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METALWORKING IDEAS FOR TODAY'S JOB SHOP

Metal-Cored Wire Cost Saves Money, Reputation

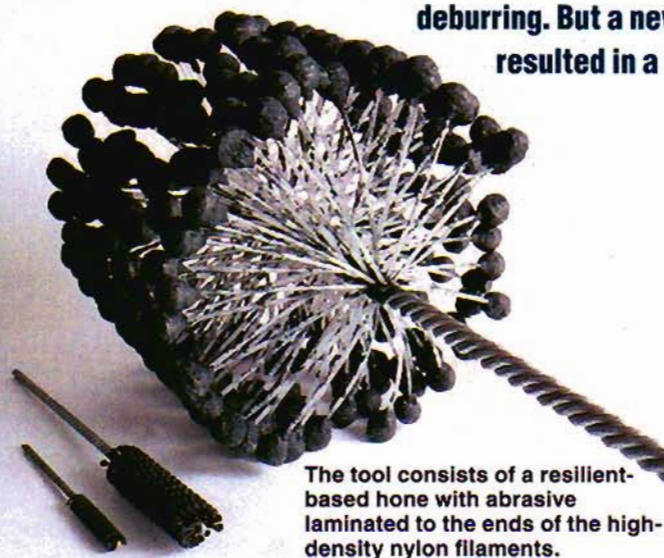
Spotlight On:
Abrasives/Grinding

**European Fab Shops
Profit With Automation**

**Job Shop Grows With
Serious Grinding
Technology**

Deburring System Cuts Production Costs By 40%

For an air-driven pump manufacturer, trying to remove small burrs from the inside of aluminum sleeves proved to be a time consuming and expensive operation – especially sending the parts out for manual deburring. But a new system, consisting of a resilient-based hone, has resulted in a more efficient process and a smoother finish.



The tool consists of a resilient-based hone with abrasive laminated to the ends of the high-density nylon filaments.

Haskel Inc. (Burbank, CA) manufactures a variety of compressed air driven pumps for use in a cross-section of industrial applications. The company experienced quality control issues with the manufacture of its miniaturized models. Burrs are created in the air drive system's aluminum sleeve, which must meet specification of 16 micro-finish.

To produce the sleeve, which is about 2" long, Haskel machines the part from 13/16" diameter aluminum bar stock. The sleeve is then put on a conventional drilling machine, where an operator drills two series of holes around the sleeve. One series has 1/8" holes, while the other has 3/32" holes.

During the drilling process, burrs are produced along the inside diameter of the sleeve. If these burrs remain, the pump can be damaged. For instance, a spool slides back and forth like a piston with O-rings inside the sleeve to open and close the holes. During this cycling action, a loose burr can cause excessive wear on the O-rings.

After drilling, the sleeve is taken to a workstation where an operator uses a no-burr tool to put an edge break on each one

of the holes. Even after this step, very small burrs still remain lodged inside the sleeve.

In the past, Haskel sent the sleeves to an outside vendor where the minute burrs were removed in an entirely manual operation – a costly and time consuming process. After the deburring, the sleeves were then returned to the plant for assembly.

Increase Efficiency

A new deburring/finishing system called Flex-Hone® offers a solution to eliminate small burrs. Manufactured by Brush Research Manufacturing Co., Inc. (Los Angeles, CA), the system consists of a resilient-based hone with abrasive laminated to the ends of high-density nylon filaments. At Haskel, the 11 mm diameter, 180-grit silicon carbide hone is placed in a standard drill chuck.

The system has resulted in a smoother, more efficient operation. After the preliminary deburring step, the sleeves are taken to the deburring station. At this point, the operator places a pan of kerosene beneath the hone and loads the pan with the sleeves, which become lubricated. At the same time, the drill motor is activated, rotating the hone at about 100 rpm. The operator then lifts a sleeve to the revolving hone and makes five or six passes. Inside the sleeve, a spring-like action causes the tool to knock out any burrs remaining in the holes. The parts are then ready for burnishing.

With an annual production of 10,000 – 20,000 sleeves, the company uses two or three hones per standard order of 2,500 parts. For Haskel, the Flex-Hone® tool provides better quality control and cost savings, paying back the cost of the system many times over.

The company now saves 40% of the total cost of producing the part as opposed to jobbing the work out. *Brush Research Manufacturing Co., Inc.*

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**The company
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