

FROM PRACTICE TO PRACTICE - QUADWORX® "L"

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Press release from: [Pokolm Frästechnik GmbH & Co. KG](#)



The company WWS Metallformen GmbH from the town of Hatzenbühl manufactures prototype- and duplicate products together with the required metal forming moulds since more than 20 years. Specially, their service from design of those prototype components, conversion into CAD/CAM systems up to production of the metal forming moulds and the first tryouts, is very much appreciated by their customers. WWS supplies into all fields of sheet fabricating industry, from consumer goods industry, medical technology, automotive engineering and last but not least, complex deep-drawing parts for aircraft and spaceware. Up to now, WWS machines their metal forming moulds with cutter bodies for round inserts from Pokolm. The milling cutter 52 310/7 (52 mm diam., $r=6$) offers most universal application possibilities and has been very much appreciated by our customers. But, the power consumption related to the chip volume, causes some problems for our customers in certain machining operations, specially, when female moulds with small draft angles have to be produced. Due to the geometric characteristics of the round inserts and those radial forces which occur during milling, vibrations arise suddenly, again and again. Feed rates and cutting depths have to be reduced, in order to secure process reliability.

The male and female die of a deep-drawing mould for a truck-muffler has been machined in a z-constant circular-pocket cycle from inside to outside. Main focus was the maximum achievable chip volume with smallest possible spindle load. The component, clamped solid, was machined on a ZPS milling machine type 1060 with Selca control. There was no difficulty in machining material ST 52-3 itself, but the problem is a process reliable machining of those burn-out contours with a hardness of > 50 HRC. Those requirements have been fulfilled and exceeded by our Quadworx® "L" tooling.

Machine: ZPS 1060

Material: St 52-3

Programming System: Cimatron

example from practice

component: female drawing die

material: St 52-3
arbor: 100 22 710
(22 mm diam., SK 50)
cutter body: 5 52 349
(52 mm diam., rp = 2,3)
insert: 04 49 852, P25
coating: PVTi
overhang: 153 mm
vc (speed): 212 m/min
vf (feed rate): 8.000 mm/min
S (revolutions): 1.300 1/min
fz (feed per tooth): 1,23 mm
ap (depth of cut): 1,5 mm
ae (width of cut): 31 mm
chip volume: 372 cm³/min
= 22,7 cu. in. /min
machining time: 45 min

result:

Machining time for roughing this female drawing die has been reduced by 50 %. And this with an only 5 % increase of spindle load, better smoothness of running and less vibrations. Increased chip volume together with the small increase in spindle load, have reduced the costs for roughing operations by more than 50 % and the customer achieved a considerable time gaining for his following operations.

Further information:

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The company Pokolm Frästechnik GmbH & Co.KG has its market place since 14 years and belongs to the leading manufacturers of special tooling for mould- and die-making worldwide. The company's floor space is more than 2500 m² (approx. 25000 sq.ft.) and it has approx. 64 employees. All operation cycles –turning, milling and grinding- are taking place on ultra-modern machinery in air-conditioned production facilities for best possible precision.

Pokolm is dealing worldwide. Domestic sales is realized by well educated applications engineers, having extended knowledge in milling, machining- and control-systems as well as CAD/CAM programming. Pokolm are marketing their products in 39 countries via sales representatives, beginning in Eastern-Europe, direction Western-Asia up to China and Japan, down to Australia. And in the western hemisphere starting in the European Community, Great Britain, USA, Canada and South America. Substantial customers all over the world are supplied with Pokolm-premium-products.

[You can find this press release here](#)