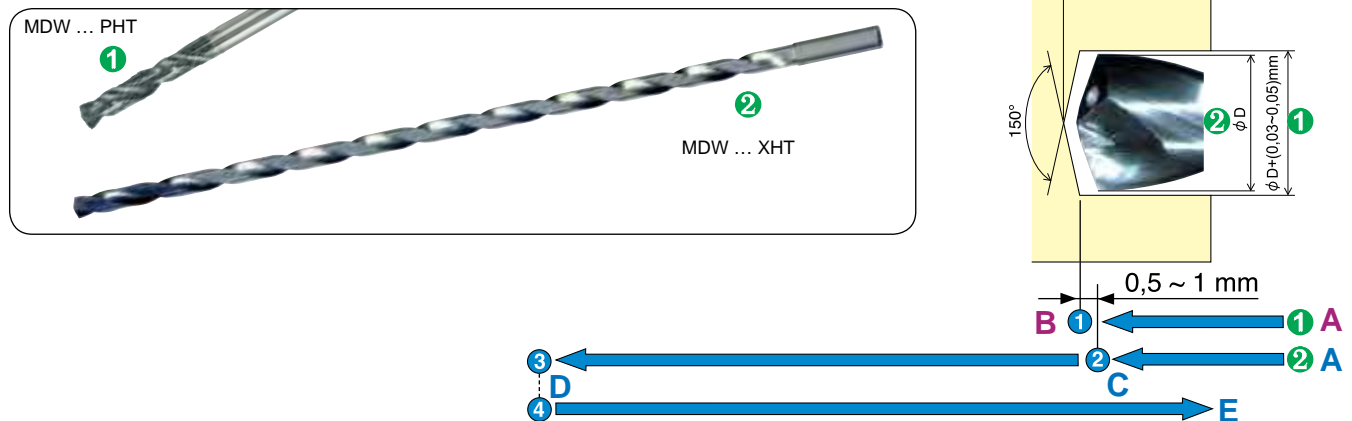


Extra Long SUPER MULTI-DRILLS MDW ... XHT/PHT Type

Recommended Tooling Strategy



1 A ⇒ B: Preparation of pilot hole with MDW ...PHT type

$v_c = 50-80\text{m/min}$, $f = 0,15-0,25\text{mm/rev}$, $d_{oc}: 1-2xD$

2 A ⇒ C: Entering into pilot hole with long Multi-Drill (MDWXHT type)

$N = 500\text{ rpm}$, $v_f = 2000\text{mm/min}$

At C the drill should stay (about. 3 sec.) and increase speed to set recommended cutting conditions.

3 C ⇒ D: Deep hole drilling

After reaching required number of revolution operation can be started taking into consideration mentioned recommendation for the feed rates. At cross holes and irregular or angled surfaces feed should be reduced.

4 D ⇒ E: After hole drilling

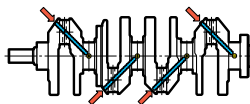
Decrease spindle rotation to $N = 500-700\text{rpm}$ and pull back with high feed rate $F = 2000\text{ mm/min}$.

Application Examples

Work piece: Crank shaft (C45E, 1.1191)

Machine

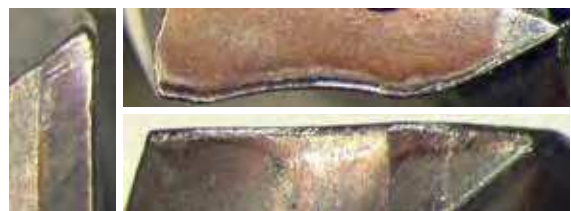
Machine: Horizontal M/C
Coolant: MQL (Synthesized ester)
Air pressure 0,9MPa
Supplying rate 20cc/h



Process and cutting condition

- 1) Pilot hole ($\phi 5,75 \times 12\text{mm}$, Top angle of drill: 150°)
 $v_c = 80\text{m/min}$, $f = 0,2\text{mm/rev}$.
- 2) Deep hole ($\phi 5,70 \times 83\text{mm} \times 4\text{ holes}$, XHT type)
 $v_c = 100\text{m/min}$, $f = 0,15\text{mm/rev}$. $F = 873\text{mm/min}$

Tool life 200pcs



Cutting edge after 66,4m drilling

Work piece: Connecting rod (C53,1.1213)

Machine

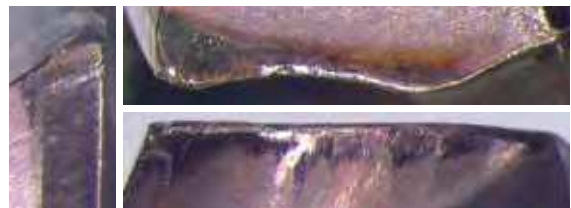
Machine: Vertical M/C (BT40)
Coolant: Internal cooling (Emulsion)
Pump pressure 2,0MPa



Process and cutting condition

- 1) Pilot hole ($\phi 5,85 \times 10\text{mm}$, Top angle of drill: 175°)
 $v_c = 80\text{m/min}$, $f = 0,05 \rightarrow 0,15\text{mm/rev}$.
- 2) Deep hole ($\phi 5,80 \times 130\text{mm}$, XHT type)
 $v_c = 90\text{m/min}$, $f = 0,20\text{mm/rev}$. $F = 988\text{mm/min}$

Tool life 300pcs



Cutting edge after 39,0m drilling

* Current tooling (with $\phi 5,8 \times 130\text{mm}$ gun drill)
 $v_c = 100\text{m/min}$, $f = 0,03\text{mm/rev}$. $F = 164\text{mm/min}$.
(Tool life 120pcs)