

# DEF STAN 02-780 (NES780)

## Technical Datasheet



Service. Quality. Value.

### Cupronickel - Copper Nickel Alloy

#### Typical Applications

- Seawater service applications
- Marine hardware
- Above sea and subsea fittings
- Heat exchangers
- Condensers
- Desalination units
- Pipework
- Submarine components

#### Product Description

DEF STAN 02-780 (NES780) is a cupronickel alloy (copper nickel) which contains 70% copper and 30% nickel. The alloy includes small additions of iron and manganese to improve resistance to high velocity seawater. DEF STAN 02-780 (NES780) can be used in more demanding applications than DEF STAN 02-779 (NES779) as it has higher strength once annealed. The alloy naturally produces a protective oxide film (or patina) which prevents marine growth in subsea service. DEF STAN 02-780 (NES780) is easily formed, easily welded and easy to fabricate with good hot and cold working properties.

#### Chemical Composition (weight %)

	Cu	Ni	Mn
Rem			
Rem		30.00	1.00

#### Key features:

- 70/30 copper-nickel
- Small additions of iron and manganese to improve resistance to high velocity seawater.
- Higher strength and better corrosion resistance compared with 90/10 alloy but slightly reduced anti-fouling properties.

#### Related material specifications

- CN107
- C71500
- NES 780
- CW354H

#### Corrosion Resistance

Better corrosion resistance compared with 90/10 alloy but slightly reduced anti-fouling properties.

#### Weldability

Readily weldable.

#### Availability

Bar, hexagon, sheet and tube

#### Mechanical Properties

Ultimate Tensile Strength	330 min	N/mm <sup>2</sup>	
0.2% Proof Strength	125 min	N/mm <sup>2</sup>	-
Elongation	30 min	%	

#### Physical Properties

Density	8.95	g/cm <sup>3</sup>
Specific Heat	377	J/Kg°C
Modulus of elasticity	152,000	N/mm <sup>2</sup>
Thermal conductivity	29	W/m°C
Electric conductivity		

#### UK Service Centres:

Smiths Belfast 02895 908 897  
Smiths Biggleswade 01767 604 704  
Smiths Birmingham 0121 728 4940  
Smiths Bristol 0117 971 2800  
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#### Quality & Testing:



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