



## Phoenix TC2 drills ten times faster

Automotive industry supplier Aeschlimann Ltd. uses solid carbide high-performance drills from Sphinx Tools Ltd. to optimize series production.

Every second of machining time counts in series manufacturing for the automotive industry. Whoever wants to work efficiently must take advantage of all opportunities for rationalisation. The supplier Aeschlimann Ltd. in Swiss Lüsslingen has recognized this too. The special conditions of the currency parity of the Swiss Franc with the Euro made it particularly necessary for the production techni-

cians in Lüsslingen to critically review all of their machining steps. This also affected the complete machining of valve housings on a highly productive vertical machining centre TC-S2DN-O (Brother). The pre-turned workpieces made from hard, corrosion-resistant chromium steel X8CrNiS18-9, material no. 1.4305, are around 60mm in length and have a diameter of 10mm.

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Several variants must be manufactured in quick rotation in batch sizes ranging from 500 to 1000 components. Numerous longitudinal and cross holes with diameters of 1–6 mm must be drilled. A hole with a 2.4 mm diameter and a depth just short of 40 mm caused unnecessarily long machining times at the machining centre. The Aeschlimann production technicians formerly drilled this deep hole (16×D) after spot drilling it with an HSS single-fluted deep-hole drill. This was the only tool they could use to drill with precise alignment to 0.01 mm and with the required diameter tolerance of 0.05 mm. In this situation, Daniel Jaberg, Product Manager of Precision Mechanics at Sphinx Tools Ltd. in Derendingen, recently presented the current Phoenix TC2 high performance drills. These double-edged twist drills made from sub micro grain carbide with internal coolant-holes are specially designed for machinable materials. They have a hard, smooth, and particularly wear-resistant AlTiCrN+S coating on the head, polished flutes, and two margins. The chips are reliably removed even when tough materials are being drilled. When the solid carbide high performance drill is operating with optimal technology data, the holes are aligned to 0.01 mm precision and deviate no more than 0.01 mm from the tool diameter.



Several small holes, in part up to 16×D in depth, must be drilled in the chromium steel valve housing with precise alignment to the cylinder jacket.



They have used the Phoenix TC2 high performance drills to reduce the machining time to a tenth, increase the tool lives ten times, and thus achieve competitive series production in Switzerland: Daniel Jaberg, Product Manager of Precision Mechanics at Sphinx Tools Ltd. in Derendingen, and Dominic Schweizer, Production Technician at Aeschlimann Ltd. in Lüsslingen

## As reliable as never before!

Phoenix TC2 series drills are available as standard from our stock in diameters of 1 to 10 mm graded by 0.1, resp. 0,05 mm up to 16×D hole depth, and from 3 to 10 mm diameter up to 30×D hole depth. These tools from Sphinx Tools Ltd. have given the production technicians at Aeschlimann in Lüsslingen extraordinary advantages. They have reduced the machining time to around one-tenth of that formerly required. The twisted high performance drills with internal cooling enable the machining centre to easily and reliably drill to a hole depth of 16×D just as quickly as with short drills. The hole is first centred with an NC spotting drill (140° point angle). The Phoenix TC2 then drills to the full depth in one rapid machining process without chip removal.

At a speed of 16,000 rpm and a 0.045 mm feed per rotation, it completes the hole within 4 seconds. At the same time, the coated high performance drills have proven particularly resistant to wear. They achieve much longer tool lives than comparable drilling tools. At Aeschlimann, they operate up to ten times longer than the formerly used HSS single-fluted drills. This enables the automotive industry supplier to continue its competitive production of valve housings in Switzerland – despite the unfavourable currency conditions.

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