1 Superior Material
NIPPON STEEL production system begins with advanced metallurgy and clean BOF steelmaking practices. After continuous casting, at hot-rolling process, hot-rolled strip of optimum quality for pipe making is produced.

2 High Dimensional Accuracy
High uniform wall thickness and smooth finish free from nonmetallic inclusions and surface defects provide Linepipe with a superior level of quality and excellent dimensional accuracy as well as high performance properties.

3 Variety of Products
1. High strength linepipe
2. High toughness linepipe
3. Anti-Sour linepipe
4. OCTG pipe

4 High Reliability of Weld
The unique welding condition control and monitoring system ensures quality of the weld along its entire length.

5 Excellent Quality
From steelmaking to pipe manufacture, quality is strictly controlled through every production step to ensure pipe products. Testing and inspection include body lamination UST, highly sensitive UST for weld seam, hydrostatic testing and numerous mechanical tests.
24-inch Mill Manufacturing Process

Blast Furnace → Basic Oxygen Furnace → Degassing → Continuous Casting → Slab → Hot Strip Mill → Uncouling, Leveling, Shearing → Edge Milling → Coil Edge UST

Forming → HF-Welder → Outside and Inside Weld Bead Removing → Seam Heat Treatment → Sizing → Pipe Body UST → Cutting

Facing → Flattening Test → Hydrostatic Test → Seam UST → Final Inspection → Marking

Threading → Coupling Power Tightening → Drift Test and Inspection → Products
16-inch Mill Manufacturing Process

Blast Furnace
- Basic Oxygen Furnace
- Degassing

Continuous Casting
- Forming
- Weld Bead Removing
- Hydrostatic Test
- Insulation

Hot Strip Mill
- Weld Bead Removing
- Welding
- Cooling
- Straightening
- Forming
- Weld Bead Removing
- Hydrostatic Test
- Insulation

Slitting
- Uncooling
- Leveling
- Shearing and Welding
- Accumulator
- Edge Milling
- Coil Edge UST
- X-Ray Gauge

Cutting
- Cutting
- Sealing

Hydrostatic Test
- Hydrostatic Test
- Drift Test

Sizing
- Sizing
- Straightening
- Cutting

Products
- Products

Coupling Screw-on and Power Tightening

Threading
- Threading

Marking
- Marking

UV Coating
- UV Coating

Length Measuring
- Length Measuring

Weighing
- Weighing

Flattening Test
- Flattening Test

Outside Diameter and Roundness Inspection
- Outside Diameter and Roundness Inspection

Outside Diameter and Wall Thickness Inspection
- Outside Diameter and Wall Thickness Inspection

Pipe End UST and Wall Thickness Inspection
- Pipe End UST and Wall Thickness Inspection

Pipe Body UST
- Pipe Body UST

Seam UST
- Seam UST

Facing
- Facing

Coil Edge UST
- Coil Edge UST

Wall Thickness Inspection
- Wall Thickness Inspection

AutoCutting
- AutoCutting

Blowing
- Blowing

Strapless Welding
- Strapless Welding

Dust Collector
- Dust Collector

Quenching
- Quenching

Grinding
- Grinding

External and Internal Restoration
- External and Internal Restoration

Welding Test
- Welding Test

Heat Treatment
- Heat Treatment

Milling
- Milling

Shearing and Welding
- Shearing and Welding

Accumulator
- Accumulator

Edge Milling
- Edge Milling

Coil Edge UST
- Coil Edge UST

X-Ray Gauge
- X-Ray Gauge

Faillife Test
- Faillife Test

Blast Furnace
- Blast Furnace

Basic Oxygen Furnace
- Basic Oxygen Furnace

Degassing
- Degassing

Continuous Casting
- Continuous Casting

Forming
- Forming

Weld Bead Removing
- Weld Bead Removing

Hydrostatic Test
- Hydrostatic Test

Insulation
- Insulation

Hot Strip Mill
- Hot Strip Mill

Weld Bead Removing
- Weld Bead Removing

Welding
- Welding

Cooling
- Cooling

Straightening
- Straightening

Cutting
- Cutting

Hydrostatic Test
- Hydrostatic Test

Drift Test
- Drift Test

Sizing
- Sizing

Straightening
- Straightening

Cutting
- Cutting

Products
- Products

Threaded Screw-on and Power Tightening
- Threaded Screw-on and Power Tightening

Threading
- Threading

Marking UV Coating
- Marking UV Coating

Length Measuring
- Length Measuring

Weighing
- Weighing

Flattening
- Flattening

Inspection
- Inspection

Hydrostatic Test
- Hydrostatic Test

Drift Test
- Drift Test

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- Outside Diameter and Roundness Inspection

Outside Diameter and Wall Thickness Inspection
- Outside Diameter and Wall Thickness Inspection

Pipe End UST and Wall Thickness Inspection
- Pipe End UST and Wall Thickness Inspection

Pipe Body UST
- Pipe Body UST

Seam UST
- Seam UST

Facing
- Facing

Coil Edge UST
- Coil Edge UST

Wall Thickness Inspection
- Wall Thickness Inspection

AutoCutting
- AutoCutting

Grinding
- Grinding

External and Internal Restoration
- External and Internal Restoration

Welding Test
- Welding Test

Heat Treatment
- Heat Treatment

Milling
- Milling

Shearing and Welding
- Shearing and Welding

Accumulator
- Accumulator

Edge Milling
- Edge Milling

Coil Edge UST
- Coil Edge UST

X-Ray Gauge
- X-Ray Gauge

Faillife Test
- Faillife Test

Blast Furnace
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Basic Oxygen Furnace
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Degassing
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Continuous Casting
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Forming
- Forming

Weld Bead Removing
- Weld Bead Removing

Hydrostatic Test
- Hydrostatic Test

Insulation
- Insulation

Hot Strip Mill
- Hot Strip Mill

Weld Bead Removing
- Weld Bead Removing

Welding
- Welding

Cooling
- Cooling

Straightening
- Straightening

Cutting
- Cutting

Hydrostatic Test
- Hydrostatic Test

Drift Test
- Drift Test

Sizing
- Sizing

Straightening
- Straightening

Cutting
- Cutting

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Seam UST
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Facing
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Coil Edge UST
- Coil Edge UST
Principal Processes

**Steelmaking**
Degasging and desulphurizing during steelmaking process supply clean steel with low non-metallic inclusions.

**HF–Welder**
High Frequency Welder
Heat input is controlled by NIPPON STEEL’s advanced technology.

**Hot Rolling**
Advanced hot rolling supplies hot coils with fine grain structure and high dimensional accuracy.

**HF–ERW Weld Heat Input Control**

1. **Welding Phenomena**
Varying combinations of welding heat input, welding speed, pipe wall thickness, etc. produce different weld results.

2. **Weld Heat Input Control**
Welding conditions are monitored and controlled within the optimum range by using our unique weld heat input system to minimize oxides included in the weld seam.
Reliable NDT System

1. **Coil Edge UST**
   After coil edge preparation, both edges of the coil are inspected for laminar imperfection with coil edge UST. (If required)

2. **Full Body UST**
   Full body is inspected by a rotary UST unit along full length of welded pipe. (If required)

3. **Weld Seam UST**
   Each pipe is inspected for weld seam imperfection with advanced automated UST for entire wall thickness.

Size Range of ERW Pipe

NIPPON STEEL’s ERW pipe mills produce pipe with outside diameters from 4-1/2 inches (114.3 mm) to 24 inches (609.6 mm). The equipment to produce such pipes reflects NIPPON STEEL’s intent to meet the great demand for larger and heavier steel pipe.

**Wall Thickness**
To produce pipe with wall thickness up to 0.866 inches (22 mm) NIPPON STEEL has installed large scale forming & welding equipment.

**Length**
NIPPON STEEL’s ERW mills can produce pipes with length up to 60 feet (18.3 m). These long pipes reduce the number of weld joints and inspections necessary at the site, thus leading to faster construction and lower costs.