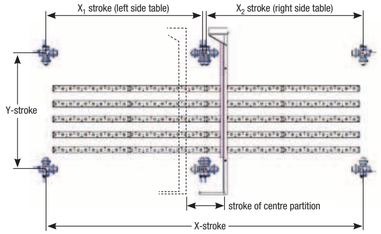
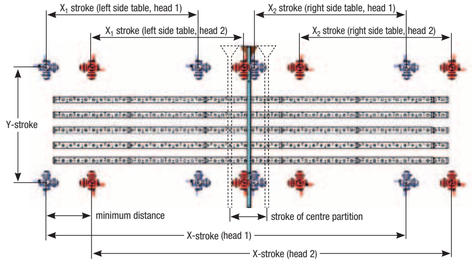
Working area

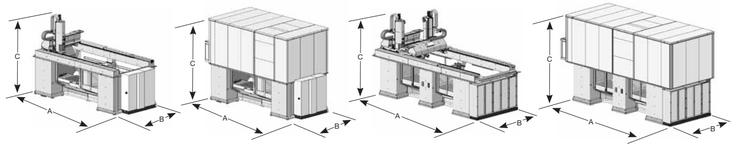


ECO-NT 1K
(with fork-head working unit and high-speed spindle 4.6 kW)
A centre partition has been provided to allow for entirely independent machining (reciprocal operation) on both sides of the table. A pneumatic system permits this centre partition to be moved in the X-direction by 500 mm. Thus, the working area will be extended by 250 mm in the X-direction. The clear inserting width in the opposite station will in turn be reduced by 250 mm. The centre partition only moves when a change of the working station takes place.



ECO-NT 2K
(with fork-head working units and high-speed spindles 4.6 kW)
It is an identical feature of both, the ECO-NT 1K and the ECO-NT 2K, that their working areas are separated by a movable centre partition. Thus, the optimum utilisation of the working table will also be assured.

Installation dimensions



	ECO-NT 1K standard	ECO-NT 1K with sound insulating cabin	ECO-NT 2K standard	ECO-NT 2K with sound insulating cabin
Measure A mm	6,900	7,200	8,000	8,400
Measure B mm	3,200	3,300	3,200	3,300
Measure C mm	4,600	4,800	4,600	4,800

ECO-NT

Technical features

Working units	One or two fork-shaped or cardanic 5-axes working heads for the efficient 6-sided complete machining of form parts and profiles. High-frequency spindle with 4.6 kW, 3,200 – 60,000 rpm or spindle with 15 kW, 0 – 24,000 rpm
Tool changer	Tool changer plate with 8, 12 or 24 places that moves along.
Machine table	Machine table with steel bars (threaded and fitted bushings) in tubular frame design. Examples for working areas with various equipment: ECO-NT 1K (X, Y, Z): 3,600 x 1,000 x 700 mm Alternate machining (X, Y, Z): 2x 1,500 x 1,000 x 700 mm ECO-NT 2K (X, Y, Z): 4,800 x 1,000 x 700 mm Alternate machining (X, Y, Z): 2x 2,000 x 1,000 x 700 mm
Axes movements	**ECO-NT 1K** X-axis = 4,140 mm (80 m/min) Y-axis = 1,440 mm (80 m/min) Z-axis = 1,000 mm (40 m/min) B-axis = ± 135° (180°/s) C-axis = ± 360° (180°/s) **ECO-NT 2K** X-axis = 4,740 mm (80 m/min) Y-axis = 1,440 mm (80 m/min) Z-axis = 1,000 mm (40 m/min) B-axis = ± 135° (180°/s) C-axis = ± 360° (180°/s)
Feed drives	Maintenance-free, highly dynamic three-phase servo motors with modern digital drive technology and integrated absolute value transmitter (measuring system). Direct measuring system in the Z-axis.
Chip removal	Machine substructure with integrated chip chutes and sliding belt conveyor, conveying direction to the left.
Control system	Sinumerik 840D Solution Line HT2-hand control device for manual operation (option) Movable control panel with • PC-keyboard • 17" TFT-monitor • Machine control panel

Note: The working areas may vary depending on the technical equipment (examples of configuration).

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ECO-NT

CNC-technology at its best

HAMUEL REICHENBACHER
A member of the SCHERDEL group

ECO-NT

Universal application – for example for special profiles in the aeroplane, car or stair production, efficient allround-machining of formed parts and plates, machining of combined hybrid parts made of plastics and metal, machining of aluminium and plastic parts.

Extremely handy – 22 m² of required space amount to 6 m³ of working area

The ECO-NT series of Reichenbacher Hamuel sets new standards in the machining of plastics, aluminium and composites: perfect 5-axes machining and universal applicability are combined with maximum operator convenience and very compact design.

Developed by Reichenbacher Hamuel, this conception featuring a fixed portal allows for an especially low-vibration operation. The fixed machining table on a solid substructure and the very high Z-axis permit every machining task to be realized with absolute contour accuracy, highest surface quality and precision. The component can completely be machined from all sides and thus be processed in an optimum way in one single operation. The Reichenbacher Hamuel co-ordinate table conception with integrated fit bushings and fixing holes cares for a quick and safe changing of the component. The 3D touch probe warrants for utmost component accuracy in practical use, as the reference points are exactly captured and directly set in the control programme.

Efficient and versatile: with double working area or with reciprocal loading

The working areas of the ECO-NT machining centres can flexibly be adapted for each machining task while offering optimum machining conditions for all applications. The loading area is shut by two separate sliding doors, the machine is completely enclosed and - even with demanding freeform machining in five-axes operation – the chips can fall freely to the chip removal belt. In reciprocal operation, the doors can be opened separately for alternate loading. If a larger working area is required, for the machining of long parts for example, the centre partition can be removed easily and the working area be doubled.

The ECO-NT machining centres can be equipped with integrated tool changing systems, which are mounted movably to the X-slide. Thus, optionally 8, 12 or 24 places will be available.

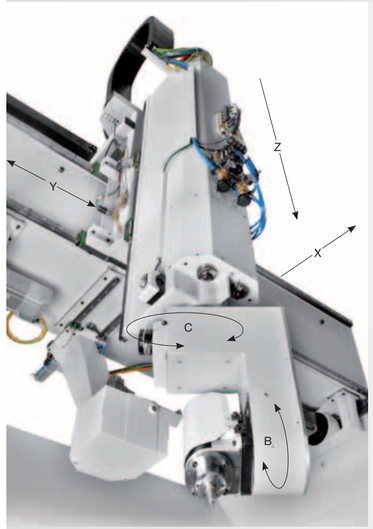
High-speed spindles with up to 60,000 rpm assure the efficient machining of the entire component. The blast nozzle (with air ionization to avoid electrostatic charging of the chips) that can be activated by the NC-control system, and the likewise programme-controlled minimum quantity lubrication system complement the overall package.

Robotic head

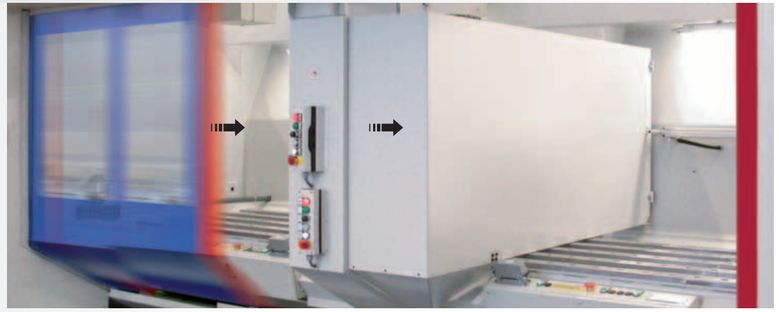
One-sided fork working head with HSC milling spindle integrated. A position change of the milling spindle is performed by two NC-axes arranged at a 90° angle with respect to each other. The freedom from backlash of the gear wheels is guaranteed by their pre-stressing with spring elements.

The high-precision special pinion gears are hardened and ground. The special tooth-work, together with the high surface quality and accuracy class of the gear wheels, guarantee an extremely low-noise and smooth running of the gears, which directly shows in the milling pattern.

Working head



Working areas

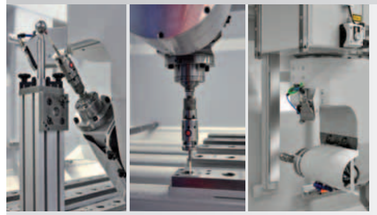


The loading area is shut by two motor-driven sliding doors (option). In the case of reciprocal loading, each door can be opened individually. When the door is open, a centre partition between the working areas provides protection against flying parts from the opposite working area. Alongside the tables the chips fall onto the machine bed. The construction of the sheet metal coverings prevents the formation of chip clusters.

The chip removal belt in the machine bed conveys chips in the X-direction out of the machining area. Two tubes with nozzle bores are provided in the left and the right area of each of the front doors to prevent chip accumulation on the machine frame between the door edges and the cabin wall.

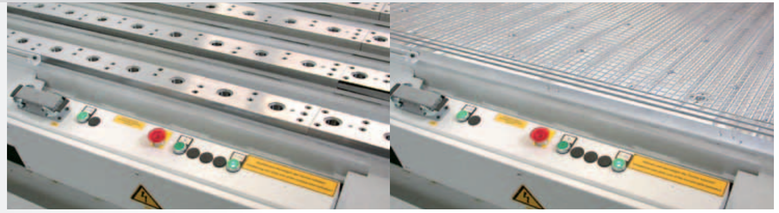
Fork head with high-speed spindle; spindle speed 60,000 rpm, with movable tool changer which is protected against dust and flying chips.

Machine geometry measuring



A 3D touch probe (option) checks the geometric accuracy of the machine using a reference bolt in the machine table. In case the geometric accuracy deviates to a certain extent, an error message will be shown in the control system. This guarantees a quick adjustment of the machine, for example after a crash or for quality improvements.

Table types



The open tubular frame table can sustain a surface load of up to 1,000 kg. The supporting beams are mounted in a grid of 200 mm in the Y-direction and equipped with threads and fit bushings in a grid of 100 mm in the X-direction. The fixtures are mechanically clamped in threaded bushings in the machine table.

Special profiles in the automotive and aircraft industry, entire 6-sided machining at formed parts and plates – the application range is almost unlimited. There are various table systems available to cover everything. One option is the grooved aluminium plate – a proven universal device – which can also be equipped with different clamping sections.