

# EPDM O-Ring Seal

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Fasteners Seals O-Ring Seal — ISO / DIN (Series 159) EPDM O-Ring Seal

Seals - ISO / DIN

Temperature range, chemical and fluid compatibility, hardness and the full dimensional range for this compound.

EPDM O-Ring Seal are supplied to ethylene-propylene-diene rubber, typically 70 Shore A. Corrosion behaviour is excellent in water, steam, brake fluid and weathering; unsuitable for mineral oil, the material is non-magnetic, and the usable service range is approx. -45 °C to +150 °C. In practice this grade is the water, steam and outdoor-weathering elastomer.

## Grade

ethylene-propylene-diene rubber, typically 70 Shore A

## Corrosion resistance

Excellent in water, steam, brake fluid and weathering; unsuitable for mineral oil

## Magnetic response

Non-magnetic

## Service temperature

approx. -45 °C to +150 °C

Property values are typical for the grade. Certified mechanical test data is available on request for production orders.



For o-ring seal in EPDM, the controlling selection factors are corrosion exposure, strength requirement and service temperature. The grade data for EPDM (ethylene-propylene-diene rubber, typically 70 Shore A) is summarized below together with every size supplied.

## Why Choose EPDM for O-Ring Seal — ISO / DIN (Series 159)

The water, steam and outdoor-weathering elastomer. For o-ring seal — iso / din (series 159), this matters when excellent in water, steam, brake fluid and weathering; unsuitable for mineral oil is the primary requirement.

## Mechanical & Physical Properties

|                                 |                                                                                   |
|---------------------------------|-----------------------------------------------------------------------------------|
| <b>Grade designation</b>        | ethylene-propylene-diene rubber, typically 70 Shore A                             |
| <b>Magnetic response</b>        | Non-magnetic                                                                      |
| <b>Service temperature</b>      | approx. -45 °C to +150 °C                                                         |
| <b>Corrosion characteristic</b> | Excellent in water, steam, brake fluid and weathering; unsuitable for mineral oil |

## Corrosion Behavior in Service

Carbon and alloy steel o-ring seal — iso / din (series 159) require a coating for corrosion protection. Zinc plating (with or without passivation) is the most common; hot-dip galvanizing is used for outdoor structural service; black-oxide is mainly a tarnish-prevention finish for tool-room use.

## Galvanic & Galling Considerations

Galvanic and galling behavior do not apply to o-ring seal — iso / din (series 159) in EPDM — the relevant compatibility questions are chemical: confirm the elastomer against the fluid, the temperature and any cleaning agents in service, and check the gland or groove dimensions give the intended compression on the section.

## Sizes of O-Ring Seal — ISO / DIN (Series 159) Available in EPDM

| Inner diameter d1<br>(mm) | Outer diameter d2<br>(mm) | Wire dia<br>(mm) | Material | Working temp<br>range | Reference<br>standard |
|---------------------------|---------------------------|------------------|----------|-----------------------|-----------------------|
| 5                         | 9                         | 2                | NBR 70   | -30 to +110 C         | ISO 3601 / GB/T 3452  |
| 8                         | 12                        | 2                | NBR 70   | -30 to +110 C         | ISO 3601 / GB/T 3452  |
| 10                        | 16                        | 3                | NBR 70   | -30 to +110 C         | ISO 3601 / GB/T 3452  |
| 15                        | 21                        | 3                | NBR 70   | -30 to +110 C         | ISO 3601 / GB/T 3452  |
| 20                        | 26                        | 3                | NBR 70   | -30 to +110 C         | ISO 3601 / GB/T 3452  |
| 25                        | 33                        | 4                | NBR 70   | -30 to +110 C         | ISO 3601 / GB/T 3452  |
| 30                        | 38                        | 4                | NBR 70   | -30 to +110 C         | ISO 3601 / GB/T 3452  |
| 40                        | 50                        | 5                | NBR 70   | -30 to +110 C         | ISO 3601 / GB/T 3452  |
| 50                        | 60                        | 5                | NBR 70   | -30 to +110 C         | ISO 3601 / GB/T 3452  |
| 60                        | 72                        | 6                | NBR 70   | -30 to +110 C         | ISO 3601 / GB/T 3452  |
| 80                        | 92                        | 6                | NBR 70   | -30 to +110 C         | ISO 3601 / GB/T 3452  |
| 100                       | 114                       | 7                | NBR 70   | -30 to +110 C         | ISO 3601 / GB/T 3452  |

## Technical Drawing

Customize the parameters below — every spec field is editable, and the drawing redraws to match the values you choose.

Changing the size will snap the other fields to that size's standard values; you can then override any individual value.

Sends the selected values to the quote form below.

## Request a Quote

The form below follows the current technical drawing configuration. Change the drawing values above and the request details update automatically.

## Dimensions & Specifications (ISO / DIN)

| Inner diameter d1<br>(mm) | Outer diameter d2<br>(mm) | Wire dia<br>(mm) | Material | Working temp<br>range | Reference<br>standard |
|---------------------------|---------------------------|------------------|----------|-----------------------|-----------------------|
| 5                         | 9                         | 2                | NBR 70   | -30 to +110 C         | ISO 3601 / GB/T 3452  |
| 8                         | 12                        | 2                | NBR 70   | -30 to +110 C         | ISO 3601 / GB/T 3452  |
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| 25                        | 33                        | 4                | NBR 70   | -30 to +110 C         | ISO 3601 / GB/T 3452  |
| 30                        | 38                        | 4                | NBR 70   | -30 to +110 C         | ISO 3601 / GB/T 3452  |
| 40                        | 50                        | 5                | NBR 70   | -30 to +110 C         | ISO 3601 / GB/T 3452  |
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| 60                        | 72                        | 6                | NBR 70   | -30 to +110 C         | ISO 3601 / GB/T 3452  |
| 80                        | 92                        | 6                | NBR 70   | -30 to +110 C         | ISO 3601 / GB/T 3452  |
| 100                       | 114                       | 7                | NBR 70   | -30 to +110 C         | ISO 3601 / GB/T 3452  |

## Video: EPDM O-Ring Seal



► Watch video: [https://www.youtube.com/watch?v=y\\_ZkVryWsWE](https://www.youtube.com/watch?v=y_ZkVryWsWE)

Third-party video, selected automatically for this topic. It is not produced by Engineering Hardware and is not a specification source — use the tables on this page for dimensional data.

Inside the plant

## Manufactured in our own plant

This part is cold-formed, threaded, heat-treated and finished in-house. The stages below are where its class and finish are actually decided.

1.



01

### **Cold heading**

Wire rod is drawn to size and cold-formed into blanks. Forming rather than cutting keeps the grain flow continuous around the head, which is where a bolt is most likely to fail.

Head dimensions and under-head radius checked at set-up and per shift.



2.

02

## Thread rolling

Threads are rolled between hardened dies rather than cut. Rolled threads are stronger in fatigue than cut threads and hold pitch and flank angle far more consistently across a batch.

Go / no-go ring gauges to ISO 965 tolerance class 6g.

3.



03

### Heat treatment

Quench-and-temper brings carbon and alloy steel to the property class ordered — 8.8, 10.9 or 12.9 — with the furnace charge tracked so a finished lot can be traced back to it.

Core hardness and tensile tested per lot to ISO 898-1.

4.



04

### Surface treatment

Zinc, zinc-nickel, hot-dip galvanizing, black oxide, phosphate and Dacromet, selected against the service environment rather than against the price list.

Coating thickness and neutral salt spray hours to ISO 9227.

## Frequently Asked Questions

Are EPDM O-Ring Seal — ISO / DIN (Series 159) magnetic?

EPDM O-Ring Seal — ISO / DIN (Series 159) are non-magnetic.

What corrosion resistance do EPDM O-Ring Seal — ISO / DIN (Series 159) offer?

EPDM O-Ring Seal — ISO / DIN (Series 159) provide excellent in water, steam, brake fluid and weathering; unsuitable for mineral oil with a service range of approx. -45 °C to +150 °C.

When should I move from ethylene-propylene-diene rubber, typically 70 Shore A to class 8.8 for O-Ring Seal — ISO / DIN (Series 159)?

Step up to class 8.8 when the joint preload approaches the proof load of the current class. The higher class adds preload at the same diameter, often saving size and weight.

Is EPDM prone to hydrogen embrittlement?

Class 10.9 and above can be susceptible to hydrogen embrittlement when electroplated. Specify post-plating baking, or use mechanical-zinc / zinc-flake finishes which avoid the cathodic plating step.

How do I request a quotation?

Use the technical drawing on this page to pick the exact configuration, then submit it with the quote form. We respond within one business day.

## Related Pages

[View the full O-Ring Seal — ISO / DIN \(Series 159\) page](#)

### More O-Ring Seal — ISO / DIN (Series 159) Guides

- [NBR \(Nitrile\) O-Ring Seal — ISO / DIN \(Series 159\)](#)
- [FKM \(Viton®-type\) O-Ring Seal — ISO / DIN \(Series 159\)](#)
- [Silicone \(VMQ\) O-Ring Seal — ISO / DIN \(Series 159\)](#)
- [PTFE O-Ring Seal — ISO / DIN \(Series 159\)](#)