

Date: 2009-02-05	Material: TOOLOX 44	<b>Materialdata</b>
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Thickness range	5-130	mm
Thickness range as forged	150-300	mm
Hardness in Brinell	410-475	HBW
Hardness in Rockwell	41-46	HRC
Sträckgräns ( Yield strength )	1300 [ MPa ] + 20°	1200 [ MPa ] + 200°
Brottgräns ( Tensile strength )	1450 [ MPa ] + 20°	1380 [ MPa ] + 200°
Chargenr.	Serialnr.	

### Machine info

Type of machine	Fadal VMC 4020		
Location for machining	LAB		
Type of drill chuck	Sandvik Coromant Hydrogrip chuck		
Type of attachment for the tool in the machine	ISO 40		
Effect on the spindle motor	16.8 kw	Coolant mix	10 %

### Drill info

Manufacturer / Distributors	Mikron Tool/ Extrica-Tools		Type of drill	
Drill name	Crazy Drill 10xd	Ø 1.0-4.0	Indexable insert drill	
Article number for pilot drill	PD.01500.090		Braze /Exchangeable drill tip	
Article number for drill 10Xd	CD.100150.CS			
Size on the drill	Ø 1.5		Solide carbide drill	X
Type of coating	TiAlN		HSS drill	
Internal coolant	Yes		HSS drill with coating	
External coolant			Ø of 1.5 mm or more can be reground and recoated	yes
Cut to exchangeable drill tip			Point angel	140
Type of centre insert			Cost for one insert	
Type of periphery insert			Cost for one insert	

### Drill attempt

[Link to film clip](#)

Speed ( n )	7430	rpm	Comment: Test 2 ( BLIND HOLES )
Cutting speed ( Vc )	35	m/min	Begin to do a start hole with the pilot drill
Feed rate ( vf )	222	mm/min	( depth of hole is 3 mm ) and the cutting-
Feed rate ( fn )	0.03	mm/rev	speed is ( Vc 35 fn 0.05 ).
Total drilled holes	151	st	Peck drilling method for the medium drill
Total drill length	2265	mm	version is following.
Cost of drill /pilot drill	736/390	SEK	Step 1 is 1.5 x 5 = 7.5 mm
Cost of exchangeable drill tip/insert		SEK	Step 2 is 1.5 x 8 = 12 mm
Cost per hole	7.45	SEK	Step 3 is 1.5 x 10 = 15 mm

#### Drill lengths with internal cooling

**Short version 6 x d**

**Medium version 10 x d**

**Long version 15 x d**

After each step I going back to Z0.

I pull down the feed rate to 0.03 compare to the first test. In the first test I have a feed rate of 0.05. I stop the drill attempt because the drill crash in hole 152.