



Technical Tip #164 – High-Accuracy Boring with Romicron® System

Romicron boring systems can produce finish bores with tolerances of a few microns (1 micron = 0,001 mm) in diameter. Because many factors can influence finish-boring tolerances, Kennametal suggests plus or minus 2 microns on the diameter. Typically, Romicron can achieve bore-to-bore variations of just a few tenths of a micron under ideal machining conditions.

To achieve optimum results in high-accuracy boring, follow these requirements:

- Good, solid clamping of the workpiece.
- Thin-walled workpieces are prone to distortion under boring, clamping, and vibration. Evaluate the workpiece to determine if proper clamping is needed.
- Long bores, where the length of bore exceeds 2.5 times diameter, require special care. In some cases, special shanks and shank shapes, and heavy metal shank materials will be required.
- Using extensions for extended-length boring results in overhangs. Properly evaluate and analyze of these cutting conditions.
- Good machining practices must be followed when using diameter extenders.
- Machinability of exotic materials should be examined to determine the best machining methods.
- Machining of interrupted cuts can alter bore accuracy and configuration.
- Coolant supply must be used to prevent thermal distortion.
- Ultra-high accuracy boring requires planning prior to starting the operation. As a general rule, try to plan for ultra-high accuracy boring last in the sequence of operations.