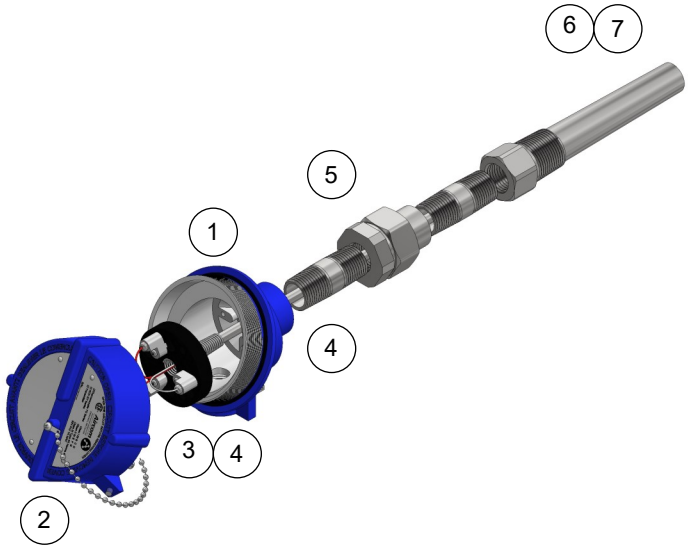
RT6 RTD Assembly

RT6



1. Connection Head or Junction box is the electrical enclosure that holds the terminal block for connecting the appropriate signal wires.

2. Tags on the connection head will identify the hazardous location approval rating of the enclosure as well the assembly if applicable.

3. Terminal Block is where the lead wires are terminated. Standard material is Bakelite. Other terminal block options such as ceramics available.

4. Spring Loading can be achieved by a spring attached to the terminal block or a spring loaded fitting in the extension (5) between the connection head and the thermowell.

5. Connection Extension is what attaches the connection head to the thermowell. It can be made up of an array of fittings, most common being an electrical conduit nipple-union-nipple.

6. Thermowells are optional parts that will protect and allow the sensor to be removed from process. Hazardous location explosion proof certified assemblies must come complete with a thermowell.

7. RTD Sensor Probe is housed inside the assembly

Temperature Limiting Factors of RTD assemblies will depend on the RTD construction option of the model code in addition to the rating of each component used in the sensors construction. Continuous temperature ratings of the components are listed in the model number selection.

Overview

The RT6 RTD assembly is a resistance temperature detector consisting of a RTD sensor probe, tapered thermowell, conduit nipples, union, spring loading terminal block, and connection head.

Features:

- RTD sensor probe is removable for verification, maintenance and replacement.
- Simple design that is used and accepted across multiple process industries.
- Tapered thermowell profile provides a good strength to response time balance.

Application:

RTD assemblies are used widely across almost any and every industrial process control environment.

Configuration Considerations

When configuring the RT6 model to suit your application it is important to consider the following:

- Hazardous location approval rating
- Connection head type
- Extension length
- RTD element (tolerance)
- RTD construction style
- Number of RTD elements
- Thermowell lengths
- Thermowell material and compatibility with process
- Thermowell NPT connection to process
- Minimum and maximum temperature of the process
- Maximum pressure
- Process conditions and effect on the assembly

Aircom Instrumentation Ltd.
9328 - 37 Avenue NW
Edmonton, AB T6E 5K3
Ph: (780) 434-6916
Sales@AircomInstrumentation.com
www.AircomInstrumentation.com

RT6 RTD Assembly Model Code

RT6 - T1 - T2 - T3 - T4 - T5 - T6 - T7 - T8 - T9 - T10

RT6	RTD Assembly with Tapered Threaded Thermowell

T1	Connection Head
2AL	Aluminum, 3/4" conduit, Bakelite terminal block
2ALT	Aluminum epoxy, 3/4" conduit, Bakelite terminal block
2SS	Stainless steel, 3/4" conduit, Bakelite terminal block
X	Not required
Other	Refer to page C-13 for details, styles and options

T2	Connection Extension Length "A" (inches)[2]
3	**3" installed length**
4	**4" installed length**
Other	Specify (inches)

T3	Element Type
A	**100Ω Pt. 385 Class A[3]**
B	100Ω Pt. 385 1/10 Class B
C	100Ω Platinum 392
D	120Ω Nickel 627 0.806Ω/ºC
E	10Ω Copper 427 0.039Ω/ ºC
F	1000Ω Pt. 385 Class A[3]

T4	Number of Elements
S	**Single element**
D	Dual element

T5	Lead Wire Configuration
2	2 Wire
3	**3 Wire**
4	**4 Wire**

T6	Sensor Probe Construction
LT	**Low temperature (-50 to 260ºC)**
HT	High temperature[3] (-50 to 482ºC)
ET	Extreme temperature[3] (-50 to 850°C)
VT	Vibration construction[3] (-50 to 482ºC)
CT	Cryogenic temperature (-200 to 260°C)

T7	Thermowell "H" Length (inches)[2]
"inches"	Specify length in inches

T8	Thermowell "U" Length (inches)[2]
"inches"	Specify length in inches

T9	Threaded Thermowell Material
304	304/304L stainless steel
316	**316/316L stainless steel**
310	310 stainless steel
600	Inconel 600
HAC	Hastelloy C276
Other	Consult factory

T10	Thermowell Process Connection
12	1/2" NPT
34	3/4" NPT
1	1" NPT

Assembly Hazardous Location Approval	Connection Head Series
Class I Groups A,B,C,D Class II Groups E,F,G Class III	CCI
Class I Groups B,C,D Class II Groups E,F,G Class III; Enclosure Type 4	AL, CAL
Class I Groups B,C,D Class II Groups E,F,G Class III; Enclosure Type 4X	ALT, SS
General Purpose	0AL, 4AL, 1CI, 2CI, 3CI, 0PY

NOTES:
1. Part number example: RT6-2ALT-3-A-S-3-LT-1.75-2.5-316-34
2. Reference page C-11 for part overview and C-12 for dimensions
3. Class A tolerance will only be applicable for temperatures under 300°C, Class B tolerance will apply to over 300°C
4. RT6 configuration includes tapered threaded thermowell
5. RTD probe sheath material is 316/316L stainless steel unless otherwise specified
6. Bold text indicates most common part selections

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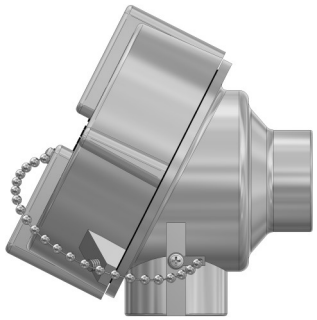
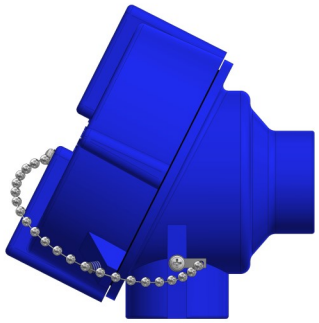
RT6 RTD Assembly Outline

Connection Head

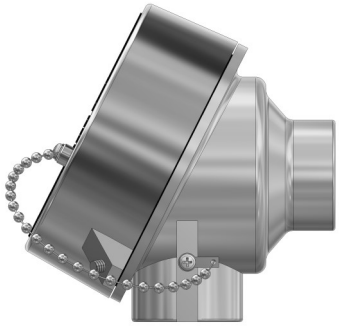
2AL



2ALT

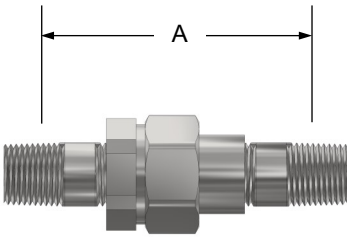


2SS

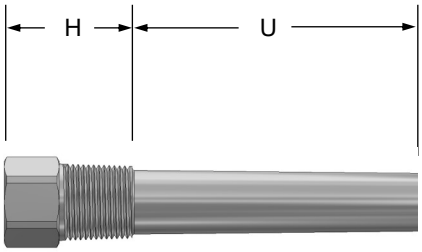


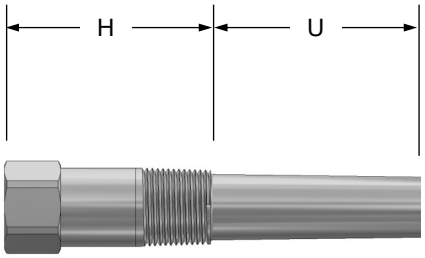
Refer to page C-13 for further connection head styles, options, and details

Connection Extension



Threaded Thermowell





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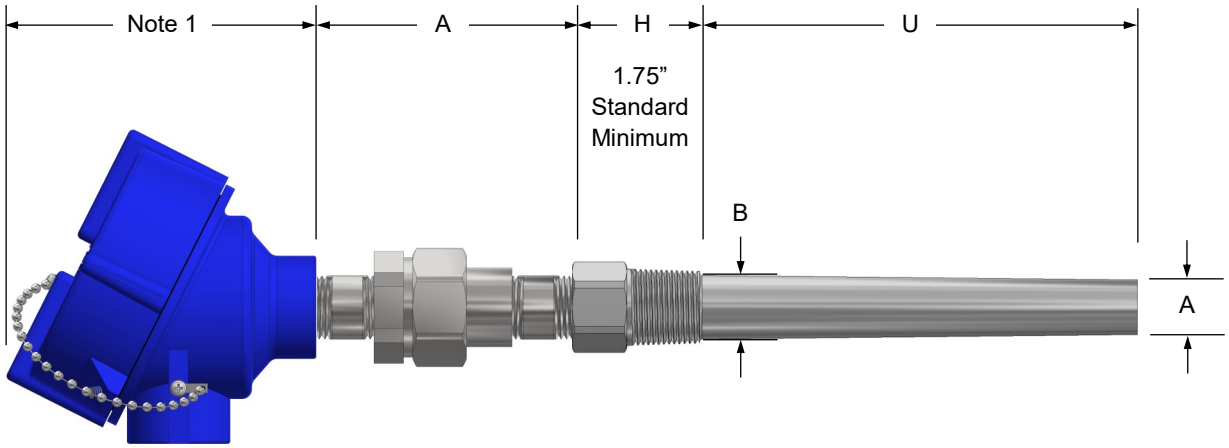
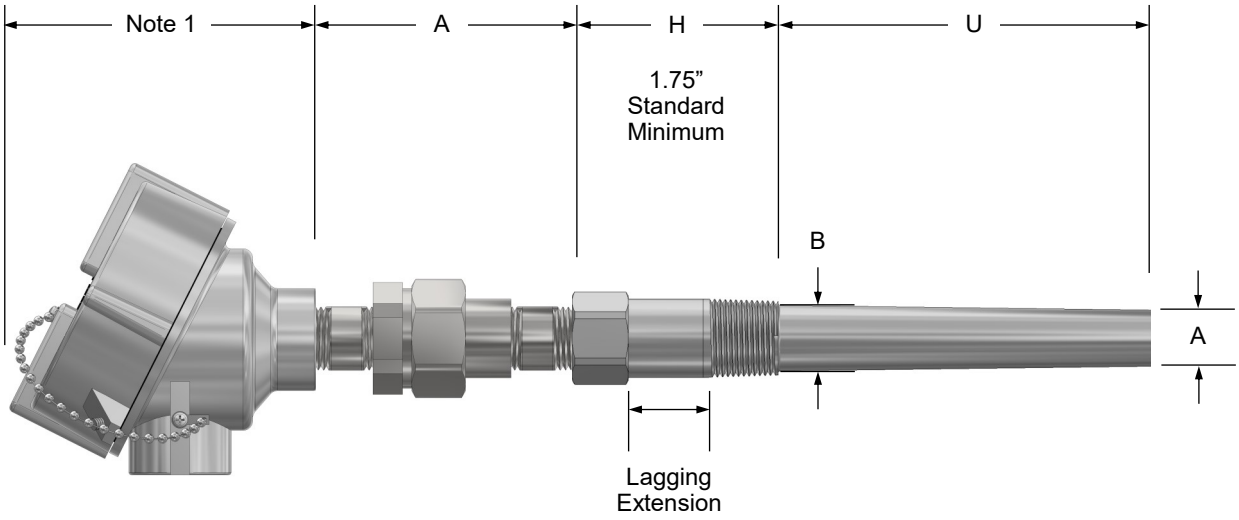
RT6 RTD Assembly Dimensions





NPT	“A” (Root OD)	“B” (Tip OD)
1/2”	0.625”	0.500”
3/4”	0.875”	0.750”
1”	1.063”	0.750”

NOTES:
1. Connection head dimensions on page B-19

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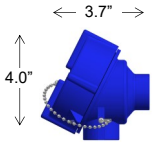
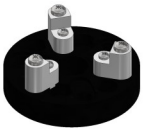
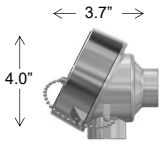
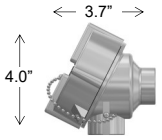
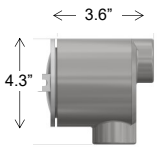
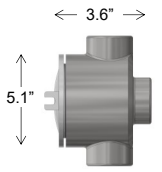
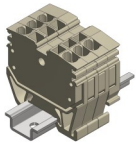
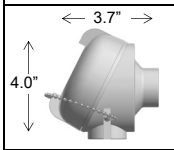
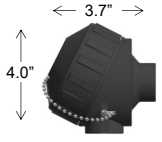
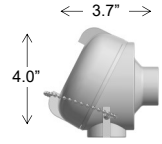
Model, Outline, and Dimensions

Outline & Dimensions	Model	Connection (NPT)		Terminal Block Options	Material	Assembly Electrical Approval[1]
		Instrument	Conduit			
	1ALT	1/2"	1/2"[2]	 Bakelite - standard Screw terminals to suit sensor configuration	Cast aluminum epoxy coated Buna O-ring	Class I Groups B,C,D Class II Groups E,F,G Class III Enclosure Type 4X
	2ALT	1/2"	3/4"			
	3ALT	3/4"	3/4"			
	1SS	1/2"	1/2"[2]		316 stainless steel Buna O-ring	
	2SS	1/2"	3/4"			
	3SS	3/4"	3/4"			
	1AL	1/2"	1/2"[2]	 Ceramic - optional Screw terminals to suit sensor configuration Add: "C" to connection head model number Example: 2ALTC	Cast aluminum Buna O-ring	Class I Groups B,C,D Class II Groups E,F,G Class III Enclosure Type 4
	2AL	1/2"	3/4"			
	3AL	3/4"	3/4"			
	1CAL[3]	1/2"[2]	1/2"[2]			
	2CAL[3]	3/4"	3/4"			
	1CCI[3]	1/2"[2]	1/2"[2]		Iron alloy Buna O-ring	Class I Groups A,B,C,D Class II Groups E,F,G Class III
	2CCI[3]	3/4"	3/4"			
	4CAL[3]	1/2"	2x 1/2"	 Clamp technology - optional DIN mounted clamp technology terminals to suit sensor configuration Add: "D" to connection head model number. Example: 2ALTD	Cast aluminum Buna O-ring	Class I Groups B,C,D Class II Groups E,F,G Class III; Enclosure
	3CAL[3]	3/4"	2x 3/4"			
	4CCI[3]	1/2"[2]	2x 1/2"[2]		Iron alloy Buna O-ring	Class I Groups A,B,C,D Class II Groups E,F,G Class III
	3CCI[3]	3/4"	2x 3/4"			
	4AL	1/2"	1/2"[2]		Cast aluminum Buna O-ring	General purpose
	0AL	1/2"	3/4"			
	1CI	1/2"	1/2"[2]	Ceramic - oval terminal block Screw terminals to suit sensor configuration	Iron alloy Buna O-ring	
	2CI	1/2"	3/4"			
	3CI	3/4"	3/4"			
	0PY	1/2"	3/4"	Terminal block integral to connection head Screw terminals to suit sensor configuration	Polypropylene	

NOTES:
1. Electrical approval noted is for the temperature sensor assembly not the connection head itself
2. May be supplied with an approved reducer bushing
3. Model connection extension will include a spring loaded fitting in place of one nipple

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