

## Specifications

### Pipe and Tubing

#### "As Welded" Grade

Alaskan "as welded" pipe and tubing is straight-seam welded using ASME qualified automatic gas tungsten-arc procedures and can be supplied in a wide range of diameters and wall thicknesses from any of the weldable corrosion resistant alloys. Normally furnished with square cut ends, pipe with beveled, belled, or roll-grooved ends can be provided. Spot radiography or 100% radiography of welded seams can also be performed. Alaskan pickles and passivates its pipe and tubing to maintain corrosion resistance and to prevent surface discoloration from free iron oxidation.

"As welded" pipe and tubing is commonly used in pulp and paper mills, food processing plants, and other industries where corrosion resistance is essential.

#### ASTM A 778

This specification covers welded unannealed stainless steel pipe intended for low to moderate temperatures and corrosive service where heat treatment is not required for corrosion resistance. A 778 is considered to be the most applicable ASTM specification for "as welded" pipe and differs from it only in that a transverse guided-bend test and a transverse tension test are required per lot.

**ASTM A 213** (ASME SA -213 is identical)

This specification covers minimum wall thickness seamless austenitic stainless steel tubing intended for high temperature usage such as boiler, superheater and heat exchanger tubes. Production is generally limited to tubing  $\frac{1}{8}$ " inside diameter to 5" outside diameter and .015" to .500" inclusive in wall thickness. All material is to be furnished in the heat treated condition. Alaskan stocks "average wall" austenitic A 213 tubing.

**ASTM A 249** (ASME SA-249 is generally identical)

This specification covers welded austenitic stainless steel tubing intended for high temperature usage such as a boiler, superheater, heat exchanger, or condenser tubes. Production is generally limited to tubing  $\frac{1}{8}$ " inside diameter through 5" outside diameter and .015" to .320" inclusive in wall thickness. All material is to be furnished in the heat-treated condition.

The principle manufacturing procedures specified under A 249 are:

1. Automatic welding process with no addition of filler metal.
2. Hydrostatic or non-destructive electric test of each tube.
3. Tension, flattening, flange, reverse-bend and hardness test required each lot.

#### ASTM A 269

This specification covers seamless and welded austenitic stainless steel tubing intended for low or high temperature and general corrosive service. Production is generally

limited to tubing  $\frac{1}{4}$ " inside diameter and larger and .020" in nominal wall thickness and heavier. All material is to be furnished in the heat treated condition. Mechanical requirements are the same as listed under A 249. Alaskan stocks A 269 tubing to 4" OD, with up to 8" OD available.

**ASTM A 312** (ASME SA-312 is generally identical)

This specification covers seamless and straight-seam welded stainless steel pipe intended for high temperature and general corrosive service. The A 312 manufacturing process is suited to high-volume production and is therefore generally limited to diameters and schedule wall thicknesses shown in ANSI B36.10 and ANSI B36.19 (See page 4, 40). Alaskan stocks A 312 pipe with immediate delivery available from a complete inventory of both common and special alloys.

The principal manufacturing procedures specified under A 312 are:

1. Welding without the addition of filler metal.
2. Annealing after welding.
3. Tension and flattening tests per lot.
4. Hydrostatic or electric testing of

## Specifications

### Pipe and Tubing (continued)

**ASTM A 358** (ASME SA-358 is generally identical with some additional requirements)

This specification covers stainless steel pipe intended for high temperature and general corrosive service. Production is generally limited to diameters and schedule wall thicknesses of 8" and larger as shown in ANSI B36.10 and ANSI B36.19 (See page 4, 40). Pipe is normally welded with filler metal (except the root pass on Class 4) and can be specified as: (a) single or double welded; (b) 100%, spot, or no radiography; (c) heat treated after welding, made from annealed plate and not heat treated after welding, or made from unannealed plate and not heat treated after welding.

The principle manufacturing procedures specified under A 358 are:

1. Hydrostatic testing of each length (unless waived).
2. Transverse guided-bend tests and transverse tension tests per lot.

**ASTM A 376** (ASME SA-376 is generally identical) This specification covers seamless austenitic stainless steel pipe intended for high temperature

service. Among the grades covered are five H grades and two nitrogen grades that are specifically intended for high temperature service. All material is furnished in the heat treated condition unless waived and specifically marked "HT-O". Hydrostatic tests are required for each length of pipe. Tension and flattening tests are required per lot.

**ASTM A 409** (ASME SA-409 is generally identical with some additional requirements)

This specification covers Schedule 5s and 10s straight-seam or spiral-seam welded stainless steel pipe intended for high temperature and general corrosive service. Production is normally limited to sizes of 14" through 30", however, special diameters, lengths and alloys can be specified. Pipe manufactured to A 409 may be heated after welding, made from annealed plate and not heat treated after welding, or made from unannealed plate and not heat treated after welding. The principal manufacturing procedures specified under A 409 are:

1. Either hydrostatic, air or gas pressure testing per lot.
2. Transverse guided-bend test and transverse tension test each length.

#### **MIL-P-24691**

Formerly MIL-P-1144 this specification covers seamless and welded austenitic stainless steel pipe intended for elevated temperature and general corrosive service, including cryogenic applications. This specification is approved for use by the Naval Sea Systems Command and is available for use by all Departments and Agencies of the Department of Defense. All pipe is to be furnished in the heat treated condition and subjected to nondestructive electric or hydrostatic pressure test as applicable. Tension, flattening and intergranular corrosion tests are required by lot.

### Welding Fittings

#### **"As Welded" Grade**

Alaskan "as welded" fittings are welded using ASME qualified welding procedures and can be supplied in a wide range of diameters and wall thicknesses from any of the weldable corrosion resistant alloys. Welding elbows can be provided with smooth flow or mitered construction, tees and crosses can be drawn outlet or nozzle-welded types and reducers can be conical or bell-shaped. Alaskan manufactures "as welded" fittings to ANSI B16.9, ANSI B16.28 or MSS SP-43 dimensions, with weld ends furnished square cut. Fittings with special dimensions or those that

beveled, belled or roll-grooved ends can be provided. Spot radiography or 100% radiography of welded seams can also be performed. Alaskan pickles and passivates its fittings to maintain corrosion resistant and to prevent surface discoloration from free iron oxidation. "As welded" fittings are commonly used with "as welded" pipe and tubing in pulp and paper mills, food processing plants and other industries where corrosion resistance is essential.

#### **ASTM A 774**

This specification covers "as welded" stainless steel pipe fittings for low

pressure piping intended for low to moderate temperatures and general corrosive service where heat treatment is not required for corrosion resistance. Fittings are normally furnished per MSS-SP-43 dimensions unless otherwise agreed upon between the purchaser and manufacturer. A 774 is generally considered to be the most applicable ASTM specification for "as welded" fittings.