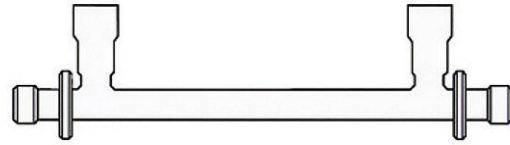


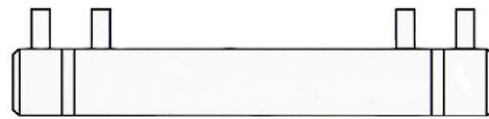
# Tubes and Cells Specification

**Series A1 Standard Single Sample Tubes in Stainless Steel** - with solid machine-turned brass end caps, plated for long life (the sample fluid comes into contact only with stainless steel and glass). The A1 tubes have two fillers, the sample is poured into one filler from an ordinary laboratory beaker, the second filler allows air to escape, minimising formation of bubbles. Any bubbles that do form can be removed easily by gently tilting the tube.



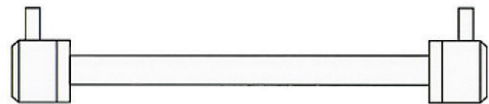
A1 Stainless Steel	Bore mm	Path Length mm	Approx Volume ml	For Flow Applications	Accept Luer Taper
8 x 200	8	200	10	No	No
8 x 100	8	100	5	No	No

**Series A2 Jacketed Flow Tubes and Small Bore Tubes** - for flow or single sample applications. The tube inlets and outlets are extremely close to the end windows so that in flow applications there is no dead volume where bubbles or sample can be trapped. This unique design feature means that the small bore versions are easy to fill - use a hypodermic syringe which fits the luer taper in the filler tubes of the 4 and 2.5mm bore sizes. All A2 tubes are made of stainless steel, with plated brass end caps and are robust and indestructible in normal use.



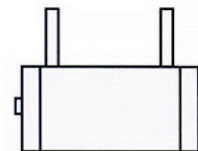
A2 Jacketed Stainless Steel	Bore mm	Path Length mm	Approx Volume ml	For Flow Applications	Accept Luer Taper
8 x 200	8	200	10	Yes	No
8 x 100	8	100	5	Yes	No
4 x 200	4	200	2.5	Yes	Yes
4 x 100	4	100	1.3	Yes	Yes
2.5 x 200	2.5	200	1.0	Yes	Yes
2.5 x 100	2.5	100	0.5	Yes	Yes

**Series A2 Unjacketed Small Bore Tubes** - maximum path length with minimum volume. If temperature control is required, select from the A2 jacketed series, which are identical except for the addition of the thermostatable jacket.



A2 Unjacketed Stainless Steel	Bore mm	Path Length mm	Approx Volume ml	For Flow Applications	Accept Luer Taper
4 x 200	4	200	2.5	Yes	Yes
4 x 100	4	100	1.3	Yes	Yes
2.5 x 200	2.5	200	1.0	Yes	Yes
2.5 x 100	2.5	100	0.5	Yes	Yes

**Series A4 Small Volume Cells** - stainless steel with two fillers which have female luer tapers. For single sampling, use a hypodermic syringe (with standard luer taper end) to fill the cells, air is forced out of the second filler, eliminating all bubbles. A4 cells are also very suitable for flow applications or for filling with an autosampler, as the cell design forces the sample fluid to flow across the window, ensuring complete purging with no dead volume. Optionally, we can supply A4 cells with screw couplings for microbore tubing.

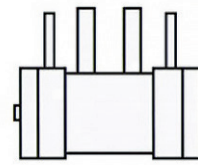


A4 Stainless Steel	Bore mm	Path Length mm	Approx Volume ml	For Flow Applications	Accept Luer Taper
5 x 50	5	50	1.0	Yes	Yes
5 x 25	5	25	0.5	Yes	Yes
5 x 10	5	10	0.2	Yes	Yes
5 x 5	5	5	0.1	Yes	Yes
2.5 x 25	2.5	25	0.125	Yes	Yes
2.5 x 10	2.5	10	0.05	Yes	Yes
2.5 x 5	2.5	5	0.025	Yes	Yes
1.5 x 10	1.5	10	0.02	Yes	Yes
1.5 x 5	1.5	5	0.01	Yes	Yes

## Tubes and Cells Specification - continued

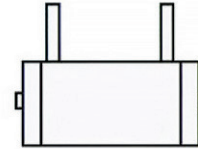
### Series A4 Jacketed - small volume cells.

The 50 and 25mm path length stainless steel A4 cells are available jacketed for sample temperature control using fluid flow from a thermocirculator. (If temperature control is required for a 5 or 10mm path length cell, a thermostatable 'shoe' is available).



A4 Jacketed Stainless Steel	Bore mm	Path Length mm	Approx Volume ml	For Flow Applications	Accept Luer Taper
5 x 50	5	50	1.0	Yes	Yes
5 x 25	5	25	0.5	Yes	Yes
2.5 x 25	2.5	25	0.0125	Yes	Yes

**Series A4-P Cells** - all the features of the A4 series cells, but made from glass-loaded PTFE, suitable for acid samples.



A4-P PTFE	Bore mm	Path Length mm	Approx Volume ml	For Flow Applications	Accept Luer Taper
5 x 50	5	50	1.0	Yes	Yes
5 x 25	5	25	0.5	Yes	Yes

**Series F5 Jacketed Tubes** - similar to the series A2 stainless steel jacketed flow tube, but with stainless steel funnel and siphon breaker fitted for rapid sampling, simply use a piece of plastic or similar tubing to run the siphon breaker outlet to a collection/waste vessel and pour samples one after another into the funnel. Each succeeding sample will displace the previous one, provided approximately 50ml of fluid is available (optimum sample volume depends on tube size and type of sample).



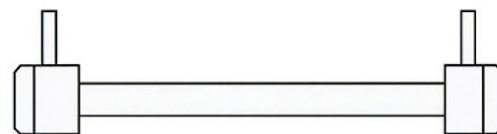
F5 Jacketed Stainless Steel	Bore mm	Path Length mm	Approx Volume ml	For Flow Applications	Accept Luer Taper
8 x 200	8	200	10	Funnel	No
8 x 100	8	100	5	Funnel	No

**Series F5 Unjacketed Tubes** - as series F5, for applications where sample temperature control is not required.



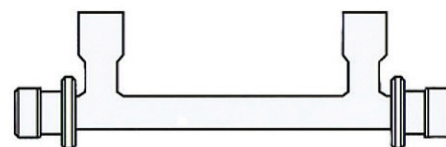
F5 unjacketed Stainless Steel	Bore mm	Path Length mm	Approx Volume ml	For Flow Applications	Accept Luer Taper
8 x 200	8	200	10	Funnel	No
8 x 100	8	100	5	Funnel	No

**Series P6 Pressure Tubes** - suitable for in-line flow use, will stand pressures up to 3 bar (not jacketed). All stainless steel construction. Inlet/outlet tube outside diameter 6.35mm (1/4 inch) suitable for standard 1/4 inch pressure fittings (such as 'Swagelok™' or 'Gyrollok™' - not supplied with the tube, but available from Optical Activity on request).



P6 Stainless Steel	Bore mm	Path Length mm	Approx Volume ml	For Flow Applications	Accept Luer Taper
8 x 200	8	200	10	Yes	No
8 x 100	8	100	5	Yes	No

**Series G7 Glass Single Sample Tubes** - similar in design to the series A1 tubes with two fillers, offered for customers measuring acid samples which would attack stainless steel. The glass tubes have stainless steel collars and good quality machine-turned, plated brass end caps. Samples are poured directly into the 15mm diameter glass fillers from a beaker.



G7 Glass	Bore mm	Path Length mm	Approx Volume ml	For Flow Applications	Accept Luer Taper
8 x 200	8	200	10	No	No
8 x 100	8	100	5	No	No