

FOREWORD

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This special issue on steel pipe is the third issue of Kawasaki Steel Technical Report to be devoted to the subject, following previous special issues in 1981 and 1990. The period which saw the publication of the first special issue was characterized by a succession of large-scale expansions in pipemaking facilities of all kinds against the background of the so-called seamless pipe boom. When the second special issue was published, total demand for steel pipe was beginning a gradual recovery from the collapse that followed the seamless boom. However, the growing number of suppliers especially in the third countries had also begun to put pressure on Japanese pipe exports, and in consequence, the years around and after 1990 were a period of struggle for Japan's pipemakers.

Kawasaki Steel's pipe division responded to the increasingly keen competition in the field of the low grade pipe by vigorously promoting the development of products and mass-production technologies in the directions of high strength, high toughness, and high corrosion resistance, aiming at the high grade market. For example, the company succeeded in establishing a mass-production technology for manufacturing high-alloy seamless pipe by the Mannesmann process, which was considered realistically impossible at the time. In particular, the mass-production of martensitic stainless steel pipe using this technology made it possible to respond both qualitatively and quantitatively to the rising demand for oil well tubulars with high corrosion resistance, and has therefore won a high evaluation from customers.

On the other hand, natural gas is expected to enjoy growing demand in the coming years as an important source of clean energy, responding to the global environmental problem, as can be seen in recent regulations placed on CO₂. The role of steel pipe in the production and transportation of natural gas will therefore assume increasing importance. Moreover, in Japan, as in other countries, a variety of natural gas pipelines are now beginning to be planned, and a total technology for pipelines, including welding technology, is becoming necessary.

In the area of construction materials, the importance of steel pipe has continued to grow in recent years. In civil engineering, the performance of steel pipe piles won high marks in the review of seismic design technology that followed the Kobe-Awaji Earthquake in early 1995. With the conditions applied to execution becoming ever stricter, great expectations are also placed on this product from the viewpoint of ease and speed of execution. In the area of steel structures, there is a tendency toward higher requirements for steel pipe performance in response to the larger scale and greater diversity of structures.

The steel pipe division has steadily promoted improvement of the company's basic constitution through the development of products and production technologies which are suited to market needs in each of these sectors. It may also be said that this special issue has been issued at an appropriate time for reporting the successful results of these efforts.

The technical papers contained in this special issue center on mass-production technology for high-alloy seamless pipe, product development technology for such pipe, and pipeline execution

technologies, while the announcements of new products and new technologies focus mainly on recent developments in the area of construction materials. In this issue, we would also like to present recent technologies related to stainless ERW pipe and the automation of the UO mill. We sincerely hope that our readers will find this issue useful, and we invite your frank comments and criticisms.