

FOREWORD

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Both the steel industry and our surrounding environment have undergone increasingly large changes in recent years. Where supply and demand for steel is concerned, demand has expanded as a result of economic growth, centering on China and the emerging nations, and production has also increased rapidly, particularly in China. Today's steel industry is characterized by intense competition in quality, price, delivery and product development. However, regardless of the environment, our Japanese steel industry must continue to maintain its global superiority by taking full advantage of strong, tough competitiveness against the backdrop of outstanding technical capabilities.

In JFE Steel's special steel bar and wire rod business, the research, sales and technical service divisions of JFE Bars & Shapes Corporation were consolidated in 2014, and Sendai Works was transferred to JFE Steel in April of 2017. Thanks to this complete integration of the development, production and sales functions, JFE Steel, as Japan's only steel maker with products of both the blast furnace route at Kurashiki and the electric arc furnace at Sendai, can now make timely proposals to customers for the optimum products utilizing the features of those respective production processes, based on a more efficient system.

Our most important mission as a steel maker is to stably deliver products that satisfy our customers, and we are tirelessly promoting development of the technologies necessary to accomplish this. This "Special Issue" of JFE Technical Report introduces new products and new manufacturing technologies for special steel bars and wire rods.

In new products, we are grappling with the development of high performance steels that can realize new functions in harmony with the environment at low cost. This "Special Issue" introduces case-hardening steel with high cold forgeability that makes it possible to omit the heat treatment process, soft-nitrided steel and other gear steels that can realize high strength with low strain, high strength spring steel with improved fatigue characteristics by prevention of decarburization and other new products, and also introduces some of the research which formed the basis for their development. A surface small defect detection technology for quality assurance is also introduced.

The Corporate Vision of JFE Steel is “Contributing to society with the world’s most innovative technology,” and we in the bar and wire rod field are also making daily efforts to provide products that will truly please our customers. The new products and new technologies introduced in this “Special Issue” are only a small part of the results of those efforts. As we will continue to actively promote technical development in the future, we sincerely request the further guidance and advice of all those concerned.