

This page is mainly introduced the X7CrNiAl32-21 chemical information, mechanical properties, physical properties, mechanical properties, heat treatment, and Micro structure, etc. It also contains the use of X7CrNiAl32-21, such as it is commonly used in bars, sheet, plates, steel coils, steel pipes, forged and other materials application.

## Data Table for Grades Stainless Steels X7CrNiAl32-21

| X7CrNiAl32-21 Standard Number: |                    |   |
|--------------------------------|--------------------|---|
| ITEM                           | Standard Number    | Descriptions  |
| 1                              | ISO 15510 (2010)   | Stainless steels -- Chemical composition  |
| 2                              | ISO 16143-3 (2005) | Stainless steels for general purposes -- Part 3: Wire   |
| 3                              | ISO 4955 (2005)    | Heat-resistant steels   |
| 4                              | ISO 9328-5         | Steel plates and strips for pressure purposes - Technical delivery conditions - Part 5: Weldable fine grain steels, thermomechanically rolled |
| 5                              | ISO 9328-7 (2011)  | Steel flat products for pressure purposes - Technical delivery conditions - Part 7: Stainless steels  |

| X7CrNiAl32-21 Chemical composition(mass fraction)(wt.%) |         |         |
|---|---------|---------|
| Chemical  | Min.(%) | Max.(%) |
| C   |         | 0.10    |
| Si  |         | 1.00    |
| Mn  |         | 2.00    |
| P   |         | 0.030   |
| S   |         | 0.020   |
| Cr  | 19.00   | 23.00   |
| Mo  |         |         |
| Ni  | 30.00   | 35.00   |
| Al  | 0.15    | 0.60    |
| Ti  | 0.15    | 0.60    |
| Cu  |         | 0.75    |

| X7CrNiAl32-21 Physical Properties |         |                          |
|-----------------------------------|---------|--------------------------|
| Tensile strength                  | 115-234 | $\sigma_b$ /MPa          |
| Yield Strength                    | 23      | $\sigma_{0.2} \geq$ /MPa |
| Elongation                        | 65      | $\delta_5 \geq$ (%)      |
|                                   |         |                          |

|     |         |        |
|-----|---------|--------|
| ψ   | -       | ψ≥ (%) |
| Akv | -       | Akv≥/J |
| HBS | 123-321 | -      |
| HRC | 30      | -      |

### X7CrNiAl32-21 Mechanical Properties

|                  |         |             |
|------------------|---------|-------------|
| Tensile strength | 231-231 | σb/MPa      |
| Yield Strength   | 154     | σ 0.2 ≥/MPa |
| Elongation       | 56      | δ5≥(%)      |
| ψ                | -       | ψ≥(%)       |
| Akv              | -       | Akv≥/J      |
| HBS              | 235-268 | -           |
| HRC              | 30      | -           |

### X7CrNiAl32-21 Heat Treatment Regime

| Annealing | Quenching | Tempering | Normalizing | Q & T |
|-----------|-----------|-----------|-------------|-------|
| √         | √         | √         | √           | √     |

### X7CrNiAl32-21 Range of products

| Product type    | Products                                 | Dimension                  | Processes                                   | Deliver Status  |
|-----------------|--|----------------------------|---|---|
| Plates / Sheets | Plates / Sheets                          | 0.08-200mm(T)*W*L          | Forging, hot rolling and cold rolling       | Annealed, Solution and Aging, Q+T, ACID-WASHED, Shot Blasting |
| Steel Bar       | Round Bar, Flat Bar, Square Bar          | Φ8-1200mm*L                | Forging, hot rolling and cold rolling, Cast | Black, Rough Turning, Shot Blasting,                          |
| Coil / Strip    | Steel Coil /Steel Strip                  | 0.03-16.0x1200mm           | Cold-Rolled & Hot-Rolled                    | Annealed, Solution and Aging, Q+T, ACID-WASHED, Shot Blasting |
| Pipes / Tubes   | Seamless Pipes/Tubes, Welded Pipes/Tubes | OD:6-219mm x WT:0.5-20.0mm | Hot extrusion, Cold Drawn, Welded           | Annealed, Solution and Aging, Q+T, ACID-WASHED                |

## We can produce Stainless Steels the specifications follows:

Note:

- (1) listed in the table apex diameter (d), to steel thickness (a) multiples said.
- (2) in the ASTM A6 standard specified scope can meet any additional conditions.
- (3) from the standard for 50 mm (2 in).

Mechanical properties

Mechanische Eigenschaften

**Caracteristiques mecaniques**

ReH Minimum yield strength / Mindestwert der oberen Streckgrenze / Limite d'elasticite minimale

Rm Tensile strength / Zugfestigkeit / Resistance a la traction

A Minimum elongation / Mindestwert der Bruchdehnung / Allongement minimal

J Notch impact test / Kerbschlagbiegeversuch / Essai de flexion par choc

**Round bar:**

Diameter : 1mm-2000mm

**Square bar:**

Size: 50mm \* 50mm-600mm \*600mm

**Plate steel/flat bar:**

Size: Thickness: 0.1mm-800mm Width: 10mm to 1500mm

**Tube/pipe:**

Size: OD: 6-219mm WT: 1-35 mm.

Cold-rolled sheet: Thickness: 2-5mm Width:1000mm Length: 2000mm

Hot-rolled sheet: Thickness:6-80mm Width: 210-610mm

Length: We can supply any length based on the customer's requirement.

Forging/hot rolling/ extrusion of steel.

Forging: Shafts with flanks/pipes/tubes/slugs/donuts/cubes/other shapes

Finished goods condition: hot forging/hot rolling + annealing/normalizing + tempering/quenching + tempering/any conditions based on the customer's requirement

Surface conditions: scaled (hot working finish)/ground/rough machining/fine machining/based on the customer's requirement

Furnaces for metallurgical processing: electrode arc + LF/VD/VOD/ESR/Vacuum consumable electrode.

Ultrasonic inspection: 100% ultrasonic inspection for any imperfections or based on the customer's requirement.

UTS according to SEP 1921 C/c,D/d,E/e;A388 or GB/T 6402

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