

bi-metal thermometers

standard version

TB7 - DS 63-80-100-125

06.TB7



These instruments are designed for use in food, beverage, pharmaceutical, chemical, petrolchemical processing industries. They are built to resist the most severe operating conditions created by the environment and the process medium. An Argonarc welded case/bulb strengthens the whole construction.

Functional and constructive

06.TB7

Measuring range: the C° measuring range has been marked by two "▼" stamped on the dial.

Accuracy: class 2 as per EN 13190.

Ambient temperature: -25/+65 °C.

Overtemperature limit: 10% of full scale range for temperature ≤400 °C; max 500 °C.

Max working pressure: 15 bar (without thermowell).

Protection degree: IP 65 as per IEC 529.

Process connection: AISI 303 st.st.

Bulb: AISI 304 st.st.

ø 6-8 mm. for DS 80, DS 100, DS 125;

ø 6 mm. for DS 63.

Standard bulb length: 100 - 150 - 200 - 250.

Measuring element: bi-metal spiral shaped.

Welding: AISI 304 st.st. TIG.

Case: AISI 304 st.st.

Ring: AISI 304 st.st., crimped.

Window: plexiglas.

Dial: aluminium white with black markings.

Pointer: black anodized aluminium.

Window gasket: EPDM.

MEASURING PRINCIPLES

The bi-metal thermometers are built from a stainless steel tube inside of which a bi-metal helicoidal spiral is placed.

This spiral is welded to the tip of the tube and on the other side to a transmission shaft directly connected to the pointer.

The temperature vibrations create a deformation of the bi-metal which is transmitted to the pointer through a shaft rotation.

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SCALE RANGES - "C" = DS 63; "D" = DS 80, "E" = DS 100, "F" = DS125..

Tab. 1 - Single scales °C and bulb length "S"

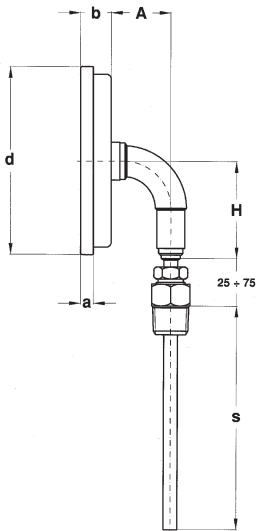
| °C | DS | "S" |
|-----------|---------|-----------|
| -20...+40 | C-D-E-F | 100...250 |
| 0...+60 | C-D-E-F | 100...250 |
| 0...+100 | C-D-E-F | 100...250 |
| 0...+120 | C-D-E-F | 100...250 |
| 0...+160 | C-D-E-F | 100...250 |
| 0...+200 | C-D-E-F | 100...250 |
| 0...+300 | C-D-E-F | 100...250 |
| 0...+400 | C-D-E-F | 150...250 |
| 0...+500 | C-D-E-F | 150...250 |

Tab. 2 - Dual scales °C / °F and bulb length "S"

| Primary °C (ext.) | Secondary °F (int.) | DS | "S" |
|-------------------|---------------------|-------|-----------|
| -20...+40 | -4...+104 | D-E-F | 100...250 |
| 0...+60 | +30...+140 | D-E-F | 100...250 |
| 0...+100 | +32...+212 | D-E-F | 100...250 |
| 0...+120 | +32...+250 | D-E-F | 100...250 |
| 0...+160 | +32...+320 | D-E-F | 100...250 |
| 0...+200 | +35...+400 | D-E-F | 100...250 |
| 0...+300 | +35...+570 | D-E-F | 100...250 |
| 0...+400 | +40...+750 | D-E-F | 150...250 |
| 0...+500 | 0...+930 | D-E-F | 150...250 |

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DS80-100-125

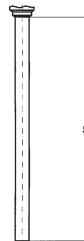
LOWER CONNECTION (code 1)



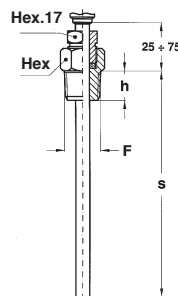
| DS | a | b | d | A | H |
|-----|-----|------|-------|------|----|
| 80 | 8,2 | 17 | 79,5 | 34,5 | 53 |
| 100 | 7,4 | 18 | 109,8 | 34,5 | 53 |
| 125 | 6,5 | 16,5 | 129,2 | 34,5 | 67 |

PROCESS CONNECTION

**Without threaded connection
(Code 0)**



**Sliding male and swivel nut
(Code 9)**

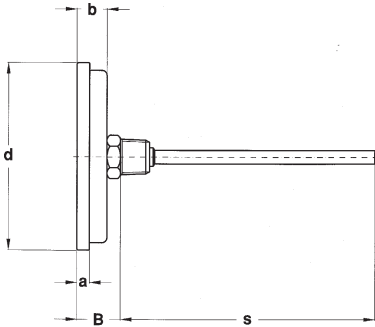


| F | Code | Hex. | h |
|----------|------|------|----|
| 1/2" Bsp | 41M | 22 | 14 |
| 1/2" NPT | 43M | 22 | 17 |

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DS63-80-100-125

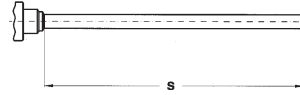
BACK CONNECTION (code 4)



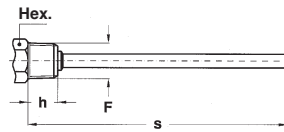
| DS | a | b | d | B |
|-----|-----|------|-------|------|
| 63 | 5,8 | 13 | 67,9 | 21 |
| 80 | 8,2 | 17 | 79,5 | 25 |
| 100 | 7,4 | 17,7 | 109,8 | 25,7 |
| 125 | 6,5 | 16,5 | 129,2 | 24,5 |

PROCESS CONNECTION

Without threaded connection
(Code 0)



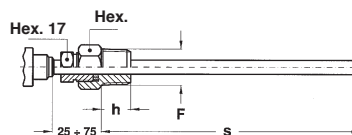
Fixed male (Code 3)



| F | Code | Hex. | h |
|--------------|------|------|----|
| 1/2" Bsp | 41M | 22 | 14 |
| 1/2" NPT | 43M | 22 | 17 |
| 1/4" Bsp (*) | 21M | 17 | 12 |
| 1/4" NPT (*) | 23M | 17 | 14 |

(*) DS 63 only

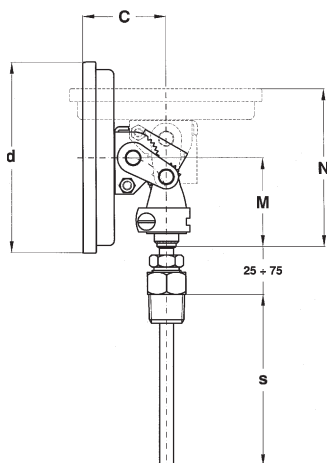
Sliding male and swivel nut
(Cod. 9)



| F | Code. | Hex. | h |
|----------|-------|------|----|
| 1/2" Bsp | 41M | 22 | 14 |
| 1/2" NPT | 43M | 22 | 17 |

06.TB79
DS100-125

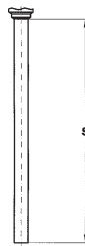
EVERY-ANGLE CONNECTION (code 9)



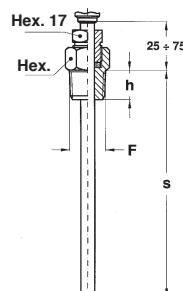
| DS | d | C | M | N |
|-----|-------|------|------|------|
| 100 | 109,8 | 47,7 | 51,5 | 91,2 |
| 125 | 129,2 | 46,5 | 51,5 | 90 |

PROCESS CONNECTION

Without threaded connection
(Code 0)

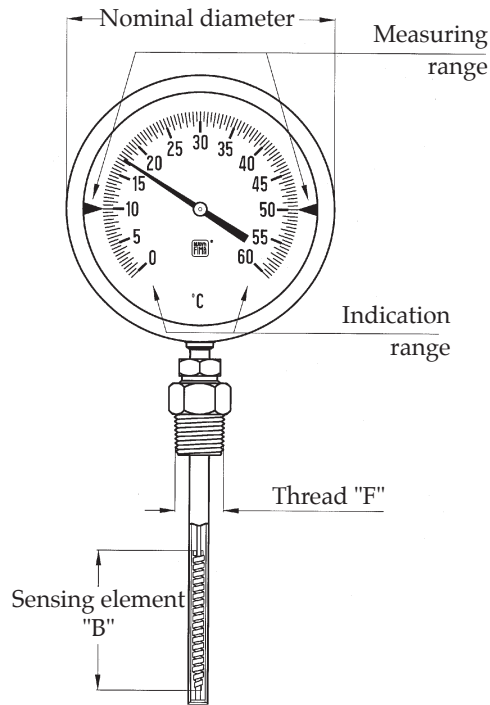
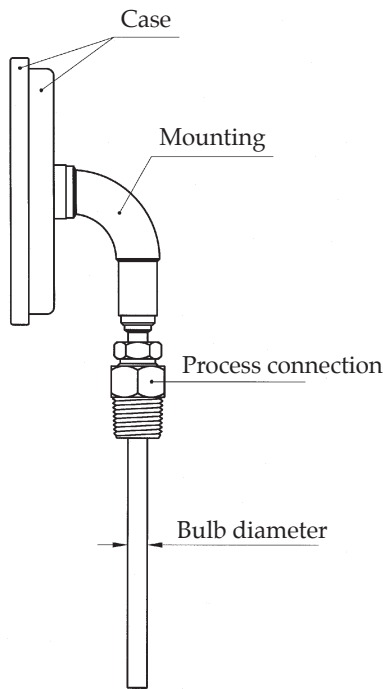


Sliding male and swivel nut
(Code 9)



| F | Code | Hex. | h |
|----------|------|------|----|
| 1/2" Bsp | 41M | 22 | 14 |
| 1/2" NPT | 43M | 22 | 17 |

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HOW TO ORDER

| | CODE & DESCRIPTION |
|-----------------|---|
| 06 | 06 - thermometer section |
| TB | TB - bi-metal thermometer |
| 7 | 7 - standard serie |
| 4 | 1 - Lower connection 4 - Back connection 9 - Every-angle connection |
| 9 | 0 - Without 3 - Fixed male 9 - Sliding male swivel nut |
| E | C - DS 63 D - DS 80 E - DS 100 F - DS 125 |
| 41M | 21M - 1/4" Bsp male (connection type 3 x DS 63) 23M - 1/4" NPT male (conn. type 3 x DS 63) 41M - 1/2" Bsp male (connection type 3-9) 43M - 1/2" NPT male (connection type 3-9) 000 - Without connection |
| S5 | S4 - ø 6 mm. bulb S5 - ø 8 mm. bulb |
| 200 | bulb length (mm.) |
| 0/100 °C | see ranges tables |
| S63 | Options S63 - bulb ø8mm. length 63 mm. for connection type 9 and ranges up to 300°C. |

THERMOWELLS

Must be used on all applications where thermometer bulb is subjected to pressure, corrosive fluid or flow rate. Thermowells will make thermometer disassemble for calibration or replacement easier as the process will not be disturbed.

Thermowells available:

- thermowells with thread connection either built up type or machined from bar stock;
- thermowells with flange either built up type or machined from a bar stock;

-thermowells to be welded machined from a bar stock.

Type, material and constructive characteristics on catalogue sheet "09".