MIRROWORX

MILLING RATHER THAN GRINDING

Mirroworx is a Face Milling Cutter, specially developed for production of absolutely flat and smooth surface finish, simultaniously with highest economic efficiency. We enter into Grinding domains.

In using these Cutters, several operations can be combined. Usual grinding operations are eliminated completely.

This new line is designed with only two Indexable Inserts and has a simple but effective adjustment opportunity in µ-range by using two set-screws, eliminating axial run-out. This system allows processing optimum surface finish.

Furthermore this new tooling is impressive through its particular smooth running. Our new Milling Cutter is specially suitable for unstable components. Our concept, using only two Indexable Inserts, is an explicit proven design for milling components difficult to machine and which have a tendency to create vibrations.

Those Mirroworx-Milling Cutters achieve Feedrates up to 10.000 mm/min and produce up to 90.000 cm² (13.950 sq. in.) surface, causing bottom-line costs. This is possible through our successively advanced development of cutting materials and carbide grades.

YOU BENEFIT FROM FOLLOWING ADVANTAGES:

- Surface Finish Rz = < 2,5 µm : your usual grinding operation is eliminated
- Particular smooth running
- Our setting-system adjusts your axial run-out
- Suitable for unstable components
- Very economic by using all 3 cutting edges from our Inserts

Due to successively advanced development of our own manufacturing performance and due to special carbide grades and latest coating technologies, tuned for every possible machining process. Pokolm assists Tool- and Mouldmakers in making difficult jobs more easy.

APPLICATION EXAMPLE FROM OUR PRACTICE

MACHINE SYSTEM	MATERIAL	CAD/CAM-
Deckel Maho DMC 64 V SK 40	1.2343 hardened to 55 HRC	Mastercam

For milling the surface flat of a bottom ram, a real spiral for milling from inside to outside has been programmed. The contour of the mould has been used for axial plunging.The component has been set-up very rigid on the machine table of a Deckel-Maho machining centre DMC 64 V with vertical spindle and machine connection of SK 40/DIN 69871A. Before trying our new Cutter, our customer has used a normal Face-Milling Cutter with round inserts for this process. This cutter had fulfilled all requirements, except adequate surface finish. With our new tool, we have reached a mirror-finished surface!

FIRST EXAMPLE:

Component:	drawing mould
Material:	1.2343 55 HRC
Arbor:	25 22 750 (Ø 22; SK 40)
Milling Cutter Body:	2 52 384 (Ø 52)
Indexable Inserts:	04 84 835; HSC 05
Coating:	PVTi
Overhang:	approx 68 mm
V_c (speed):	204 m/min
V_f (feed/min):	1120 mm/min
S (Revolutions):	1250 rpm
F_z (feed per tooth):	0.448 mm
a_p (Depth of cut):	0.05 mm
a_e (Width of cut):	5 mm

…RESULT:

We have milled 10 steps in z-axis with a feed-motion of 0,05 mm each. After that, there was no wear-land on our cutting edges. The milled surface had a mirror finish and a waveness (90% in feed direction) of < 0.06 mm. This was more than sufficient regarding to customer´s requirements.