

Pipe Measurement

1. **Nominal Pipe Size (NPS):**
 - Pipe is typically measured using the Nominal Pipe Size (NPS) system, which is a standard method in the U.S.
 - NPS refers to a standardized designation that represents the diameter of the pipe, not its exact measurements. For example, a 2-inch NPS pipe does not have a diameter of exactly 2 inches; it is slightly smaller.
2. **Schedule and Wall Thickness:**
 - Pipes are also classified by their schedule (SCH), which indicates the wall thickness. Common schedules include SCH 40, SCH 80, etc. A higher schedule number indicates a thicker wall.
 - The actual outer diameter (OD) and inner diameter (ID) can vary based on both the pipe size and the schedule.
3. **End Connection Types:**
 - Pipes may have different end types (e.g., threaded, welded) which can also affect measurements.

Tube Measurement

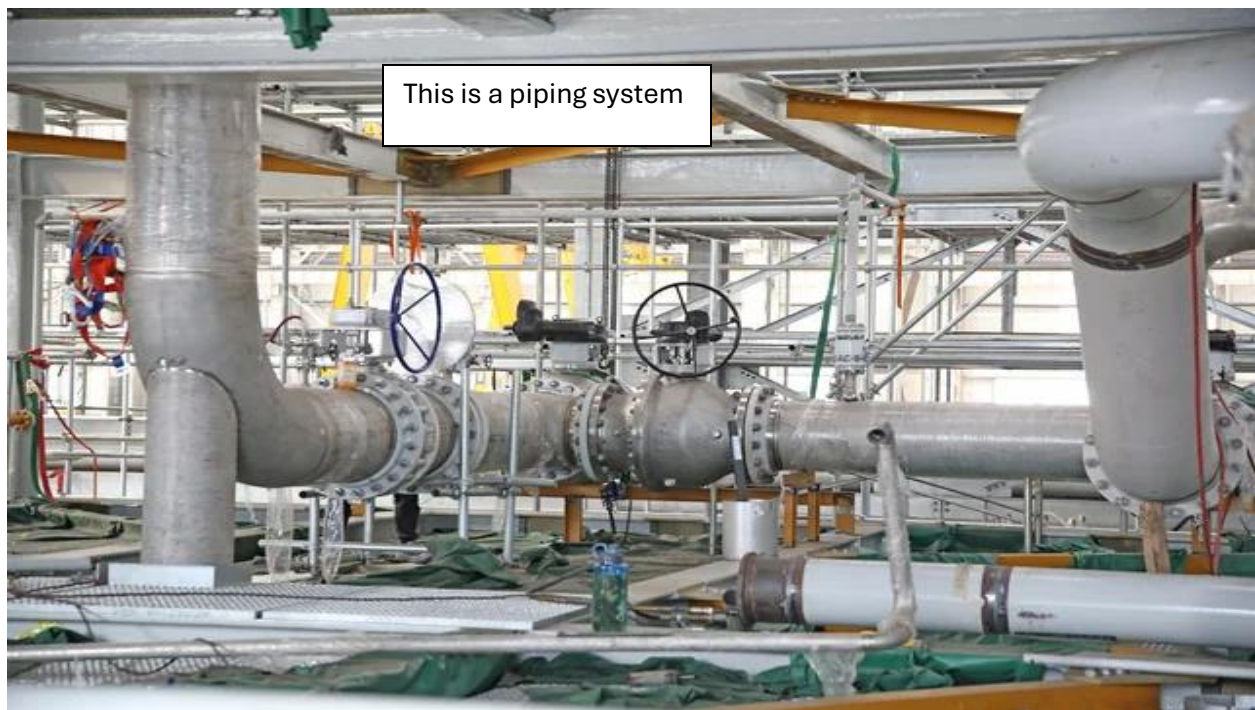
1. **Outside Diameter (OD) and Wall Thickness:**
 - Tubes are generally measured by their actual outside diameter (OD) and wall thickness. For example, a tube may be specified as having an OD of 2 inches and a wall thickness of 0.120 inches.
 - This measurement is more precise and is used for applications requiring exact dimensions.
2. **Shape:**
 - While most tubes are round, they can also come in square or rectangular shapes, which will have their own measurement standards based on width and height.
3. **Specifications:**
 - Tubes are often manufactured to specific standards such as ASTM (American Society for Testing and Materials) or ISO (International Organization for Standardization), which dictate aspects like tolerances and material properties.

Summary

- **Pipe Measurement:** Uses Nominal Pipe Size (NPS), which is based on the approximate internal diameter, alongside schedule for wall thickness.
- **Tube Measurement:** Based on exact outside diameter (OD) and wall thickness, factoring in precise dimensions and often used in structural applications.

As you can see, the actual pipe size changes depending on the schedule 10, 40, 80, 160, XXH

Pipe Schedule									
Pipe		Schedule 10 **		Schedule 40 **		Schedule 80 **		Schedule 160 **	
Size	Nom. OD	ID	Wall Thick	ID	Wall Thick	ID	Wall Thick.	ID	Wall Thick.
(in)	(in)	(in)	(in)	(in)	(in)	(in)	(in)	(in)	(in)
1/8	0.405	0.31	0.049	0.27	0.068	0.22	0.095		
1/4	0.54	0.41	0.065	0.36	0.088	0.3	0.119		
3/8	0.675	0.55	0.083	0.49	0.091	0.42	0.126		
1/2	0.84	0.67	0.083	0.62	0.109	0.55	0.147	0.47	0.187
3/4	1.05	0.88	0.109	0.82	0.113	0.74	0.154	0.61	0.218
1	1.315	1.1	0.109	1.05	0.133	0.96	0.179	0.82	0.25
1 1/4	1.66	1.44	0.109	1.38	0.14	1.28	0.191	1.16	0.25
1 1/2	1.9	1.68	0.109	1.61	0.145	1.5	0.2	1.34	0.281
2	2.375	2.16	0.109	2.07	0.154	1.94	0.218	1.69	0.343
2 1/2	2.875	2.64	0.12	2.47	0.203	2.32	0.276	2.13	0.375
3	3.5	3.26	0.12	3.07	0.216	2.9	0.3	2.63	0.437
4	4.5	4.26	0.12	4.03	0.237	3.83	0.337	3.44	0.531
5	5.563	5.3	0.134	5.05	0.258	4.81	0.375	4.31	0.625
6	6.625	6.36	0.134	6.07	0.28	5.76	0.432	5.19	0.718
8	8.625	8.33	0.148	7.98	0.322	7.63	0.5	6.81	0.906



These are tubes. Industrial facilities are made up of both piping and tubes. Typically pipes make up most of the systems, tubes are typically found inside boilers, heat exchangers and other very high pressure components.

