

# Development of High Performance ERW Pipe for Linepipe†

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## Abstract

To respond to customers' needs for higher grade and higher quality linepipe in recent years, in 2003, JFE Steel's Chita Works carried out a revamp of its 26" medium-diameter ERW pipe mill, in which the maximum wall thickness of API 5LX56 grade (API: American Petroleum Institute) was increased from the former 20.6 mm to 25.4 mm. At the same time, Chita also improved its measurement technology and developed an original quality assurance system, represented by a multiprobe weld seam ultrasonic test (UT) inspection device, with the aim of improving weld seam quality.

## 1. Introduction

In recent years, demand for linepipe has been strong. As petroleum and natural gas drilling and transportation environments have become increasingly severe, high quality requirements for pipe, including strength, toughness, and corrosion resistance, have become remarkable, particularly in environments where large-diameter pipe, as represented by UOE pipe, is applied<sup>1)</sup>.

On the other hand, against a background in which priority is assigned to high productivity, there has been a continuing changeover from UOE and seamless steel pipe to electric resistance welded (ERW) pipe, supported by rapid progress in material and pipe manufacturing technologies for ERW pipe for linepipe.

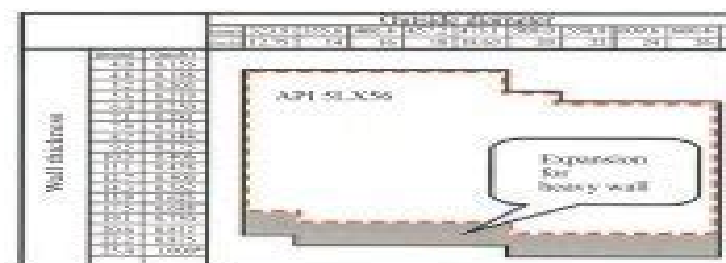
The 26" medium-diameter ERW pipe mill at JFE Steel's Chita Works is the only mill in the world which is capable of manufacturing ERW pipe with outer diameters up to 26". Therefore, taking advantage of this feature, Chita Works revamped its manufacturing

equipment to expand the maximum wall thickness, and simultaneously improved its technology and established a quality assurance system for enhanced welded seam quality with the aim of entering the market for UOE pipe. These equipment improvements and new technologies developed for ERW pipe for linepipe are described in this report.

## 2. Development of Manufacturing Technology for Heavy Wall Pipe

In April 2003, the 26" medium-diameter ERW pipe mill was revamped to expand the available wall thickness of API 5LX56 from 20.6 mm to 25.4 mm. The available size range is shown in Fig. 1.

The design specification of this mill was outer diameter: OD12"–26" and wall thickness: WT16 mm with



\* ERW 1" wall thickness pipe: Only JFE Steel's 26" ERW mill can manufacture.

Fig. 1 Available size in 26" ERW mill

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# Jfe Giho Technical Report Welded Pipe

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