

# N93H

High acrylonitrile (ACN) Nitrile Butadiene Rubber (NBR)

## Description

N93H is a Copolymer of acrylonitrile and butadiene with a high ACN content of >45%.

NBR materials typically provide excellent resistance to petroleum-based oils, fuels and greases, as well as, very low gas permeability, ozone resistance, plus exceptional heat ageing and mechanical properties.

N93H is accepted by the UK Ministry of Defence (MOD) to Defence Standard 02-337 part 1, issue 2 (NES 337) for use on naval ships and submarines. Material code HN90.

Available in any sized O-ring (fully moulded up to 2.5m/8ft internal diameter) and custom designed components.

## Key Attributes

- ▶ Excellent resistance to aliphatic hydrocarbon oils, fuels and greases.
- ▶ Very low gas permeability
- ▶ Accepted by M.O.D. to Def. Stan. NES 337

## Typical Applications

- ▶ Naval ships and submarines
- ▶ Aerospace applications

## Other NES337 materials available

Medium ACN Nitrile materials in 60, 70, 80 and 90 hardness

High ACN Nitrile materials in 60, 70 and 80 hardness

HNBR materials in 70, 80 and 90 hardness

V72G FKM fluoroelastomer (green) 70 hardness

PPE O-ring parts are listed on the ISIS system under NCAGE reference number U6183.



## Typical Material Properties

Property	ASTM	ISO	Value
Material Type	NBR	NBR	Copolymer
Colour			Black
Hardness: (°IRHD)	D1415	ISO48	87
Tensile Strength (MPa)	D412	ISO37	15.6
Elongation at break (%)	D412	ISO37	140
Compression Set: 24 hrs @ 70°C (158°F)	D395	ISO815	6.5%
Minimum Operating Temperature			-30°C (-22°F)
Maximum Operating Temperature			+120°C (+248°F)
Heat Ageing: 168 hrs @ 100°C (212°F)	D573	ISO188	
Hardness change (points)	D1415	ISO48	+2 IRHD
Tensile strength change	D412	ISO37	+3.5%
Elongation at break change	D412	ISO37	-16%
Low temperature resistance: Non-brittle after 3mins at			-20°C

**SPECIAL NOTE:** This information is to the best of our knowledge accurate and reliable. However, Precision Polymer Engineering Ltd makes no warranty, expressed or implied, that parts manufactured from this material will perform satisfactorily in the customer's application. It is the customer's responsibility to evaluate parts prior to use, especially in applications where their failure may result in injury and/or damage. It should also be noted that all elastomeric parts have a finite life. Therefore a regular programme of inspection and replacement is strongly recommended.

Low temperature operating parameters are based on SAE AMS 7379-200B.

The material properties above should not be used for specification purposes.