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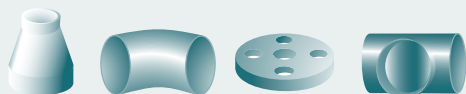
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# Specifications Type C-22



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# Alloy C-22

**Alloy C-22 (UNS N06022)** is a nickel-chromium-molybdenum alloy with tungsten, and extremely low carbon and silicon contents.

This alloy is characterised by:

- outstanding resistance to a wide range of corrosive media under both oxidising and reducing conditions
- excellent resistance to crevice and pitting corrosion and to stress corrosion cracking

## Designation and Standards

Country National Standards	Material Designation	Chem. composition	Specification						
			Tube and pipe seamless	pipe welded	Sheet and plate	Rod and bar	Strip	Wire	Fittings
France AFNOR									
Germany VdTÜV	NiCr21Mo14W W.-Nr. 2.4602	479			479	479			
United Kingdom BS									
USA ASTM ASME	UNS N06022		B622 SB622	B619/626 SB619/626	B575 SB575	B574 SB574	B575 SB575		B366 SB366
ISO	NiCr21Mo14W3								

## Chemical Composition(%)

Alloy C-22	Ni	Cr	Fe	C	Mn	Si	Mo	Co	W	V	P	S	
min	rem.	20.0	2.0	-	-	-	12.5	-	2.5	-	-	-	
max	-	22.5	6.0	0.010	0.5	0.08	14.5	2.5	3.5	0.35	0.015	0.005	

## Mechanical Properties

The following properties are applicable to Alloy C-22 in the solution-treated condition and the indicated size ranges. Specified properties of material outside these ranges are subject to special enquiry.

Form	Condition	Tensile strength		0.2% Yield Strength		1.0% Yield Strength		Elong. A5 %	Grain size max.		Brinell hardness (inform) HB
		N/mm <sup>2</sup>	ksi	N/mm <sup>2</sup>	ksi	N/mm <sup>2</sup>	ksi		μm	ASTM No.	
at room temp.	solution heat - treated at 1120°C 2050°F	690	100	310	45	335	49	45	127	3.0	240
Sheet & Strip up to 3mm 1/8in									214	1.5	
Sheet & plate up to 3mm 1/8in											
Tube & Pipe 6 - 220mm dia. 0.24 - 8in. 1 - 12.5mm wall thickness 0.04 - 0.5in											
Rod & bar 10 - 90mm 0.4 - 3/2in											
at elevated temperatures											
100°C 212°F 200°C 392°F 300°C 572°F 400°C 752°F				270 225 195 175	39 33 28 25	290 245 215 195	42 36 31 28				

Minimum mechanical properties at room and elevated temperatures

## Metallurgical Structure

Alloy C-22 has a face-centred cubic structure.

## Corrosion Resistance

The nickel-chromium-molybdenum Alloy C-22 with extremely low silicon and carbon content is not prone to grain-boundary precipitation during hot forming and welding.

## Corrosion Resistance continued:

The alloy is therefore suitable for many chemical process applications in both oxidising and reducing media.

Because of its high nickel and molybdenum contents, the alloy is resistant to attack by chloride ions. The tungsten content further enhances this resistance. Alloy C-22 is also one of the few materials that resist wet chlorine gas, hypochlorite and chlorine dioxide solutions as encountered in pulp and paper processing.

The alloy exhibits exceptional resistance to strong solutions of oxidising salts, such as ferric and cupric chlorides. Alloy C-22 is also particularly suitable in applications involving hot contaminated mineral acids, solvents and organic acids, such as formic and acetic acid.

## Applications

Alloy C-22 finds wide application in the chemical and petrochemical industries, for components in organic processes involving chlorides and for catalysts.

### Typical applications include:

- digesters and bleach plants in the paper and pulp industry
- scrubbers, reheaters and wet fans for incinerator gas and flue-gas desulphurisation
- equipment and components in sour gas service
- reactors for acetic acid and acetic anhydride

# Stock Size Range

## Alloy C-22 - Pipe and Fittings

Pipe nb sch10 - sch40	Fittings nb
tba	tba

## Alloy C-22 - Sheet and Plate

Size	4m x 2m	4m x 2m	6m x 2m
Thickness	1/4", 3/8", 1/2", 5/8", 3/4"	3, 4, 8mm	-

The above tables represent our current stock range. New sizes and products are being added all the time.

Products can also be manufactured to order, often with short lead times. Please contact our Sales Department for further details.