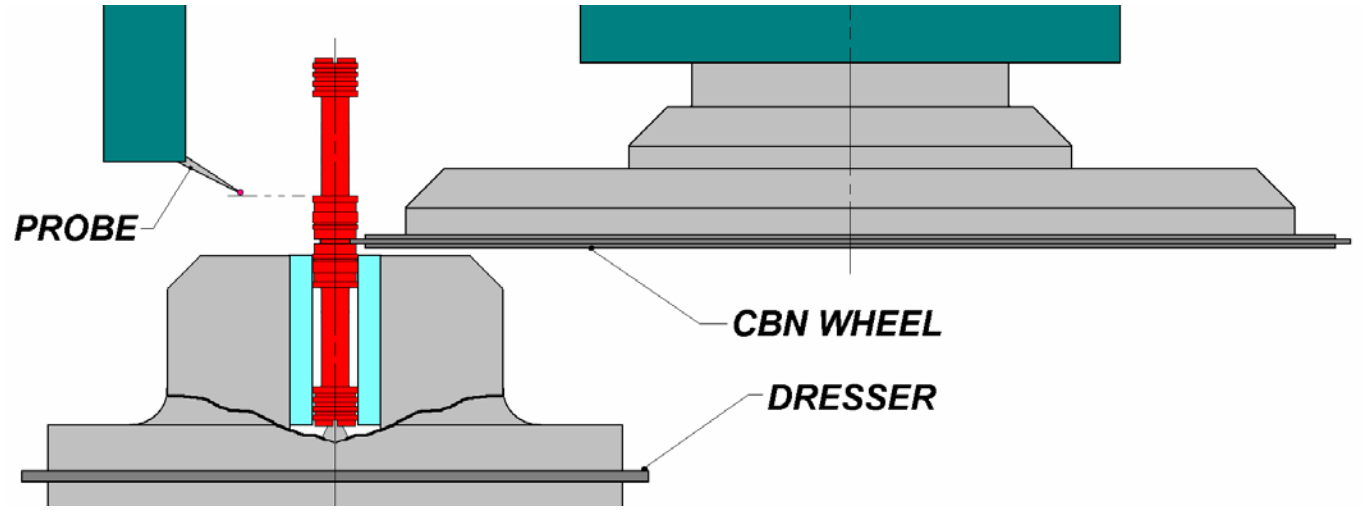
CATEGORY: SUPER PRECISION
Application Number: 92-0017

Grind .03125” Wide Groove to .000050” Tolerance

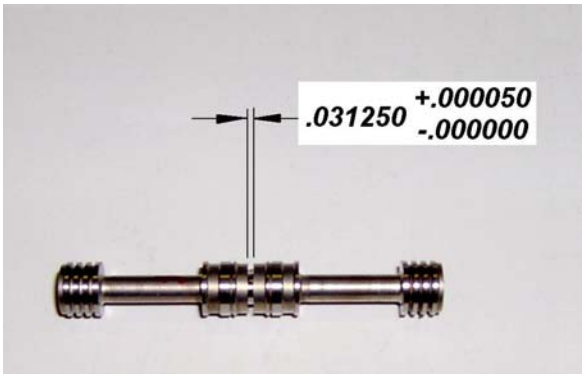


MACHINE: Accura™ 1210G

WORKPIECE: Servo Valve Spool

OPERATION: Grind .03125” Wide Groove

MATERIAL: 440C CRES Stainless Steel



OBJECTIVE: To grind the narrow groove to precise tolerance and to substantially reduce setup time.

OPERATION DESCRIPTION: Hold the workpiece in a hydraulic sleeve chuck, gripping one the finish ground outside diameter. Automatically probe the axial position of the locating shoulder. Feedback Z-axis offset. Plunge grind the groove maintaining .000050” width tolerance and .008” corner size. Sequentially dress each side of the wheel and the periphery of the wheel with a diamond disk mounted on the chuck.

NOTES: The majority of the setup reduction came from the Accura’s CNC dressing capability. Groove width is easily programmed, eliminating manual sticking to arrive at the proper groove width. Testing was performed on the 1210G with an aluminum oxide wheel and sliding jaw chuck. This process can be adapted to the Accura C between-centers cylindrical grinder as well.

TEST RESULTS:

Groove width and side-wall taper were measured with electronic gages. Size and taper were held to print tolerance. Setup time (wheel dressing) was dramatically reduced.