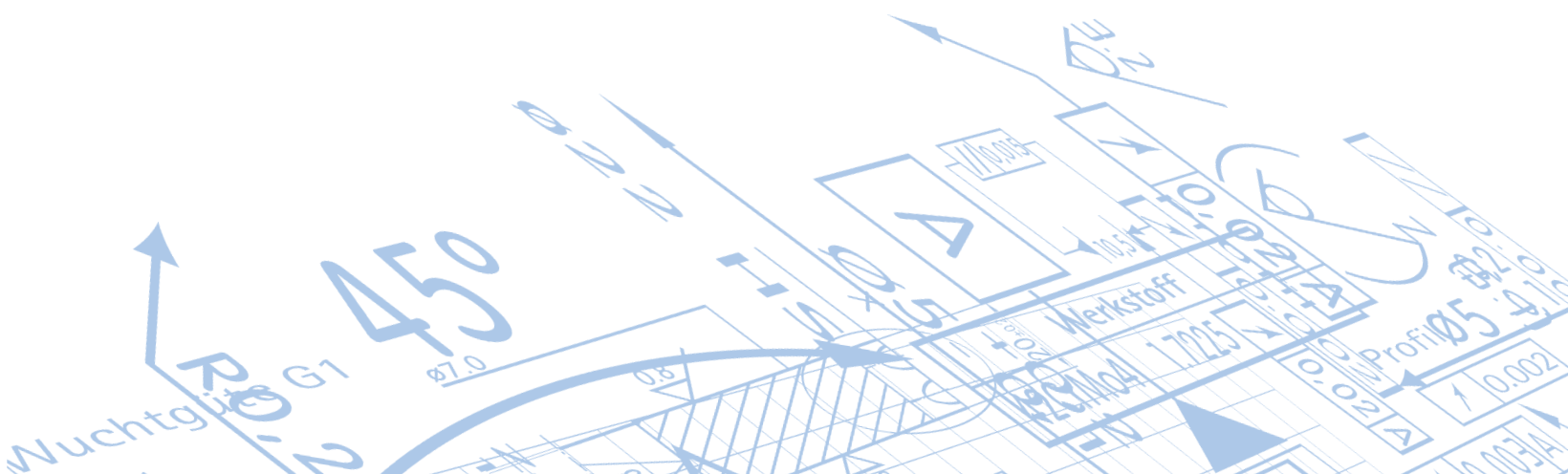




Product Brochure

# FlutePolish

High-Performance Products for Flute Polishing



Precision Engineering Solutions

**WINTER**  
SAINT-GOBAIN

# WINTER FlutePolish

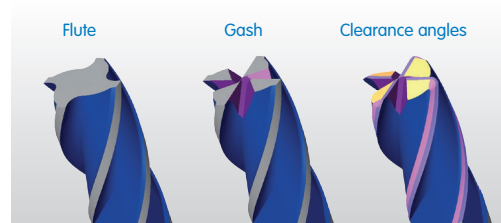
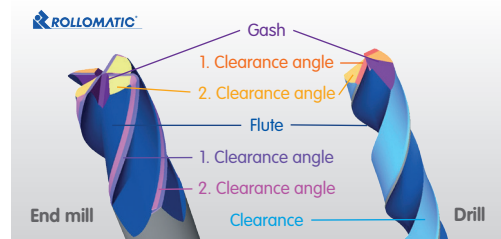


Shank tools such as drills, end mills, reamers and stepped tools vary in design and geometry. The geometry is created using a specific sequence of applications, including flute grinding, gashing, and grinding clearance angles.

After grinding (roughing) the flute to achieve the correct geometry, the flute can be polished to produce a better surface finish.

The polished surface improves the performance of drills and end mills when used on aluminium alloys, hardened steel materials or when drilling very hard wood. Polishing helps to transport material chips efficiently out of the drilled hole to reduce friction, this also helps to reduce the risk of chips becoming welded to the cutting edge.

Using WINTER FlutePolish is an ideal way to complete the production of shank tools, with it improving the cutting edge of the tool and providing a more consistent and extended tool life.



## Features

- Newly developed elastic bond structure
- Increased feed rate, faster process
- Highly wear resistant
- Reduced abrasive consumption
- Can withstand high infeed and feed rates

## Benefits

- Flexible & highly conformable
- Polishes a greater surface area of the part
- Excellent surface finish quality (mirror shine)
- Reduced set-up and cycle times, increased productivity
- Long wheel life
- Lowers overall process cost (cost per part ratio)
- Reduced loading, wheel burning and improves polish quality

## Markets

- Tools industry, shank tools: – Drills, End Mills, Reamers

**WINTER offers a complete portfolio of products for the production of shank tools through its Q-Flute range providing super abrasive grinding wheels that are designed to make flute grinding more economical.**

## Case Study: Grinding of tungsten carbide shank tools

### Periphery

- Machine: Walter Helitronic
- Coolant: Oil

### Work piece

- TC drill,  $\varnothing$  10 mm

### Grinding wheel

- D54 Q-FluteXL42 + FlutePolish F

### Fluting Parameters

- Depth of cut  $a_e = 3,5$  mm
- Cutting speed  $v_c = 16$  m/s
- Feed rate  $v_f = 100$  mm/min
- MRR  $Q'w = 5,83$  mm<sup>3</sup>/mm s

### Flute Polishing Parameters

- Infeed  $a_e = 0,05 \dots 0,1$  mm
- Cutting speed  $v_c = 20$  m/s
- Feed rate  $v_f = 180$  mm/min

### Results

- Perfect cutting edges and mirror surface, very stable grinding behavior, improved cycle time