

Automation of drag finishing machines with ROBAX cells from HandlingTech

The economical way to achieve perfect surfaces

Drag finishing processes are now a commonplace method of increasing the service life of forming and cutting tools and optimising processing parameters. As a technological leader in this area, OTEC is now offering fully automatic vibratory grinding systems with ROBAX cells from HandlingTech.

The cost-effectiveness of cutting and forming tools is largely determined by their performance in terms of achievable cutting parameters, tool life and quality. These properties can be considerably improved by vibratory finishing processes (deburring, edge rounding and polishing) with varying degrees of complexity. To this end, OTEC has driven forward the technology of the drag finishing process in recent years and established it world wide. The workpieces to be processed are clamped in special holders which drag them through a drum of grinding or polishing granulate in a sophisticated series of circular motions. The fast movements give rise to high contact pressures between the workpieces and the process medium, which in a very short time achieves perfect results in the form of high-precision edge rounding or a high-lustre finish in a quality equal to that of manual polishing.

If we now complement the previous manually operated drag finishing machines by adding standardised robot cells from HandlingTech to carry out the insertion and removal of the tools, processes of this kind can be fully automated, thereby considerably increasing their cost-effectiveness. In the ROBAX cells, a 6-axis articulated arm robot takes over the handling of the workpieces. Its degree of freedom enables it to correctly feed and position both inserts and complex precision tools in the holders of the drag finishing machine. At the same time it can be individually adapted to suit the user's own toolholder systems, enabling the cells to be loaded manually or even automatically in a continuous process chain. Furthermore, the sophisticated standardised ROBAX cells, which as a rule are fitted with a Fanuc industrial robot appropriate to the maximum load and working space, make it possible to adapt the system to specific requirements with regard to workpiece size and weight as well as to the number of workpieces in each operation or the size and number of palettes.

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The first version in the form of the new DF-6 Automation is designed for workpiece/gripper weights of up to five kilograms and a reach of up to 890 millimetres. There is enough room in the cell for three workpiece palettes measuring 250 x 250 millimetres. As an optional alternative to manually supplying the robot with palettes, this can be achieved by means of a crane system or by incorporating an interface for the infeed and discharge of the tools by means of a conveyor system.

Illustrations:



Fig. 1: The new DF-6 Automation can even be integrated into production lines.



Fig. 2: The 6-axis robot offers total freedom when rapidly fitting the workpieces into the holders of the drag finishing machine.



Fig. 3: In order to reduce changeover times, the tools to be processed are deposited in readiness in an intermediate storage area whilst the drag finishing process is in progress.

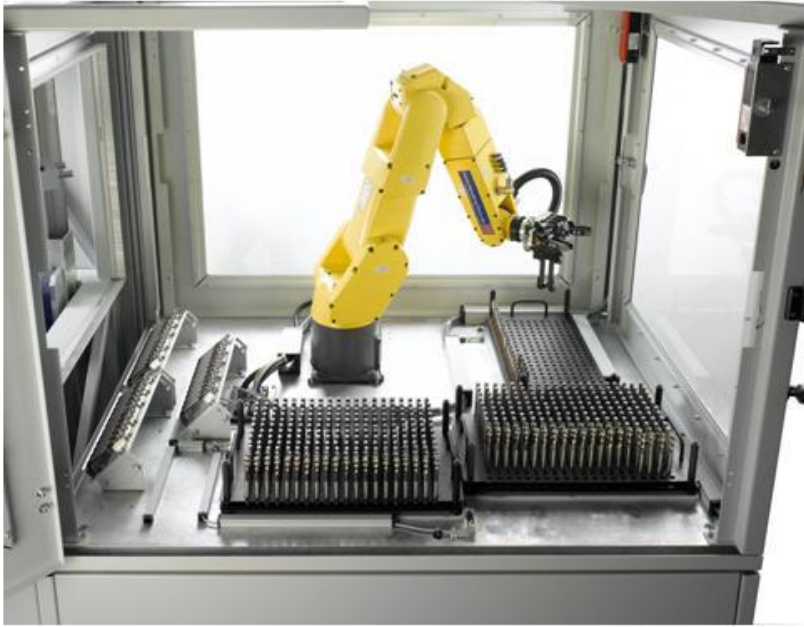


Fig. 4: As an alternative to manually supplying the robot with palettes, this can be achieved by means of a crane system. Furthermore, it is possible to incorporate an interface for the infeed and discharge of the tools by means of a conveyor system.