

Comparison of different deburring methods

Dear customer

The table below gives an overview of the most common methods of workpiece deburring. There is a significant difference between the top two methods compared to all other methods: deburring is carried out fully automatically without manual intervention, i.e. each individual workpiece comes out of the CNC machine completely deburred and can be processed directly. This saves on personnel costs and at the same time increases process reliability.

The following two main options are used for the implementation of this fully automatic deburring process:

1. directly on the CNC machine, in that the deburring process is part of the machining process: thanks to the automatic changeover of the engraflexx deburring tool, even undefined edges can be deburred absolutely uniformly (e.g. castings, forgings etc.)
2. by using a multifunctionally operating robot for the deburring process: it takes the finished workpieces from the CNC machine and then guides the workpiece edges to be deburred directly past a deburring tool. In order to compensate for any inaccuracies of the robot or workpiece deviations, deburring tools with a deflectable deburring spindle are generally also used.

	personnel costs			risk of error	process security	quality	additional space	investment
	once	per series	per part					
deburring with engraflexx on the CNC machine	programming	no effort	no effort	no risk of error (deburring is part of the machining program)	high	constant; fully automated deburring process	no additional space required	deburring tool + routers
deburring with multifunctional robot beside the CNC machine	programming, setting up the robot system	installation of deburring program, ev. change of gripper	no effort	no risk of error (automated deburring by robot control)	high	constant; fully automated deburring process	robot system	robot unit + deburring tool + routers
deburring with autonomous robot system	programming, setting up the robot system	logistic effort, loading of the deburring program, exchange of the gripper	parts transport, parts handling	forgotten parts, errors when loading the robot system	person-dependent	constant; fully automated deburring process	robot system, space for interim storage of the parts	robot unit + deburring tool + routers
automated deburring in separate deburring machine	possibly setting up (depending on the system)	logistics effort, possible set-up effort	parts transport, parts handling	forgotten parts, errors when loading the deburring machine	person-dependent	constant; fully automated deburring process	deburring machine, space for interim storage of the parts	deburring machine + possibly wear material
manual deburring beside the CNC machine	no effort	no effort	manual deburring	part damage, forgotten or incomplete deburring	person-dependent	person-dependent	deburring workstation next to the CNC machine	deburring tool + wear material
manual deburring in separate deburring department	no effort	no effort	parts transport, manual deburring	part damage, forgotten or incomplete deburring	person-dependent	person-dependent	deburring workstation in deburring department	deburring tool + wear material