FOREWORD

Yasuhiro Sodani

Executive Vice President

A wide range of forming and process technologies are handled in the rolling and processing until all final products are produced, beginning with the primary mill where hot working is applied to slabs and other materials, secondary mills such as the cold rolling, and annealing, surface treatment and other processes. Various technologies are combined not only to build in the product shape, but also to impart the mechanical properties and surface quality required in each product, and thereby stably supply products that satisfy the customer at low cost. In particular, needs for high strength and high functionality in steel products have increased remarkably in recent years from the viewpoint of preservation of the global environment, and reduction of CO_2 emissions during steel production is also an urgent issue. New technical innovation is demanded to meet these challenges. Moreover, with the amazing progress of mills in the emerging countries, JFE Steel is constantly looking one step ahead as it continues to create new high-added value products requested by customers and promotes process innovation to ensure that we can supply those products stably and economically. We are taking on the challenge of developing advanced technologies with the motto of (1) Unique in the world, (2) in accordance with correct principles and (3) potential for wide acceptance in society.

This JFE Technical Report “Special Issue on Rolling and Processing Technologies” presents an overview of technical development at JFE Steel in the rolling, forming and processing fields since the company was established, and also introduces examples of recent research and development. As part of this, this Special Issue also introduces the content of research on phenomena that remained to be clarified until now, such as the lubrication mechanism in hot rolling, the behavior of roughness profile transfer in skin-pass rolling, the influence of surface properties on cooling of hot-rolled steel products and the wiping phenomenon in the field of surface treatment. High expectations are placed on these studies as basic research that will lead to dramatic improvements in product quality and productivity. Leading-edge measurement techniques and advanced numerical simulation techniques that support process development are also introduced, and JFE Steel’s “Only 1 / No. 1” technologies are also

presented, including state-of-the-art high speed rolling technology, online TMCP (thermomechanical control process) and stable threading in the CGL.

Based on JFE Steel's Corporate Vision of "Contributing to society with the world's most innovative technology," we will continue to pursue leading-edge technologies that will gain wide social acceptance, and will push ahead with the development of rolling, forming and processing technologies that contribute to the creation of value for our customers. In the future as well, I sincerely request the guidance and encouragement of all customers, colleagues and friends.