

## STAINLESS STEEL

### STUB ENDS

#### Types of MSS Stainless Stub Ends:

**Type "A"** has a large fillet radius which imparts great strength to the fitting and also provides a square I.D. corner to preclude areas that can retain fluid. Type "A" is made in schedules 5, 10, 40 and minimum lap thickness must be nominal wall. The flange face must be serrated (like valves & flanges). Must be used with lap joint flanges or back up flanges with I.D. radius.

**Type "C"** is also sometimes referred to as a "Flared Nipple". These are made in SCH 5 and 10 only and have very loose specs with no minimum flange thickness required. No machining is required on face of flange as long as it is fairly flat and smooth enough to make a good gasket seal.

### BUTT WELD FITTINGS

#### TWO SPECIFICATIONS ASTM-A774 & ASTM-A403

##### **ASTM A774:**

- Specification covers five (5) grades of Stainless
- Specification covers 3" – 48"
- Specification covers wall thickness from .062 – .500
- Specification does not require annealing
- Specification is for low pressure piping... and intended for low moderate temperatures and general corrosive service

##### **ASTM A403:**

- Specification covers wrought stainless steel fittings and pressure applications
- Specification covers many grades of stainless

#### TWO MAJOR CATEGORIES OF A403 FITTINGS A403CR & A403WP

##### **ASTM A403CR:**

- Normally a fabricated fitting rather than formed
- Does not require non-destructive testing
- Does require annealing**
- Shall meet requirements of MSS-SP-43

##### **ASTM A403WP:**

###### **Four Classes**

1. **Class WP-S** Shall be of seamless construction and meet requirements fo ANSI B16.9, B16.28
2. **Class WP-W** Any welding done with the addition of filler metal requires X-Ray
3. **Class WPW-X** **ALL** Welds must be X-Rayed
4. **Class WPW-U** **ALL** Welds must be Ultra-Sonically examined