 60")	700mm x1500mm (27,6" x 60")	700mm x1500mm (27,6" x 60")	700mm x1500mm (27,6" x 60")
FURTHER STANDARD EQUIPMENT	Automatic sheet repositoning	YES	YES	YES	YES
	slug vacuum pump	YES	YES	YES	YES
	Too lubrication system *	YES	YES	YES	YES
	Energy recuperation system	YES	YES	YES	YES
FURTHER MACHINE SPECIFICATIONS	Weight	13000Kg (28000lbs)	14000 Kg (30800 lbs)	13000 Kg (28000 lbs)	14000 Kg (30800 lbs)
	Width (X-direction)	5600 mm (18,37 ft)	5600 mm (18,37 ft)	6400 mm (21 ft)	6400 mm (21 ft)
	Lenght (Y-direction)	5400 mm (17,71 ft)	5400 mm (17,71 ft)	5400 mm (17,71 ft)	5400 mm (17,71 ft)
	Height	2270 mm (7,45 ft)	2270 mm (7,45 ft)	2270 mm (7,45 ft)	2270 mm (7,45 ft)
	Max. Power consumption (50Hz)	34 kW (46 hp)	34 kW (46 hp)	34 kW (46 hp)	34 kW (46 hp)
	Max. Power consumption (60Hz)	41 Kw (55,7 hp)	41 Kw (55,7 hp)	41 Kw (55,7 hp)	41 Kw (55,7 hp)
	Average Power consumption (50Hz)	7,8 Kw (10,4 hp)	7,8 Kw (10,4 hp)	7,8 Kw (10,4 hp)	7,8 Kw (10,4 hp)
	Average Power consumption (60Hz)	9,4 Kw (12,6 hp)	9,4 Kw (12,6 hp)	9,4 Kw (12,6 hp)	9,4 Kw (12,6 hp)
	Stadby 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)

HACO ALSO OFFERS



PLASMA CUTTING

Haco offers you a varied range of plasma cutting machinery, designed based on our extended experience in the field.



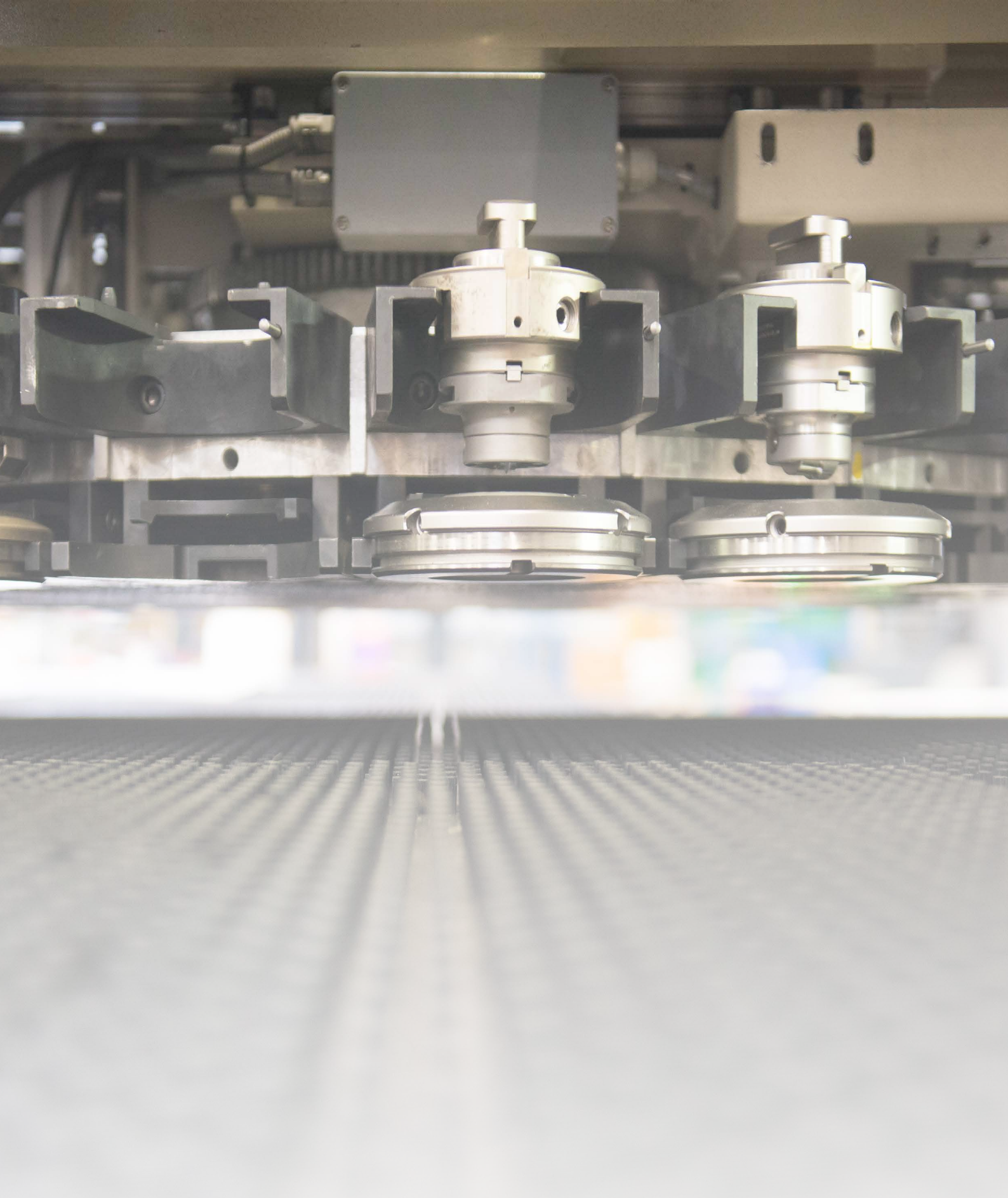
CNC PRESS BRAKES

Haco is a specialist in sheet metal fabrication and routinely produces press brakes for a diverse group of industries on both ends of the spectrum.



CNC SHEARS

We offer hydraulic sheet metal guillotine shears that can cut up to 32 mm thick mild steel sheets, up to 6 m long.



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