ASTM A105/A105M

ASTM A105 carbon steel flanges

Forged carbon steel for flanges, fittings and valve parts in ambient and higher temperature service, and the usual material for carbon steel flanges to ASME B16.5.

A105 UNS K03504

Chemical composition, % by weight

Element	A105 UNS K03504
C	0.35
Mn	0.60 to 1.05
P	0.035
S	0.040
Si	0.10 to 0.35
Cu	0.40
Ni	0.40
Cr	0.30
Mo	0.12
V	0.08

Heat analysis. A single value is a maximum. Cu + Ni + Cr + Mo + V together 1.00% max; Cr + Mo together 0.32% max.

Mechanical properties at room temperature

Property	A105
Tensile strength, min	70 ksi (485 MPa)
Yield strength, min	36 ksi (250 MPa)
Elongation in 2 in (50 mm), min	30% (strip), 22% (4D round)
Reduction of area, min	30%
Hardness, max	187 HBW

Heat treatment

Heat treated (annealed, normalized, normalized and tempered, or quenched and tempered) where ASTM A105 calls for it, for example flanges above Class 300. The certificate states the condition supplied.

How to order

State the flange type, standard, size, class, facing, bore schedule, grade, certificate and quantity, and any extra tests or third-party inspection. The mill test report (MTR) to EN 10204 3.1, or 3.2 with third-party inspection, gives the actual analysis and test results of the heat.

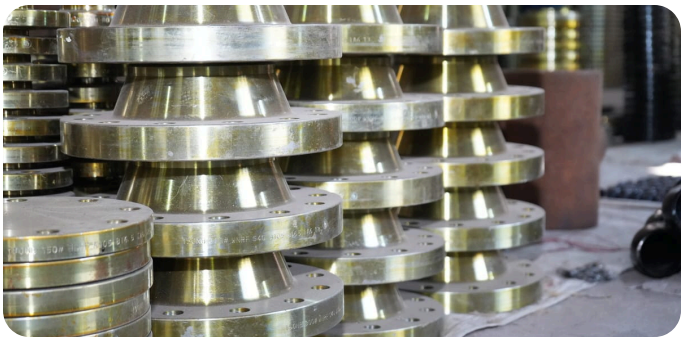
For example

> **Slip-on flange, ASME B16.5, NPS 6, Class 150, raised face, ASTM A105, MTR to EN 10204 3.1**

The limits are the requirements of ASTM A105/A105M; the standard governs. Edition 8 November 2026.

From the Umbergaon works, Gujarat, India

A105 flanges from RIC



Carbon steel weld neck flanges in the stores



Carbon steel slip-on flanges, NPS 3 Class 150, marked

Flange types	Weld neck, slip-on, blind, lap joint, socket weld, threaded, ring type joint and long weld neck flanges; orifice flanges to ASME B16.36; spectacle blinds, spacers and blanks to ASME B16.48
Standards	ASME B16.5, NPS 1/2 to 24, Class 150 to 2500; ASME B16.47 Series A and B
Facing	Raised face, flat face or ring type joint
Bore	To the pipe schedule, ASME B36.10M and B36.19M
Marking	Size, class, material and heat number, for traceability to the MTR

Where it is used

Chilled water, condenser water and fire water piping, and oil and gas, refining, chemical and power plant piping at ambient and higher temperatures.

Tested before dispatch

In house: tensile, hardness, PMI, dye penetrant and dimensional checks. At outside laboratories: chemical analysis, intergranular corrosion, impact, ultrasonic and magnetic particle tests. A 23-point final checklist before every dispatch.

Certificates and inspection

EN 10204 3.1, or 3.2 with TÜV, Bureau Veritas, IRClass, Gulf Lloyds or SGS. ISO 9001:2015 (TÜV NORD), ISO 45001 and ISO 29001; PED 2014/68/EU material manufacturer (TÜV Rheinland); NORSOK M-650 for duplex and super duplex.

Drawings and weights

A PDF and DXF drawing for every ASME B16.5 size we list, with approximate weights in carbon and stainless steel, at rajendradatacenter.us/flanges/

Send your line list or drawing

Types, sizes, classes, grades and quantities, as a list or a drawing.

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