FOREWORD

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The steel shapes division of JFE Steel produces products which contribute to improvement of social infrastructure by responding to increasingly diverse and sophisticated social needs, beginning with steel materials for the fields of construction, civil engineering, and shipbuilding.

The business environment of recent years was characterized by unavoidable large cutbacks in steel production due to the sharp drop in demand for steel products following the global recession triggered by the financial crisis in the United States in the fall of 2008. However, the Asian economy has made a rapid recovery, driven by China, and demand for steel shape products has also recovered, centering on infrastructure construction.

In spite of this partial recovery, domestic demand in Japan remains stagnant. In this difficult environment, JFE Steel is actively promoting the development of new products and technologies which will be sources of competitiveness, and is also working to improve quality and manufacturing technologies, which are the basis for responding to quality service requirements from customer.

In the building field, JFE Steel is expanding the available size range and increasing the strength of its line of fixed outer dimension H-shapes, “Super Hislend H,” responding to the trends toward larger spans and fewer columns in buildings. In the civil engineering field, we have developed several important new products, such as “Hat-shaped 900 Width Steel Sheet Piles,” which provide excellent workability, structural reliability, and economy with large section profile, “J Pocket Pile,” which is a steel sheet pile that forms cofferdam with outstanding impermeable performance and durability, and the H-shape with inner ribs, “J-grip H,” which is used in steel-concrete composite structures such as underground diaphragm walls. We also developed “Super Pearlite type 3 (SP3) high durability rail for heavy haul lines,” which features high wear resistance and realizing a service life more than 10% longer than that of conventional rails. In the shipbuilding field, we improved the quality and productivity of unequal leg and thickness angles by developing a more advanced thermo-mechanical control process (TMCP).

Following the establishment of JFE Steel in 2003, the four shape steel mills in Kurashiki District and Fukuyama District of the West Japan Works were concentrated into two mills. Today, production is allocated between these two plants, with the shape mill in Kurashiki District producing mainly large section H-shapes and steel sheet piles for civil & building construction, and the shape mill in Fukuyama District producing mainly smaller sizes such as rails and shapes for shipbuilding. Thus, management resources, that is, equipment and human resources, were concentrated. Following this reorganization, the old rolling and finishing equipment at the shape mill in Fukuyama District was renovated and automated to improve product quality and increase production capacity, and the accelerated cooling equipment of *Super*-OLAC S (On-line Accelerated Cooling for Shapes) was moved from the shape mill in Fukuyama District to the shape mill in Kurashiki District to achieve higher efficiency in the production of fixed outer dimension H-shapes.

This special issue presents an overview of the shape steel products and equipment at JFE Steel in recent years, together with related technical developments. With an even more difficult sales environment expected in the future, JFE Steel intends to provide products and services which meet the requirements of customers in a timely manner, so as to contribute to society with the world's most innovative technology. We sincerely look forward to your guidance and support in achieving this goal.