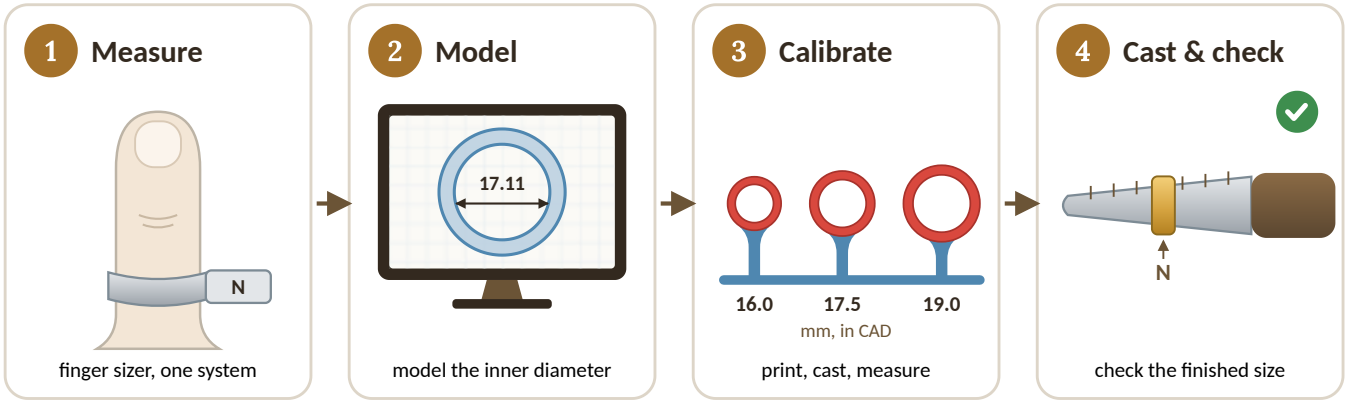
RING SIZING GUIDE

From finger size to a ring that fits.

A ring that comes out the wrong size rarely has a single cause. Size systems get mixed up, wide bands are sized like narrow ones, and castings come out a little smaller than the model. This guide gives you an accurate Australian size chart and a simple test that measures how your own printing, casting and clean-up change the size, so the rings you model are the rings that fit.



THE NUMBERS AT A GLANCE

1.25 mm
of inner circumference per whole letter size (BS 6820)

0.2 mm
of inner diameter is one half size

D = C ÷ π
inner diameter from inner circumference

½ size up
for wide bands, a common starting point

3 test bands
to measure your own shrink, never borrow it

WHAT YOU NEED

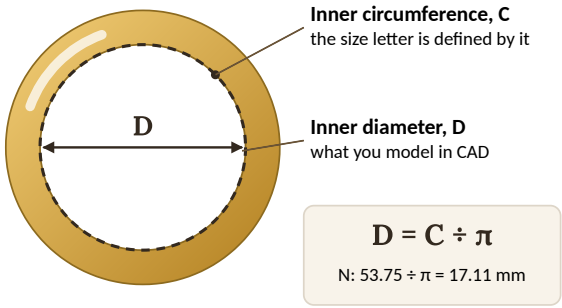
- **Finger sizers** — narrow and wide, one system
- **Ring mandrel** — marked in AU/UK letters
- **Digital callipers** — reading to 0.01 mm
- **Precise CAD** — jewellery or general
- **Test band file** — three known inner diameters
- **Sizing log** — one line per test

Before you start

- **One size system for everything.** Sizers, mandrel and the size table in your CAD all in AU/UK letters, or all in millimetres. Mixing systems is the quickest way to a ring that is a size out.
- **Think in inner diameter.** Letters are for talking to customers. In CAD and at the bench you work in millimetres of inner diameter.
- **Check your tools against each other.** Put a sizer ring on your mandrel. If it does not read its own size, find out which one is wrong before you trust either.

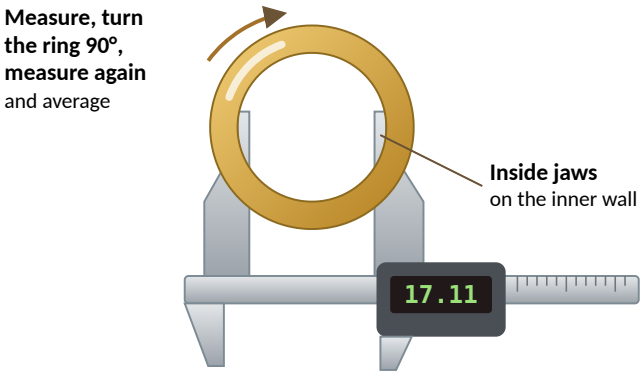
1 Measure the finger

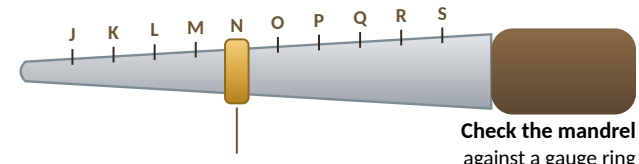
Australia uses the British letter scale: A to Z in half sizes, then Z+1, Z+2 and up (also written Z1, Z2). The British Standard BS 6820:1987 defines each letter by the ring's **inner circumference**: size A is 37.5 mm, and every whole letter adds 1.25 mm.



- **Use a finger sizer, not string or paper.** String stretches and paper curls with humidity, so both mislead.
- **Measure more than once.** Fingers swell in the heat, shrink in the cold and change through the day. For an important ring, measure on two occasions.
- **Check the knuckle.** The ring has to slide over it, then sit snug without spinning or falling off.
- **Match the sizer to the band.** A wide band fits tighter than a narrow one of the same size. Use wide sizers for wide bands. With narrow sizers only, a common starting point is about half a size up for bands of about 5 mm and wider.
- **Comfort fit feels looser.** A domed inside slides over the knuckle more easily. Some makers size it smaller, often half a US size (about one letter), but not on very wide bands. A comfort fit sizer of the same width takes out the guesswork.

MEASURING AN EXISTING RING





Slide it on without forcing.
Read at the middle of the band, turn the ring round, read again and average.

- **Round it first.** An oval ring reads small. True it on the mandrel, or measure both ways at 90° and average.
- **Callipers at the narrowest point,** which on a comfort fit ring is the crown of the dome. Half a size is only 0.2 mm of diameter, so read to 0.01 mm.
- **Check the mandrel now and then.** Mandrels wear in the sizes you use most, and sizers do not always agree with them. Use a gauge ring of known size.

Why published charts disagree

A UK half size (0.625 mm of circumference) is a touch smaller than a US quarter size (0.64 mm). Charts that pair each letter with a US size drift from the standard, by up to half a size or more at the large end. Keep your sizers, mandrel and CAD table in one system, and check them against the chart in this guide, which is computed from the standards.

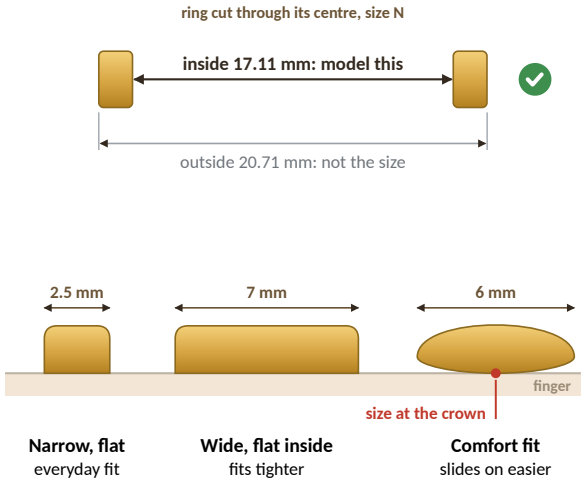
AUSTRALIAN RING SIZES TO BS 6820:1987

SIZE	CIRC. MM	DIAM. MM	US	SIZE	CIRC. MM	DIAM. MM	US
F	43.75	13.93	2.8	Q	57.50	18.30	8.2
F½	44.375	14.13	3.1	Q½	58.125	18.50	8.5
G	45.00	14.32	3.3	R	58.75	18.70	8.7
G½	45.625	14.52	3.6	R½	59.375	18.90	8.9
H	46.25	14.72	3.8	S	60.00	19.10	9.2
H½	46.875	14.92	4.0	S½	60.625	19.30	9.4
I	47.50	15.12	4.3	T	61.25	19.50	9.7
I½	48.125	15.32	4.5	T½	61.875	19.70	9.9
J	48.75	15.52	4.8	U	62.50	19.89	10.2
J½	49.375	15.72	5.0	U½	63.125	20.09	10.4
K	50.00	15.92	5.3	V	63.75	20.29	10.7
K½	50.625	16.11	5.5	V½	64.375	20.49	10.9
L	51.25	16.31	5.8	W	65.00	20.69	11.1
L½	51.875	16.51	6.0	W½	65.625	20.89	11.4
M	52.50	16.71	6.2	X	66.25	21.09	11.6
M½	53.125	16.91	6.5	X½	66.875	21.29	11.9
N	53.75	17.11	6.7	Y	67.50	21.49	12.1
N½	54.375	17.31	7.0	Y½	68.125	21.68	12.4
O	55.00	17.51	7.2	Z	68.75	21.88	12.6
O½	55.625	17.71	7.5	Z½	69.375	22.08	12.9
P	56.25	17.90	7.7	Z+1	70.00	22.28	13.1
P½	56.875	18.10	8.0	Z+2	71.25	22.68	13.6

Inner dimensions in mm. Letters from BS 6820:1987 (A = 37.5 mm, plus 1.25 mm per letter), diameter = circumference ÷ π. US from inner diameter in inches = 0.458 + 0.032 × size, to one decimal, so N is about US 6¾.

2 Model to the inner diameter

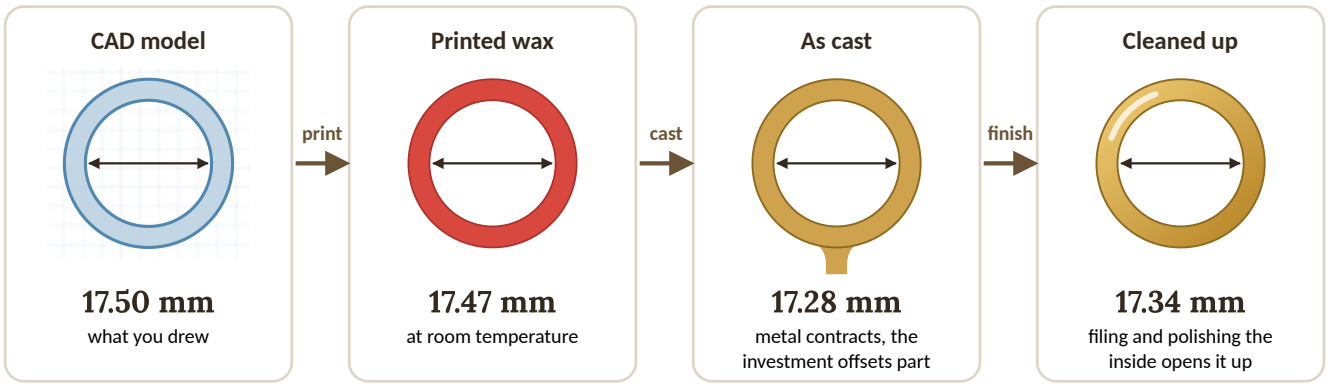
- **Inner diameter, in millimetres.** Take the finished size from the chart, then apply your own factor from step 3. Never size by the outside or the centre line of the band.
- **Check your software's size table.** If your CAD has a ring size tool, check which system and table it uses and compare a few sizes with this chart. If not, draw the inner circle yourself.
- **Width and profile change the fit, not the number.** Decide on any half size up or down when you measure the finger, then model that size.
- **Comfort fit: size at the crown.** The narrowest point of the domed inside sets the fit, so put the size diameter there.
- **Put the numbers in the file name,** such as "N 17.11 finished, modelled 17.26".



Band sections on the finger, to scale

3 Calibrate your own process

WHY CAST RINGS COME OUT SMALL

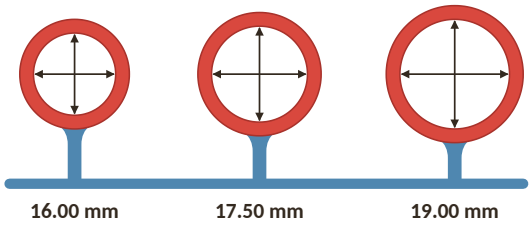


Example numbers for one test band. Yours will differ, which is the point of the test.

- **The pattern.** Flashforge specifies the WaxJet 51C at ±0.04 mm per 20 mm. Wax changes size with temperature far more than metal, so measure it at room temperature.
- **The metal.** Metal shrinks as it freezes (the sprue feeds that), then keeps contracting as it cools. A dental study measured gold alloys at 1.8 to 2.1%, and typical gold, silver and copper alloys contract by similar amounts.
- **The investment.** A cristobalite investment expands roughly 1% or a little more as it sets and heats, offsetting much of that. In one published test, castings came out 0.71% and 0.86% smaller than their patterns.
- **The clean-up.** Every 0.1 mm you file or polish off the inside wall adds 0.2 mm to the diameter, a half size.
- **The net result is yours.** Casters quote castings about 1 to 3% smaller than the wax, and bench jewellers report plain rings about half a size (0.2 mm) smaller. It depends on alloy, investment, burnout, flask temperature and clean-up. Rubber moulding figures do not apply.

THE TEST

1. **Print three plain bands** at known inner diameters across your usual sizes, such as 16.00, 17.50 and 19.00 mm, in your usual width. Mark each size on the outside.
2. **Measure the wax** at room temperature, both ways at 90°, and log the average.
3. **Cast them like normal work:** same alloy, investment, water ratio, burnout and flask temperature.
4. **Clean up the inside as you always do,** then measure again both ways.



CAD inner diameters, measured both ways

5. Work out your factor

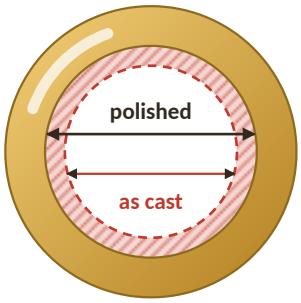
scale factor = CAD inner diameter ÷ finished inner diameter

Example: 17.50 ÷ 17.34 = 1.009. The other bands gave 16.00 ÷ 15.86 and 19.00 ÷ 18.83, also 1.009. To finish at N (17.11 mm), model at 17.11 × 1.009 = **17.26 mm**. Example numbers, not WaxJet data.

Same factor at all three sizes: scale the whole ring about its centre, in CAD or in your print software if it has a scale setting. **Same loss in millimetres at all three:** it is mostly clean-up, so add that amount to the inner diameter instead. Test again after any change of print material, alloy, investment or burnout.

4 Cast, clean up and check

- **Measure every finished ring** before you set stones, on the mandrel or with callipers, both ways.
- **Clean up the same way every time.** Your factor includes your clean-up. Heavier polishing inside makes rings bigger than your test bands.
- **Small fixes on plain bands.** Anneal, then stretch on the mandrel, up to about half a size. Bigger changes mean cutting out metal or adding it, and soldering.
- **Some designs are hard to resize:** eternity bands, and pavé or channel settings, above all with stones all round. Get these right in CAD, and send a plain try-on band of the same width first.



0.1 mm off the inside wall (drawn larger)
grows the diameter by 2 × 0.1 = 0.2 mm
N 17.11 mm → N½ 17.31 mm

COMMON MISTAKES

MISTAKE	WHAT IT CAUSES	DO THIS INSTEAD
Mixing size systems	A size or more out	One system, tools checked against each other
Trusting any online chart	Up to half a size out	Check it against the standard
Sizing by the outside of the band	A ring far too small	Model the inner diameter
Wide band, narrow sizer	Ring too tight	Wide sizer, or about ½ size up
Oval ring measured once	Reads small	Round it, measure both ways
Wax measured while warm	A wrong factor	Measure at room temperature
Borrowed shrink figure	Sizes off	Cast your own test bands
Process changed, no re-test	Sizes drift	Re-run the test bands

BEFORE YOU PRINT: CHECKLIST

- ☐ One size system for every tool
- ☐ Comfort fit sized at the crown
- ☐ Wax measured when cool
- ☐ Measured twice, knuckle checked
- ☐ Inner diameter modelled
- ☐ Finished ring measured both ways
- ☐ Wide band: wide sizer or ½ size up
- ☐ Your own factor applied
- ☐ Test re-run after any change

Make it easier in the design file

Keep the three test bands as a ready-to-print file, and put your workshop's factor in your CAD template or on the job sheet, so every designer applies the same number.

3D WERK
Local Flashforge WaxJet support in Sydney

Questions about your wax patterns?
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