With the patented shaft cooling “COOL-CORE”, Step-Tec has accessed new dimensions for high precision machining and offers the HSK-E40 with 42,000 rpm and the HSK-A63 with 28,000 rpm for tool and mold making applications. Axial deviation of the tool due to thermal growth that called for lateral compensation on the machine is now limited to a minimum as well as the warm-up and cool-down cycles. An all new developed rotary union designed for bringing in the new coolant media COOL-CORE FLUID guarantees a cool rotating shaft and thus a cooler tool. This results in balanced thermal conditions within the motor spindle which in turn is responsible that the thermal growth of the rotational axis towards the tool has been significantly reduced compared to conventional stator cooling.
Thanks to the cooled shaft, the difference in lateral growth with or without TSC (through spindle cooling) is nearly zero. There is no heat surge at spindle stop (e.g. tool change) because the shaft is constantly cooled whether at standstill or in rotation.

COOL-CORE spindles, in operation since 2 years, have proven a temperature drop at the tool tip of 15 Kelvin which resulted in a thermal growth reduction at the tool tip of 75%.

In the warm-up cycle as well as in stop and go operation (production), temperature stability is established much sooner, see illustration.

The long lasting cooling-down period that took up to an hour has been reduced to a matter of minutes with the COOL-CORE spindle.

COOL-CORE shaft cooling compared with conventional stator cooling will bring an advance in machining time of up to 70% based on one shift operation. Replication in accurate machining of serial manufacturing paired with constant low temperatures at the tool interface makes the issue of tool deviation nearly obsolete.

In this top league, Step-Tec offers the ultimate High precision spindle, that will pay back the higher investment costs before long with the advance of highest machining precision and increased productivity for you as our customer.

For more information about COOL-CORE spindles contact our sales at Step-Tec AG: info@step-tec.com

Step-Tec AG
CH-4542 Luterbach
Tel: +41 32 681 35 27
www.step-tec.com