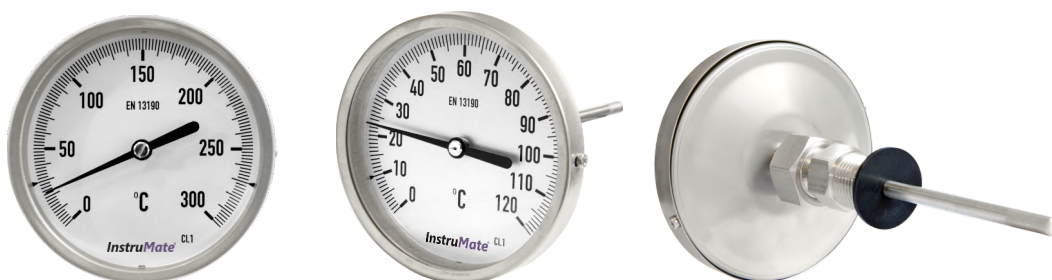


**413-100L****413-100B**

Application

- ✓ Temperature indication of liquids and gases under process
- ✓ Machine building, food industry, piping
- ✓ Chemical & Petrochemical plants

Special Features

- ✓ Cost effective industrial temperature measurement
- ✓ Flexible choice of stem length and connection designs
- ✓ Fast reaction of bimetal sensor

Description

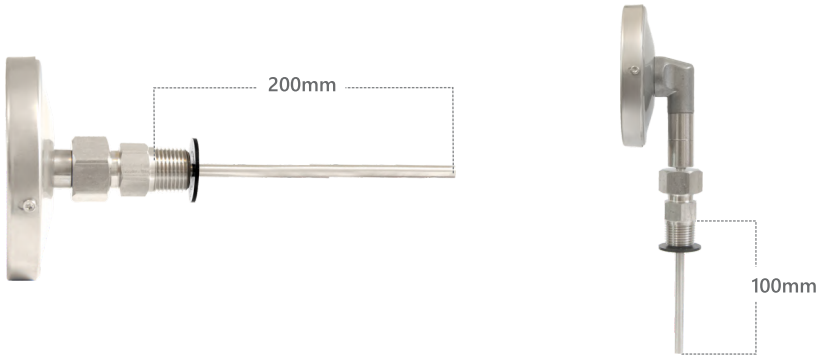
The model 413 bimetal industrial thermometers are full stainless steel temperature gauges whose stem length and thread types are offered in various combinations. This allows them to be fit for many industrial applications not requiring a better ingress protection than IP43.

InstruMate model 413 has a fast reaction to temperature increase thanks to its high quality bimetal sensor.

Default Specification

Design	Nominal sizes in mm
EN 13190	63, 100, 160
Scale Ranges in °C	Standard insertion lengths in mm
-30...+50, -30...+60, -30...+70, -20...+120, 0...60, 0...100, 0...120, 0...160, 0...200, 0...250C, 0...300, 0...400, 0...500	50, 63, 80, 89, 100, 150, 200, 300, 400, 500, 600, 700, 800, 900, 1000 ¹
Working Range	Stem
According to measuring range per EN 13190	Material: SS316 Diameter: 6mm ²
Case	Ingress protection
Stainless Steel	IP43
Pointer	Accuracy
Aluminum, adjustable pointer	Class 1
Window	Dial
Glass	Aluminum
Temperature Element	Pressure limitation at stem
Bi-metal sensor	Max. 20bar
Storage & Transport temperature	Temperature units
-20°C...+60°C	°C (centigrade)

1. Insertion length includes the threads.
2. Stem diameter 8mm available as option.



Options

- ✓ Other temperature units (F) or dual scale (C/F)
 - ✓ Supplying suitable thermowell per customer request
 - ✓ Special dial designs for special applications
- ✓ Other wetted parts (SS304, SS316L)
 - ✓ Other scale units

Measuring Range & Maximum Permissible Errors

InstruMate full stainless steel thermometers Model 413 follow Class 1 accuracy according to EN 13190 standard.

Temperature Range °C	Measuring Range °C	Limits of Error ±°C
-30...+50	-20...+40	1
-30...+60	-20...+50	1
-30...+70	-20...+60	1
-20...+120	-10...+110	2
0...60	+10...+50	1
0...100	+10...+90	1
0...120	+10...+110	2
0...160	+20...+140	2
0...200	+20...+180	2
0...250	+30...+220	2.5
0...300	+30...+270	5
0...400	+50...+350	5
0...500	+50...+450	5

* All InstruMate 413 thermometers perform equal to or better than the limits of error presented in above table.

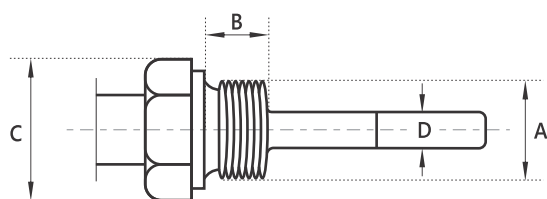
* The measuring range limit is indicated on dial by the use of two triangular marks.

Connection Designs

1. Fixed male thread connection

Minimum insertion length: 63mm for bottom connection

50mm for back connection

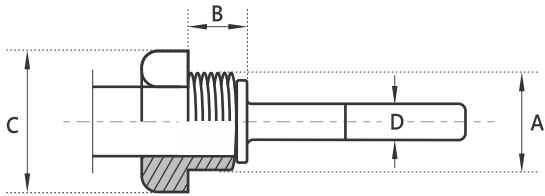


A: Male thread
B: Thread length
C: Spanner width
D: Stem diameter

Nominal Size	Process connection		Dimensions (in mm)	
	A	B	C	D
63, 100, 160	G 1/4 B	12	19	6 or 8
	G 1/2 B	14	27	6 or 8
	M18 x 1.5	12	24	6 or 8
	1/2 NPT	19	24	6 or 8

2. Male Nut (turning connection)

Minimum insertion length: 80mm

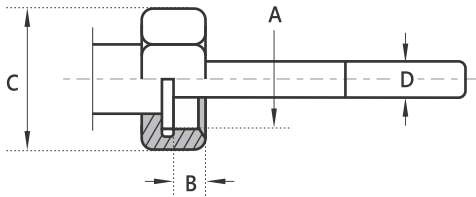


- A: Male thread
- B: Thread length incl. collar
- C: Spanner width
- D: Stem diameter

Nominal Size	Process connection		Dimensions (in mm)	
	A	B	C	D
63, 100,160	G 1/2 B	20	27	6 or 8
	M18 x 1.5	17	22	6 or 8

3. Union Nut (female connection)

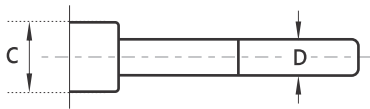
Minimum insertion length: 89mm



- A: Female thread
- B: Thread length
- C: Spanner width
- D: Stem diameter

Nominal Size	Process connection		Dimensions (in mm)	
	A	B	C	D
63, 100,160	G 1/2	8.5	27	6 or 8
	G 3/4	9.5	32	6 or 8

4. Stem without thread



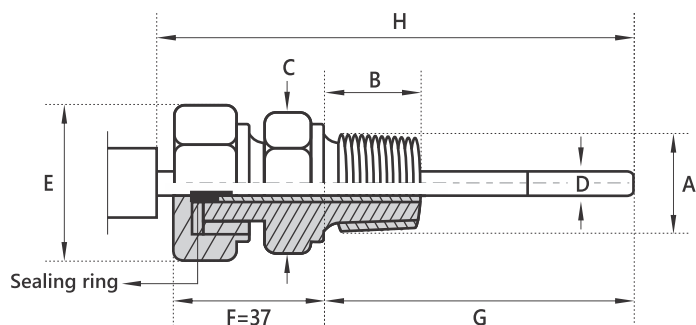
- C: Plain diameter
- D: Stem diameter

Nominal Size	Dimensions (in mm)	
	C	D
63, 100,160	18	6 or 8

5. Compression Fitting (Sliding Connection)

Insertion length G = variable

Length H = G + 37 mm

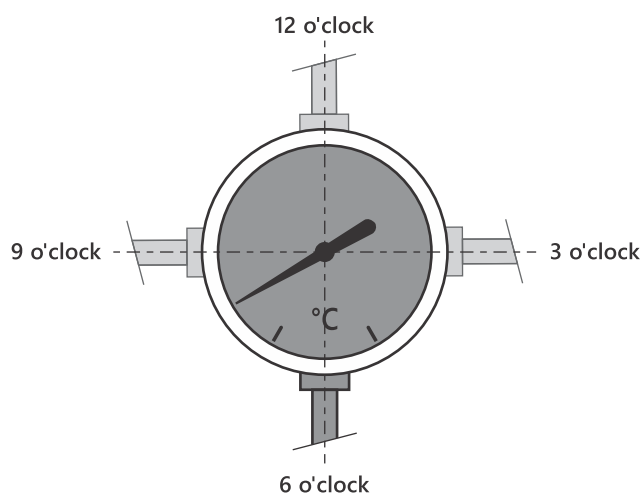


A: Male thread
B: Thread length
C: Spanner width
D: Stem diameter

Nominal Size	Process connection		Dimensions (in mm)		
	A	B	C	D	E
63, 100, 160	G 1/4 B	8	22	6 or 8	27
	G 1/2 B	14	27	6 or 8	27
	M18 x 1.5	12	24	6 or 8	27
	1/2 NPT	19	22	6 or 8	27
	G 3/4 B	16	32	6 or 8	27
	3/4 NPT	20	30	6 or 8	27

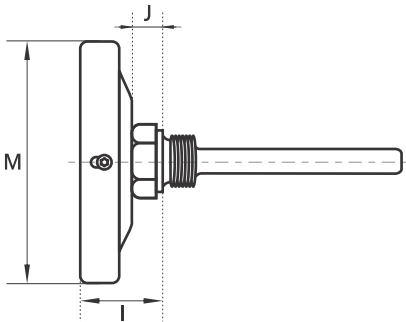
Special dial positions in relation with stem (only for bottom connection)

Dial positioning can be chosen as required by the customer. In standard version 6 o'clock position is shipped. For special positions please specify 3, 9, or 12 o'clock for example.



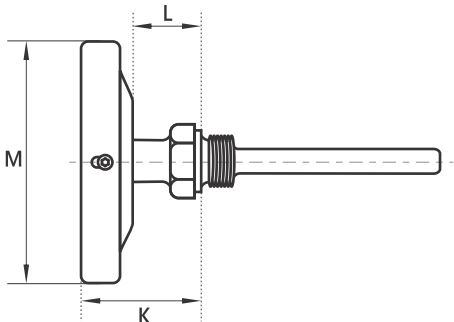
Dimintions (in mm)

■ Center Back connection
(up to 250 °C)



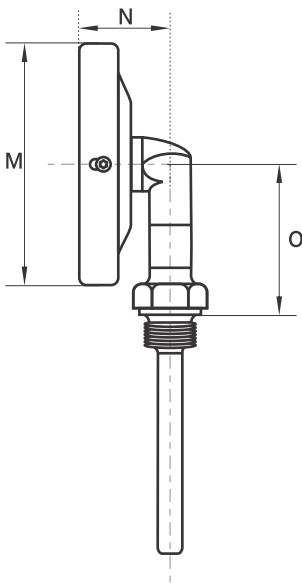
Nominal Size	I	J	K	L	M
63	29	13	46	30	63
100	35	13	52	30	100
160	39	13	57	30	160

■ Center Back connection with spacer
(from 300 °C or on request)



■ Bottom connection

Nominal Size	M	N	O
63	63	34	47
100	100	40	66
160	160	42.5	96



How To Order

Product Group Name	Model	Nominal Size	Mounting	Insertion length	Thread type	Thread size	Range
E.g. Full SS Thermometer	413	100	L	100	5	N2	0...160°C

Or simply order by item number on the basis of your previous purchases.