

ASTM A182 F5 1.7362 K41545,

5Cr-1/2Mo,12CRMO195 specification

ASTM A182 F5 also known as X 12 CrMo 91 (1.7386) is a high-performance alloy steel known for its exceptional high-temperature strength, excellent toughness, and good wear resistance. This material is particularly suitable for demanding applications in the power generation, petrochemical, and machinery manufacturing industries, where components are exposed to extreme temperatures and significant mechanical stress. The alloy's composition, which includes chromium and molybdenum, enhances its mechanical properties and resistance to heat and oxidation, making it ideal for producing boilers, pressure vessels, and high-temperature piping systems.

we utilize advanced open-die forging and precise machining techniques to process A182 F5, X 12 CrMo 91 (1.7386), ensuring components of the highest quality and performance. The combination of high strength, toughness, and heat resistance makes X 12 CrMo 91 (1.7386) a preferred choice for industrial applications requiring robust and long-lasting materials.

Also ASTM A182 F5 is the equivalent grade of 15X5M of Gost standard material

Equivalent Grades Of Alloy Steel ASTM A182 F5

| STANDARD | WERKSTOFF NR. | UNS | EN | DIN |
|----------|---------------|--------|-----------|-----------|
| A182 F5 | 1.7362 | K41545 | 5Cr-1/2Mo | 12CRM0195 |

ASTM A182 F5/1.7362 - Specification Overview

Material Names:

- **ASTM A182 Grade F5**
- **DIN/EN Equivalent: 1.7362** (12CrMo19-5 in EN 10216-2 / EN 10222-2)
- **UNS Number: K41545**
- **Common Description: 5Cr-0.5Mo alloy steel** (Cr-Mo creep-resistant alloy)

- **Product Forms:** Forged flanges, forged fittings, valves, pressure-containing parts

Chemical Composition of CRMO ASTM A182 F5

| Grade | C | si | mn | s | P | Cr | Mo |
|----------------|----------|---------|-----------|------|------|-------|--------------|
| Alloy Steel F5 | 0.15 max | 0.5 max | 0.3 - 0.6 | 0.03 | 0.03 | 4 - 6 | 0.044 - 0.65 |

Mechanical Properties of ASTM A182 F5

| Grade | Tensile Strength (MPa) min | Yield Strength 0.2% Proof (MPa) min | Elongation (% in 50mm) min |
|----------------|----------------------------|-------------------------------------|----------------------------|
| Alloy Steel F5 | 275 | 485 | 20 |

Heat Treatment Requirements

ASTM A182 F5 forgings must be supplied in the normalized & tempered, annealed, or quenched & tempered condition.

Typical cycle:

- **Normalize** at $\sim 900 - 950^{\circ} \text{C}$
- **Temper** at $\geq 620^{\circ} \text{C}$ (to relieve hardness and stabilize microstructure)

Product Scope of ASTM A182 F5

ASTM A182 F5 is used for:

- [Weld Neck Flanges \(WN\)](#)
- [Blind Flanges \(BL\)](#)
- [Slip-On Flanges \(SO\)](#)
- [Socket Weld Flanges \(SW\)](#)
- Forged fittings ([ASME B16.11](#)) [SW ELBOW](#), THREAD ELBOW, SOCKET TEE, THREADED TEE
- Valve components
- Pressure vessel parts

Manufactured per [ASTM A182](#) / ASME SA-182 and dimensional standards ASME B16.11/ASME B16.5 / B16.47 / MSS SP-44, etc.

European Equivalent (Reference)

| Standard | Grade |
|---|---------------------|
| EN 10216-2 / EN 10222-2 | 12CrMo19-5 / 1.7362 |
| DIN 17175 / 17243 | 12CrMo19-5 |

