

Ratio drill type RT 100 R

Convincing:

Minimal wear in benchmark test

The performance capacity of the new RT 100 R was very impressively proven in two benchmark tests carried out for the automotive industry. The drill was convincing thanks to having the lowest wear and the highest process reliability in comparison to the other tools tested.

In the first test, PTW Darmstadt determined the wear of the tool by measuring the width of wear at the cutting edge following 100 m tool life travel. With a width of wear of only 0.196 mm, RT 100 R showed the least sign of wear (diagram 2).

PTW compared drills of 5.0 mm diameter with a drilling depth of 20 mm in GGV450 as well as high pressure internal cooling of 65 bar in the test. The cutting rates were $v_c = 80$ m/min. and $f = 0.2$ mm/rev.

In addition, PTW also determined the development of the outer corner wear in order to receive a prediction regarding the expected final tool life figure. Even after 5000 holes the outer corner wear showed a consistent low wear of the tool, reason to believe that the end of tool life had

not been reached by far – a clear indication of the high economic efficiency and process reliability of RT 100 R (diagram 1).

Tool life testing:

In the second test, a step drill type RT 100 R, FIRE-coated in the diameters 14.5 or 20.0 mm respectively with 45° chamfer was examined in GGV40. The drilling depth was 70 mm, the cutting rates were $v_c = 70$ m/min and $f = 0.3$ mm/rev.. The tool had internal cooling with 50 bar.

A minimum tool life of at least 120 m was expected to be achieved in the test. The step drill type RT 100 R had definitely not reached the end of its tool life after 214 m and showed an even wear pattern (diagram 3). Furthermore, it was the only drill in the test that kept the coating at the leading land intact for its entire tool life. In a second test the RT 100 R fared even better!

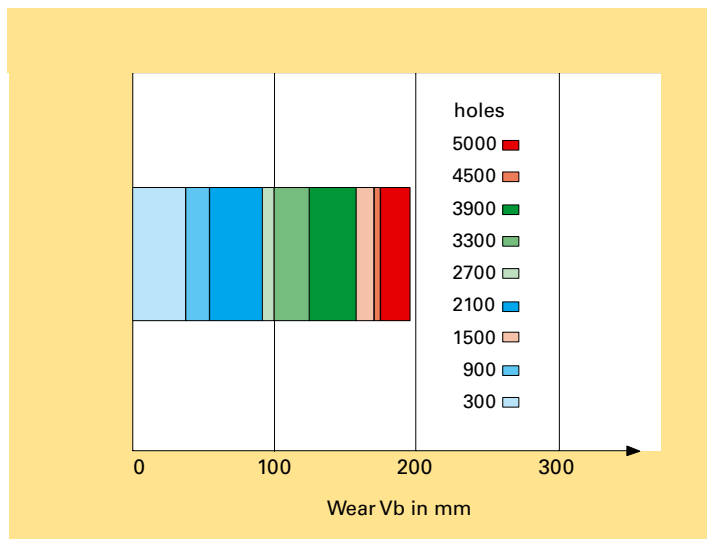


Diagram 1: Development of the outer corner wear regarding to tool life

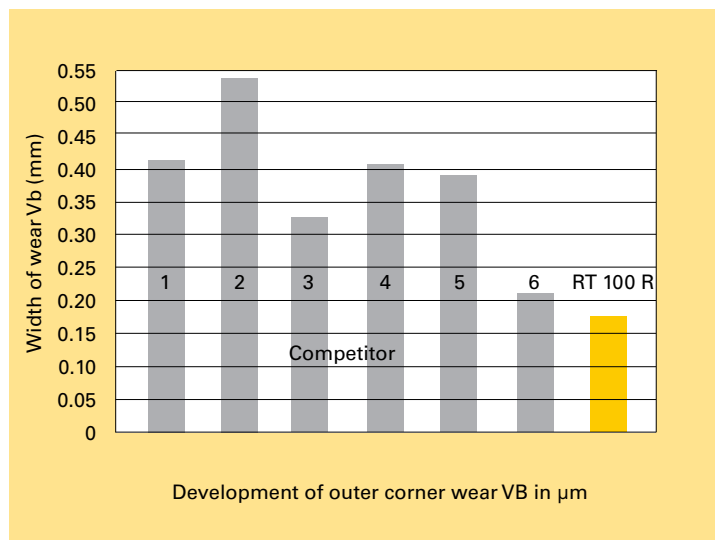


Diagram 2: Width of wear after 100 m tool life: IXION BAZ 325
High pressure int. cooling 65 bar $v_c = 80$ m/min; $f = 0.2$ mm/rev.
 $d = 5.0$ mm; $t = 20$ mm Test at PTW

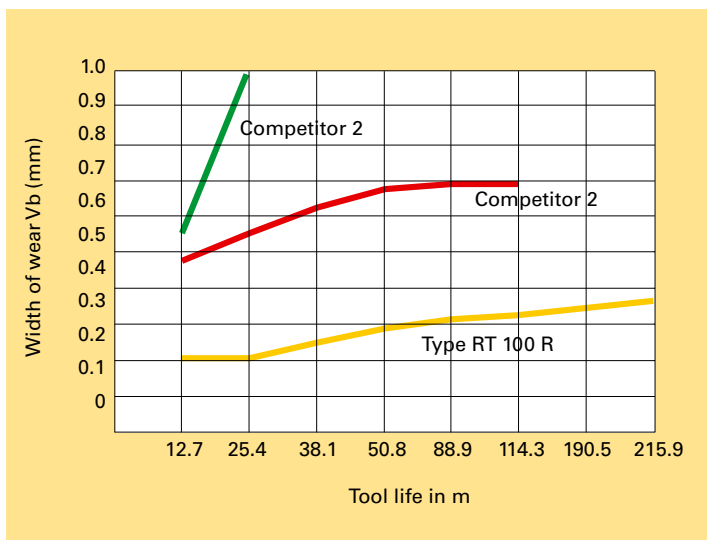


Diagram 3: Wear of face at a FIRE coated drill type RT 100 R