

## HOLE SPECIALISTS' BIG NEW HONE, BIG NEW HOME, HANDLE BIG OILFIELD BUSINESS

APPARENTLY EVERYTHING REALLY IS "BIGGER IN TEXAS," INCLUDING A 32-FT. STROKE, 24-IN. ID HONING SYSTEM BUILT TO HANDLE LONG, LARGE-DIAMETER PARTS USED IN THE OILFIELD.



Larry Robinson, Hole Specialists' owner says: "We produce the gamut of things that require a hole: hydraulic blocks, oil rig control blocks and parts so big a 6-foot (1.83-m) tall man can walk through them. We can do light honing or take inches of stock out."

TOMBALL, TX – Hole Specialists President Larry Robinson thinks big, and not just because he's a Texan. His business philosophy is based on "big" – drilling, sizing, straightening and finishing parts with exceptionally long bores. The business' latest machine tool acquisition, a Sunnen HTG-10000 tube hone with a 32-foot (10 m) stroke and I.D. capacity of 24 inches (610 mm), fits the "big" definition. It is the centerpiece of a 25,800 sq. ft. (2,397 sq. m) expansion to the company's 35,000 sq. ft. (3,252 sq. m) shop in Tomball, TX. "We actually

designed the new building around our large-part honing requirements," said Robinson. The HTG, which Hole Specialists beta tested, joins 14 other Sunnen machines, increasing the shop's honing output and size capability.

Sunnen's GH210 machine set the standard for maximum length and diameter previously. "We got the 210's with a 25-foot (7.62 m) stroke and 18.75" (476.25 mm) I.D capacity, and we thought we had large-part capability licked," said Robinson. "But, the first request I got after buying the 210's was for a 26-foot (7.92 m) part. That's when I realized that part sizes are going to continue to increase, so we'd better find a way to handle them. We've seen great results from the HTG," said Robinson. "We can handle larger parts, and our process time is about 20 percent faster."

The HTG, with a 40-HP (29.83 kW) spindle motor and 18-HP (13.42 kW) stroke

motor, can remove stock at a rate of up to 244 in<sup>3</sup>/hour (3998.4 cm<sup>3</sup>/hour). The machine's proportional load control hydraulic system optimizes the distribution of hydraulic power for maximum operational efficiency. Other new features include "zero shut-off," which allows operators to input the starting bore size and set the amount of stock to be removed, then move on and let the machine run the cycle. "Our operators really like this set-it-and-forget-it feature," added Robinson.



Hole Specialists' new HTG-10000 tube hone with a 32-foot (10 m) stroke and I.D. capacity of 24 inches (610 mm), is "big" even by Texas standards.

### Diverse customer base offers honing challenges

Hole Specialists' customers include automotive, aerospace, chemical and the steel industry leaders, but its location near Houston makes the company a natural for oil industry work. The shop works on drilling and extraction tools for major manufacturers, as well as many of their sub-tier suppliers that make parts and tools for them. According to Robinson, "We produce the gamut of things that require a hole: hydraulic blocks, oil rig control blocks and parts so big a 6-  
(continued)



Part lengths and diameters continue to get larger in the energy business, but Hole Specialists Owner Larry Robinson says, "We can handle larger parts with the HTG, and our process time is about 20 percent faster."

foot (1.83-m) tall man can walk through them. We can do light honing or take inches of stock out." Materials honed include Hastelloy®, Inconel®, Super 13 Cr, high-nickel alloys, stainless, 4140, plastics, ceramics, hard-chromed parts, 4340 and similar high-alloy steels.

Depending on the parts, diameter tolerances may be as small as 0.0002 inch (0.00508 mm), and finishes of 4-6 min are typical. Exact crosshatch angles ensure correct sliding/sealing surfaces between down-hole parts, such as liner hangers, rotors and stators.

#### **Big thinking behind new hone design**

The company's ability to manipulate large workpieces, and the needed honing tools, got a lift from other new features on the HTG. "Sunnen improved the fixtures with roller bearings, which replaced the air glide system used on the GH210," added Robinson. "The HTG has an easy hand crank, and we just loosen the fixture bolts and move the fixtures where we need them, without compressed air. A new hydraulic tool lift on the machine makes tool handling much easier, too."

Because of the wide range of honing requirements – from roughing drill tubes to finishing a surface – the company employs all types of abrasives, including aluminum oxide, silicon carbide, diamond and CBN (cubic boron nitride).

With such variety of operations and materials, the operators appreciate the HTG's ease of setup. "The machine allows very efficient, safe operation," said Robinson. "The new control and software make setups a snap, which is important for rush jobs on large parts, especially when we get really busy." The machine's Siemens PLC controls all machine functions via color touchscreen, and the ergonomic operator station is

mounted on a swing arm for easy access. New safety features include a combination light curtain/fencing around the machine to protect the operator from moving parts. A part-presence sensor in the rear guard detects if a part comes loose and stops the machine.

According to Robinson, one rule of dealing with big parts is: the longer the part, the greater the potential for drift error. Diameter, concentricity and the drift tolerance all have to be taken into account at the same time. Hole Specialists employs ultrasound through the pipe wall to determine internal concentricity, end to end. "We can tell if it's getting off-center, in which case we move or rotate the part on the hone to straighten it out," Robinson explained.

Sunnen equipment allows Hole Specialists to meet customer requirements that are above and beyond your average holes, Robinson stresses. "We had one project that involved a 25-foot-long workpiece and we went in a foot at each end, bottle honed and removed an inch of stock off the inside diameter," he said. "Another was a 4.25-inch-diameter (107.95 mm), 10-foot-long (3.048 m), off-center hole that couldn't be bored, so we enlarged the gun-drilled hole 1.6 inches (40.64 mm) with a hone. There are no textbook solutions for these requirements, and that's one of the reasons customers keep coming back to us."



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