

# Seamless Stainless Steel Pipe\*

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## 1 Introduction

With its application expanding in recent years, stainless steel is showing a high growth of demand. In the field of steel pipe, too, the demand for stainless steel is growing, owing to its excellent corrosion resistance, heat resistance, high-temperature strength and low-temperature toughness as essential piping material for

steel pipe which is made by this Mannesmann pipe-making method.

## 2 Manufacturing Method

Pipe with its outside diameter up to 7" is manufactured by Mannesmann mandrel mill method (small

Table 1 Chemical composition (JIS G3459)

(wt. %)

Element	Symbol	Unit	Min.	Max.
Carbon	C	%	0.05	0.25
Manganese	Mn	%	0.05	0.15
Phosphorus	P	%	0.005	0.015
Sulfur	S	%	0.005	0.015
Silicon	Si	%	0.005	0.015
Chromium	Cr	%	0.005	0.015
Nickel	Ni	%	0.005	0.015
Copper	Cu	%	0.005	0.015
Aluminum	Al	%	0.005	0.015
Iron	Fe	%	99.95	100.00

shows the features of pipe-making by the Mannesmann method.

**3.4 Microstructures**

Microstructures etched by the 10% oxalic acid are shown in **Photo 1**. No ditch structure or no precipitation of carbides is observed on the austenite grain boundary, thereby indicating that carbon is in the condition of



Outer

