

-65 to 300°C

Stirred Liquid Baths

915 Parallel Tube

- Three Models Covering -65°C to 300°C
- Excellent Uniformity
- Uncertainties to 0.0005°C

The 915 is, no question, the finest stirred liquid parallel tube bath produced.

Using best practise ratio methods of comparison calibration uncertainties of less than 1mK can be obtained. The bath can also be used to realise ITS-90 Fixed Point Cells (Mercury to Tin Points) with absolute uncertainties to less than 1mK.

The Isotech Parallel Tube Liquid Bath is a development of the previous 815 model and has many features which enhance its performance and enable ease of operation. It is suitable for the calibration of Liquid in Glass Thermometers, Industrial Platinum Resistance thermometers, Standard Platinum Resistance Thermometers, Thermocouples and Industrial Temperature sensors. It can also be used with fixed point cells.

The temperature range of the standard 915 liquid calibration bath (915H) is 40°C to 300°C. When the 915 is used in conjunction with our external chiller the low temperature limit can be extended to -65°C.

The 915 has a wide temperature range using silicon oils and other suitable liquids. All components in contact with the liquid are of stainless steel and are insulated with materials which are completely safe in use. The 915 used in conjunction with a chiller, utilizes the latest ozone friendly gases.

Liquids are circulated by a propeller which mixes and forces the liquid through a specially designed orifice in the rear of the two parallel tubes. A variable speed motor optimizes the flow as the viscosity of the liquid changes. Below the orifice plate liquid is circulated over a mineral insulated heater and temperature sensors which control the temperature of the bath. The liquid flows up the calibration tube and weirs over the tube into a collection tray where it returns to the rear tube for recirculation. An angled side entry tube enables a refrigeration cooling probe to be inserted in the rear of the two parallel tubes.



The standard temperature controller has resolution from 0.01°C to 0.1°C which auto scales to suit the four digit display (all digits can be read with the Cal NotePad Software).

The standard controller can be replaced with a model offering a display resolution of 0.01°C over the whole range. This High Stability controller (Option 915/E) also offers better short term temperature stability, see table.

With the high cost of some silicon oils the 915's seven litre capacity makes it relatively inexpensive to fill compared to many other baths.

The changing of liquid is easily enabled by using the fitted drain. The design also allows for the expansion of liquids when being raised to a particular calibration temperature.

Model	915LW	915MWE	915H
Temp Range	-65°C – 40°C	-30°C – 40°C	30°C – 300°C
Volume	100mm diameter, 400mm deep (7 litres) or 100mm 530mm deep (Option 915D)		
Absolute Stability:			
High Stability Controller	±0.0006°C (Water, 50°C)		±0.002°C (Oil, 100°C)
Standard Controller	±0.004°C (Water, 50°C)		±0.007°C (Oil, 100°C)
Vertical Uniformity	±0.0002°C (Water, 50°C)		
Communications	Includes Serial Interface, PC Cable and Software		
Dimensions	580mm wide, 640mm deep, 1020mm high		
Weight	90kg	75kg	45kg
Safety	Compliant to CE Regulations		
Power	1kW (excluding Chiller) 108-130 or 208-240V, 50/60Hz		
How to Order	915LW	915MWE	915H

Refer to Evaluation Report for Full Details

For customers who require lower temperatures the range of the 915 bath can be extended by the addition of a chiller unit, see photograph below and the chart of model types available.

The chiller unit's probe (203mm long by 32mm diameter) is inserted into the angled side entry tube, accessible from the top of the cabinet, leaving the calibration volume of the bath unchanged.

The following chiller options are available, we recommend and supply the following:

Order Code	Description	Temperature Range min/max
915/10	Single Stage Wide Range Chiller	-30°C 40°C
915/11	Dual Stage Wide Range Chiller	-65°C 40°C

These chillers have both good reliability and wide operating ranges. They contain safe, ozone friendly gases.

The temperatures stated above assume an ambient within the range of 20°C to 25°C.

Controller Note:

The standard and enhanced controllers include features custom designed for Isotech by a world-leader in temperature control technology. Power feedback is used to stabilise against supply voltage changes, leading to greater stability. A digital filter circuit ensures high integrity of measurement correcting for drift, rejecting 50/60Hz pick-up and filtering out other sources of input noise.

The High Stability Controller (Option 915/E) has a resolution of better than 0.25µV which combined with powerful filtering provides outstanding temperature stability.

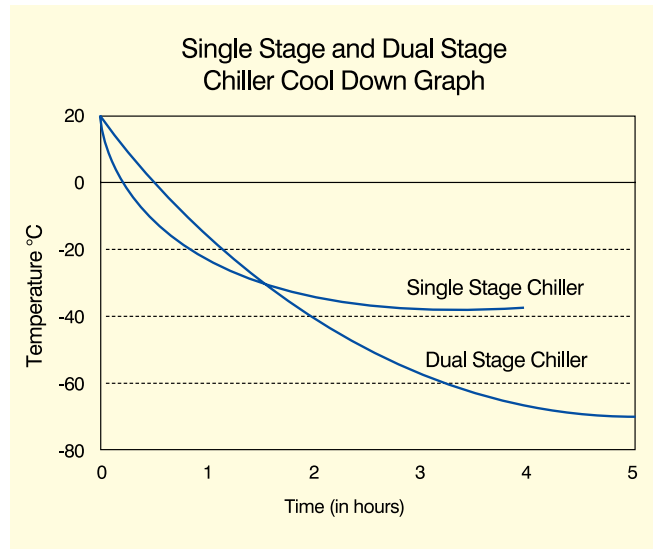
Important

Chiller probes must be removed from the Calibration Bath when used above their maximum temperature as stated above.

Health and Safety Notice

Rooms in which high temperature liquids are used should be ventilated or have extraction facilities. Although the overall temperature range of the bath is -65°C to 300°C the practical temperature range which can be achieved is dictated by the liquid being used and the ambient temperature.

Refer to 'Liquid Selection Guide' on page 73.



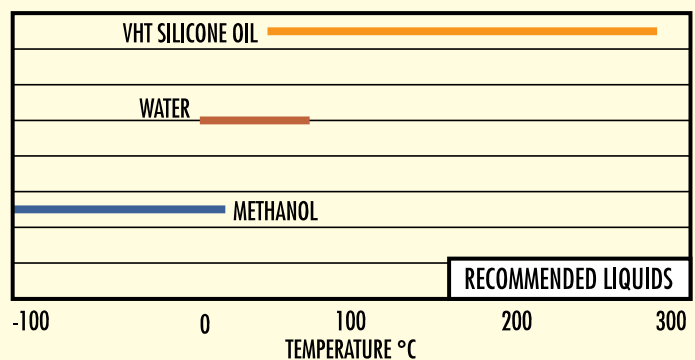
Accessories

- 915/01a Available for the Isotech Parallel Tube Bath is a variable depth aluminium equalising block containing four drilled pockets 8mm diameter by 120mm deep in which temperature sensors can be placed and is suitable for use with silicon oils.
The equalising block is suspended centrally within the calibration tube and is easily removed.
- 915/01b As an alternative to the above a copper equalising block, dimensionally the same as 915/01a, may be supplied. This block is more suitable for use in water and other liquids.
- 915/D Increased depth Calibration Tube Assembly. Working volume is 100mm diameter by 530mm deep. This variant allows for the calibration of very long thermometers, typically the calibration of long liquid in glass thermometers. See also 915/02.
- 915/02 This assembly will hold up to 12 liquid in glass thermometers (maximum diameter 12.7mm) radially and a centre mounted standard sensor. The assembly may be rotated allowing systematic calibration. The assembly is designed for partial or full immersion of thermometers.
- 915/03 Monocular and Support. Useful for viewing and magnifying the liquid column within the thermometer being calibrated. This ancillary piece of equipment is used in conjunction with 915/02 Liquid in Glass Thermometer Support Kit.
- 915/05 Calibration Tube Cover. The cover consists of a square enclosure containing baffles and fits over the calibration tube area insulating the circulating liquid from ambient air. Access for temperature probes remains at the top of the enclosure. An equalising block may also be supported from this assembly. Maximum operating temperature 180°C.
- 915/07 Medium Temperature Silicon Oil. Temperature Range 40°C to 180°C.
Flash Point 300°C.
- 915/08 High Temperature Silicon Oil. Temperature Range 150°C to 250°C.
Flash Point 315°C.
- 915/09 Very High Temperature Silicon Oil. Temperature Range 40°C to 288°C.
Flash Point 288°C.
- 915/E Controller provides 0.01°C resolution over the full temperature range with enhanced short term temperature stability.

NOTE: Read all safety information concerning liquids which you intend to use in the bath and use only approved liquids.

**Fixed Point Calibration ITS-90
Cell Basket Assemblies
(Excluding Cells)**

- 915-05-43 Small Mercury Cell Kit
- 915-05-44 Large Mercury Cell Kit
- 915-05-41 Small Water Triple Point Cell Kit
- 915-05-40 Large Water Triple Point Cell Kit
- 915-05-39 Small Gallium Cell Kit
- 915-05-38 Large Gallium Cell Kit
- 915-05-42 Slim Cell Kit



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