

# FREE TEST MACHINING

# TEST WORK SHEET

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## IWATA TOGLON DRILLS for Hard Steel (40 – 75HRC)

### TEST: To drill a hole through 40 mm thick material

Material	60 HRC Steel
Size	50 x 40 x 10 mm
Set-up	'Clock-in' drills with 2 $\mu$ m dial indicator, concentricity to be better than 5 $\mu$ m.

Centre drill with

TOGLON SP drill (90TGHSP3CBALD)

Speed	3,200 rpm
Feed	128 mm/min (0.04 mm/rev)

Drill 2 mm diameter with

TOGLON HARD LONG DRILL (TGHDL2CBALT20D)

Speed	4,000 rpm
Feed	200 mm/min (0.05 mm/rev)

Pecks	Every 0.5 mm
Coolant	Air blow, water based coolant or oil mist
Cycle time	Less than 2 minutes

#### RAINFORD PRECISION GUARANTEE

We are confident that our tools will offer you improvements in tool life and machining capability and would like to give you the opportunity to try our tools with no risk. **We will guarantee to refund any money paid if you are not completely satisfied with the tool's performance.**

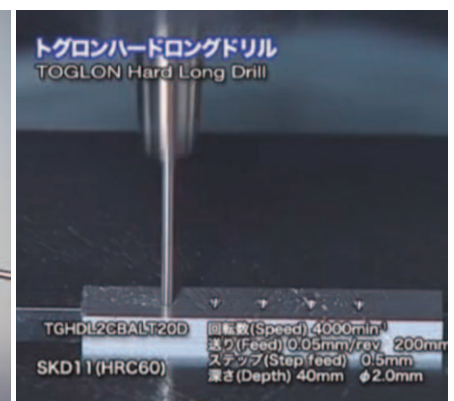
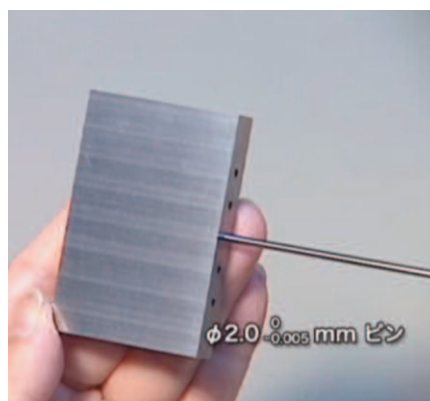
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## IWATA TOGLON DRILLS for Hard Steel (40 – 75HRC)

### TEST: To evaluate the 'tooling pence per hole cost'

Material	SKD11 60HRC
Application	2.10 mm diameter hole x 6.0 mm deep
Coolant	Air blow

Spot Drill: 90TGHSP6CBALD Price £128.01

Drill: TGHDS2.1CBALD Price £86.41

### RESULTS

Over 2,000 holes with one drill - more holes could easily have been drilled, see photos

Metres drilled in test	12 metres (12,000 mm)
Cutting Data: Tolerance	Holes produced to an H7 tolerance
Cutting Data: Spot Drill	5000 RPM with a feed rate of 0.03 mm/rev (drilled 1.0 mm deep)
Cutting Data: Drill	5000 RPM with a feed of 0.06mm/rev using a peck cycle of 1.0mm

Tool Cost: Spot Drill + Drill Total £214.42

Tool Cost: Spot Drill + Drill £0.107 pence per hole ( $£214.42 \div 12000 \text{ mm} \times 6 \text{ mm}$ )

Tool Cost: Drill only £0.043 pence per hole ( $£ 86.41 \div 12000\text{mm} \times 6\text{mm}$ )

We achieved excellent positional accuracy using the spotting drill, superior hole roundness (due to the 3 flute drill design) and a very smooth surface finish. *We cannot over emphasise the ease with which this test was accomplished!*

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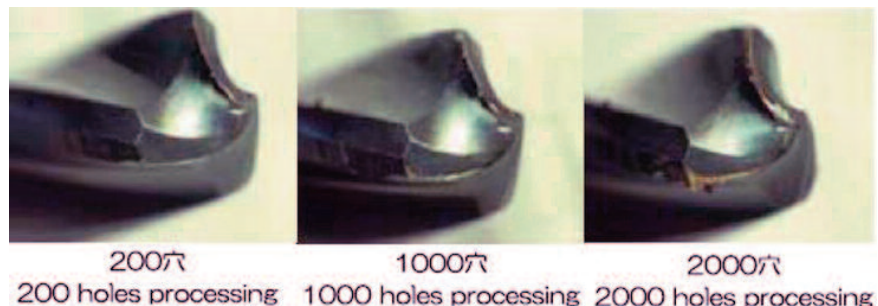
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