AESTEIRON STEELS PVT. LTD.

AN ISO 9001-2008 COMPANY

SS 304 Cu, Type 304 Cu, WNR 1.4567, UNS S30430,

AISI 304Cu, DIN 1.4567, AFNOR Z3CNU 18-10

Introduction :

Stainless Steel 304Cu is an austenitic chromium nickel stainless steel with copper content. Except the additional copper content it generally has same properties as stainless steel 304. Due to its' increased copper content it is applicable to certain unique uses. It is similar to grade 304L but with additional copper, it makes it ductile for cold heading application and it is widely used where high ductility is required for severe cold heading such as for making all kinds of screws and bolts. The work hardening of the steel to allow operations such as cold heading, thread rolling and improved machining. The cold formability of the alloy makes it an optimum solution for many challenging end uses. Due to lower work hardening it has easier machining than 304, approximately 25% improvement. This grade has better corrosion resistance and weldability. It is useful for wide variety of corrosive media such as sterilizing solutions, steam and combustion gases, most organic chemicals, dyes and petroleum product. It is better than 304 in sulphuric acid due to copper addition. Amongst wrought austenitic stainless steels, grade 304cu has a moderately low thermal conductivity and a fairly low tensile strength. It has good free machining properties.

Products Available in forms :

- SS 304 Cu, Type 304 Cu, WNR 1.4567, UNS S30430 Plates
- SS 304 Cu, Type 304 Cu, WNR 1.4567, UNS S30430 Pipes
- SS 304 Cu, Type 304 Cu, WNR 1.4567, UNS S30430 Round Bar
- SS 304 Cu, Type 304 Cu, WNR 1.4567, UNS S30430 Tube
- SS 304 Cu, Type 304 Cu, WNR 1.4567, UNS S30430 Flanges
- SS 304 Cu, Type 304 Cu, WNR 1.4567, UNS S30430 Wire
- SS 304 Cu, Type 304 Cu, WNR 1.4567, UNS S30430 Fittings

Standard Available in forms :

- ASTM A182/ ASME SA182 Stainlees Steel Pipe Fittings
- ASTM A213 / ASME SA213 Seamless Stainless Steel Pipes
- ASTM A240/ ASME SA240 Stainless Steels Sheets / Plates
- ASTM A249/ ASME SA249 Stainless Steel Welded Tubes
- ASTM A269/ ASME SA269 Stainless Steel Tubes
- ASTM A270/ ASME SA270 Stainless Steel Sanitary Tubes
- ASTM A312/ ASME SA312 Stainless Steel Pipes
- ASTM A403/ ASME SA403 Stainless Steel Pipe Fittings
- ASTM A554/ ASME SA554 Stainless Steel Welded Tubes
- ASTM A731/ ASME SA731 Stainless Steel Pipes
- ASTM A789/ ASME SA789 Stainless Steel Tubes
- ASTM A790/ ASME SA790 Stainless Steel Pipes
- ASTM A791/ ASME SA791 Stainless Steel Tubes

Chemical Composition

	SS 304Cu	WNR 1.4567	UNS S30430	AISI 304Cu	DIN 1.4567	AFNOR Z3CNU18-10
Carbon	0.03max	0.03max	0.03max	0.03max	0.03max	0.03max
Manganese	2.00 max	2.00 max	2.00 max	2.00 max	2.00 max	2.00 max
Phosphorus	0.045 max	0.045 max	0.045 max	0.045 max	0.045 max	0.045 max
Sulfur	0.030max	0.030max	0.030max	0.030max	0.030max	0.030max
Silicon	1.00 max	1.00 max	1.00 max	1.00 max	1.00 max	1.00 max
Chromium	17.0-19.0	17.0-19.0	17.0-19.0	17.0-19.0	17.0-19.0	17.0-19.0
Nickel	8.0-10.0	8.0-10.0	8.0-10.0	8.0-10.0	8.0-10.0	8.0-10.0
Copper	2.00-3.00	2.00-3.00	2.00-3.00	2.00-3.00	2.00-3.00	2.00-3.00

Mechanical Properties

	SS 304Cu	WNR 1.4567	UNS S30430	AISI 304Cu	DIN 1.4567	AFNOR Z3CNU18-10
Tensile Strength, ksi[Mpa]	75[520]	75[520]	75[520]	75[520]	75[520]	75[520]
Yield Strength, ksi[Mpa]	30[200]	30[200]	30[200]	30[200]	30[200]	30[200]
Elongation %	60	60	60	60	60	60
Reduction in Area, %	70	70	70	70	70	70

General Properties:

- Corrosion Resistance - Good
- Mechanical Properties - Average
- Forgeability - Good
- Weldability - Good (Seldom)
- Machinability - Very good

Special Properties

- Suited for cryogenic applicaions.
- Non-magnetic Grade.
- Suited to a very high degree of cold deformation.

Applications

- Automotive industry
- Chemical industry
- Food and beverage industry
- Decorative items and kitchen utensils
- Electronic equipment
- Ship building.

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Processing

- Automated machining - yes
- Machinable - yes
- Hammer and die forging - not common
- Cold forming - yes
- Cold heading - yes
- Suited to polishing - yes

Corrosion resistance

- 1.4567 is resistant to corrosion in most natural waters and urban and rural atmospheres, provided that the chloride and salt contents are low.
- This grade of stainless steel is not resistant to sea water and as such must not be used in any sea water applications.
- Its resistance to corrosion in moderate chloride containing environments and organic acids,makes 1.4567 suited for use in the food and beverage industries.
- The corrosion resistance of 1.4567 is very similar to that of 1.4307,but due to its higher copper content, 1.4567 displays improved resistance to corrosion in many reducing acid environments, such as H2SO4 environments.

Heat treatment

• Optimal material propertiesare realised after solution annealing in the temperature range 1000 - 1100°C followed by rapid cooling in air or water.
• During operation and fabrication, the time spent in the temperature range 450 -850°C must be minimised to avoid embrittlement.

Welding

• Although 1.4567 can be welded with, or without, the use of filler material, this steel is seldom welded.
• If a filler metal is required, then the use of Novonit 4404 (AISI 316 L)would be recommended.
• Post weld heat treatment is not necessary.

Forging

• Usually heated to within the temperature range 1180 -1210°C to allow forging which takes place at temperatures between 1210 and 950°C.
• Forging is followed by air cooling, or water quenching when no danger of distortion exists.

Machining

• As a result of the high copper addition to this steel, the work hardening tendency is retarded, i.e. the austenite phase is more stable,and as such drilling, threading and other machining operations can be performed with comparative ease.






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