



COGSDILL TOOL

products, inc.

APPLICATION *news*

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NUMBER CAN1-03

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Faster production and lower costs with *Tube Sheet Pro*® grooving tool

Time-consuming fixturing and secondary operations are eliminated as groove quality is improved

A manufacturer of heat exchangers was drilling, reaming, and grooving holes in tube sheets on a vertical CNC mill. The grooving tool in use wouldn't work properly on the CNC machine, due to slight variations in the surface height of the tube sheets. The tube sheets had to be taken to a radial arm drill for grooving. About two hours were required for refixturing.

Another problem emerged as the grooving operation on the radial arm drill left burrs in many of the grooves, requiring a subsequent "dry-reaming" operation for burr removal.

Cogsdill recommended the Tube Sheet Pro® grooving tool with overtravel shank to groove the tube sheets on the CNC mill. The overtravel feature compensates for variations in tube sheet surface height. The customer only fixtures once for drilling, reaming, and grooving. A trial run was conducted in which 128 holes were grooved with the Tube Sheet Pro. All were accurately sized and located and *(continued on reverse side)*

Machine industry-standard double-groove configurations in tube sheets in heat exchangers, condensers, and boilers with maximum productivity and professional results. Refer to our **Tube Sheet Pro**® brochure.



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(continued)

had good finishes. The holes were checked with a gage for burrs; all were burr-free.

The customer reports that the Tube Sheet Pro is now being used on all of their tube sheets. The secondary operations on the radial arm drill have been eliminated for very significant time and cost savings with improved groove quality.

Machining data

Tool type: TSP-750-1OT Tube Sheet Pro

Machine type: Vertical CNC mill

Material type: Carbon steel

Spindle speed: 400 RPM

Feed rate: 5 IPM (.012 IPR)

Cycle time: 18 seconds per hole

Coolant: Semi-synthetic

Size required: 1/8 in. wide x .015 in. deep x 2 grooves ea. hole (1/4 in. spacing)

Size achieved: Accurate size, depth, and location

Finish required: Smooth, without burrs

Finish achieved: Excellent (all holes passed gage test)