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THE CONSTRUCTIVE AND TECHNOLOGICAL PROBLEMS OF THE MILLING HEADS WITH CONTINUOUS DRIVES FOR THE MACHNINING ON CNC MACHINE TOOLS WITH 5 AXES

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Abstract

The complexity of the processed parts on machine tools requests a combination of the movements performed by the part or the cutting tool. A large scale of milling heads allows a better adapting to all the needs for machining.

The heads with two rotation axes, with indexing or continuos allow the machining on 3+2 continuous axes or 5 continuous axes on all type of materials and any cutting regime. The geometrical precision and the special soft-ware allow processing of tools on various sides without loosing time with the positioning of the tool increasing the precision of the executions.

From the experience in the construction of the universal indexing automatic milling heads in two dimensions, from 2.5º to 2.5º ISO 50 in SC STIMIN IND. SA, results that for the optimal functioning of the milling head, the back lashes must be limited to small values. These very tight adjustments that allow the relative movement with less friction and without the danger of jamming, imply dimensional tolerances of shape and position, extremely tight and also high quality of the contact surfaces. On the other side, in order to reduce the weight of its components they require superior materials, certain technologies, thermic treatments or thermo-chemical procedures, electroplating etc, procedures that could give them optimal charging capacity.

a) Certain issues related to the processing technologies

The main spindle, tap wheels, driver-rack gearing, processed in 3-5 precision class.

The hydraulic moving elements will be finished according to the adjustment type.

b) Issues regarding the assembly of the head

The assembly will be made permanently checking the backlashes of certain moving elements.

The safety of the sealing and the lubrication of the bearings will be permanently on check.

c) Issues regarding the checking of the positioning precision.

The checking of the DIN and ISO regulations.

Keyword: **Five axes machining**

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