



## **RT 100 T ALU**

**Solid carbide spiral-flute  
deep hole drills for  
wet machining of aluminium  
with Si content 3% and more**

**Edition  
EMO 2013**

**EXCLUSIVELINE®**

## RT 100 T ALU – Technic and advantages

Guhring has developed the spiral-flute deep hole drill RT 100 T ALU especially for the production of deep holes in aluminium materials. The drill is available as a special tool with immediate effect.

In addition to the correct choice of carbide suitable for the machining of aluminium. Guhring has paid special attention to the cutting edge geometry and the flute form when developing the RT 100 T ALU. They offer the following special features:

### Spiral flutes with 15° rake angle and improved surface quality



The flute design with a rake angle of 15° ensures a considerably shorter chip travel. In addition, the high surface quality of the flute offers the chips low friction resistance. The RT 100 T ALU evacuates the optimally formed chips efficiently from deep holes without problem.

### Application example cylinderhead

A typical field of application for aluminium materials is the automotive industry and especially engine manufacture. When machining a cylinderhead the spiral-flute deep hole drill RT 100 T ALU's level of performance is impressive:

- drilling the main oil gallery
- Ø 6.95 mm. drilling depth 2 x 210 mm
- drilling from both sides
- $v_c = 110$  m/min.
- $V_f = 1500$  mm/min.
- $p = 50$  bar (soluble oil)
- tool life: 500 m

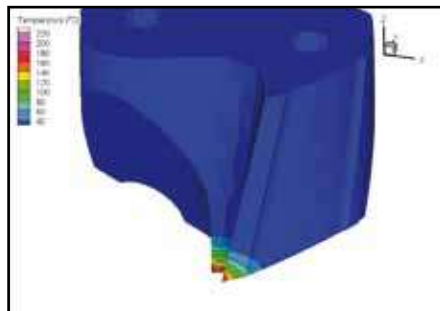


### Optimised cutting edge geometry for the machining of aluminium

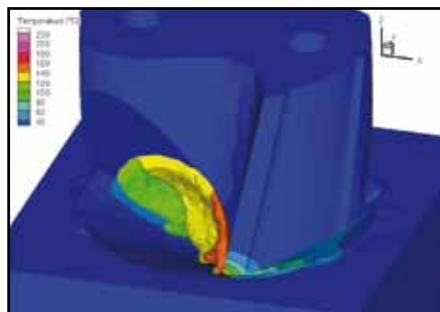
The cutting edge geometry of the spiral-flute deep hole drill RT 100 T ALU is optimised to produce chips that can be evacuated from deep holes as easily as possible.



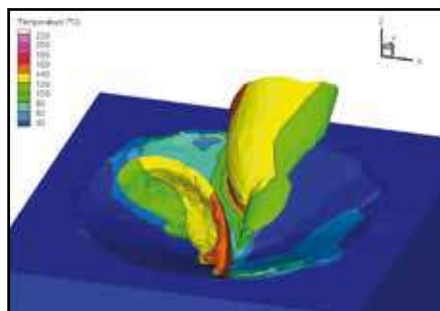
The special design of cutting edge geometry...



... provides optimally formed chips...



... and quick chip evacuation.



### The procedure for machining aluminium

To achieve optimal machining results in the production of deep holes with the RT 100 T Alu particularly when piloting on radii and/or uneven surface, we recommend the following machining steps:

1. Milling of flat, i. e. with Guhring Ratio end mill RF 100 U incl. centre cutting. The flat must be at right angles to the entry of the drilling operation.
2. Producing a cylindrical pilot hole (tolerance F9) with a minimum drilling depth of  $1 \times D$  (up to  $3 \times D$ ). We recommend our Ratio drill RT 100 U. Thanks to its point angle of  $140^\circ$  and its  $\varnothing$ -tolerance m7 it is ideally suited for this machining step.
3. Entering the spiral-flute deep hole drill RT 100 T Alu in the pilot hole with a speed of appr. 300 rev./min and a feed rate of appr. 500 mm/min.
4. Setting the cooling lubricant pressure and speed.
5. Due to the relatively high cutting speeds we recommend, especially for the machining of aluminium, to increase the cutting speed in several steps to the end value, i.e. with the program specification  $f_{Lin}$ , until reaching a drilling depth of  $5 \times D$ .
6. Continuous drilling to full drilling depth without pecking cycle.
7. For through holes with oblique exit reduce the feed rate  $v_f$  appr. 1 mm prior to break-through by 40% .
8. Upon reaching the drilling depth switch off speed and cooling lubricant, withdraw with rapid feed rate.



All deep hole drills must be guided during pilot drilling. Deep hole drills must never operate at full speed unsupported.

## RT 100 T ALU – special tools for the wet machining of aluminium

**GUHRING**

 RT 100 T  Inquiry  Order by fax: +49 74 31 17-21 279

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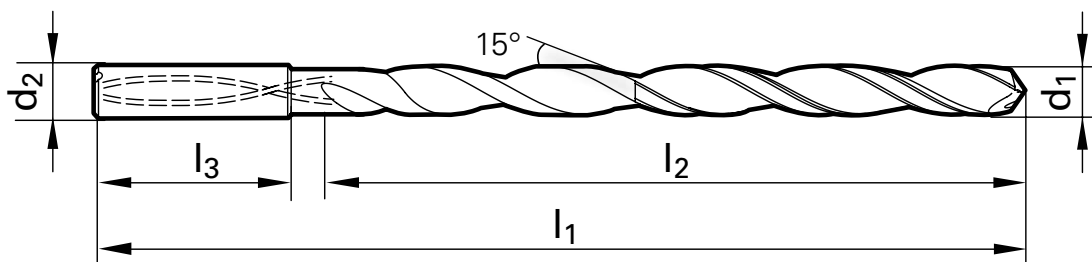
Fax

Date

Signature

 repeat order: \_\_\_\_\_  first order  to attached drawing

 Ø nom. 3.0 up to 14.0 mm  
 max. drilling depth 30 x D, max. length 370 mm

**Attention: pilot hole required!**


Please enter data or dimensions. Required for either tool or workpiece.

<b>Tool</b>	Ø nom. d <sub>1</sub> (mm) h7	3.0...14.0 mm	
	Total length l <sub>1</sub> (mm)	max. 370 mm	
	Flute length l <sub>2</sub> (mm)		
	Shank length l <sub>3</sub> (mm)		
	Ø shank d <sub>2</sub> (mm) h6		
	Clamping (HA shank recommended)		
<b>Workpiece</b>	Aluminium with 3% Si content		
	Description		
	Tolerance on Ø		
	Drilling depth		
	Surface finish		
<b>Machine</b>	Conv. machine tools / deep hole drilling machines		
	Vertical / horizontal		
	Soluble oil / neat oil		
	Pressure in bar (min. 40 bar)		
	Pilot hole		



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