

2 Specifications and Environmental Conditions

2.1 Specifications

Table 2 Metrology Well Specifications

Specifications	9170	9171	9172	9173
Range	-45°C to 140°C (-49°F to 284°F)	-30°C to 155°C (-22°F to 311°F)	35°C to 425°C (95°F to 797°F)	50°C to 700°C (122°F to 1292°F)
Display Accuracy ²	±0.1°C full range		±0.1°C: 35°C to 100°C ±0.15°C: 100°C to 225°C ±0.2°C: 225°C to 425°C	±0.2°C: 50°C to 425°C ±0.25°C: 425°C to 660°C
Stability ¹	±0.005°C full range		±0.005°C: 35°C to 100°C ±0.008°C: 100°C to 225°C ±0.01°C: 225°C to 425°C	±0.005°C: 50°C to 100°C ±0.01°C: 100°C to 425°C ±0.03°C: 425°C to 700°C
Axial Uniformity ² (40 mm [1.6 in])	±0.08°C: -45°C to -35°C ±0.04°C: -35°C to 0°C ±0.02°C: 0°C to 50°C ±0.07°C: 50°C to 140°C	±0.025°C: -30°C to 0°C ±0.02°C: 0°C to 50°C ±0.05°C: 50°C to 155°C	±0.05°C: 35°C to 100°C ±0.09°C: 100°C to 225°C ±0.17°C: 225°C to 425°C	±0.09°C: 50°C to 100°C ±0.22°C: 100°C to 425°C ±0.35°C: 425°C to 700°C
Axial Uniformity ² (60 mm [2.3 in])	±0.1°C: -45°C to -35°C ±0.04°C: -35°C to 0°C ±0.02°C: 0°C to 50°C ±0.07°C: 50°C to 140°C	±0.025°C: -30°C to 0°C ±0.02°C: 0°C to 50°C ±0.07°C: 50°C to 155°C	±0.05°C: 35°C to 100°C ±0.1°C: 100°C to 225°C ±0.2°C: 225°C to 425°C	±0.1°C: 50°C to 100°C ±0.25°C: 100°C to 425°C ±0.4°C: 425°C to 700°C
Axial Uniformity ² (80 mm [3.15 in])	N/A	±0.05°C: -30°C to 0°C ±0.04°C: 0°C to 50°C ±0.15°C: 50°C to 155°C	±0.06°C: 35°C to 100°C ±0.12°C: 100°C to 225°C ±0.23°C: 225°C to 425°C	±0.15°C: 50°C to 100°C ±0.30°C: 100°C to 425°C ±0.45°C: 425°C to 700°C
Radial Uniformity	±0.01°C full range		±0.01°C: 35°C to 100°C ±0.02°C: 100°C to 225°C ±0.025°C: 225°C to 425°C	±0.01°C: 50°C to 100°C ±0.025°C: 100°C to 425°C ±0.04°C: 425°C to 700°C
Loading Effect (with reference thermometer)	±0.02°C: -45°C to -35°C ±0.005°C: -35°C to 100°C ±0.01°C: 100°C to 140°C	±0.005°C: -30°C to 0°C ±0.005°C: 0°C to 100°C ±0.01°C: 100°C to 155°C	±0.01°C full range	±0.02°C: 50°C to 425°C ±0.04°C: 425°C to 700°C
Hysteresis	±0.025°C		±0.04°C	±0.07°C
Operating Range ¹	5°C to 40°C (41°F to 104°F)			
Well Depth	160 mm (6.3 in)	203 mm (8 in)		
Resolution	0.001° C/F			
Display	LCD, °C or °F user-selectable			
Key Pad	Ten key with decimal and +/- key. Function keys, menu key, and °C/°F key.			
Cooling Time	44 min: 23°C to -45°C 19 min: 23°C to -30°C 19 min: 140°C to 23°C	30 min: 23°C to -30°C 25 min: 155°C to 23°C	220 min: 425°C to 35°C 100 min: 425°C to 100°C	235 min: 700°C to 50°C 153 min: 700°C to 100°C
Heating Time	32 min: 23°C to 140°C 45 min: -45°C to 140°C	44 min: 23°C to 155°C 56 min: -30°C to 155°C	27 min: 35°C to 425°C	46 min: 50°C to 700°C
Size	366 x 203 x 323 mm (14.4 x 8 x 12.7 in) [height x width x depth]			

917X Series Metrology Well
User's Guide

Specifications	9170	9171	9172	9173
Weight	14.2 kg (31.5 lb)	14.6 kg (32 lb)	12.2 kg (27 lb)	14.2 kg (31 lb)
Power	115 V ($\pm 10\%$), 50/60 Hz, 6.3 A 230 V ($\pm 10\%$), 50/60 Hz, 3.15 A		115 V ($\pm 10\%$), 50/60 Hz, 10 A 230 V ($\pm 10\%$), 50/60 Hz, 5 A	
Computer Interface	RS-232 Interface and 9930 Interface- <i>it control</i> software included			
Safety	OVERVOLTAGE (Installation) CATEGORY II, Pollution Degree 2 per IEC-61010-1:2001			

¹Specifications are given with an ambient temperature of 23°C (73.4°F). Range, display accuracy, axial uniformity, loading effect, cooling time, and heating time are subject to the ambient temperature and may be affected outside the "Full Accuracy" temperature range

²Refer to the Maintenance section in the User's Guide regarding maintaining the accuracy of the instrument.

Table 3 Built-in Readout Specifications

Specifications	Built-in Reference Input	
Temperature Range ¹	-200°C to 962°C (-328°F to 1764°F)	
Resistance Range	0Ω to 400Ω, auto-ranging	
Characterizations	ITS-90 subranges 4, 6, 7, 8, 9, 10, and 1 Callendar-Van Dusen (CVD): R0, ALPHA, DELTA, BETA	
Resistance Accuracy ¹	0Ω to 20Ω: 0.0005Ω 20Ω to 400Ω: 25 ppm (0.0025%)	
Temperature Accuracy ^{1, 2}	10Ω PRTs: ±0.013°C at 0°C ±0.013°C at 50°C ±0.014°C at 155°C ±0.014°C at 225°C ±0.019°C at 425°C ±0.028°C at 700°C	25Ω and 100Ω PRTs: ±0.005°C at -100°C ±0.007°C at 0°C ±0.011°C at 155°C ±0.013°C at 225°C ±0.019°C at 425°C ±0.027°C at 661°C
Temperature Resolution	0.001° C/F	
Operating Range	5°C to 40°C (41°F to 104°F)	
Calibration	NIST-traceable calibration provided	
Recommended Probes	5626-15-D or 5614-12-D3	

¹Specifications are given with an ambient temperature of 23°C (73.4°F). Resistance accuracy and temperature accuracy are subject to the ambient temperature and may be affected outside the "Full Accuracy" temperature range.

²The temperature range may be limited by the reference probe connected to the external "Probe" connection of the Metrology Well. Does not include sensor probe accuracy. It does not include probe uncertainty or probe characterization errors.

³The 5614-12-D's temperature range is 420°C.

2.2 Environmental Conditions

Although the instrument has been designed for optimum durability and trouble-free operation, it must be handled with care. The instrument should not be