

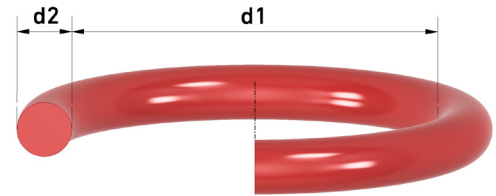
General information:

The O-ring is an efficient and inexpensive sealing element used for various applications in all branches of industry. A wide range of elastomer materials enables the fabrication of different designs, which allow the O-ring to be used to seal almost all media. This overview provides general information regarding the O-ring in standard NBR material.

Dimensions:

The O-ring is characterised by the inside diameter d_1 and the cross section d_2 .

ULMAN Dichtungstechnik GmbH can provide dimensions in accordance with DIN ISO 3601-1 and AS 568A standards immediately. Further dimensions according to the standards BS 1806, JIS B 2401, SMS 1586, NFT 47-501 might be available on request.



The O-ring is an infinite vulcanized one-piece sealing element with a circular cross section.

Tolerances:

- Dimensional deviations based on DIN ISO 3601-1 class B (industrial standard)
- Surface and shape deviations in accordance with DIN ISO 3601-3 type characteristic „N“ (industrial standard)
- Depending on specific application criteria, dimensional deviations of the class 3601-1 A and the type characteristic DIN ISO 3601-3 „S“ can be offered on request

Material Type:

Elastomer materials according to ISO 1629 can be used for the fabrication of O-rings. The choice of a suitable material is determined by the particular requirements of the application.

The following table contains the minimum values for the properties of **standard NBR** O-rings:

- Designation: Acrylonitrile-Butadiene-Elastomer (Trade Name, e.g. Europrene®, Krynac®, Nipol®, Perbunan®, Breon®)
- Abbreviation ISO 1629 / ASTM 1418: NBR

Temperature range [°C]	Hardness Shore A	Colour	Density [g/cm ³]	Tensile strength [N/mm ²]	Ultimate elongation [%]	Compression set [22h@100°C]	Low temp. retraction TR10 [°C]
-30 / +100*	70**	black***	1,22****	14,3****	330****	10%****	-25****

Properties: Aliphatic hydrocarbons (propane, butane, mineral oil, -greases, petrol), silicone oils, -greases, hydraulic fluids based on mineral oil, oils and fats based on animals and plants, bio oils made from synthetic esters, flame retardant hydraulic liquids (HFA, HFB, HFC), water up to + 80°C

* Special NBR materials reach an operating temperature up to -65°C / 135°C.

** Other shore hardnesses from 45-90 are possible on request.

*** Coloured NBR material is possible on request. Note: coloured materials may change the physical properties.

**** Deviations from special NBR materials.

Installation:

General recommendations	Manual installation	Automatic installation
<ul style="list-style-type: none"> • Clean the surface beforehand (e.g. dirt, chips, fibres) • Cover threads, grooves, recesses with a protective cover • Round the edges and deburr the bores • Use a greased or oiled O-ring 	<ul style="list-style-type: none"> • Do not overstretch the O-ring • Do not drill or twist the O-ring • Use installation aids made of plastic and without sharp edges 	<p>Surface refining results in the following advantages:</p> <ul style="list-style-type: none"> • Simplified installation • Minimising friction • Reducing breakaway forces • Counteracts the stick-slip effects • Colour differentiation