

Silicone (VMQ) O-Ring Seal

Engineering Hardware & Fasteners · engineeringhardware.com/guide/material/silicone-cad-svg-159-oring

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

Seals · ISO / DIN

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

Silicone (VMQ) O-Ring Seal are supplied to vinyl-methyl silicone, typically 70 Shore A. Corrosion behaviour is inert and physiologically neutral; low tear and abrasion strength, the material is non-magnetic, and the usable service range is approx. -60 °C to +200 °C. In practice this grade is used for wide temperature range and food/medical contact, in static seals only.

Grade

vinyl-methyl silicone, typically 70 Shore A

Corrosion resistance

Inert and physiologically neutral; low tear and abrasion strength

Magnetic response

Non-magnetic

Service temperature

approx. -60 °C to +200 °C

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



O-Ring Seal manufactured in Silicone (VMQ) (vinyl-methyl silicone, typically 70 Shore A) are dimensioned to ISO / DIN. The sections below give the mechanical and physical properties of the grade, its behavior in corrosive and elevated-temperature service, and the full size table.

Why Choose Silicone (VMQ) for O-Ring Seal — ISO / DIN (Series 159)

Used for wide temperature range and food/medical contact, in static seals only. For o-ring seal — iso / din (series 159), this matters when inert and physiologically neutral; low tear and abrasion strength is the primary requirement.

Mechanical & Physical Properties

Grade designation	vinyl-methyl silicone, typically 70 Shore A
Magnetic response	Non-magnetic
Service temperature	approx. -60 °C to +200 °C
Corrosion characteristic	Inert and physiologically neutral; low tear and abrasion strength

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.

Comparable Grades

For o-ring seal — iso / din (series 159), consider NBR or FKM wherever the seal is dynamic — silicone has low tear and abrasion strength and is a static-seal material. Elastomer selection is decided by the medium, the temperature range and whether the seal is static or dynamic — not by strength.

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

Inner diameter d1 (mm)	Outer diameter d2 (mm)	Wire dia (mm)	Material	Working temp range	Reference 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.

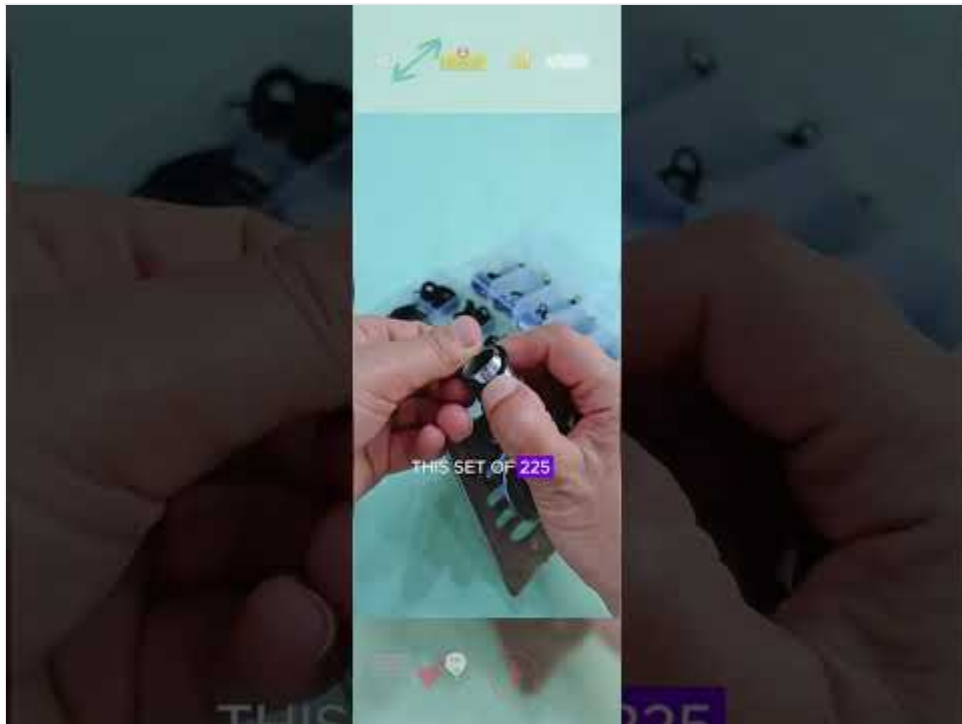
Request a Quote

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 (mm)	Outer diameter d2 (mm)	Wire dia (mm)	Material	Working temp range	Reference 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

Video: Silicone (VMQ) O-Ring Seal



► Watch video: <https://www.youtube.com/watch?v=gVxmHlfpY-M>

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

Is Silicone (VMQ) 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.

Which finish is best for outdoor O-Ring Seal — ISO / DIN (Series 159)?

For outdoor service in steel, hot-dip galvanizing gives the longest life; zinc-flake (Geomet/Delta-Tone family) gives a thinner film with excellent salt-spray performance; standard zinc plating is the lowest-cost option for general indoor / shielded outdoor use.

What's the service temperature limit for Silicone (VMQ)?

The practical service range is approx. -60 °C to +200 °C.

Can Silicone (VMQ) replace stainless steel structurally?

No — stainless A2/A4 cannot match class 10.9 / 12.9 strength. Stainless is selected for corrosion, not raw strength.

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 \(Series 159\)](#)
- [EPDM O-Ring Seal — ISO / DIN \(Series 159\)](#)
- [PTFE O-Ring Seal — ISO / DIN \(Series 159\)](#)