

Q-SERIES



Q5, Q4, Q3
CNC Punching Machines
Sheet Metal

Q5: SO MUCH MORE THAN JUST A PUNCH PRESS

With its 22 or 30 ton high-speed hybrid servo hydraulic punching head, Y-axis (throat) of 1525 mm (60") and high speed rotation axis for all tools, the Haco Q5 is the perfect and most flexible CNC turret punching machine. The Haco Q5 series can handle medium and large sheet formats (2.500 x 1.500 mm or 3.000 x 1.500mm). With a free clearance of 80 mm between brush table and ATC, the Q5 is not only ideal for punching, but also for high forming applications. The giant part chute door and high speed sheet movements guarantee high volume production performances.

- 1 X-axis: 2.500 or 3.000 mm (rack & pinion)
- 2 Y-axes Gantry System (Y1-Y2)
- 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 evacuation of parts
- 8 Fully supported Brush Tables
- 9 3 CNC Programmable and Movable Sheet Clamps

The overdimensioned frame is stress-relieved by thermal treatment before machining, 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 and 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-axes with resp. stroke of 2540 by 1580 mm (100" by 62") or 3000 by 1580 mm (120" by 62") 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.

The high-speed punching head and the possibility of fast rotation on all tools results in the shortest production times with a minimum number of tools. The Haco Q5 has standard a n 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 positions the active tool from the toolchanger into the punching head. Traditional 'turret wear' is hereby eliminated. The Q5 concept allows rotating (auto-indexing) of all tools at a speed of 122 ms for 90° tool rotation which is considerably increasing the performance 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 two synchronized torque motors (punch and die). These direct drive systems 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

STANDARD EXECUTION

- High speed Hybrid Servo-Electric-Hydraulic Punching Head.
- 7 Axes CNC TPS 845 Graphics Control with 22" Touch Screen.
- 4 Repositioning Cylinders (2 upper and 2 lower).
- 3 Hydraulic, Automatic CNC Programmable Sheet Clamps.
- 8 Vibration dampers.
- 20 Station Automatic Tool Changer (ATC).
- Slug vacuum suction device.
- CE Optical Safety System around machine.
- Double Y axes Drive System (Y1, Y2).

OPTIONAL

- Part Chute door 700x500 mm with part detection sensors.
- Large Part Chute door 750x1500 mm with part detection sensors.
- Automatic oil spray system for tool lubrication.

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 return stroke).
- Full control of Z-axis stroke.
- Axis interpolation (application of wheel tools and rigid tapping).
- Stripping plate with hold down function.
- Urethane strippers for scratch free production.
- Programs can be nested at every angle which results in optimal sheet usage and minimum rest sheet.
- Automatic clamp setting by CNC = faster production times.
- Single Clamp repositioning.
- Automatic clamp repositioning by CNC = max. sheet usage.
- Fast toolchange done by bi-directional rotation of the floating tool-changer that selects automatically the shortest rotation to the next tool.
- Standard slug vacuum pump avoids the need 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

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	76,4 mm (3")	76,4 mm (3")	76,4 mm (3")	76,4 mm (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	1580 mm (62")	1580 mm (62")	1580 mm (62")	1580 mm (62")
	Axes (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	C1 - C2 - Axes	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
	C1 - C2 - Axes	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- Axis (throat depth)	1580 mm (62")	1580 mm (62")	1580 mm (62")	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 CHUTE DOOR DIMENSIONS	Small part chute door (X,Y) *	750mm x 550mm (29,5" x 21,65")	750mm x 550mm (29,5" x 21,65")	750mm x 550mm (29,5" x 21,65")	750mm x 550mm (29,5" x 21,65")
	Big part chute door *	750mm x1500mm (29,5" x 60")	750mm x1500mm (29,5" x 60")	750mm x1500mm (29,5" x 60")	750mm x1500mm (29,5" x 60")
FURTHER STANDARD EQUIPMENT	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)
	Connection load (50Hz)	34 kW (46 hp)	34 kW (46 hp)	34 kW (46 hp)	34 kW (46 hp)
	Connection load (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)
OTHER INFO	Clearance between table and ATC	80 mm (3,15 ")	80 mm (3,15 ")	80 mm (3,15 ")	80 mm (3,15 ")
	Bending capability	70mm	70mm	70mm	70mm

Q3-Q4: A perfect punching machine

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 Q3/Q4 is the perfect and most flexible CNC turret punching machine. The Haco Q-series convert 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 2000 mm (Q3) and 2.500 mm (Q4)
- 2 Y-axis (1.500 mm)
- 3 Part Chute Door
- 4 22-30 ton HS Hybrid Servo-Electric Hydraulic Punching Head
- 5 All tools are 360° Auto Indexable
- 6 12 or 20 Station Automatic Bi-directional Tool Changer
- 7 Output Conveyor for evacuated parts (option)
- 8 Fully supported Brush Tables
- 9 3 Programmable Sheet Clamps

The overdimensioned frame is stress-relieved by thermal treatment before machining, 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 and the large sheet support brush tables are just some of the characteristics of the Haco Q3-Q4 Series.



On the large standard brush tables, various workpieces can be nested on standard sheet sizes. The fast AC-servo driven X- and Y-axes with resp. stroke of 2032 by 1524 mm (80" by 60") on Q3 or 2540 by 1524 mm (100" by 60") on Q4 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 programmable).

The high-speed punching head and the possibility of fast rotation on all tools results in the shortest production times with a minimum number of tools. The Haco Q-series has standard an 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 positions the active tool from the toolchanger into the punching head. Traditional 'turret wear' is hereby eliminated. The Q-series concept allows rotating (auto-indexing) of all tools at a speed of 122 ms for 90° tool rotation which is considerably increasing the performance and flexible application of the tooling. Moreover, the number of necessary tools can be reduced with 40 up to 70%!

The rotation is accomplished by means of two synchronized torque motors (punch and die). These direct drive systems are designed as backlash free direct drives. Direct coupling of the payload to the rotor eliminates the need for mechanical transmission elements such as gearboxes, timing belts, speed reducers and worm gear drives. Dynamic performance is drastically improved by applying direct drive due to the very high control loop bandwidth that can be achieved on the overall system. Direct drive torque motors deliver high torque over a wide range of speed, from a stalled or low speed condition to high angular velocities.

STANDARD EXECUTION

- High speed Hybrid Servo-Electric-Hydraulic Punching Head.
- 6 Axis CNC TPS 84S Graphics Control with 20" Touch Screen.
- 4 Repositioning Cylinders (2 upper and 2 lower).
- 3 Hydraulic, Movable Sheet Clamps.
- 6 Vibration dampers.
- 12/20 Station Automatic Tool Changer (ATC).
- Slug vacuum suction device.
- CE Optical Safety System around machine.

OPTIONAL

- Tool holders
- Part Chute door 300 x 470 mm (11,8" x 18,5")
- Large Part Chute door 350 x 630 mm (13,8" x 24,8") with part evacuation belt.
- Quick tool set for tool alignment
- Automatic oil spray system for tool lubrication

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 return stroke).
- Full control of Z-axis stroke.
- Axis interpolation (application of wheel tools and rigid tapping is possible).
- Stripping plate with hold down function.
- Urethane strippers for scratch free production.
- Programs can be nested at every angle which results in optimal sheet usage and minimum rest sheet.
- Automatic clamp repositioning by CNC = max. sheet usage.
- Fast toolchange due to bidirectional rotation of the floating tool-changer that selects automatically the shortest rotation to the next tool.
- Standard slug vacuum pump avoids the need of expensive 'slug stop dies'.
- 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.

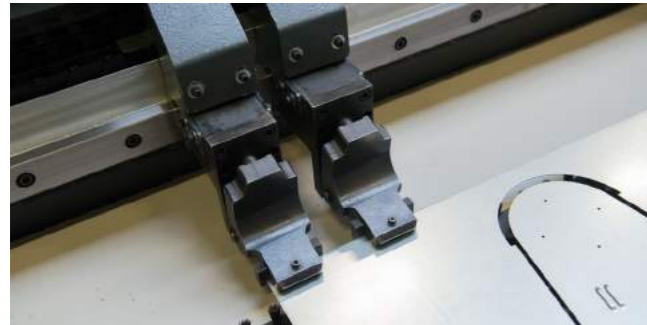
TECHNICAL SPECIFICATIONS

* With indexable Multi-Tool

	* = optional	Q3 2022-12i / Q3 2030-12i	Q3 2022-20i / Q3 2030-20i	Q4 2522-12i	Q4 2522-20i
GENERAL	Capacity in ton	22 Ton (24US tons) / 30 Ton (33US tons)	22 Ton (24US tons) / 30 Ton (33US tons)	22 Ton (24US tons)	22 Ton (24US 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)	12 - 120*	20 - 200*	12 - 120*	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
		22" Full HD touch screen	22" Full HD touch screen	22" Full HD touch screen	22" Full HD touch screen
TOOL CONCEPT	Standard	Trumpf® style	Trumpf® style	Trumpf® style	Trumpf® style
	Maximum tool diameter/diagonal	76,4 mm (3")	76,4 mm (3")	76,4 mm (3")	76,4 mm (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. 700 hpm	max. 700 hpm
AXES STROKES	X-Axis	2032 mm (80")	2032 mm (80")	2540 mm (100")	2540 mm (100")
	Y-Axis	1600mm (63")	1600mm (63")	1600mm (63")	1600mm (63")
	C1-C2-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	80 m/min (3149 IPM)	80 m/min (3149 IPM)	80 m/min (3149 IPM)	80 m/min (3149 IPM)
	Y1-Y2-Axes	80 m/min (3149 IPM)	80 m/min (3149 IPM)	60 m/min (2362 IPM)	60 m/min (2362 IPM)
	Traverse speed	113 m/min (4448 IPM)	113 m/min (4448 IPM)	100 m/min (3937 IPM)	100 m/min (3937 IPM)
ROTATION TIME	C1-C2-Axes	122ms/90° tool rotaton	122ms/90° tool rotaton	122ms/90° tool rotaton	122ms/90° tool rotaton
MAX. ACCELERATIONS	X-Axis	1,53 G	1,53 G	1,22 G	1,22 G
	Y1-Y2-Axes	1,53 G	1,53 G	0,81 G	0,81 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	2032 mm (80")	2032 mm (80")	2540 mm (100")	2540 mm (100")
	Y- Axis (throat depth)	1600mm (63")	1600mm (63")	1600mm (63")	1600mm (63")
	Max. sheet weight	150 kg (330 lbs)	150 kg (330 lbs)	170 kg (374 lbs)	170 kg (374 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 *	NO	NO	NO	NO
	Automatic repositioning of 3 clamps together	YES	YES	YES	YES
	Automatic Individual clamp repositioning *	NO	NO	NO	NO
PART CHUTE DOOR DIMENSIONS	Small part chute door (X,Y) *	300mm x 470mm (11,8" x 18,5")	300mm x 470mm (11,8" x 18,5")	300mm x 470mm (11,8" x 18,5")	300mm x 470mm (11,8" x 18,5")
	Big part chute door *	350mm x 630mm (13,8" x 24,80")	350mm x 630mm (13,8" x 24,80")	350mm x 630mm (13,8" x 24,80")	350mm x 630mm (13,8" x 24,80")
FURTHER STANDARD EQUIPMENT	slug vacuum pump	YES	YES	YES	YES
	Too lubrication system *	OPTION	OPTION	OPTION	OPTION
	Energy recuperation system	YES	YES	YES	YES
FURTHER MACHINE SPECIFICATIONS	Weight	11000 Kg (24200 lbs) / 12000 Kg (26400lbs)	11000 Kg (24200 lbs) / 12000 Kg (26400lbs)	11000 Kg (24200 lbs)	11000 Kg (24200 lbs)
	Width (X-direction)	4080 mm (13,38 ft)	4080 mm (13,38 ft)	5100 mm (16,73 ft)	5100 mm (16,73 ft)
	Lenght (Y-direction)	5310 mm (17,42 ft)	5310 mm (17,42 ft)	5650 mm (18,54 ft)	5650 mm (18,54 ft)
	Height	2270 mm (7,45 ft)	2270 mm (7,45 ft)	2270 mm (7,45 ft)	2270 mm (7,45 ft)
	Connection load (50Hz)	25 kW (33,5 hp)	25 kW (33,5 hp)	25 kW (33,5 hp)	25 kW (33,5 hp)
	Connection load (60Hz)	32 Kw (43 hp)	32 Kw (43 hp)	32 Kw (43 hp)	32 Kw (43 hp)
	Average Power consumption (50Hz)	7,5 Kw (10 hp)	7,5 Kw (10 hp)	7,5 Kw (10 hp)	7,5 Kw (10 hp)
	Average Power consumption (60Hz)	8,3 Kw (1,13 hp)	8,3 Kw (1,13 hp)	8,3 Kw (1,13 hp)	8,3 Kw (1,13 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)
OTHER INFO	Clearance between table and ATC	25mm (1")	25mm (1")	25mm (1")	25mm (1")
	Bending capability	70mm	70mm	70mm	70mm

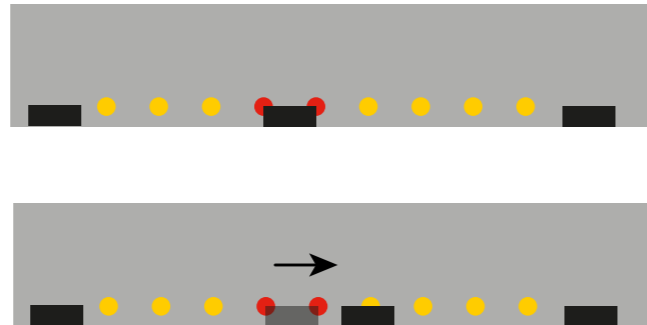
PRODUCTIVITY THROUGH FLEXIBILITY... AND INDEXABILITY

AUTOMATIC SINGLE CLAMP MOVE: PART ACCURACY



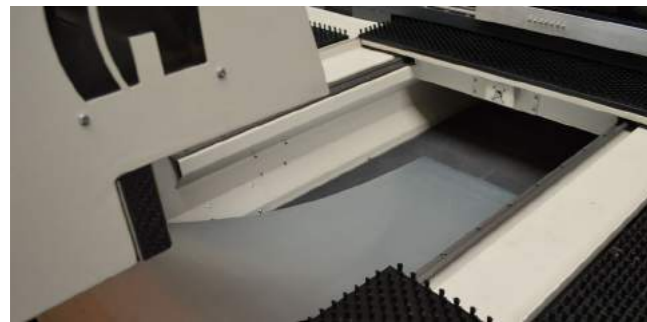
The clamps are set automatically according to the CNC program, minimizing clamp dead zones. When changing production from full size to small sheets, clamp settings can be made automatically without the risk of operator mistakes and without wasting operator time.

** ONLY ON Q5*



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

GIANT PART CHUTE DOOR WITH CONVEYOR BELT



750mm x 500 or 750mm x 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.

** ONLY ON Q5*

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 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 Q-series into highly flexible punching machines. 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 acting as 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, serving as a hold-down, leading to minimum material deformation.
- It ensures that the plate is stripped from the punch during the return stroke.

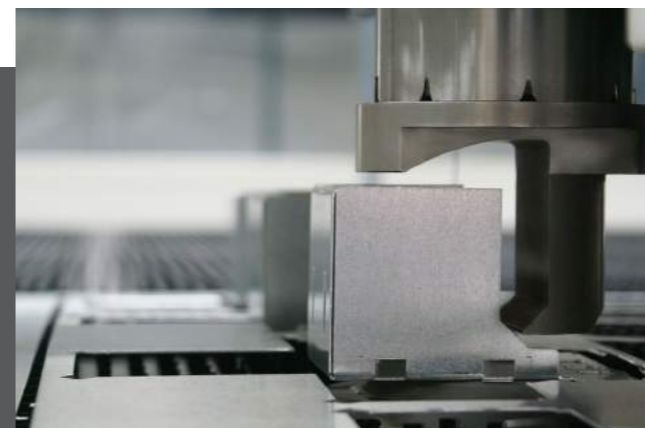
As the punch is connected to the punching head, it always returns to the same position. This prevents the punch to stick in the plate, an inconvenient but unavoidable problem with the traditional spring-forced return stroke of most classic toolchanger machines.

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 through the Z-axis. With rigid tapping you only need a standard punch holder and a tap insert.



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 Q-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, 40 character ID stamping, marking and all wheel tools.

USER-FRIENDLY GRAPHICAL PROGRAMMING

The user friendly TPS 84S Graphics control (Siemens 840®D) 22" full 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.

The 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.

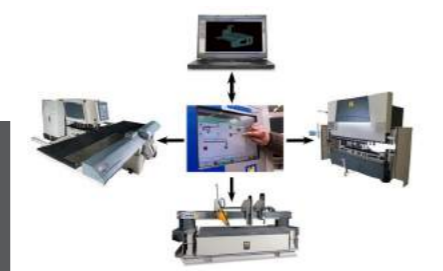


- 22" wide screen 16/9 full HD touchscreen (20" Q3/Q4)
- 1920 x 1080 pixels.
- High-performance PC-based hardware.
- Windows 7® - type user interface.
- Edit and import of program code.
- Unlimited graphical tool database.
- Mm or Inch.
- Network support.
- USB port.
- Language support.
- Tele support.
- 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, creating optimum operator convenience. Graphical visualisation and adjustable settings guarantees a continuous monitoring of the entire production process.

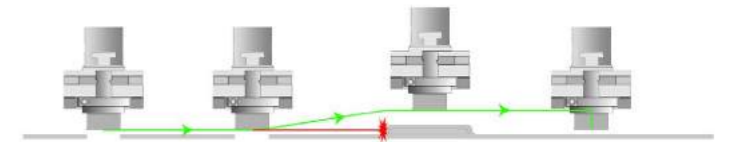


NETWORK SUPPORT

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 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. Loading and unloading can be done at the same machine side, which results in a minimum space requirement.



HACO ALSO OFFERS



PLASMA CUTTING MACHINES

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



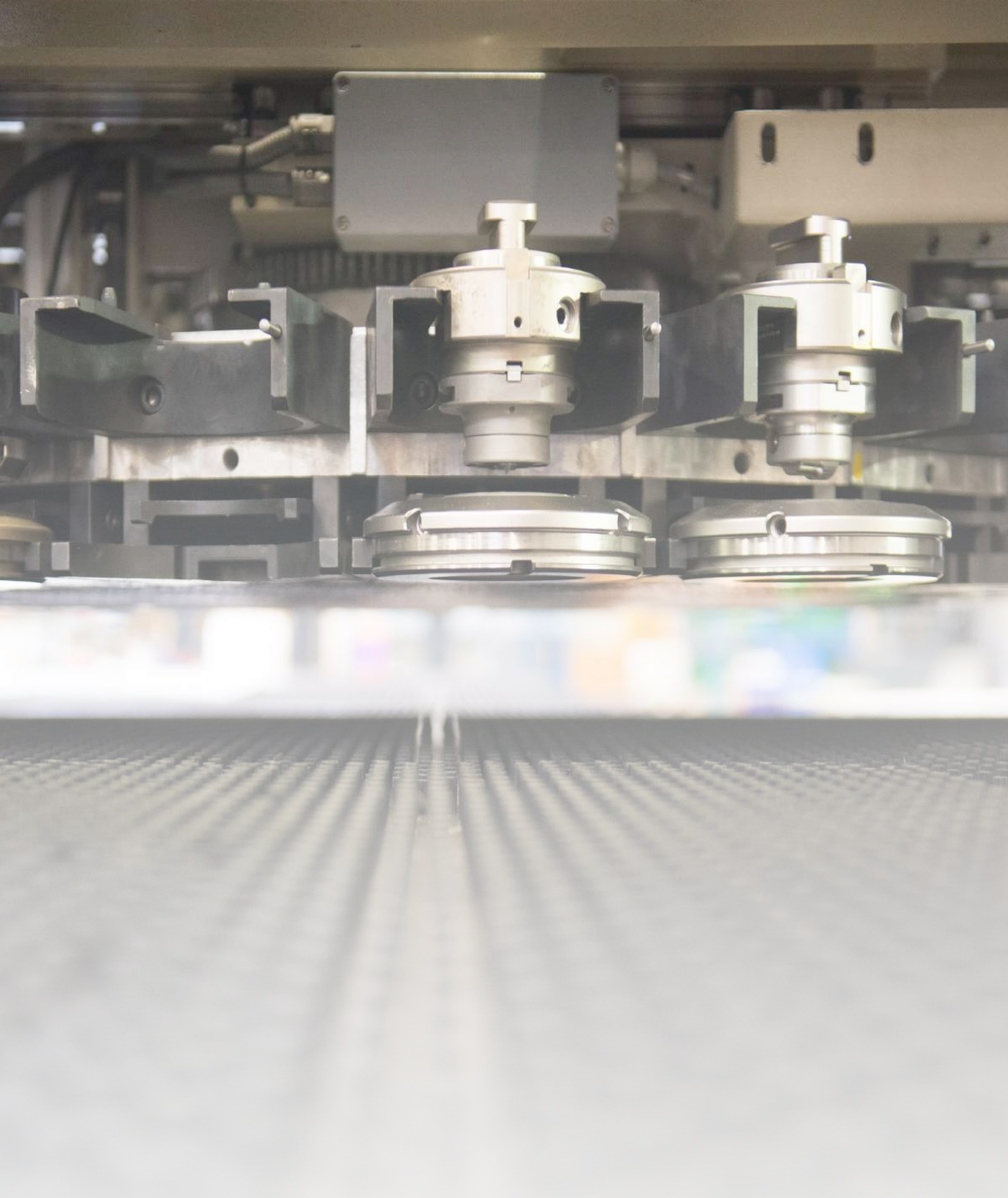
CNC PRESS BRAKES

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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Sheet Metal

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