Anatomy of a Part Number

Introduction

The Barber-Colman part number (model number) is made up of fifteen fields. Each field, or series of fields, contains a code, or codes, that represents a specific feature of the product.

This section of the book is devoted to sensors designed primarily for industrial application. Two types of sensors are listed: thermocouples and resistance temperature detectors.

This section tells you how to identify the specifications of a Barber-Colman thermocouple from the part number (model number).

Analyzing a Part Number

Fields 1, 2,

Type of Sensor
The code of the first one or two fields identifies the type of sensor. The code in field 1 of a thermocouple part number indicates the calibration (type) of wire. The first field of an RTD contains the letter R; the code in field 2 represents the resistance coefficient

Model No. ☐☐☐☐-☐☐☐☐☐-☐☐☐-☐-☐☐

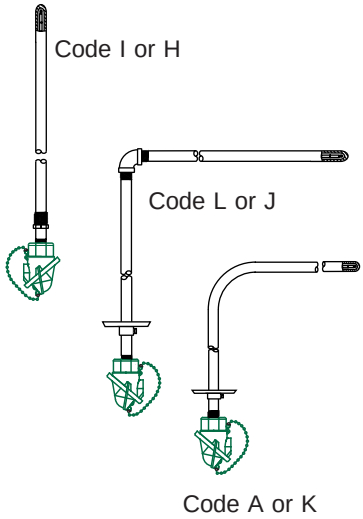
	Base Metal T/C					Noble Metal T/C				RTD		
Code	J	K	E	T	N	B	S	F	C	R2	R5	R7
	Field 1									Fields 1, 2		

Fields 2, 3

Fields 2 and 3 of a thermocouple part number represent the gauge (size) of the wire. Field 3 of an RTD part number represents the accuracy and temperature rating of the sensor.

Field 4

Number of Elements, Junction Style and Tube Configuration
This is a key identification code of an industrial thermocouple part number. The standard junction style of an industrial thermocouple is considered to be twisted, grounded.



Model No. ☐☐☐☐-☐☐☐☐☐-☐☐☐-☐-☐☐

The code in field 4 identifies the junction style and is unique to a tube configuration:
Straight Tube ..... Pages 3-4, 3-12, 3-14, 3-16, 3-18, 3-20
I - Single, twisted, grounded
H - Dual, twisted, grounded
90° Elbow Tube ..... Page 3-7
L - Single, twisted, grounded
J - Dual, twisted, grounded
90° Bent Tube ..... Page 3-10
A - Single, twisted, grounded
K - Dual, twisted, grounded

Field 4 code of an RTD part number
identifies the number of elements and wires ..... Page 3-22

Analyzing a Part Number (continued)

Fields 5, 6

Protection Tube (Diameter, Material)
Barber-Colman provides industrial thermocouples with metal pipe, metal tube, and ceramic tube protection, in diameters up to 1-3/4". Noble metal thermocouples are available with single, dual and triple tube protection. See compatibility table under "Thermocouple Elements" in the "Wire and Accessories" section.

Industrial RTDs are available with and without flexible lead protection.

Field 7

Cold End Termination (Thermocouple); or Flexible Lead Material (RTD)
Your thermocouple can be fitted with an aluminum or cast iron head for either general purpose or weatherproof application.

In an RTD part number, this field indicates the type of material of the flexible lead protection – none, armor, or stainless steel overbraid.

Cold end termination in an RTD part number is in Fields 14, 15.

Fields 8, 9

Hot Length (or Hot Leg)
This field is the length, in inches, of the portion of the protection tube that holds the junction. In a straight configuration this is the entire tube. In a 90° configuration, it is from the elbow or bend to the tip.

Field 10

Hot End (Thermocouple); or Flexible Lead Length (RTD)

Model No. ☐☐☐☐ - ☐☐☐☐☐ - ☐☐☐ - ☐ - ☐☐

Base Metal
0 - Straight tube, closed end
8 - Straight tube, open end
Noble Metal
2 - Ceramic primary tube; silicone carbide outer tube
3 - Ceramic primary and secondary tube; silicone carbide outer tube
6 - Ceramic primary tube; Inconel 601 outer tube
RTD
Fields 10, 11, 12 is the length, in inches, of the flexible lead specified in Field 7.

Fields 11, 12

Cold Length (CL) (90° Configuration); or Tube Seal (Noble Metal); or Flexible Length (RTD)
For a base metal thermocouple in a 90° tube, these fields indicate the length, in inches, from the head (cold end termination) to the elbow or bend. In a noble metal thermocouple part number, the code in field 11 indicates whether or not the tube is sealed,and Field 12 is code 0.

Fields 10, 11, 12 of the RTD part number is the length, in inches, of the flexible lead specified in Field 7

Field 13

Mounting Fitting
The code in this field indicates they type of process mount.

Fields 14, 15

Mounting Fitting Location ("U" Dimension); or Cold End Termination (RTD)
The code in this field indicates, in inches, the location of the welded bushing on a metal protection tube. Or, in an RTD part number, it indicates the type of cold end termination.

Element Compatibility

The element you select from Field 4 of the tables on the following pages must be compatible with the protection tube selectedfrom Fields 5, 6 and the wire gauge selected from Fields 2, 3. The following table shows the element codes (Field 4) that are compatible with each protection tube/wire gauge combination.
Note: "I" is the letter "I," not the numeral "1."

Fields 5, 6. Protection Tube		Fields 2, 3. Wire Gauge Codes		
Code / Description		08 or 09	14 or 15	20 or 21
01	Cast iron coated	I, 2, 3, 4, H, 5, 6, L, C, E, F, J, G, M	I, 2, 3, 4, H, 5, 6, L, C, E, F, J, G, M	
02	Black steel, 1/4" NPS	n/a		
03	Black steel, 1/2" NPS	I, 2, 3, 4, L, C, E, F, A, R, S, T		
04	Black steel, 3/4" NPS	All except K, U, V	All	
05	Black steel, 1" NPS			
06	Welded steel, 1/8" NPS	n/a	n/a	I, 2, 3, 4, H, 5, 6, L, C, E, F, J, G, M
07	Welded steel, 1/4" NPS	n/a	I, 2, 3, 4, H, 5, 6, L, C, E, F, J, G, M	
08	Welded steel, 1" NPS	All except K, U, V	All	
09	Cast iron	I, 2, 3, 4, H, 5, 6, L, C, E, F, J, G, M	I, 2, 3, 4, H, 5, 6, L, C, E, F, J, G, M	
11	446 SS, 3/4" NPS	All except K, U, V	All except A, R, S, T	
12	446 SS, 1/2" NPS	I, 2, 3, 4, L, C, E, F, A, R, S, T		
13	446 SS, 1" NPS	All except K, U, V		
14	Pure nickel, 1/2" NPS	I, 2, 3, 4, L, C, E, F		
15	Pure nickel, 3/4" NPS	I, 2, 3, 4, H, 5, 6, L, C, E, F, J, G, M		
16	Inconel 601, 1/2" NPS	I, 2, 3, 4, L, C, E, F, A, R, S, T		
17	Inconel 601, 3/4" NPS	All except K, U, V		
18	304 SS, 1/4" NPS	n/a	I, 2, 3, 4, H, 5, 6, L, C, E, F, J, G, M	
19	304 SS, 1/2" NPS	I, 2, 3, 4, L, C, E, F, A, R, S, T	All	
21	Silicon carbide, 1-3/4" o.d.	I, 2, 3, 4, H, 5, 6, L, C, E, F	I, 2, 3, 4, H, 5, 6, L, C, E, F, J, G, M	
22	Silicon carbide w/collar	I, 2, 3, 4, H, 5, 6	n/a	I, 2, 3, 4, H, 5, 6, L, C, E, F, J, G, M
23	H.T. Mullite, 3/8" o.d.	n/a	I, 4, L, F	I, 4, H, 5, 6, L, F, G, M
24	H.T. Mullite, 11/16" o.d.	I, 4, L, F	I, 4, H, 5, 6, L, F, J, G, M	
25	H.T. Mullite, 1" o.d.	I, 4, H, 5, 6, L, F, J, G, M		
26	Incoloy 800, 1/2" NPS	I, 2, 3, 4, L, C, E, F, A, R, S, T	I, 2, 3, 4, H, 5, 6, L, C, E, F, J, G, M	
27	Incoloy 800, 3/4" NPS	I, 2, 3, 4, H, 5, 6, L, C, E, F, J, G, M		
28	Metal ceramic, 7/8" o.d.	I, L, F		
29	Aluminum oxide, 3/8" o.d.	n/a	I, 4, L, F	I, 4, H, 5, 6, L, F, J, G, M
30	Aluminum oxide, 11/16" o.d.	I, 4, L, F	I, 4, H, 5, 6, L, F, J, G, M	
31	Aluminum oxide, 1" o.d.	I, 4, H, 5, 6, L, F, J, G, M		
41	Ceramic clad	I, 2, 3, 4, L, C, E, F	I, 2, 3, 4, H, 5, 6, L, C, E, F, J, G, M	
42	Ceramic clad w/spring			
44	316 SS, 1/2" NPS	I, 2, 3, 4, L, C, E, F, A, R, S, T	All	
46	Silicon carbide pipe, reinforced	I, 2, 3, 4, L, C, E, F	I, 2, 3, 4, H, 5, 6, L, C, E, F, J, G, M	
47	316 SS, 3/4" NPS	All except K, U, V	All	
65	304 SS, 0.160" x 0.185"	n/a	n/a	I
66	304 SS, 0.194" x 0.250"			
67	304 SS, 0.305" x 0.375"	n/a	I, 4	I, 2, 3, 4, H, 5, 6
68	316 SS, 0.160" x 0.185"	n/a	n/a	I, 4
69	316 SS, 0.194" x 0.250"			
70	316 SS, 0.305" x 0.375"	n/a	I	I, 2, 3, 4, H, 5, 6
72	Inconel 601, 0.194" x 0.250	n/a	n/a	I
73	Inconel 601, 0.305" x 0.375"	n/a	I	I, 2, 3, 4, H, 5, 6