

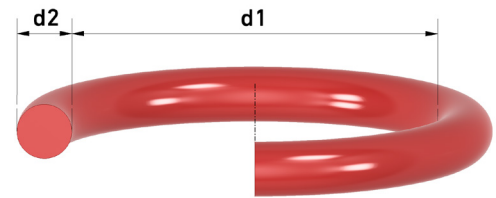
General information:

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 FKM 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, NPT 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 FKM** O-rings:

- Designation: Fluorocarbon Elastomer (Trade Name, e.g. Viton®, Fluorel®, Dai-El®, Tecnoflon®)
- Abbreviation ISO 1629 / ASTM 1418: FKM

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]
-20 / +200*	70**	black***	1,87****	11,0****	185****	12%****	-17****

Properties: Mineral oil, -greases, silicone oil, -greases, aliphatic, chlorinated and aromatic hydrocarbons, petrol, 99 octane petrol, diesel fuel, flame retardant hydraulic liquids (HFD), acids, lyes, ozone, atmospheric conditions, aging, high vacuum applications

* Special FKM materials reach an operating temperature up to -45°C / 250°C.

** Other shore hardnesses from 50-90 are possible on request.

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

**** Deviations from special FKM 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