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Definition and Applications

JIS G3444

- ALLLAND Production Standards Overview

1. Definition

Japanese Industrial Standard JIS G3444 primarily specifies the manufacturing processes, performance criteria and inspection requirements for seamless and welded carbon steel pipes intended for general structural applications. The core steel grades covered by this standard are STK400, STK490, STK500 and STK540. Such tubular products are principally employed in load-bearing structural applications including buildings, bridges, tower and mast structures, machinery equipment frames, and engineering construction equipment. Their core technical requirement is to satisfy structural mechanical strength, rather than pressure-bearing performance.

2. ALLLAND JIS G3444 Steel Pipe Dimensions

Parameters	Dimensions
O.D.	21.7 mm –1016mm
WT	2.0 mm – 12.7mm
Length	5.8 m – 12 m（19' – 40'）
Material	JIS G3444 STK400 / STK490 / STK500 / STK540
Process	Seamless / ERW / SAW
Connection	Welding / Bolting / Mechanical joints

3. Application

JIS G3444 is primarily used in structural applications where mechanical strength is the primary consideration, including:

- Building frameworks and structural supports
- Bridge construction components
- Machinery frames and equipment structures
- Construction equipment components
- Tower and mast structures
- Scaffolding systems (when specified)

Our JIS G3444 standard steel pipes are manufactured in strict compliance with JIS specification requirements. The pipe surfaces are smooth, free from excessive scale and defects that could compromise structural integrity.

Item	Tolerance	Description
O.D.	±1.0% (Seamless) ±1.5% (Welded)	Minimum ±0.5 mm
WT	±12.5% (O.D. ≤ 50 mm) ±10% (O.D. > 50 mm)	Uniform thickness required
Length	+50 mm / -0 mm (Standard lengths)	Cut-to-length available

- Conducted to verify compliance with specified chemical limits for each grade

Chemical and Mechanical Properties

- Typical analysis methods: Optical Emission Spectrometry (OES), Wet chemical analysis

1. Chemical Composition (wt%, max)

- Frequency: Per heat or lot as specified

Element	Composition, %			
Element	STK400	STK490	STK500	STK540
C, max	0.25	0.25	0.25	0.25
Si, max	0.35	0.35	0.35	0.35
Mn, max	1.2	1.2	1.2	1.2
P, max	0.04	0.04	0.04	0.04
S, max	0.04	0.04	0.04	0.04

Note: Chemical composition requirements may vary slightly depending on manufacturing process (seamless vs. welded).

2. Mechanical Properties

Grade	Tensile Strength, min	Yield Strength, min	Elongation, min
STK400	400 MPa (58,000 psi)	235 MPa (34,000 psi)	23%
STK490	490 MPa (71,000 psi)	285 MPa (41,000 psi)	21%
STK500	500 MPa (73,000 psi)	295 MPa (43,000 psi)	20%
STK540	540 MPa (78,000 psi)	390 MPa (57,000 psi)	18%

Note: For welded pipes, mechanical properties apply to the base material, not the weld zone.

Testing Requirements

1. Chemical Composition Test

2. Tensile Test

- Determines:Tensile strength,Yield strength,Elongation.
- Test specimens:Longitudinal samples taken from pipe body or test pieces
- Frequency: Per lot (as defined in standard)

3. Bend Test (for welded pipes)

- Purpose: To evaluate weld quality and ductility
- Method: 180° bend test with specified mandrel diameter
- Requirements:No cracks exceeding specified limits

4. Flattening Test (optional/agreed)

- Purpose: To assess ductility of seamless pipes
- Method: Flattening between parallel plates to specified distance
- Requirements:No cracks or fractures

5. Hydrostatic Test or Non-destructive Test

- Hydrostatic test pressure calculation: P = 2St/D
- Alternative: Non-destructive testing (ultrasonic, eddy current, etc.) by agreement
- Requirements:No leakage or defect indications

6. Surface Treatment

Standard Finishes

- **Black (as rolled)**: Natural mill scale surface
- **Pickled & Oiled**: Scale removed, light oil coating for rust prevention
- **Galvanized** (upon request): Hot-dip galvanized for corrosion protection
- **Painted** (upon request): Primer or full paint system

Surface Quality Requirements

- Free from cracks, laps, and similar defects
- Weld reinforcement: Smooth transition, ≤ specified height
- Surface imperfections depth: ≤ 5% of wall thickness (max 0.3 mm)

ALLLAND JIS G3444 Product Images

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奥蓝德钢管
ALLLAND STEEL PIPE