

Flanges Summary Data Sheet

ASTM A105/SA105

CHEMICAL REQUIREMENTS (%)

Carbon	Manganese	Phosphorous	Sulfur	Silicon	Copper
.35 max	.60-1.05	.035 max	.040 max	.10-.35	.40 max
Nickel	Chromium	Molybdenum	Vanadium	Columbium	
.40 max	.30 max	.12 max	.08 max	.02 max	

MECHANICAL REQUIREMENTS:

Tensile Strength (min):	70,000 psi	Basic Min. Elongation 30% for walls 5/16 in. and over in thickness, strip tests.	30%
Yield Strength (min):	36,000 psi	Reduction of area (min)	30%
		Hardness, HB (max)	187

SCOPE

This standard covers forged carbon steel piping components for ambient- and higher-temperature service in pressure systems. Flanges are ordered either to dimensions specified by the purchaser or to dimensional specifications such as ASME 16.5 and API 6A. Forgings made to ASTM A 105 are normally limited to a maximum weight of 10,000 lb.

MATERIALS

Alloy Piping Products flanges are made by hammering, pressing, rolling and/or machining cast or forged bars, billets or slabs. These adhere to the extent described in the following sections.

MANUFACTURE

ASTM A 105 covers the requirements for forged steel components as finished products only. The requirements for raw materials are covered by the standards specified in Section 2: Referenced Documents of ASTM A 105.

HEAT TREATMENT

Heat treatment is not a mandatory requirement of this specification except for the following piping components:

- Flanges above Class 300;
- Flanges of special design where the design pressure at the design temperature exceeds the pressure-temperature ratings of Class 300, Group 1.1;
- Flanges of special design where the design pressure or design temperature is not known. Heat treatment, when required by the above, shall be annealing, normalizing, normalizing and tempering, or quenching and tempering in accordance with ASTM A 961.

DIMENSIONS

Alloy Piping Products flanges are manufactured in accordance with ASME B 16.5 (24" NPS and smaller.)

CERTIFICATION

For forgings made to specified dimensions agreed upon by the purchaser, and for forgings made to dimensional standards, the application of identification marks, as required by ASTM A 961, shall be the certification that the forgings have been furnished in accordance with the requirements of this standard. The specification designation included on test reports shall include the year of issue and revision letter, if any.

Test Reports: When test reports are required, Alloy Piping Products will also provide the following, if applicable:

- Type of heat treatment;
- Tensile property results, i.e., yield strength and ultimate strength in ksi, elongation and reduction in area, in percent;
- Chemical analysis results;
- Hardness results;
- Any supplementary testing required by the purchase order.

PRODUCT MARKING

All flanges shall have the prescribed information stamped or otherwise suitable marked on each flange in accordance with the Standard/MSS SP-25. Alloy Piping Products flanges are marked as follows:

APP Name • A105/SA105 • Heat Identification Number • Nominal Pipe Size • Pressure Class • ASTM Specification

Note: All information contained in this document, and for a complete description of all requirements, refer to ASTM A 105. Sheets are subject to change without notice.

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