Feature-Ⅰ: Compressor Technology

High-efficiency and Energy-saving Compressors Technology

Compressors are used in various plants and manufacturing systems. Recently, high-efficiency and energy-saving compressors are required to address environmental problems. Kobe Steel has continued to improve and expand compressor application to satisfy these requests. This issue introduces the leading technologies for compressors of screw, centrifugal and reciprocation types.

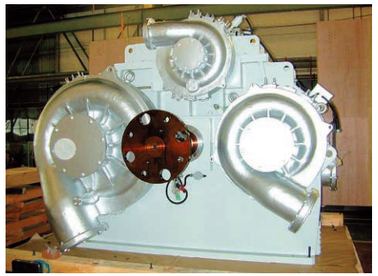

Fig. 1 3 Pinions - 6 stages integrally geared centrifugal compressor

Fig.1 shows a high pressure nitrogen gas recycle compressor. Kobe Steel is one of the pioneers to apply 3 pinions configuration in order to meet high pressure ratio application which has the advantage of less power consumption and smaller foot print. This advanced integrally geared compressor can be applied for not only air and nitrogen but also steam, flammable gas and toxic gas, as a result of the company's developmental efforts, rich experiences and know-how.

The upper photo on the cover shows a Kobe Steel oil-free screw compressor "KS80LNZ", which is the largest in the world and is now being operated in a petrochemical plant. Kobe Steel's oil-free screw compressors are used in many fields such as petrochemical, chemical, oil refinery, gas industries, etc. Kobe Steel also manufactures oil-flooded screw compressors which can provide the highest discharge pressure in the world with high efficiency and less foot print. The company offers compressors, both the oil-free and oil-flooded types, to meet various market needs.

Feature-Ⅱ: New Iron and Coal

Advanced Technologies of New Iron and Coal Energy Fields for Effective Utilization of Natural Resources

Kobe Steel has been developing new iron making processes and technologies for utilizing coal. With the growing concerns about natural resources and environment, new processes, such as direct reduced iron-making and coal upgrading, contribute to the industry. This issue introduces Kobe Steel's new activities related to various fields of iron and coal.

Fig. 2 shows the world's first commercial plant for the ITmk3® process which is the next-generation process developed by Kobe Steel. The plant, which has an annual design capacity of 500,000 tonnes, was jointly constructed by Kobe Steel and Steel Dynamics, Inc. and began operation in January 2010. The ITmk3 is a simple process which allows production of high-purity metallic iron from widely available resources including iron ore fine and non-coking coal.

Fig. 2 (a) Commercial plant (b) Iron nugget product

The lower photo on the cover shows a direct reduction plant, based on MIDREX process. This plant, with an annual production capacity of 1.5 million tonnes, was recently built by the Ion Unit Division of Kobe Steel and was delivered to the Qatar Steel Company. The photos in circles show direct reduced iron (left) and hot briquette iron (right).

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