

## The drilling process

# A brief introduction to the subject of deep hole gun drilling

In the machining world, drilling depths of 10 x D and deeper are regarded as deep hole drilling operations, whereby smaller drilling depths can naturally also be produced with gun drills. Advantage is taken of the positive side effects, as for example good surface quality, low deviation from concentricity and optimised alignment accuracy.

### High pressure cooling - has become a matter of course.

In recent years, internal cooling has established itself for all drilling tools. Coolants are now living up to their name and being supplied via coolant ducts to where they are urgently required. Considerable improvements in tool life and less breakages have been achieved by this measure for twist drills, taps etc.

Every conventional machine tool currently on the market can be supplied with high pressure internal cooling and is therefore also suitable for deep hole drilling.

The share of gun drills on machining centres, lathes etc. is forever gaining more importance. The process is therefore increasing in popularity in the machining world.

### Typical procedure with all gun drills on conventional machine tools:

- production of pilot hole (tol. H8). Enter at low revolutions, approx. 200 rev./min, feed rate approx. 500 mm/min.
- setting coolant pressure and speed.
- continuous drilling to complete hole depth without wood pecking.
- switch off coolant supply after reaching hole depth.
- rapid withdrawal with stationary spindle.

### Application advice

- For drilling depths in excess than 40 x D we recommend the use of two or more gun drills, e. g. Ø 10 x 400 mm and Ø 9.95 x 800 mm.
- Gun drills for drilling depths of more than 40 x D should enter the pilot hole revolving in the left hand direction.
- For machining of long-chipping materials we recommend the use of gun drills with polished flutes.
- Single-fluted gun drills for long-chipping aluminium should be supplied with point grind 180° and coolant chamber.
- Generally we recommend the use of soluble oil with a minimum oil content of 10 %.



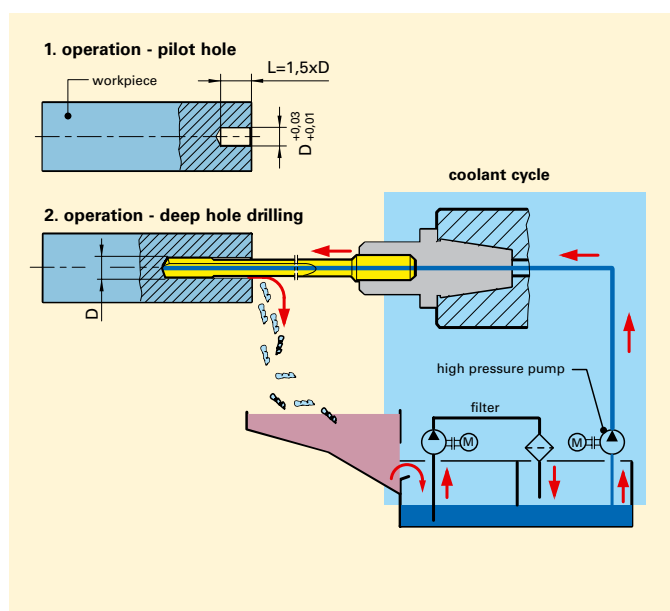
All gun drills must have support for the pilot hole.

Gun drills must never operate at full speed without support in the machine shop.

Deep hole drilling is not a closed book, but can be mastered by anybody as long as certain conditions are adhered to.

Recommended cutting rates for the application of Guhring gun drills can be found on the pages for the individual types!

### Deep hole drilling on conventional machine tools



### Deep hole drilling machines

