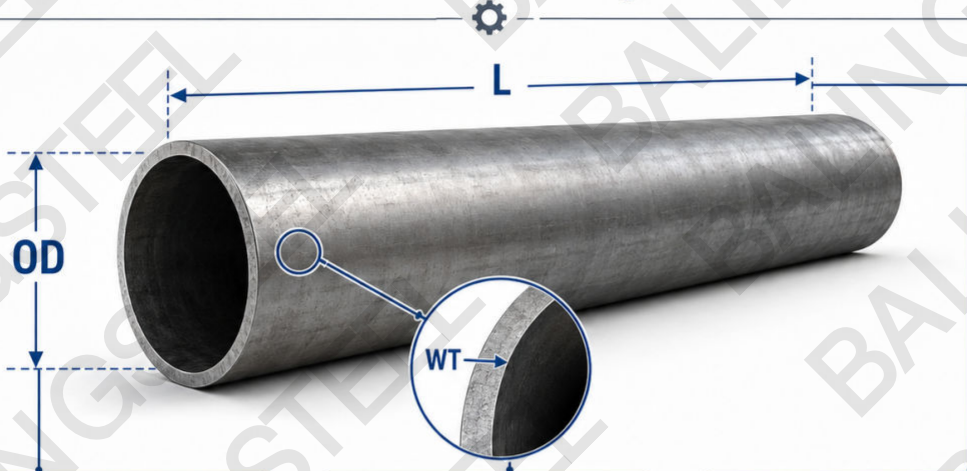




# The 3 Elements of Pipe Dimension



## 1 Outside Diameter (OD)

The measurement across the widest external part of the pipe. It affects pipe size and connection compatibility.

## 2 Wall Thickness (WT)

The distance from the outer surface to the inner surface. It affects pressure capacity, strength, and weight.

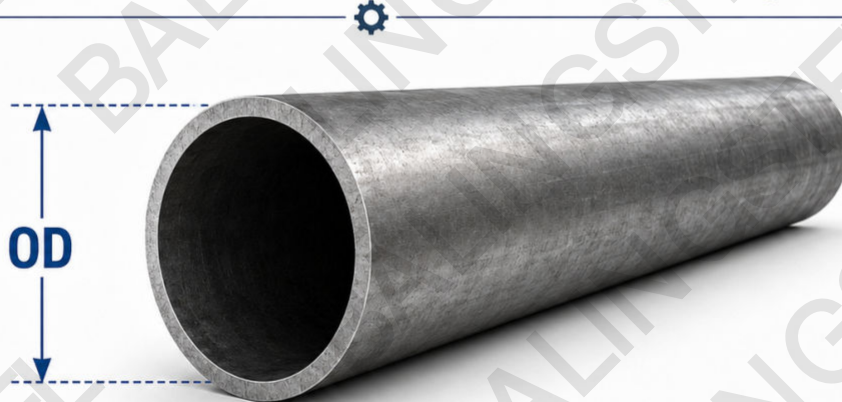
## 3 Pipe Length (L)

The total end-to-end length of the pipe. It affects installation, transport, and project planning.



Together, OD, WT, and L determine internal diameter, weight, pressure performance, and cost.

# 1. Outside Diameter (OD)



## Definition:

The measurement across the widest external part of the pipe.



## Why It Matters:

OD is the key reference for pipe size, fitting compatibility, and connection selection.



## Engineering Impact:

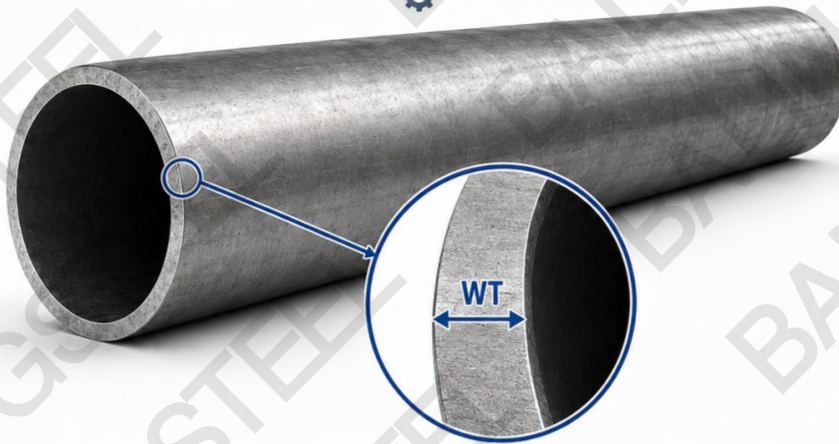
OD influences installation clearance, flange and coupling matching, and dimensional standardization.



OD is one of the core dimensions used to identify pipe specifications.



## 2. Wall Thickness (WT)



### Definition:

The distance from the outer surface to the inner surface.



### Why It Matters:

WT affects pressure capacity, structural strength, and durability.



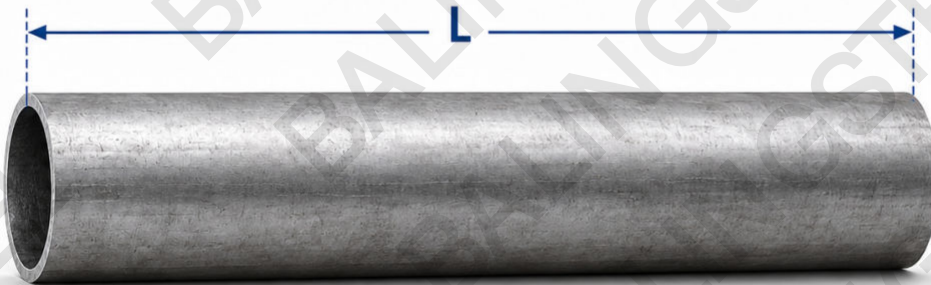
### Engineering Impact:

Thicker walls generally increase pipe weight, strength, and material cost.



WT is commonly related to pipe schedule and service performance.

## 3. Pipe Length (L)



### Definition:

The total end-to-end length of the pipe.



### Why It Matters:

Length affects installation planning, transport, and handling.



### Engineering Impact:

Standard or custom lengths influence project efficiency, waste, and total cost.



Pipe length is often supplied as random length or fixed length depending on the standard.



# How to Measure Pipe Dimensions



### 3 EASY STEPS

- 1 Measure OD**  
Use a vernier caliper or OD tape to measure the outside diameter.
- 2 Measure WT**  
Use an ultrasonic thickness gauge to measure the wall thickness.
- 3 Measure Length**  
Use a steel tape measure to measure the total end-to-end length.

### COMMON MEASURING TOOLS

Vernier Caliper    OD Tape    Ultrasonic Thickness Gauge    Steel Tape Measure    Straight Ruler

### PRECAUTIONS

- ✓ Clean the pipe surface before measuring.
- ✓ Measure at several positions and record the average if needed.
- ✓ Keep tools perpendicular or aligned correctly.
- ✓ Avoid measuring on damaged, oval, or rough spots.
- ✓ Confirm units in mm or inches.
- ✓ Follow safety rules and wear gloves when handling pipe.

# How to Measure Outside Diameter (OD)

### METHOD 1: VERNIER CALIPER

OUTSIDE DIAMETER (OD)

### METHOD 2: OD TAPE (PI TAPE)

OUTSIDE DIAMETER (OD)

### STEP-BY-STEP

- 1 Clean the outer surface.
- 2 Place the caliper squarely across the widest outside points, or wrap the OD tape evenly around the pipe.
- 3 Read and record the value.
- 4 Repeat at different positions to check ovality.

### TOOLS USED

Vernier Caliper  
OD Tape / PI Tape

### KEY PRECAUTIONS

- ✓ Do not tilt the caliper.
- ✓ Measure on a clean smooth area.
- ✓ Avoid dented or coated buildup zones.
- ✓ Check several points around the circumference.
- ✓ Use the correct unit.

**OD is the measurement across the widest external part of the pipe.**  
Accurate OD ensures proper fit, pressure rating, and system reliability.



## How to Measure Wall Thickness (WT)



**1 Ultrasonic Thickness Gauge**  
Probe on the pipe surface

**2 Caliper / Micrometer on Cut End**  
Measure directly from outer wall to inner wall

### Step-by-Step

- 1 Clean the test area.
- 2 For ultrasonic testing, apply couplant and place the probe firmly on the surface.
- 3 For a cut end, measure directly from outer wall to inner wall using a caliper or micrometer.
- 4 Measure at multiple points and record the results.

### Tools Used



### Key Precautions

- ★ Ensure surface is clean.
- 💧 Use couplant for ultrasonic reading.
- 👤 Keep the tool in firm contact.
- 🔄 Measure several points because thickness may vary.
- ⚠️ Avoid burrs or damaged edges.

## How to Measure Pipe Length (L)



### 4 Simple Steps

- 1 Place the pipe on a stable flat surface.
- 2 Align the tape measure at one end.
- 3 Extend the tape straight along the pipe axis to the other end.
- 4 Read and record the end-to-end length.

### Tools Used



### Key Precautions

- ✓ Measure along the centerline/axis.
- ✓ Keep the tape straight and tight.
- ✓ Confirm whether end-to-end or effective length is required.
- ✓ Check both ends are clearly identified.
- ✓ Record the unit and standard requirement.



Accurate length measurement ensures proper fit, installation, and project compliance.

**HUNAN BALING STEEL CO.,LTD**

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**Actual measurement of steel tube diameter photo;**



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