

## Copper and Copper Alloys

### DEF STAN 02-838 ~ NES838 Bar



#### SPECIFICATIONS

Commercial NES838 DEF STAN 838

A Phosphor Bronze Alloy with high strength and very high corrosion resistance especially in sewer and marine environments. Mainly used in Naval Engineering, Nuclear, Aerospace and Defence Applications.

#### CHEMICAL COMPOSITION

DEFSTAN 02-838(PT1)/1(2012)  
Phosphor Bronze

Element	% Present
Tin (Sn)	4 - 5.5
Phosphorous (P)	0.02 - 0.4
Nickel (Ni)	0.3 max
Silicon (Si)	0.3 max
Zinc (Zn)	0.3 max
Iron (Fe)	0.1 max
Lead (Pb)	0.02 max
Copper (Cu)	Balance

#### ALLOY DESIGNATIONS

DEF STAN 02-838  
NES838  
NES 838  
DEF STAN 838

#### TEMPER TYPES

ANNEALED

#### SUPPLIED FORMS

Annealed Bar - Grade 1

- Bar
- Rod

#### MECHANICAL PROPERTIES

DEFSTAN 02-838(PT1)/1(2012)  
Bar  
6mm to 18mm

Property	Value
Proof Stress	410 Min MPa
Tensile Strength	500 Min MPa
Elongation A	12 Min %

Mechanical Properties shown are for annealed bar.

DEFSTAN 02-838(PT1)/1(2012)  
Bar  
18mm to 40mm

Property	Value
Proof Stress	380 Min MPa
Tensile Strength	460 Min MPa
Elongation A	12 Min %

Mechanical Properties shown are for annealed bar.

DEFSTAN 02-838(PT1)/1(2012)  
Bar  
40mm to 60mm

Property	Value
Proof Stress	320 Min MPa
Tensile Strength	380 Min MPa
Elongation A	16 Min %

Mechanical Properties shown are for annealed bar.

DEFSTAN 02-838(PT1)/1(2012)  
Bar  
Over 60mm

Property	Value
Proof Stress	250 Min MPa
Tensile Strength	350 Min MPa
Elongation A	18 Min %

Mechanical Properties shown are for annealed bar.

## CONTACT

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## REVISION HISTORY

Datasheet Updated	13 November 2018
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