Metric O-Ring Sizes Chart

General-purpose metric dimensions for industrial sealing. ISO 3601 and DIN 3771 compatible.

Overview

Not every project follows a single national standard. Our general metric O-ring size chart provides the most commonly used inside diameters and cross sections in millimetres, covering the overlap between ISO 3601, DIN 3771, and JIS B 2401.

These sizes are used in hydraulic cylinders, pneumatic fittings, pumps, valves, and general machinery across Europe, Asia, and the Americas. If you need a size that is not listed, we manufacture custom metric O-rings with no tooling charge for standard cross sections and MOQ starting at 1 piece.

Cross-Section Reference

Cs Mm	Notes
1.00	Precision instruments, small pneumatic fittings
1.50	Miniature hydraulics, medical devices
1.60	European small-bore equipment
1.78	Compatible with AS568 imperial cross section (~1.78 mm)
1.80	ISO 3601 A-series and DIN 3771 A-series
2.00	General machinery, automotive fittings
2.40	Medium-pressure hydraulic applications
2.50	Pumps and fluid handling equipment
2.62	Compatible with AS568 imperial cross section (~2.62 mm)
2.65	ISO 3601 B-series and DIN 3771 B-series
3.00	Heavy-duty static seals
3.53	Compatible with AS568 imperial cross section (~3.53 mm)
3.55	ISO 3601 C-series and DIN 3771 C-series
4.00	Large bore static and dynamic seals
5.00	High-pressure hydraulics, large flanges
5.30	ISO 3601 D-series
5.33	Compatible with AS568 imperial cross section (~5.33 mm)
6.00	Marine, oil and gas static seals
6.99	Compatible with AS568 imperial cross section (~6.99 mm)
7.00	ISO 3601 E-series
8.00	Extra-large static flanges
10.00	Specialised heavy industrial sealing

Tolerance Reference

Cs Mm	Cs Tolerance	Id Range	Id Tolerance
1.00 - 1.80	+/-0.08	<= 10	+/-0.14

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1.00 - 1.80	+/-0.08	10 - 20	+/-0.17
2.00 - 2.65	+/-0.09	<= 13	+/-0.17
2.00 - 2.65	+/-0.09	13 - 30	+/-0.22
2.00 - 2.65	+/-0.09	30 - 50	+/-0.28
3.00 - 3.55	+/-0.10	<= 20	+/-0.20
3.00 - 3.55	+/-0.10	20 - 40	+/-0.28
3.00 - 3.55	+/-0.10	40 - 85	+/-0.36
5.00 - 5.33	+/-0.13	<= 40	+/-0.28
5.00 - 5.33	+/-0.13	40 - 80	+/-0.36
5.00 - 5.33	+/-0.13	80 - 140	+/-0.45
6.00 - 7.00	+/-0.15	<= 80	+/-0.36
6.00 - 7.00	+/-0.15	80 - 160	+/-0.45
8.00 - 10.00	+/-0.18	<= 120	+/-0.45
8.00 - 10.00	+/-0.18	120 - 250	+/-0.56

Example Sizes

ID mm	CS mm	Typical Use
2.00	1.00	Micro pneumatic valves
4.00	1.50	Small hydraulic couplings
6.00	1.80	ISO 3601 A-series baseline
10.00	2.00	General plumbing fittings
12.00	2.50	Pump housings
20.00	2.65	Hydraulic cylinder rod seals
25.00	3.00	Industrial valve bodies
32.00	3.55	ISO 3601 C-series popular size
40.00	4.00	Large bore static flanges
50.00	5.00	Heavy machinery hydraulics
80.00	5.30	Large hydraulic presses
100.00	6.00	Marine and offshore equipment
150.00	7.00	ISO 3601 E-series large seals
200.00	8.00	Specialised industrial tanks

Cross References

Standard	Region	Designation
ISO 3601	International	Matches 1.80, 2.65, 3.55, 5.30, 7.00 mm cross sections
DIN 3771	Germany/EU	A, B, C series overlap with general metric sizes
JIS B 2401	Japan	P, G, S series sizes are metric-compatible
AS568	USA	Imperial cross sections convert closely to 1.78, 2.62, 3.53, 5.33, 6.99 mm
BS 4518	UK	British metric sizes align with general metric chart

Groove Design Notes

Condition	Guidance
Static	Groove width ≈ 1.15 x CS. Groove depth should achieve 15-20% compression for static face seals and 18-25% for radial static seals.
Dynamic	Groove width ≈ 1.2-1.3 x CS to allow rolling motion. Target 10-15% compression for reciprocating seals to balance leakage and friction.
Rotary	Use 75-80 Shore A hardness with adequate groove fill (max 80%). Consider FKM or HNBR for heat dissipation. Avoid NBR for high-speed rotary service.

FAQ

What is the most common metric O-ring cross section?

1.80 mm, 2.65 mm, and 3.55 mm are the most widely used metric cross sections globally. They correspond to ISO 3601 A, B, and C series, and are also compatible with DIN 3771.

Can I use metric O-rings in an imperial-groove design?

Sometimes. Cross sections like 1.78 mm (≈0.070 in) and 2.62 mm (≈0.103 in) are close enough to AS568 imperial sizes to work in many grooves, but always verify groove fill and compression before substituting.

Do you supply custom metric sizes not on this chart?

Yes. We manufacture custom metric O-rings to your exact ID and CS specifications with no tooling charge for standard cross sections and MOQ as low as 1 piece.

What tolerance class applies to general metric O-rings?

General metric O-rings are typically manufactured to N-class tolerances (+/-0.10 to +/-0.15 mm on cross section, +/-0.20 to +/-0.45 mm on ID depending on size). S-class tolerances are available for precision applications.