



## DUPLEX STAINLESS STEEL 332C13

(BS 3100:1991)

Duplex stainless steels, such as 332C13, have a structure that is usually 40 to 50% ferrite with the balance of the microstructure austenite. Their higher ferrite levels provide significantly better chloride stress corrosion cracking resistance than austenitics and higher chromium and molybdenum contents provide good localized corrosion resistance. The addition of nitrogen improves corrosion resistance, increases strength, and improves castability. Welding may reduce corrosion resistance and ductility unless it is followed by a post-weld solution heat treatment. None of the duplex stainless steels should be used in continuous service above 600°F (315°C) because of the potential for 885°F (475°C) embrittlement of the ferrite phase.

### Chemical Composition

Element		%
Carbon	C	0.04 maximum
Silicon	Si	1.0 maximum
Manganese	Mn	1.0 maximum
Phosphorus	P	0.040 maximum
Copper	Cu	2.75-3.25
Sulphur	S	0.040
Chromium	Cr	24.5-26.5
Molybdenum	Mo	1.75-2.25
Nickel	Ni	4.75 - 6.0

### Heat Treatment

Solution treat by heating to a temperature high enough (1050C min) to dissolve carbides and any intermetallic phases followed by a rapid cool.

### Typical Mechanical Properties

Tensile Strength	690 MPa min.
Yield Strength	485 Pps min.
Elongation (in 50mm)	16 % min.
Impact	25j (Charpy V Notch)

### Comparative Specifications

Material	Country/Standards
SA-351 Grade CD4MCu	USA/ASME
A 351 Grade CD4MCu	USA/ASTM
A 743 Grade CD-4MCu	USA/ASTM
A 744 Grade CD-4MCu	USA/ASTM
A 890 Grade 1A	USA/ASTM
J93370	USA / UNS
IS 7806 Grade 16	India / IS

**To discuss your requirements, call a member of NovaCast's team on +44 (0) 1225 707466, or email [sales@novacast.co.uk](mailto:sales@novacast.co.uk)**

All information in our data sheets and website is indicative only and is not intended to be a substitute for the full specification from which it is extracted. It is intended to provide typical values to allow comparison between metal alloy options rather than a definitive statement of mechanical performance or suitability for a particular application as these will vary with temperature, product type and product application. It is presented apart from contractual obligations and does not constitute any guarantee of properties or of processing or application possibilities in individual cases. Our warranties and liabilities are stated exclusively in our terms of trading.

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