BS 4518 O-Ring Standard: British Metric Sizes

The UK metric sizing standard, dimensionally aligned with ISO 3601 and DIN 3771 for European and Commonwealth industrial equipment.

Overview

BS 4518 is the British Standard specification for metric O-ring dimensions, published by the British Standards Institution (BSI). It defines inside diameters and cross-sectional diameters in millimeters, with tolerance classes suitable for general industrial, hydraulic and pneumatic applications.

BS 4518 is dimensionally equivalent to ISO 3601-1 and DIN 3771 Part 1 for the vast majority of common sizes. This means that O-rings specified to BS 4518, ISO 3601 or DIN 3771 are functionally interchangeable in general engineering use. The standard is still referenced in British and Commonwealth machinery specifications, particularly in legacy equipment, aerospace subcontractors and marine engineering.

Like ISO 3601, BS 4518 designates sizes by Inside Diameter x Cross-Section (ID x CS) in millimeters. Tolerances are specified by cross-section and inside diameter range, matching the precision requirements of Class B under ISO 3601.

Cross-Section Reference

Application	Common Ids	Cs Mm
Small static seals, instrumentation, pneumatic fittings	3.0 mm to 50 mm	1.5
General static seals, valves and pumps	4.0 mm to 100 mm	2.0
Medium static seals, hydraulic flanges	5.0 mm to 200 mm	2.5
Heavy static seals, process equipment	6.0 mm to 400 mm	3.0
Large static seals, pressure vessels	8.0 mm to 400 mm	4.0
Very large static seals, tank manways	10.0 mm to 400 mm	5.0
Extra-large static seals, shipbuilding and heavy industry	14.0 mm to 670 mm	7.0

Tolerance Reference

Cs Mm	Cs Tolerance	Id Range	Id Tolerance
1.5	+/-0.08	<=30 mm	+/-0.14
2.0	+/-0.09	<=50 mm	+/-0.16
2.5	+/-0.09	50-80 mm	+/-0.19
3.0	+/-0.10	80-120 mm	+/-0.22
4.0	+/-0.13	120-180 mm	+/-0.28
5.0	+/-0.13	180-250 mm	+/-0.35
7.0	+/-0.15	250-400 mm	+/-0.45

Cross References

Standard	Region	Designation
BS 4518	United Kingdom / Commonwealth	ID x CS in mm

Standard	Region	Designation
ISO 3601	International	Dimensionally equivalent to BS 4518
DIN 3771	Germany / EU	Metric sizes aligned with BS 4518
JIS B 2401	Japan	Metric sizes with P/G/V series

Groove Design Notes

Condition	Guidance
Static	Squeeze 15-20%, groove width 1.15-1.25 x CS, minimum edge radius 0.1 mm
Dynamic	Squeeze 8-15%, groove width 1.20-1.30 x CS, lead-in chamfer 15-20°
Rotary	Squeeze 5-8%, groove width 1.25-1.35 x CS, surface speed <0.5 m/s

FAQ

Is BS 4518 the same as ISO 3601?

BS 4518 is dimensionally equivalent to ISO 3601-1 for most common sizes. O-rings specified to BS 4518 and ISO 3601 are interchangeable in general industrial applications.

What is the difference between BS 4518 and BS 1806?

BS 4518 is the metric standard (ID x CS in mm). BS 1806 was the older British inch-based standard, which has been largely superseded by AS568 for inch sizes.

Can I use BS 4518 O-rings in DIN 3771 grooves?

Yes. BS 4518 and DIN 3771 are dimensionally aligned for general industrial use. The groove dimensions specified in DIN 3771 Part 2 are fully compatible with BS 4518 O-rings.

What industries commonly reference BS 4518?

BS 4518 is commonly referenced in British and Commonwealth machinery, marine engineering, aerospace subcontractors and legacy hydraulic equipment manufactured in the UK.

Do you supply BS 4518 O-ring kits?

Yes. Our metric O-ring kits are organized to BS 4518 / ISO 3601 / DIN 3771 dimensions and are suitable for servicing British and European equipment.