



### Application

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

### Special Features

- ✓ Fast response time
- ✓ Flexible choice of capillary and stem length
- ✓ All stainless steel construction

### Description

InstruMate capillary thermometers can be used in places which are not easily accessible. One other important function of these gas actuated temperature gauges is installing in a remote place and reading conveniently at the desired place where its case is fixed, which means all dials on a single panel for easy visual comparison.

Per your choice, consistent 2% or even 1% accuracy across the full span can be guaranteed on InstruMate linear dial. This gas actuated thermometer model 422 covers all standard temperature ranges.

Model 422 is fillable for applications with extreme vibrations. Silicon oil is advised if instrument needs to be filled, unless for food industry you will need to use food compatible oil.

## Default Specification

<b>Design</b>	<b>Nominal Sizes mm</b>
EN 13190	100, 160
<b>Stem</b>	<b>Temperature Limitations</b>
Material: SS316 Diameter: 8 mm	Storage & Transport: -20...+60 °C Ambient: 0...40 °C
<b>Scale Ranges in °C</b>	<b>Mounting Versions</b>
-60...+40, -30...+50, -20...+80, 0...60, 0...100, 0...120, 0...160, 0...200, 0...250, 0...300, 0...400, 0...500, 0...600, 0...650	Surface mounting: Bottom connection with back flange (L) Panel mounting: Back connection with front flange (B)
<b>Working Range</b>	<b>Standard insertion Lengths<sup>1</sup> in mm:</b>
According to measuring range per EN 13190	As per connection designs
<b>Case</b>	<b>Ingress Protection</b>
SS304	IP65
<b>Pointer</b>	<b>Accuracy</b>
Aluminum, Adjustable Pointer	Class 2 per EN13190
<b>Window</b>	<b>Dial</b>
Instrument Glass	Aluminum
<b>Temperature Element</b>	<b>Pressure Limitation at Stem</b>
Gas actuated bourdon tube	Max. 20 bar
<b>Capillary Lengths (m)</b>	<b>Temperature Units</b>
1, 3, 6, 10	°C (centigrade)

1. Insertion length includes the threads



### Options

- ✓ Other temperature units (F) or dual scale (C/F)
- ✓ Supplying suitable thermowell per customer request
- ✓ Accuracy Class 1
- ✓ Special dial designs for special applications
- ✓ Other scale ranges
- ✓ Stem diameter 10mm

### Measuring Range & Maximum Permissible Errors

InstruMate gas actuated thermometers model 422 follow Class 2 accuracy according to EN13190 standard.

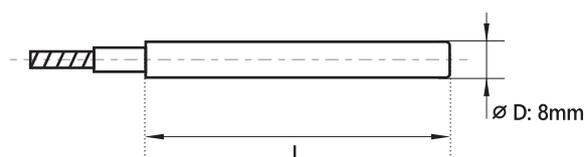
Temperature Range °C	Measuring Range °C	Limits of Error ±°C
-60...+40	-50...+30	2
-30...+50	-20...+40	2
-20...+80	-10...+70	2
0...60	+10...+50	2
0...100	+10...+90	2
0...120	+10...+110	4
0...160	+20...+140	4
0...200	+20...+180	4
0...250	+30...+220	5
0...300	+30...+270	10
0...400	+50...+350	10
0...500	+50...+450	10
0...600	+100...+500	15
50...650	+150...+550	15

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

### Connection Designs

#### 1. Plain stem

Standard insertion lengths (L): 140mm, 190mm, 240mm, 290mm



D: Stem diameter

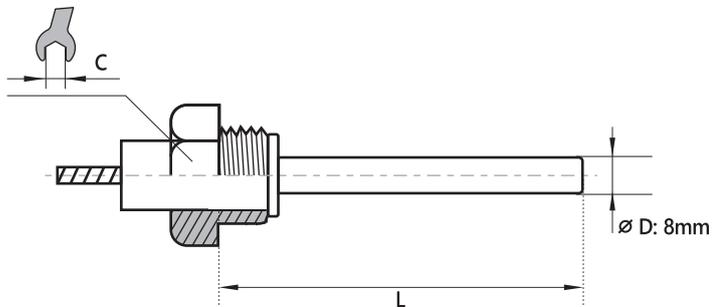
Connection  
Code

000

## 2. Male Nut

Process connection: G 1/2 B, 1/2 NPT

Standard insertion lengths (L): 100mm, 150mm, 200mm, 250mm



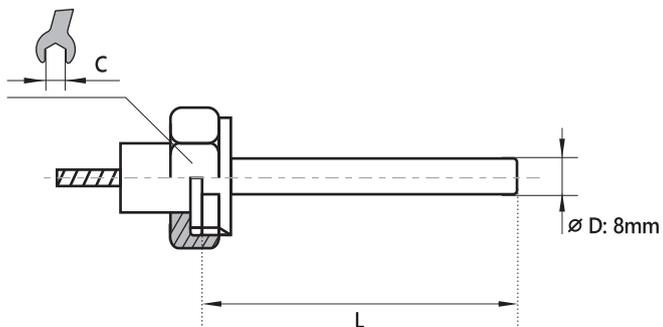
C: Spanner flats  
D: Stem diameter

Nominal Size	Process connection	C	Connection Code
	Thread type & Thread size		
100,160	G 1/2 B	22	2B2
	1/2 NPT	22	2N2

## 3. Union nut (Female Connection)

Process Connection: G 1/2 B, G 3/4 B, M24x1.5

Standard insertion lengths (L): 100mm, 150mm, 200mm, 250mm



C: Spanner flats  
D: Stem diameter

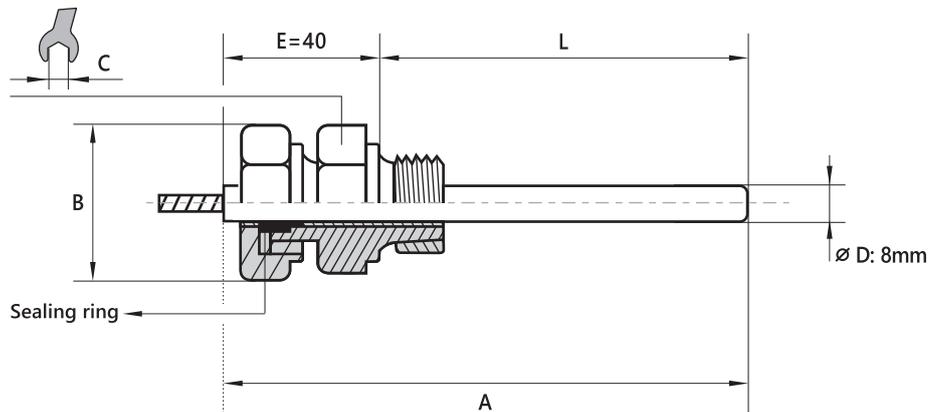
Nominal Size	Process connection	C	Connection Code
	Thread type & Thread size		
100,160	G 1/2 B	24	3B2
	G 3/4 B	32	3B3
	M24 x 1.5	27	3-M24 x 1.5

#### 4. Compression fitting (Sliding Connection)

Process connection: G 1/2 B, 1/2 NPT, M18x1.5

Standard insertion lengths (L): 100mm, 150mm, 200mm, 250mm

Length A = L + 40 mm



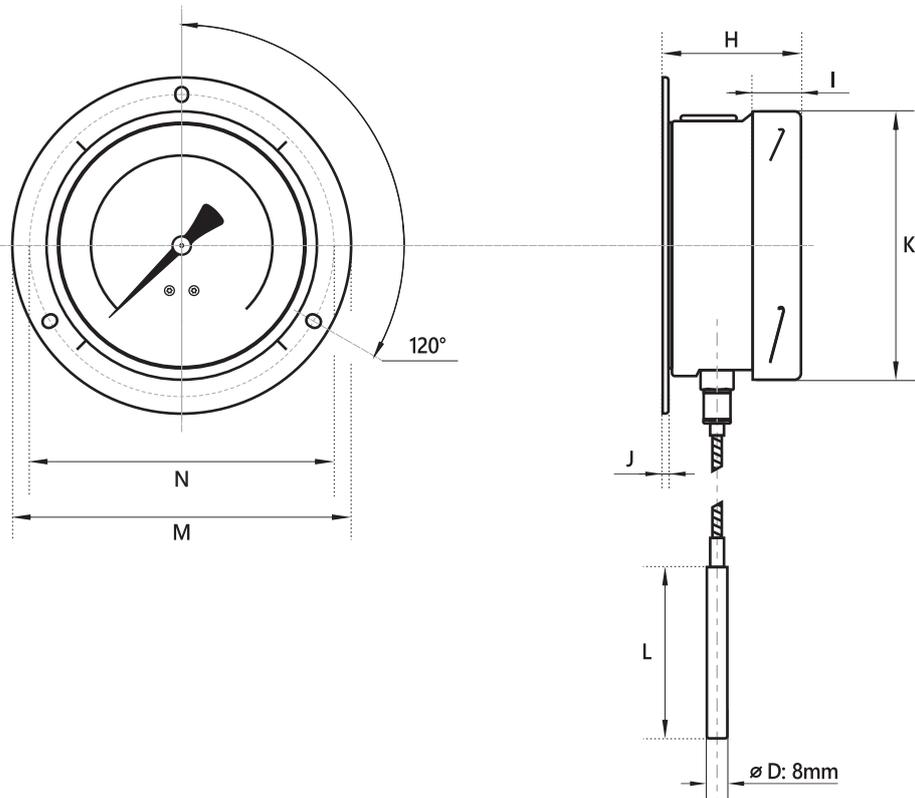
C: Spanner flats

D: Stem diameter

Nominal Size	Process connection	Dimensions (in mm)		Connection Code
	Thread type & Thread size	B	C	
100,160	G 1/2 B	22	24	4B2
	1/2 NPT	22	24	4N2
	M18 x 1.5	22	22	4-M18 x 1.5

## Dimensions (in mm)

### ■ Surface mounting: Bottom connection with back flange (L)

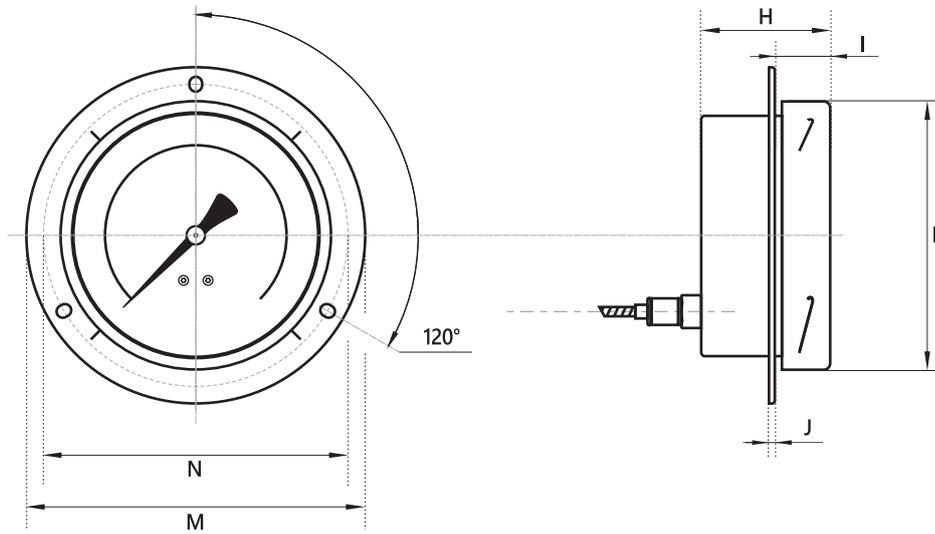


D: Stem diameter

L: Insertion length

Nominal Size	H	I	J	K	M	N
100	51.5	17	5	101	132	116
160	54	17.5	5.5	161	195	172

■ Panel mounting: Back connection with front flange (B)



D: Stem diameter  
L: Insertion length

Nominal Size	H	I	J	K	M	N
100	38.5	17.5	5	110	140	124
160	54	21.5	5.5	161	195	172

How To Order

Product Group Name	Model	Nominal Size	Mounting	Capillary length	Insertion length	Connection Code	Range
<i>Example:</i> Expansion thermometer	422	100	L	3	100	4N2	0...160 °C

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

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