Socket Weld Flange ASME B16.5 Specification

A **Socket Weld Flange** is a type of flange designed for small-diameter, high-pressure piping systems. It has a **recessed socket** into which the pipe is inserted before being **fillet welded around the hub.**

1. **Standard Specifications:**

   - **ASME/ANSI:** B16.5,

2. **Pressure Classes:**

   - ANSI Class: **150, 300, 600, 900, 1500, 2500**

3. **Sizes:**

   - NPS: **½" to 3"**
   - DN: **15 to 80**

4. **Facing Types:**

   - **Raised Face (RF)**
   - **Flat Face (FF)**
   - **Ring Type Joint (RTJ)** – less common for SW flanges

5. **Material Grades:**

   - **Carbon Steel:** ASTM A105, A350 LF2 (for low temp)
   - **Stainless Steel:** ASTM A182 F304/304L, F316/316L, F321, F347
   - **Alloy Steel:** ASTM A182 F11, F22, F5, F91
   - **Duplex & Super Duplex:** ASTM A182 F51 (S31803), F53 (S32750), F55 (S32760)
   - **Nickel Alloys:** Inconel 600/625, Hastelloy C276, Monel 400, etc.

6. **Manufacturing Process:**

   - Forged steel per ASTM A105 / A182
   - Machined to specified pressure and size tolerances

7. **Application:**

   - **Pipelines with small bore and high pressure**

- **High-pressure systems** where welding strength is required without bore mismatch
- Often used in: **refineries, petrochemical plants, offshore drilling, high-pressure steam lines**

8. Benefits of Socket Weld Flanges:

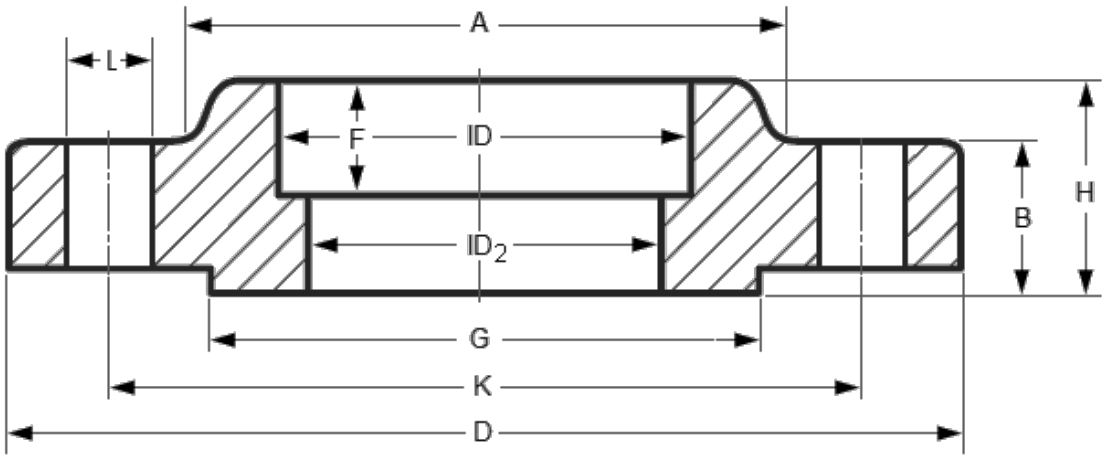
- Easy alignment during welding
- Ideal for small pipe sizes (NPS ½″ to 3″)
- High fatigue resistance due to a smooth bore and strong weld
- Less welding effort compared to butt-weld flanges

9. Inspection & Testing:

- Hydrostatic test
- PMI (Positive Material Identification)
- UT/MPT/NDT on request
- Certification: EN 10204 3.1 / 3.2, PED, NACE MR0175 compliance (on request)

Dimension of ASME B16.5 Socket Weld Flanges

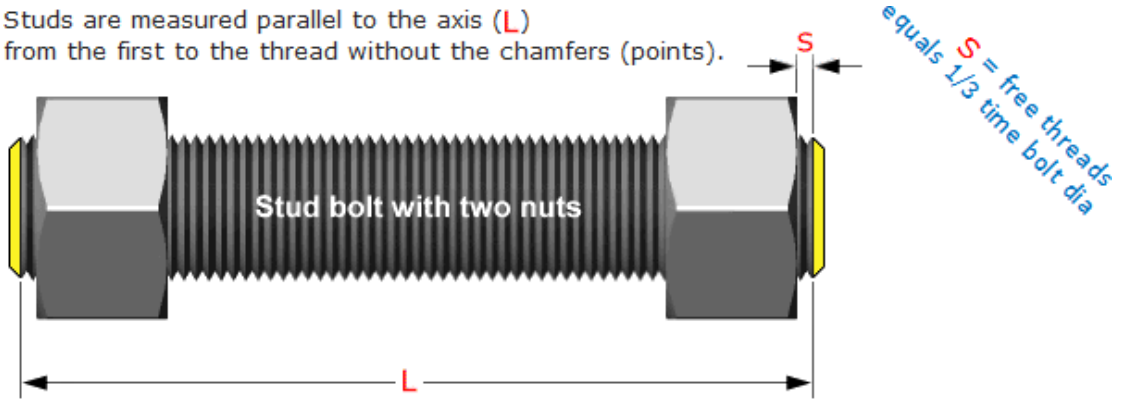
Dimensions Socket Weld Flanges & Stud Bolts ASME B16.5



NPS 1/2 – ID = 22.3 – F = 9.5

CL	150	300	600	900	1500	2500
DIA **A**	30	38	38	...	38	...
DIA **D**	90	95	95	...	120	...
THK **B**	9.6	12.7	14.3	...	22.3	...
	11.2	14.3	20.7	...	28.7	...
DIA **G**	35.1	35.1	35.1	...	35.1	...
DIA **K**	60.3	66.7	66.7	...	82.6	...
H	14	21	22	...	32	...
	15.6	22.6	28.4	...	38.4	...
NO. **L**	4	4	4	...	4	...
DIA **L**	15.9	15.9	15.9	...	22.2	...
Stud Bolts Diameter x Length						
DIA (**in**)	1/2	1/2	1/2	...	3/4	...
Len mm	55	65	75	...	110	...
Other Diameters						
NPS	1/2	3/4	1	1.1/4	1.1/2	2	2.1/2

Studs are measured parallel to the axis (L)
from the first to the thread without the chamfers (points).



Hex bolts are measured from under the head
to the top of the bolt.