

6-side complete machining in pendulum process machining

The **RotaSwing®** series from HEDELIUS have already set new standards with regard to the 5-side machining of complex workpieces. The pendulum-processing design has been emphatically raised to another level by being fitted with two machining sections. The basic machining (6th side) that is also required for 5-side machining is undertaken in the left-hand machining section.

Complete workpiece machining is undertaken by simply re-chucking the workpiece in the second, 5-axis machining section. This system is exceptionally efficient and economical especially with regard to small to medium sized job lots.

This design enables the operator to closely monitor the machining process through the large window and to intervene if a problem occurs. You can also choose to have the two clamping tables be fitted with a '0' point clamping system made by 'Vischer 8 Balli', clamping hydraulics, vacuum clamping systems or magnet clamping plates. These nonpallet changing systems virtually eliminate faults or production tolerances caused by the adherence or penetration of swarf.

Liquid cooled CELOX motor spindles

CELOX® motor spindles always provide premium quality. The liquid cooled integrated spindles are now being used wherever increased requirements regarding the machined goods, precision and smooth running have been implemented. This compact series together with its increased power density and a clear reduction of the amount of

HEDELIUS Maschinenfabrik, the creative machining centre specialist, is now concentrating its production on vertical 3 and 5 axes machining centres. On one hand this will result in an exemplary price / performance ratio and to a path-breaking machine design on the other.



rotating mass will make an important contribution to increasing your quarterly output.

The user specific series requirements can be fulfilled using the 12,000, 14,000 or 16,000 rpm speeds available with the taper 40 or HSK A63. Thanks to its high dynamics, the 3-phase AC synchronised motor considerably reduces the toolpiece changing time and swarf to swarf-time. Calibrated threads without longitudinal equalisation also count amongst the other virtues such as precise, split-second stopping of the spindle.



Long term accuracy provided by a direct measuring system

Direct NC-length measuring system (glass measuring rods) fitted on the X, Y and Z axes and direct

angel encoders fitted on the A and C axes are part of the standard machine fittings.

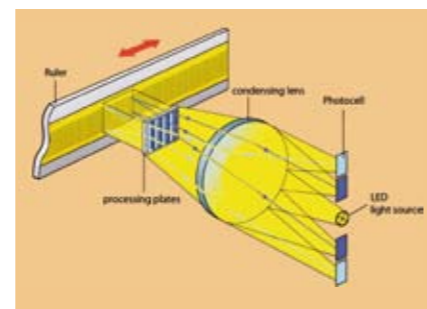


Photo-electric sensing

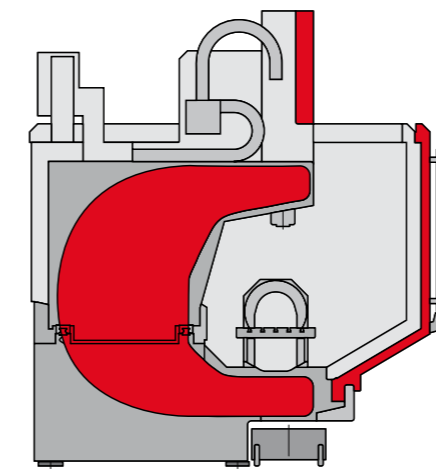
Tolerances caused by heating of the recirculating ball screw or reversing play are eliminated with this μ -precise measuring system. This long-term stability is supported by the use of play-free roller guides fitted on the X, Y and Z axes and a fixed recirculating ball screw fitted on the machine's X axis.



Roller guides

The highest precision generated by parallel axes infeeding

The parallel axes infeeding system of the non-interfaced main spindle



C-shaped machine geometry guarantees the highest precision in all machining positions. Interpolation errors caused by the boreholes being drilled in the workpiece at an angle are eliminated by this system. The intense machine rigidity and the direct flow of power into the rotary-swivelling table with the separate bearings and the fixed machine table ensure optimum cutting power and machine robustness.

Hard machining is another discipline of the **RotaSwing® 60 Combi**. The C-shaped machine geometry and the rotary-swivelling table with the separate bearings effectively prevent machine oscillations and frame springing from occurring. Non-play, pre-tensioned roller guides, recirculating ball screws and torsion-free servo drives guarantee the longest toolpiece working lives, accurate contour and surface

quality.

The most up-to-date control and drive technologies

The development aim of creating a fast and powerful 3 and 5 axes



machining centre could only be realised using the most up-to-date control and drive technologies. Absolute synchronisation, high dynamics and safe operation are guaranteed by the digital servo-drives supplied by Siemens. The operator can choose to have one of two top products, the Heidenhain TNC 530 CNC-controller or the Sinumerik 840 D installed in the machine.

Both controllers will astound you with their fast data block processing times, hard-discs with at least 20 GB of storage space and factory set-up Smart NC or ShopMill programming. Both controllers are equipped with a fast Ethernet interface as a standard item for interconnecting to external programming stations.

Flexible and upgradable

The additional 3-axes machining section can be used or expanded for different machining jobs. Long workpieces can be inserted from the side into the machining section after one of the side panels has been removed. Shafts, pipes and profiles can also be machined if the machine is further enhanced by having a vertical NC-rotary table fitted to it. Swivelling pieces fit-



Integrated laser light barriers for high precision toolpiece measuring and broken toolpiece identification