

Economical cutting using a micro deep-hole drill as a starting hole drill

Sphinx Tools Ltd. is the right partner for innovative solutions in machining. The right tool for each application, with after-sales service being provided as a matter of course. All Sphinx products are developed and manufactured entirely in Switzerland.



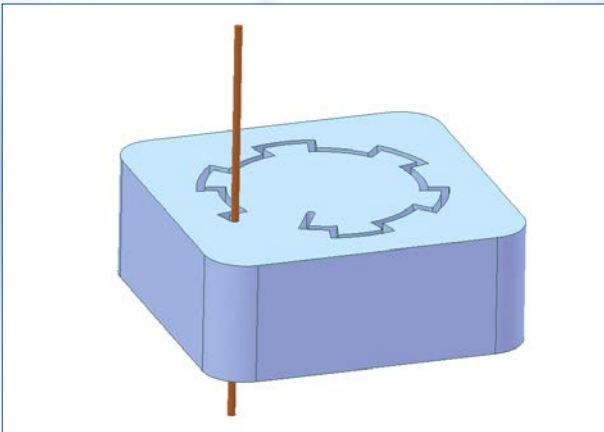
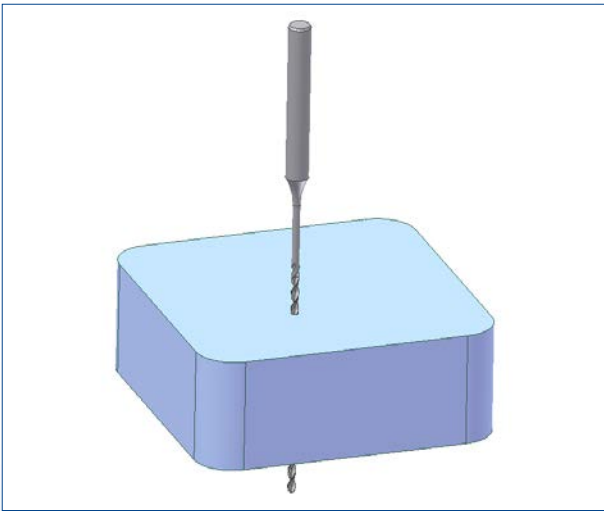
Drilling instead of eroding

The ideal drilling tool

Wire EDM is the current state of the art in mould construction. When applying this technique, it is first necessary to make a starting hole. These starting holes are usually made by plunge EDM. This is a demanding and above all a very time-consuming process. Is it possible to save time and optimise on this process?

Are there other processing options besides EDM? Is it possible to replace and improve on it with a conventional cutting process?

Sphinx Tools Ltd. has joined forces with clients working in mould construction to develop a starting hole drill that significantly speeds up this work step.



15 minutes time saving per starting hole.

This results in a considerable gain in efficiency compared to the usual plunge EDM of starting holes.

The starting hole drills made by Sphinx Tools Ltd. have a flute- and cutting-edge geometry adapted to this difficult application, together with the appropriate high-quality carbide and an optimum coating for drilling starting holes.

The appropriate operating parameters and drilling cycles were determined by various trials on the machine. In this way holes of a diameter/length ratio of up to $35 \times \varnothing$ can be achieved. Using the new starting hole drills, the hole diameter is in the range of 0.10 mm to 0.99 mm. All starting holes of larger diameters from 1.00 mm upwards can be produced using the established Power Phoenix drills for up to $30 \times \varnothing$.

Drilling process for drilling starting holes

Material: 1.2316, tool steel
starting hole diameter: \varnothing 0.90 mm,
 depth 27.00 mm

Increase in productivity

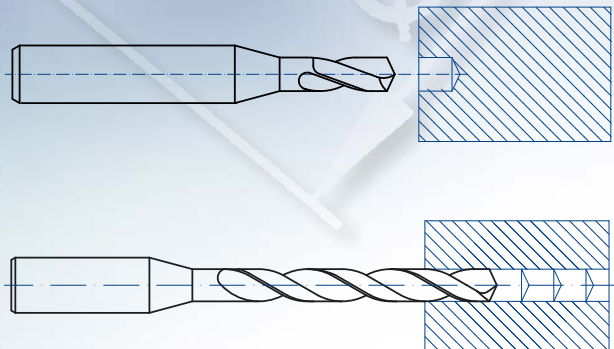
Example:

Centering with additional pre-drilling in one work step. Micro NC spotting drill Art. 56033-0090 Tol. $0/+0.005$ mm, pilot hole drilling $\varnothing 0.90 \times$ approx. 1.80 mm deep, no step transitions will occur for the deep-hole drill.

Deep-hole drilling with pecking cycle to a depth of $30 \times \varnothing$, starting hole drill $\varnothing 0.90$ mm, Tol. $0/-0.004$ mm.

Operating parameters:

vc = 20 m/min
 n = 7'070 rpm 1st drill cycle of approx. $5 \times \varnothing$,
 vf = 28 mm/min remove chips, then start
 fn = 0.004 mm/rev pecking cycle every 0.70 mm



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