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■ Featuring increased horsepower and torque ratings, the ST1000 series turbine-powered air and gas starters from the Industrial Technologies sector of Ingersoll Rand are designed for use in demanding applications such as mining, oil and gas, power generation, marine and rail.

PROVIDING A NEW START

Ingersoll Rand Adds to Air Starter Line with ST1000 Series

By Dawn Geske

The Industrial Technologies sector of Ingersoll Rand has expanded its air starter line with the ST1000 series turbine-powered starters. Targeted toward oil and gas, mining, power generation, marine and rail applications, the ST1000 air starters offer increased horsepower, greater torque capability and are the most efficient air starters Ingersoll Rand has released to date.

Ingersoll Rand added the ST1000 large frame air starters to its lineup as a more energy-efficient and durable option for large engines. The starters can be used with 16 to 320 L diesel engines and 32 to 660 L natural gas engines. Ingersoll Rand offers the ST1000 series worldwide with production of the air starters occurring at its Southern Pines, North Carolina, U.S.A., Industrial Technologies Manufacturing facility.

According to Ingersoll Rand, the ST1000 air starters have 8% more horsepower than other offset turbine starters competing in this range and up to 18% more torque. They are also designed to consume 25% less air or gas for greater efficiency, Ingersoll Rand said. Operating specifications are 20 to 150 psi (1.38 to 10.34 bar), up to 557 lb.ft. (755 Nm) of torque and up to 70 hp (52.2 kW). Maximum flow is 1290 scfm (36.5 m³/min).

For the design of the ST1000 air starters, Ingersoll Rand said its engineering focused on maximum durabil-

ity, efficiency and ease of maintenance. The starters feature a single-piece aluminum rotor assembly and simplified flow path to increase the starting reliability in harsh, dirty and dusty environments. The rotor is fully supported on both sides to give it more stability and to balance the bearings for optimized high-speed operation. This, Ingersoll Rand said, helps to eliminate vibration while also reducing deflection. The ceramic hybrid bearings allow for lower friction at all speeds, a cooler operating temperature and an extended life.

One of the keys to the design of Ingersoll Rand's air starters and featured on the ST1000 series, is the integral slip clutch, which eliminates the soft-start valve and other special controls typically required in other starters. The slip clutch is designed to reduce shock loading, broken pinions and shafts and other common equipment breakdowns.

Other component enhancements include a forged rotating ring gear to maximize the life of the planetary gear set during extended crank cycles. The turbine motor utilizes a patent-pending slip-fit modular design that allows access from the rear of the starter for simpler service, reduced downtime and lower repair costs, Ingersoll Rand said.

To ensure the ST1000 air starters would withstand the demands of gas

processors, power generators, workboats and ships, mine haul trucks, locomotives and industrial equipment it was designed for, Ingersoll Rand subjected the units to a variety of tests that injected contaminants into the air stream as the starter was under load. These materials included aluminum-oxide sandblasting media, sharp-edge steel shot blast media and steel shot. According to Ingersoll Rand, the ST1000 continued performing without hesitation. For further protection, a wear-resistant coating was added to key components.

The ST1000 air starters are available in a variety of models with numerous inlet, exhaust and drive housing orientations. Four inlet, four exhaust and 16 drive housing orientations are available. Variations are determined by the user's starting requirements taking into account air/gas flow availability, torque requirements and the physical area available to mount the starter. The output drive of the starter is available in both inertia and pre-engaged versions.

Ingersoll Rand has simplified the maintenance and serviceability of the air starters by using motor bearings that do not require additional lubrication throughout the life of the components. The motor is lubrication free and the entire motor assembly can be removed for service. Fewer overall parts also reduces downtime and maintenance costs while the same inlet and outlet locations on the ST1000 allow for easier upgrade from the ST700 and ST900 models.

The Ingersoll Rand line of air starters extends across more than 200 models of vane and turbine starters used in everything from small truck engines to large oil and gas applications. The Industrial Technologies sector of Ingersoll Rand also produces a line of pneumatic barring motors for servicing diesel and gas engines. ■



■ All of Ingersoll Rand's SS800, T700, ST900, and ST1000 series starters incorporate an integral slip clutch designed to reduce shock loading, broken pinions and shafts, and other common equipment breakdowns.



■ The turbine motor on the ST1000 air starters uses Ingersoll Rand's patented slip-fit modular design that allows access from the rear of the starter for easier maintenance.

Based on an article that appeared in November 2008 of COMPRESSORTech^{Two}

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Printed in U.S.A.

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