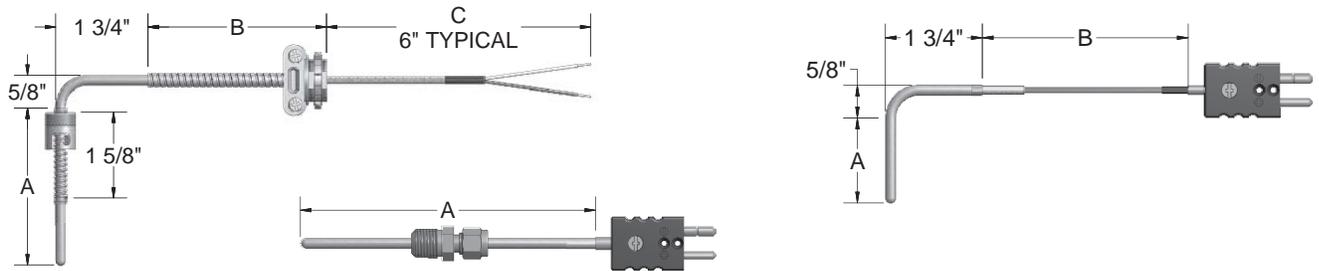The thermocouples described below are commonly used in the plastic process industry. These assemblies can be used in many general applications where a 1/8" NPT fitting is preferred by utilizing either a compression fitting or a bayonet adapter. These sensors are constructed using a 316 stainless steel sheath and insulated thermocouple wire.

ORDER CODES

1-1	1-2	1-3	2	3	4	5

Example Order Number: **JP3** **3** **U** - **04** - **13A** - **F1A012** - **2,** **BX**

1-1 Thermocouple Type

CODE		SHEATH O.D. (inches)
SINGLE	*DUPLEX*	
JP2		1/8
JP3	JJP3	3/16
JP4	JJP4	1/4
Other Element Types		
For type E, K or T thermocouples, replace J in order code with required letter designation.		

1-2 Bend Angle

CODE	DESCRIPTION
1	Straight
2	45 degree bend
3	90 degree bend

1-3 Junction

Grounded junctions supplied as standard. Insert "U" only when requiring an ungrounded junction.

2 "A" Dimension

Insert 2 digit "A" length in inches (1" min).
EX: 04 = 4 inch "A" dimension.

3 Sheath Fittings

CODE	DESCRIPTION	NOMINAL LENGTH (inches)
00	No fitting	
13A[1]	7/16" I.D. single slot spring-loaded bayonet fitting	1 5/8
15A	1/8" NPT brass one time adjustable comp. fitting	1 1/8
01A	1/8" NPT SS one time adjustable comp. fitting	1 1/4
16A	Comp. fitting with bayonet cap and spring - 1/8" O.D. sheaths only (2 5/8" min. 'A' dimension)	2 3/8
[1] 13A are not available with 1/4" O.D. sheaths		

### 4 Extension Leadwire Type and "B"+"C" Dimension

CODE[1]	DESCRIPTION
000	No leadwire, connector attached to sheath
F1 _ _ _	Fiberglass insulation - solid conductor
F1A _ _ _	Fiberglass insulation - solid conductor - flexible armor
F1B _ _ _	Fiberglass insulation - solid conductor - stainless steel overbraid
F3 _ _ _	Fiberglass insulation - stranded conductor
F3A _ _ _	Fiberglass insulation - stranded conductor - flexible armor
F3B _ _ _	Fiberglass insulation - stranded conductor - stainless steel overbraid
T1 _ _ _	Fluoropolymer insulation - solid conductor
T1A _ _ _	Fluoropolymer insulation - solid conductor - flexible armor
T3 _ _ _	Fluoropolymer insulation - stranded conductor
T3A _ _ _	Fluoropolymer insulation - stranded conductor - flexible armor

[1] Insert 3 digit "B" length in inches. EX: F1036=36" "B" length; for assemblies requiring other than the standard 6" "C" dimension, insert 3 digit "C" length in inches after "B" dimension. EX: F1A036-012=36" "B " length with additional 12" leads beyond armor.

5 Terminations and Options

CODE	DESCRIPTION
0	Leads not stripped
2	2" split leads, 1/4" stripped
3	2" split leads with spade lugs
4	Standard plug
5	Standard jack
6	Miniature plug
7	Miniature jack
8	2" split leads with 1/4" female disconnect lugs
Options	
MC	Mating connector
CC	Cable clamp
BX	Box connector

The RTDs described below are those most commonly used in the plastic process industry. These assemblies can be used in many general applications where a 1/8" NPT fitting is preferred by utilizing either a compression fitting or a bayonet adapter. These assemblies are supplied standard using 316 stainless steel sheath material and a 100 Ω platinum element with a temperature coefficient of 0.003 85 ºC^{-1} (IEC Class B). Elements of other materials, values, and tolerances are available upon request.
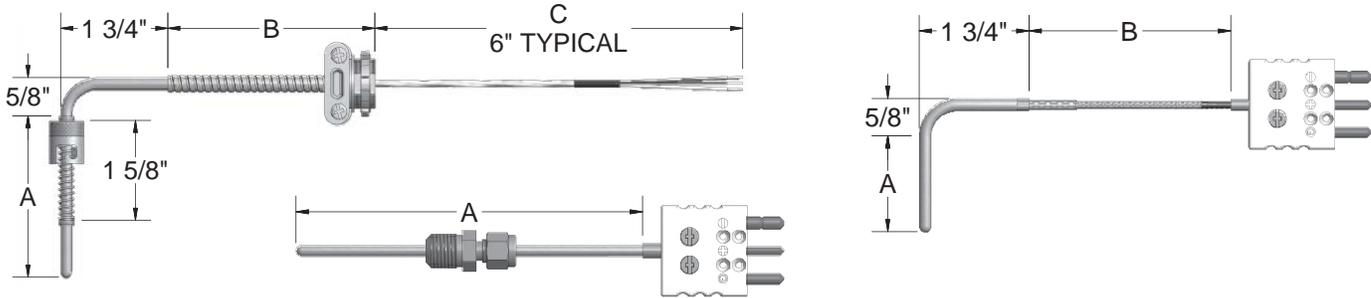
ORDER CODES

Example Order Number: **RBF1853P** | **3** | **3** - **06** - **13A** - **F3B012** - **2, BX**

(1-1) (1-2) (1-3) (2) (3) (4) (5)

1-1 RTD Element

CODE		ELEMENT CONNECTION
SINGLE	*DUPLEX [1]*	
RBF1853P	RBF2853P	3-wire
RBF1852P	RBF2852P	2-wire
[1] Duplex: no 1/8" O.D.; 3/16" O.D. limited to polyimide or fluoropolymer leadwire.		

1-2 Sheath Diameter

CODE	DESCRIPTION (inches)
2[1]	1/8
3	3/16
4	1/4
[1] Only available with polyimide or fluoropolymer leads.	

1-3 Bend Angle

CODE	DESCRIPTION
1	Straight
2	45 degree bend
3	90 degree bend

2 "A" Dimension

Insert 2 digit "A" length in inches (1" min). EX: 06 = 6 inch "A" dimension.

3 Sheath Fittings

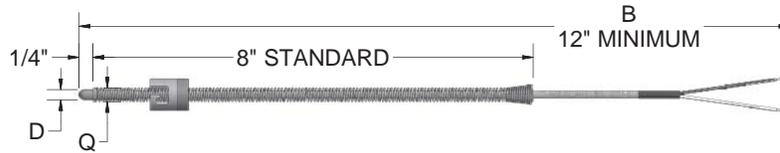| CODE	DESCRIPTION	NOMINAL LENGTH (inches)
00	No fitting	
13A[1]	7/16" I.D. single slot spring loaded bayonet ftg	1 5/8
15A	1/8" NPT brass one time adjustable comp. ftg	1 1/8
01A	1/8" NPT SS one time adjustable comp. fitting	1 1/4
16A	Comp. fitting with bayonet cap and spring - 1/8" O.D. sheaths only (2 5/8" min. 'A' dimension)	2 3/8
[1] 13A are not available with 1/4" O.D. sheaths		

4 Extension Leadwire Type and "B"+"C" Dimension

CODE[1]	DESCRIPTION
000	No leadwire, connector attached to sheath
F3 _ _ _	Fiberglass insulation - stranded conductor
F3A _ _ _	Fiberglass insulation - stranded conductor - flexible armor
F3B _ _ _	Fiberglass insulation - stranded conductor - stainless steel overbraid
F3J _ _ _	Fiberglass insulation - individual leads - stranded conductor (12" limit)
T3 _ _ _	Fluoropolymer insulation - stranded conductor
T3A _ _ _	Fluoropolymer insulation - stranded conductor - flexible armor
K3 _ _ _	Polyimide insulation - stranded conductor
K3A _ _ _	Polyimide insulation - stranded conductor - flexible armor
K3B _ _ _	Polyimide insulation - stranded conductor - stainless steel overbraid

[1] Insert 3 digit "B" length in inches. EX: F1036=36" "B" length; for assemblies requiring other than the standard 6" "C" dimension, insert 3 digit "C" length in inches after "B" dimension. EX: F1A036-012=36" "B" length with additional 12" leads beyond armor.

5 Terminations and Options

CODE	DESCRIPTION
0	Leads not stripped
2	2" split leads, 1/4" stripped
3	2" split leads with spade lugs
4	Standard plug
5	Standard jack
6	Miniature plug
7	Miniature jack
8	2" split leads with 1/4" female disconnect lugs
Options	
MC	Mating connector
CC	Cable clamp
BX	Box connector

Pyromation inc.

The JB series spring-adjustable immersion thermocouple has a bayonet cap on an 8" spring (standard) to allow for immersion depths of 1/2" to 7". This assembly is used in a variety of applications (with a bayonet adapter) where ease of installation and quick disconnect is preferred. Standard and metric size bayonet caps and adapters are available.

ORDER CODES

Example Order Number: JB A 3 U - F3B024 - 2, LS

1-1 JB 1-2 A 1-3 3 1-4 U 2 F3B024 3 2, LS

1-1 Thermocouple Type

CODE		TYPE
SINGLE	**DUPLEX[1]**	
JB	JJB	J
Other Element Types		

For type K or T thermocouples, replace J in order code with required letter designation.
[1] Duplex not available with 1/8" O.D. tip.

1-2 Bayonet Cap Style

CODE	DESCRIPTION
A	7/16" I.D. single slot (standard) (not available with Opt. 4 tip)
B	12 mm I.D. dual slot
C	12 mm O.D. dual pin
E	15 mm I.D. dual slot

1-3 Tip and Spring Diameters

CODE	TIP O.D. 'D' DIM. (inches)	SPRING O.D. 'Q' DIM. (inches)
2	0.125	0.203
3	0.188	0.263
4	0.250	0.324

1-4 Junction

Grounded junctions supplied as standard. Insert "U" only when requiring an ungrounded junction.
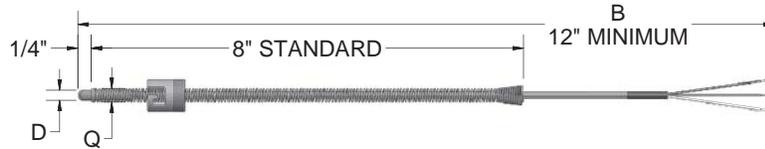
3 Terminations and Options

CODE	DESCRIPTION
0	Leads not stripped
2	2" split leads, 1/4" stripped
3	2" split leads with spade lugs
4	Standard plug
5	Standard jack
6	Miniature plug
7	Miniature jack
8	2" split leads with 1/4" female disconnects
Options	
MC	Mating connector
CC	Cable clamp
BX	Box connector
LS	12" long spring (3/16" O.D. only)

2 Extension Leadwire "B"

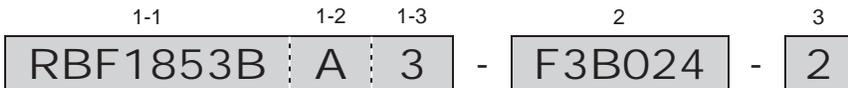| CODE[1]	DESCRIPTION
F3B_ _ _	Fiberglass insulation - stranded conductor - stainless steel overbraid
[1] Insert 3 digit "B" length in inches. EX: F3B024=24" "B" length.	

This RTD spring-adjustable immersion sensor has a bayonet cap on an 8" spring (standard) to allow for immersion depths of 1/2" to 7". This assembly is used in a variety of applications (with a bayonet adapter) where ease of installation and quick disconnect is preferred. Standard and metric size bayonet caps and adapters are available. These assemblies are supplied standard using 316 stainless steel sheath material and a 100 Ω platinum element with a temperature coefficient of 0.003 85 ⁰C^{-1} (IEC Class B). Elements of other materials, values, and tolerances are available upon request.

ORDER CODES

Example Order Number:

1-1	1-2	1-3		2		3
RBF1853B	A	3	-	F3B024	-	2

1-1 RTD Element Type

CODE		ELEMENT CONNECTION
SINGLE	*DUPLEX[1]*	
RBF1853B	RBF2853B	3-wire
RBF1852B	RBF2852B	2-wire

[1] Duplex assemblies available, with polyimide wire only.

1-2 Bayonet Cap Style

CODE	DESCRIPTION
A	7/16" I.D. single slot (standard) (not available with Opt. 4 tip)
B	12 mm I.D. dual slot
C	12 mm O.D. dual pin
E	15 mm ID dual slot

1-3 Tip and Spring Diameters

CODE	TIP O.D. "D" DIM. (inches)	SPRING O.D. "Q" DIM. (inches)
3	0.188	0.263
4	0.250	0.324

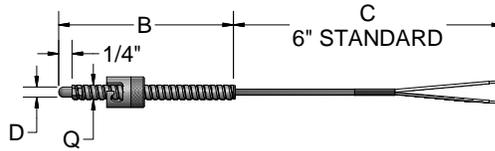### 2 Extension Length "B"

CODE[1]	DESCRIPTION
F3B_ _ _	Fiberglass insulation - stranded conductor - stainless steel overbraid
K3B _ _ _	Polyimide insulation - stranded conductor - stainless steel overbraid

[1] Insert 3 digit "B" length in inches.
EX: F3B024=24" "B" length.

3 Terminations and Options

CODE	DESCRIPTION
0	Leads not stripped
2	2" split leads, 1/4" stripped
3	2" split leads with spade lugs
4	Standard plug
5	Standard jack
6	Miniature plug
7	Miniature jack
8	2" split leads with 1/4" female disconnects
Options	
MC	Mating connector
CC	Cable clamp
BX	Box connector
LS	12" long spring (3/16" O.D. only)

The JA series armor-adjustable immersion thermocouple has a bayonet cap on the flexible armor and allows for immersion for the entire specified 'B' dimension. This assembly is used in a variety of applications (with a bayonet adapter) where ease of installation and quick disconnect is preferred. Standard and metric size bayonet caps and adapters are available.

ORDER CODES

Example Order Number: JA A 3 U - F3A024 - 2, BX

(1-1) (1-2) (1-3) (1-4) — (2) — (3)

1-1 Thermocouple Type

CODE		TYPE
SINGLE	*DUPLEX*	
JA	JJA	J
KA	KKA	K

Other Element Types

For type E and T thermocouples, replace J in order code with required letter designation.

1-2 Bayonet Cap Style

CODE	DESCRIPTION
A	7/16" I.D. single slot (standard)
B	12 mm I.D. dual slot
C	12 mm O.D. dual pin
D	Positive seat indicating
E	15 mm I.D. dual slot

1-3 Tip and Flex Armor Diameters

CODE	TIP O.D. "D" DIM. (inches)	FLEX O.D. "Q" DIM. (inches)
2	0.125	0.210
3	0.188	0.275

1-4 Junction

Grounded junctions supplied as standard. Insert "U" only when requiring an ungrounded junction.

3 Terminations and Options

| CODE	DESCRIPTION
0	Leads not stripped
2	2" split leads, 1/4" stripped
3	2" split leads with spade lugs
4	Standard plug
5	Standard jack
6	Miniature plug
7	Miniature jack
8	2" split leads with 1/4" female disconnects
Options	
MC	Mating connector
CC	Cable clamp
BX	Box connector

2 Extension Leadwire "B" + "C"

CODE[1]	DESCRIPTION
F1A_ _ _	Fiberglass insulation - solid conductor - flexible armor
F3A_ _ _	Fiberglass insulation - stranded conductor - flexible armor

[1] Insert 3 digit "B" length in inches. EX: F1036=36" "B" length; for assemblies requiring other than the standard 6" "C" dimension, insert 3 digit "C" length in inches after "B" dimension. EX: F1A036-012=36" "B" length with additional 12" leads beyond armor.

The RTD version of an armor-adjustable immersion sensor has a bayonet cap on the flexible armor and allows for immersion of the entire specified "B" dimension. This assembly is used in a variety of applications (with a bayonet adapter) where ease of installation and quick disconnect is preferred. Standard and metric size bayonet caps and adapters are available. These assemblies are supplied standard using 316 stainless steel sheath material and a 100 Ω platinum element with a temperature coefficient of 0.003 85 ºC^{-1} (IEC Class B). Elements of other materials, values, and tolerances are available upon request.
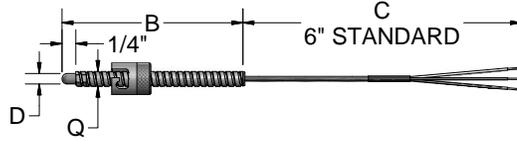
ORDER CODES

Example Order Number:

	1-1	1-2	1-3		2		3
	RBF1853A	**A**	**3**	-	**F3A012**	-	**3**

1-1   RTD Element Type

CODE		ELEMENT CONNECTION
SINGLE	*DUPLEX[1]*	
RBF1852A	RBF2852A	2 wire
RBF1853A	RBF2853A	3 wire
[1] Duplex not available with 1/8" O.D.; 3/16" O.D. limited to polyimide leadwire.		

1-2   Bayonet Cap Style

CODE	DESCRIPTION
A	7/16" I.D. single slot (standard)
B	12 mm I.D. dual slot
C	12 mm O.D. dual pin
D	Positive seat indicating
E	15 mm I.D. dual slot

1-3   Tip and Flex Armor Diameters

CODE	TIP O.D. "D" DIM. (inches)	FLEX O.D. "Q" DIM. (inches)
2	0.125	0.210
3	0.188	0.275

2   Extension Leadwire "B" + "C"

CODE[1]	DESCRIPTION
F3A_ _ _	Fiberglass insulation - stranded conductor - flexible armor
K3A_ _ _	Polyimide insulation - stranded conductor - flexible armor
[1] Insert 3 digit "B" length in inches. EX: F3B036=36" "B" length; for assemblies other than standard that require leadwire beyond the flexible armor, insert 3 digit "C" length after armor length. EX: F3A036-012=36" "B" length with additional 12" leads beyond armor.	

3   Terminations and Options

CODE	DESCRIPTION
0	Leads not stripped
2	2" split leads, 1/4" stripped
3	2" split leads with spade lugs
4	Standard plug
5	Standard jack
6	Miniature plug
7	Miniature jack
8	2" split leads with 1/4" female disconnects
Options	
MC	Mating connector
CC	Cable clamp
BX	Box connector

The melt-bolt thermocouple illustrated below is made of 300 series stainless steel and is constructed using a fiberglass insulated element. This style of thermocouple is used on extruders and injection molding machines to directly measure the melt temperature of plastic as it moves down the extruder barrel.

BOLT LENGTH — T — B — D
1/2-20 UNF - 2A BOLT THREAD,
NOMINAL THREAD LENGTH 1 7/8"

ORDER CODES

Example Order Number: **JFMB2 3 U - 02 - F1A006 - 4**

(1-1) (1-2) (1-3) (2) (3) (4)
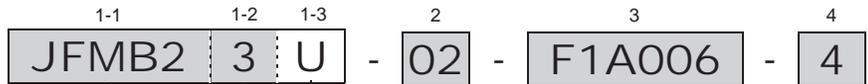
1-1 Thermocouple Type

CODE		TIP O.D. "D" DIM. (inches)
SINGLE	*DUPLEX*	
JFMB2		1/8
JFMB3	JJFMB3	3/16

Other Element Types

For type E, K, or T thermocouples, replace J in order code with required letter designation.

1-2 Bolt Length

CODE	LENGTH (inches)
3	3
4	4
6	6

Consult factory for other lengths.

1-3 Junction

Grounded junctions supplied as standard. Insert 'U' only when requiring an ungrounded junction.

2 Tip Length

CODE	"T" TIP LENGTH (inches)	CODE	"T" TIP LENGTH (inches)
00	Flush	08	1/2
02	1/8	12	3/4
04	1/4	16	1

Consult factory for other lengths.

3 Extension Leadwire "B"

CODE[1]	DESCRIPTION
000	No leadwire, connector attached to sheath
F1A_ _ _	Fiberglass insulation - solid conductor - flexible armor
F3A_ _ _	Fiberglass insulation - stranded conductor - flexible armor

[1] Insert 3 digit "B" length in inches. EX: F1A012=12" "B" length; for assemblies requiring other than the standard 6" "C" dimension, insert 3 digit "C" length in inches after "B" dimension. EX: F1A036-012=36" "B" length with additional 12" "C" length.

4 Terminations and Options

CODE	DESCRIPTION
2	2" split leads, 1/4" stripped
3	2" split leads with spade lugs
4	Standard plug
5	Standard jack
6	Miniature plug
7	Miniature jack
Options	
MC	Mating connector

The melt-bolt RTD sensor illustrated below is used on extruders and injection molding machines to directly measure the melt temperature of plastic as it moves down the extruder barrel. This sensor is made of 300 series stainless steel and is constructed using a 100 Ω platinum element with a temperature coefficient of 0.003 85 ºC^{-1} (IEC Class B). Elements of other materials, values, and tolerances are available upon request.

1/2-20 UNF - 2A BOLT THREAD,
NOMINAL THREAD LENGTH 1 7/8"

ORDER CODES

Example Order Number: **RBF1852MB** **2** **3** - **02** - **F3A012** - **4**

1-1, 1-2, 1-3, 2, 3, 4
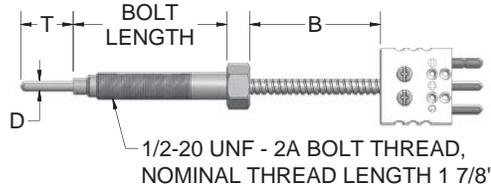
1-1 RTD Element Type

CODE		ELEMENT CONNECTION
SINGLE	*DUPLEX[1]*	
RBF1853MB	RBF2853MB	3 wire
RBF1852MB	RBF2852MB	2 wire
Other Element Types		

[1] Duplex not available with 1/8" O.D.; 3/16" O.D. limited to polyimide leadwire.

1-2 Tip Diameter

CODE	TIP O.D. "D" DIM. (inches)
2	1/8
3	3/16

1-3 Bolt Length

CODE	LENGTH (inches)
3	3
4	4
6	6
Consult factory for other lengths.	

2 Tip Length

CODE	"T" TIP LENGTH (inches)	CODE	"T" TIP LENGTH (inches)
00	Flush	08	1/2
02	1/8	12	3/4
04	1/4	16	1
Consult factory for other lengths.			

3 Extension Leadwire

CODE[1]	DESCRIPTION
000	No leadwire, connector attached to sheath
F3A_ _ _	Fiberglass insulation - stranded conductor - flexible armor
K3A_ _ _	Polyimide insulation - stranded conductor - flexible armor

[1] Insert 3 digit "B" length in inches.
EX: F1A012=12" "B" length; for assemblies requiring other than the standard 6" "C" dimension.
EX: F1A036-012=36" "B" length with additional 12" "C" length.

4 Terminations and Options

CODE	DESCRIPTION
2	2" split leads, 1/4" stripped
3	2" split leads with spade lugs
4	Standard plug
5	Standard jack
6	Miniature plug
7	Miniature jack
8	2" split leads with 1/4" female disconnects
Options	
MC	Mating connector
CC	Cable clamp
BX	Box connector

The melt-bolt thermocouples illustrated below are used on extruders and injection molding machines to directly measure the melt temperature of plastic as it moves down the extruder barrel. These melt-bolts are made with 300 series stainless steel and are constructed using a metal-sheathed MgO element. The fixed tip style consists of an MgO element brazed to the bolt at a specified tip length and is supplied with a grounded junction as standard. Pyromation's Precision Tip Re-adjustable Melt-Bolt Thermocouples come standard with a fast response exposed junction. The precision tip is manufactured from hardened stainless steel and creates a positive shut off to prevent the back flow of plastic into the bolt. The 5/32" O.D. tip has an adjustment range of 0"-1".

ORDER CODES

ExampleOrder Number:

1-1	1-2	2 or 2A	3	4
JMMB23	U	02	004	4
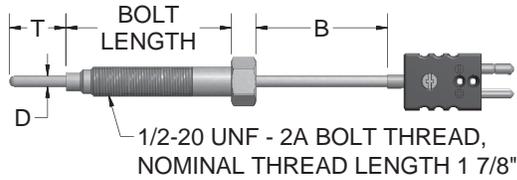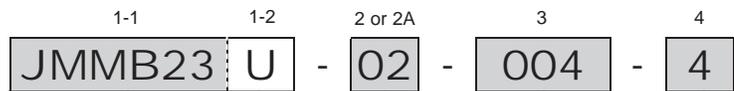
1-1   Thermocouple Type

CODE		DESCRIPTION		
SINGLE	*DUPLEX*	*TIP O.D. "D" DIM.*	*BOLT LENGTH*	*TIP STYLE*
JMMB23	JJMMB23	1/8"	3"	Fixed
JMMB24	JJMMB24	1/8"	4"	Fixed
JMMB26	JJMMB26	1/8"	6"	Fixed
JMMB33	JJMMB33	3/16"	3"	Fixed
JMMB34	JJMMB34	3/16"	4"	Fixed
JMMB36	JJMMB36	3/16"	6"	Fixed
JAMB3E	JJAMB3E	5/32"	3"	Adjustable
JAMB6E	JJAMB6E	5/32"	6"	Adjustable
Other Element Types				
For type E, K or T thermocouples, replace J in order code with required letter designation.				

1-2   Junction

Grounded junctions supplied as standard on fixed tip melt-bolts and exposed tip junctions are standard on adjustable tip melt-bolts. For junction styles other than the standard, specify "U" for ungrounded or "G" for grounded junction.

2   Tip Length for Fixed Tip Melt-Bolt

CODE	"T" TIP LENGTH	CODE	"T" TIP LENGTH
00	Flush	08	1/2"
02	1/8"	12	3/4"
04	1/4"	16	1"

2A   Tip Length for Adjustable Tip Melt-Bolt

CODE	"T" TIP LENGTH
01	Adjustable range 0" to 1"

3   MgO Extension "B"

CODE	DESCRIPTION
000	Connector 1/2" from bolt
_ _ _	Insert "B" length in inches using 3 digits

4   Terminations and Options

CODE	DESCRIPTION
4	Standard plug
5	Standard jack
6	Miniature plug
7	Miniature jack
Options	
MC	Mating connector
CL	Compression L bracket

The nozzle-melt temperature sensors listed below are typically placed into the nozzle of a plastic injection molding machine and sense the temperature of the molten plastic prior to being injected into the mold. They are offered in a variety of thermocouple types as listed below. The RTDs are constructed using a 100 Ω platinum element with a temperature coefficient of 0.003 85 ºC^{-1} (IEC Class B). Elements of other materials, values, and tolerances are available upon request.

Diagram

- 1 3/4"
- B
- ROTATING BOLT
- A 2 1/4" MINIMUM
- 3/8-24 UNF - 2A
- 1/8"
- A 1 3/8" MINIMUM
- TIP
- B
- 1 1/4"
- Ø0.210" FLEX
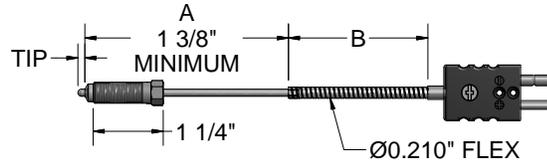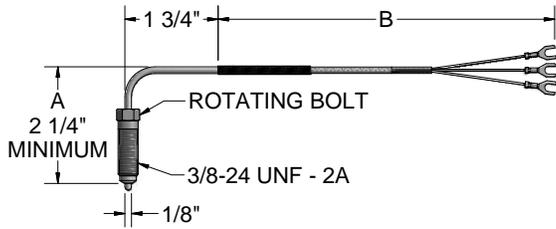
ORDER CODES

Example Order Number: JNM32 - 04 - F3B036 - 3, BX

positions: 1 or 1A / 2 / 3 / 4

1 Thermocouple Type, Tip Length, and Sheath Style

CODE	TIP LENGTH	BEND
JNM12	1/8"	Straight
JNM14	1/4"	Straight
JNM22	1/8"	45º
JNM24	1/4"	45º
JNM32	1/8"	90º
JNM34	1/4"	90º

Other Element Types

For type E, K, or T thermocouples, replace J in order code with required letter designation.

1A RTD Type, Tip Length, and Sheath Style

CODE	TIP LENGTH	BEND
RBF1853NM12	1/8"	Straight
RBF1853NM14	1/4"	Straight
RBF1853NM22	1/8"	45º
RBF1853NM24	1/4"	45º
RBF1853NM32	1/8"	90º
RBF1853NM34	1/4"	90º

Other Element Types

All RTDs are supplied as 3 wire constuction. Replace the 3 in the part number with a 2 for 2 wire construction.

2 Sheath extension "A"

Insert 'A' dimension in inches using 2 digits.

3 Extension Length "B"

CODE[1]	DESCRIPTION
000	No leadwire, connector attached to sheath
F1_ _ _	Fiberglass insulation - solid conductor
F1A _ _ _	Fiberglass insulation - solid conductor - flexible armor
F3_ _ _	Fiberglass insulation - stranded conductor
F3A _ _ _	Fiberglass insulation - stranded conductor - flexible armor
F3B _ _ _	Fiberglass insulation - stranded conductor - stainless steel overbraid

[1] Insert 3 digit "B" length in inches. EX: F1A012=12" "B" length; for assemblies requiring other than the standard 6" "C" dimension, insert 3 digit "C" length in inches after "B" dimension. EX: F1A036-012=36" "B" length with additional 12" "C" length.

4 Terminations and Options

CODE	DESCRIPTION
0	Leads not stripped
2	2" split leads, 1/4" stripped
3	2" split leads with spade lugs
4	Standard plug
5	Standard jack
6	Miniature plug
7	Miniature jack
8	2" split leads with 1/4" female disconnects
Options	
MC	Mating connector
CC	Cable clamp
BX	Box connector

The threaded nozzle thermocouple illustrated below is generally used to measure the temperature of the nozzle of an injection molding machine. This style is not in direct contact with the molten plastic. Due to the relatively small size of this sensor, other general areas of use include mounting in bearing housings, sealing bars, heat plates, and other limited space applications.

ORDER CODES

Example Order Number: JTN U - F6 - F1B024 - 2

| 1-1 | 1-2 | 2 | 3 | 4 |
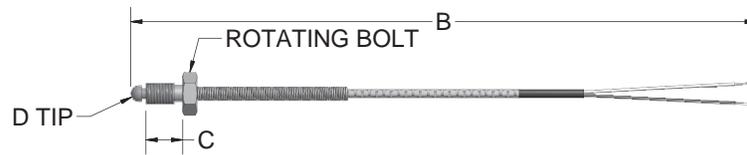
1-1 Thermocouple Type

CODE	DESCRIPTION
JTN	Iron - Constantan
Other Element Types	
For type E, K or T thermocouples, replace J in order code with required letter designation.	

1-2 Junction

Grounded junctions supplied as standard. Insert "U" <u>only</u> when requiring an ungrounded junction.

2 Bolt Designation

CODE	NOZZLE SIZE		
	THREADS	"D" TIP (inches)	"C" LENGTH
F6	1/4" - 28	3/16	3/8"
G8	3/8" - 24	1/4	1/2"
I6	6 mm x 1 mm	3/16	10 mm
K6	8 mm x 1.25 mm	1/4	10 mm
M10	10 mm x 1.50 mm	1/4	16 mm
Other bolt sizes available; consult factory.			

3 Extension Length "B"

CODE[1]	WIRE DESCRIPTION
F1 _ _ _	Fiberglass insulation - solid conductor
F1B_ _ _	Fiberglass insulation - solid conductor - stainless steel overbraid
F3_ _ _	Fiberglass insulation - stranded conductor
F3B_ _ _	Fiberglass insulation - stranded conductor - stainless steel overbraid

[1] Insert 3 digit "B" length in inches.
EX: F3B024=24" "B" length.

4 Terminations and Options

CODE	DESCRIPTION
0	Leads not stripped
2	2" split leads, 1/4" stripped
3	2" split leads with spade lugs
4	Standard plug
5	Standard jack
6	Miniature plug
7	Miniature jack
8	2" split leads with 1/4" female disconnects
Options	
MC	Mating connector
CC	Cable clamp
BX	Box connector

The threaded nozzle RTD illustrated below is generally used to measure the temperature of the nozzle of an injection molding machine. This style is not in direct contact with the molten plastic. Due to the relatively small size of this sensor, other general areas of use include mounting in bearing housings, sealing bars, heat plates, and other limited space applications. These assemblies are supplied standard using a 100 ohm platinum element with a temperature coefficient of 0.003 85 ºC^{-1} (IEC Class B). Elements of other materials, values, and tolerances are available upon request.

ORDER CODES

Example Order Number: **RBF1852TN** - **F6** - **F3B012** - **2**

(labeled 1, 2, 3, 4)

1 RTD Element Type

CODE	ELEMENT CONNECTION
RBF1853TN	3 wire
RBF1852TN	2 wire

2 Bolt Designation

CODE	NOZZLE SIZE		
	THREADS	"D" TIP (inches)	'"C"' LENGTH
F6	1/4" - 28	3/16	3/8"
G8	3/8" - 24	1/4	1/2"
I6	6 mm x 1 mm	3/16	10 mm
K6	8 mm x 1.25 mm	1/4	10 mm
M10	10 mm x 1.50 mm	1/4	16 mm
Other bolt sizes available; consult factory.			

3 Extension Length "B"

CODE[1]	WIRE DESCRIPTION
F3_ _ _	Fiberglass insulation - stranded conductor
F3B_ _ _	Fiberglass insulation - stranded conductor - stainless steel overbraid
K3_ _ _	Polyimide insulation - stranded conductor
K3B _ _ _	Polyimide insulation - stranded conductor - stainless steel overbraid
[1] Insert 3 digit "B" length in inches. EX: F3B024=24" "B" length	

4 Terminations and Options

CODE	DESCRIPTION
0	Leads not stripped
2	2" split leads, 1/4" stripped
3	2" split leads with spade lugs
4	Standard plug
5	Standard jack
6	Miniature plug
7	Miniature jack
8	2" split leads with 1/4" female disconnects
Options	
MC	Mating connector
CC	Cable clamp
BX	Box connector

The ring type assemblies pictured below have the thermocouples embedded either into a stainless steel stamping for grounded junctions (figure 1) or a brass ring for ungrounded junctions (figure 2). Various ring sizes are available to measure the surface temperature of nozzles, extruder barrels, die heads, molds, and many other applicable surfaces.
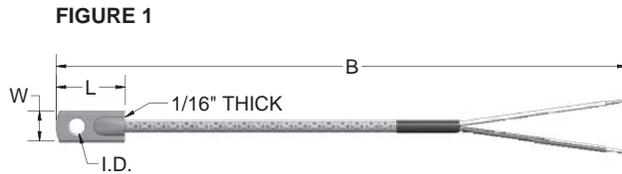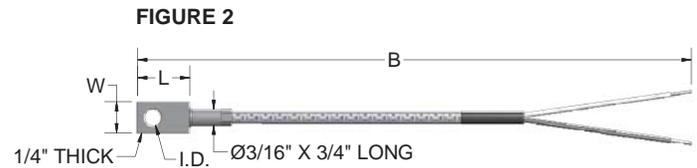
FIGURE 1

FIGURE 2

ORDER CODES

Example Order Number: **JRS1** - **F3012** - **8**

(1) (2) (3)

FIGURE 1
1 Grounded Thermocouples - Ring Size

CODE	RING SIZE			SCREW or BOLT SIZE
	I.D. (inches)	W (inches)	L (inches)	
JRS1	0.20	3/8	7/8	#6 - #10 4mm-5mm
JRS2	0.33	7/16	1	#12, 1/4" - 5/16" 5mm - 8mm
JRS3	0.44	9/16	1 1/8	5/16" - 3/8" 8mm - 10mm

FIGURE 2
1 Ungrounded Thermocouples - Ring Size

CODE	RING SIZE			SCREW SIZE
	I.D. (inches)	W (inches)	L (inches)	
JRB1U	0.20	3/8	5/8	#6 - #10 4mm-5mm
JRB2U	0.33	5/8	7/8	#12, 1/4" - 5/16" 5mm - 8mm
JRB3U	0.44	5/8	7/8	5/16" - 3/8" 8mm - 10mm

Other Element Types

For type E, K, or T thermocouples, replace J in order code with required letter designation.

2 Extension Leadwire "B"

CODE[1]	DESCRIPTION
F1_ _ _	Fiberglass insulation - solid conductor
F1B _ _ _	Fiberglass insulation - solid conductor - stainless steel overbraid
F3_ _ _	Fiberglass insulation - stranded conductor
F3B _ _ _	Fiberglass insulation - stranded conductor - stainless steel overbraid
T1 _ _ _	Fluoropolymer insulation - solid conductor
T3 _ _ _	Fluoropolymer insulation - stranded conductor
K1 _ _ _	Polyimide insulation - solid conductor
[1] Insert 3 digit "B" length in inches. EX: F3B024=24" "B" length.	

3 Terminations and Options

CODE	DESCRIPTION
0	Leads not stripped
2	2" split leads, 1/4" stripped
3	2" split leads with spade lugs
4	Standard plug
5	Standard jack
6	Miniature plug
7	Miniature jack
8	2" split leads with 1/4" female disconnect lugs
Options	
MC	Mating connector
CC	Cable clamp
BX	Box connector

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PLASTIC

The ring type assembly pictured below has the RTD element embedded into a brass ring. Various ring sizes are available to measure the surface temperature of nozzles, extruder barrels, die heads, molds, and many other applicable surfaces. This assembly is supplied standard using a 100 Ω platinum element with a temperature coefficient of 0.003 85 °C^{-1} (IEC Class B). Elements of other materials, values, and tolerances are available upon request.
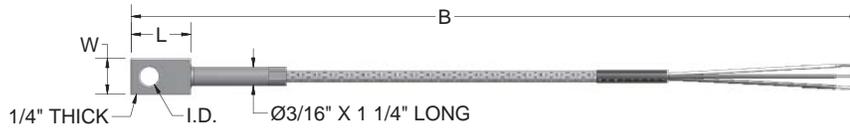
ORDER CODES

Example Order Number:

1	1-2	2	3
RBF1853RB	2	F3B012	2

1-1 RTD Element Type

CODE		ELEMENT CONNECTION
SINGLE	**DUPLEX[1]**	
RBF1853RB	RBF2853RB	3-wire
RBF1852RB	RBF2852RB	2-wire

[1] Duplex assemblies available with polyimide or fluoropolymer wire only.

1-2 Ring Size

CODE	I.D. (inches)	W (inches)	L (inches)	SCREW SIZE
1	0.20	3/8	5/8	#6 - #10 4mm - 5mm
2	0.33	5/8	7/8	#12, 1/4" - 5/16" 5mm - 8mm
3	0.44	5/8	7/8	5/16" - 3/8" 8mm - 10mm

### 2 Extension Leadwire Type and "B" + "C" Dimension

CODE[1]	WIRE DESCRIPTION
F3_ _ _	Fiberglass insulation - stranded conductor
F3A_ _ _	Fiberglass insulation - stranded conductor - flexible armor
F3B_ _ _	Fiberglass insulation - stranded conductor - stainless steel overbraid
T3_ _ _	Fluoropolymer insulation - stranded conductor
T3A_ _ _	Fluoropolymer insulation - stranded conductor - flexible armor
K3_ _ _	Polyimide insulation - stranded conductor
K3A_ _ _	Polyimide insulation - stranded conductor - flexible armor
K3B_ _ _	Polyimide insulation - stranded conductor - stainless steel overbraid

[1] Insert 3 digit "B" length in inches. EX: F1A012=12" "B" length; for assemblies requiring other than the standard 6" "C" dimension, insert 3 digit "C" length in inches after "B" dimension. EX: F1A036-012=36" "B" length with additional 12" "C" length.

3 Terminations and Options

CODE	DESCRIPTION
0	Leads not stripped
2	2" split leads, 1/4" stripped
3	2" split leads with spade lugs
4	Standard plug
5	Standard jack
6	Miniature plug
7	Miniature jack
8	2" split leads with 1/4" female disconnects
Options	
MC	Mating connector
CC	Cable clamp
BX	Box connector

The temperature sensors illustrated below are generally used for surface temperature measurement. The series SS and ST spade thermocouples are sandwiched between two thin shims of either stainless steel or two pieces of fiberglass tape. They can be attached using a worm drive hose clamp or by placing under heater bands. These spades can be formed and secured to the outside of various size tubes, pipes, or nozzles. The SK series sensors are sealed in epoxy between two layers of polyimide tape and are provded with an adhesive backing for easy attachment to many surfaces. The SK series sensors are available in various thermocouple types or RTDs. The RTDs are constructed using a 100 Ω platinum element with a temperature coefficient of 0.003 85 °C^{-1} (IEC Class B).
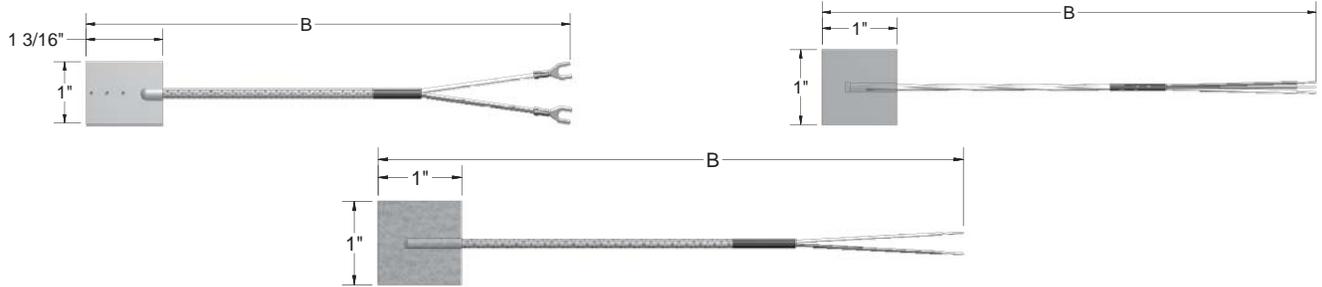
ORDER CODES

Example Order Number: **JSS** - **F1B036** - **3**

| 1 | 2 | 3 |

1 Thermocouple Type

CODE	DESCRIPTION
JSS	Stainless steel spade
JST	Flexible fiberglass spade 204 °C [400 °F] max
JSK	Flexible Polyimide spade with adhesive tape backing 204 °C [400 °F]
Nominal spade thickness is 0.020" min to 0.090" max	

Other Element Types	
For type E, K, or T thermocouples, replace J in order code with required letter designation.	

1a RTD Type 100 Ω Platinum A = 0.003 85 °C^{-1}

CODE	ELEMENT CONNECTION	DESCRIPTION
RBF1853SK	3 wire	Flexible polyimide spade with adhesive tape backing 204 °C [400 °F]
RBF1852SK	2 wire	Flexible polyimide spade with adhesive tape backing 204 °C [400 °F]
Nominal spade thickness is 0.060" min to 0.100" max		

### 2 Extension Leadwire "B"

CODE[1]	DESCRIPTION
F1 _ _ _	Fiberglass insulation - solid conductor
F1B _ _ _	Fiberglass insulation - solid conductor - stainless steel overbraid
F3 _ _ _	Fiberglass insulation - stranded conductor
F3B _ _ _	Fiberglass insulation - stranded conductor - stainless steel overbraid
T1 _ _ _	Fluoropolymer insulation - solid conductor
T3 _ _ _	Fluoropolymer insulation - stranded conductor
K1 _ _ _	Polyimide insulation - solid conductor
[1] Insert 3 digit "B" length in inches. EX: F3B024=24" "B" length.	

3 Terminations and Options

CODE	DESCRIPTION
0	Leads not stripped
2	2" split leads, 1/4" stripped
3	2" split leads with spade lugs
4	Standard plug
5	Standard jack
6	Miniature plug
7	Miniature jack
8	2" split leads with 1/4" female disconnects
Options	
MC	Mating connector
CC	Cable clamp
BX	Box connector

The multiple-purpose thermocouples listed below are constructed with insulated thermocouple wire and provided with twisted and TIG-welded hot junctions. Insulations and overbraids are offered to satisfy many industrial processes, furnace certification, load checking, and laboratory test temperature measurement applications.
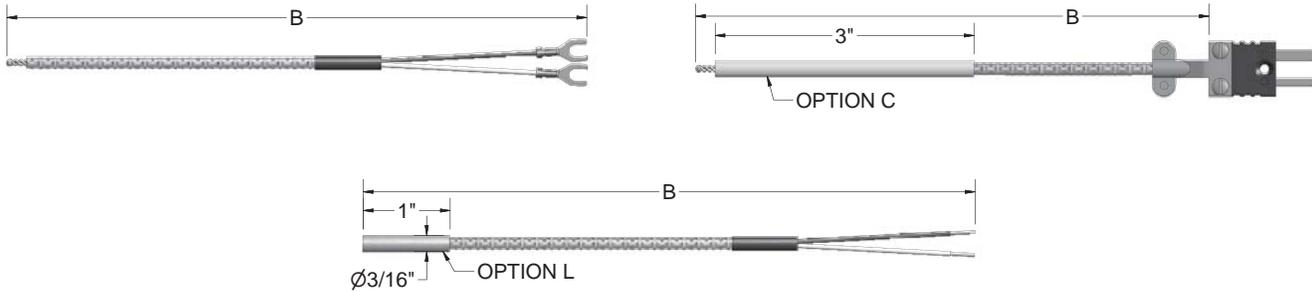
ORDER CODES

Example Order Number: K20-1-S-304 - 072 - 4

1 Thermocouple and Insulation Type

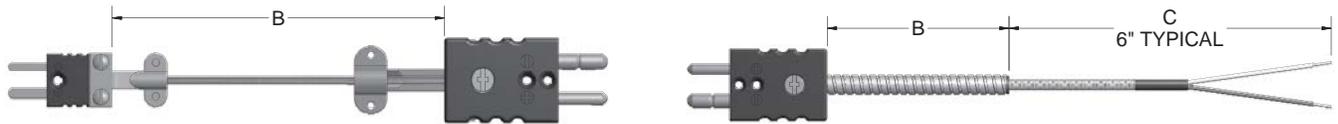| CODE (Insert T/C Type Prefix Letter)	WIRE GA.	COND. TYPE	INSULATION[1]	INSULATION TEMPERATURE RATING	LIMITS OF ERROR[2]
(J,K,E) 20-1-304	20	Solid	Fiberglass	482 ºC [900 ºF]	Standard
(J,K) 20-1-S-304	20	Solid	Fiberglass/SS ovb.	482 ºC [900 ºF]	Standard
(K) 20-3-302	20	Strnd	Fiberglass	482 ºC [900 ºF]	Standard
(J,K) 20-3-S-317	20	Strnd	Fiberglass/SS ovb.	482 ºC [900 ºF]	Standard
(J,K) 20-2-321	20	Solid	Hi-temp fiberglass	704 ºC [1300 ºF]	Special
(J,K) 20-1-508	20	Solid	TFE	260 ºC [500 ºF]	Standard
(J,K) 20-2-513	20	Solid	Polyimide	316 ºC [600 ºF]	Special
(K) 20-2-301	20	Solid	Vitreous sil. fiber	871 ºC [1600 ºF]	Special
(K) 20-2-350	20	Solid	Ceramic fiber	1204 ºC [2200 ºF]	Special
(K) 20-2-N-350	20	Solid	Cer.fiber/Inc. ovb.	1204 ºC [2200 ºF]	Special
(J,K) 24-1-304	24	Solid	Fiberglass	482 ºC [900 ºF]	Standard
(J,K) 24-1-508	24	Solid	TFE	260 ºC [500 ºF]	Standard
(J,K) 30-1-305	30	Solid	Fiberglass	482 ºC [900 ºF]	Standard
(J,K,T) 30-2-506	30	Solid	FEP	204 ºC [400 ºF]	Special

[1] See Wire Section, for additional insulation specifications.
[2] Consult factory for availability of non-listed Special Limits of Error wire.

3 Terminations and Options

CODE	DESCRIPTION
0	Leads not stripped
2	2" split leads, 1/4" stripped
3	Leads split 2" with spade lugs
4	Standard plug
6	Miniature plug
Options	
MC	Mating connector
CC	Cable clamp
L	Ungrounded hot junction
C	3" ceramic insulator at hot junction

2 Length

Insert 3 Digit Length Order Code in Inches.

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The flexible thermocouple extensions illustrated below are constructed using thermocouple wire or thermocouple extension wire. They are used as extension cords to provide suitable connections between sensors, jack panels, or instrumentation.

ORDER CODES

Example Order Number: **JE6, CC** - **F1B036** - **4, CC**

1 Terminations and Options
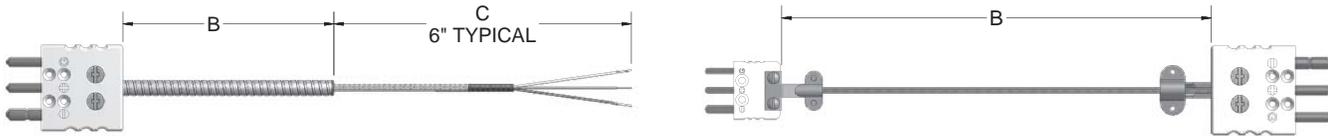
CODE	DESCRIPTION
JE1	2" split leads with compensated spade lugs
JE2	2" split leads, 1/4" stripped
JE3	2" split leads with spade lugs
JE4	Standard plug
JE5	Standard jack
JE6	Miniature plug
JE7	Miniature jack
JE8	2" split leads with 1/4" female disconnects

For type E, K, or T thermocouples, replace J in order code with required letter designation.

Options	
BX	Box connector
CC	Cable clamp
CG	1/2" NPT plastic cord grip
MC	Mating connector
RB	Rubber boot
SP	Solid pin plug

2 Extension Leadwire "B" + "C" Dimension

CODE[1]	DESCRIPTION
F1_ _ _	Fiberglass insulation - solid conductor
F1A _ _ _	Fiberglass insulation - solid conductor - flexible armor
F1B _ _ _	Fiberglass insulation - solid conductor - stainless steel overbraid
F3_ _ _	Fiberglass insulation - stranded conductor
F3A _ _ _	Fiberglass insulation - stranded conductor - flexible armor
F3B _ _ _	Fiberglass insulation - stranded conductor - stainless steel overbraid
T1 _ _ _	Fluoropolymer insulation - solid conductor
T1A _ _ _	Fluoropolymer insulation - solid conductor - flexible armor
T3 _ _ _	Fluoropolymer insulation - stranded conductor
T3A _ _ _	Fluoropolymer insulation - stranded conductor - flexible armor
C3 _ _ _	PVC insulated - stranded conductor - coil cord (only available in 60" and 120" extended lengths)

[1] Insert 3 digit "B" length in inches. EX: F1036=36" "B" length; for assemblies requiring other than the standard 6" "C" dimension, insert 3 digit "C" length in inches after "B" dimension. EX: F1A036-012=36" "B" length with additional 12" "C" length. For PVC-coated or FEP coated flex, substitute suffix code A with P for PVC and T for FEP coating. Example: F3P is stranded fiberglass leads with PVC flex.
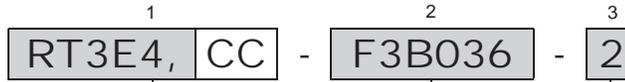
3 Terminations and Options

CODE	DESCRIPTION
0	No termination
1	2" split leads with compensated spade lugs
2	2" split leads, 1/4" stripped
3	2" split leads with spade lugs
4	Standard plug
5	Standard jack
6	Miniature plug
7	Miniature jack
8	2" split leads with 1/4" female disconnect lugs

Options	
BX	Box connector
CC	Cable clamp
CG	1/2" NPT plastic cord grip
MC	Mating connector
RB	Rubber boot
SP	Solid pin plug

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The flexible RTD extensions illustrated below are constructed using stranded copper wire with various insulations. They are used as extension cords to provide suitable connections between sensors, jack panels, or instrumentation.

ORDER CODES

Example Order Number: **RT3E4, CC** - **F3B036** - **2**

1   2   3

1 Terminations and Options

CODE		DESCRIPTION
2 WIRE	*3 WIRE*	
RT2E2	RT3E2	2" split leads, 1/4" stripped
RT2E3	RT3E3	2" split leads with spade lugs
RT2E4	RT3E4	Standard plug
RT2E5	RT3E5	Standard jack
RT2E6	RT3E6	Miniature plug
RT2E7	RT3E7	Miniature jack
RT2E8	RT3E8	2" split leads with 1/4" female disconnects
Options		
BX	Box connector	
CC	Cable clamp	
CG	1/2" NPT plastic cord grip	
MC	Mating connector	
RB	Rubber boot	

2 Extension Leadwire and "B" + "C" Dimension

CODE[1]	DESCRIPTION
F3_ _ _	Fiberglass insulation - stranded conductor
F3A _ _ _	Fiberglass insulation - stranded conductor - flexible armor
F3B _ _ _	Fiberglass insulation - stranded conductor - stainless steel overbraid
T3 _ _ _	Fluoropolymer insulation - stranded conductor
T3A _ _ _	Fluoropolymer insulation - stranded conductor - flexible armor
K3_ _ _	Polyimide insulation - stranded conductor
K3A_ _ _	Polyimide insulation - stranded conductor - flexible armor
K3B _ _ _	Polyimide insulation - stranded conductor - stainless steel overbraid
C3 _ _ _	PVC insulated - stranded conductor - coil cord (only available in 60" and 120" extended lengths)

[1] Insert 3 digit "B" length in inches.
EX: F1036=36" "B" length; for assemblies requiring other than the standard 6" "C" dimension, insert 3 digit "C" length in inches after "B" dimension. EX: F1A036-012=36" "B" length with additional 12" leads beyond armor.

For PVC-coated or FEP coated flex,substitute suffix code A with P for PVC and T for FEP coating. Example: T3P is stranded Fluoropolymer leads with PVC flex.

3 Terminations and Options

CODE	DESCRIPTION
0	No termination
2	2" split leads, 1/4" stripped
3	2" split leads with spade lugs
4	Standard plug
5	Standard jack
6	Miniature plug
7	Miniature jack
8	2" split leads with 1/4" female disconnects
Options	
BX	Box connector
CC	Cable clamp
CG	1/2" NPT plastic cord grip
MC	Mating connector
RB	Rubber boot