

# Pt100, Thermistor and Thermocouple Assemblies With Protection Head and Fabricated Thermowell for Industrial Applications



DIN Series Starts at

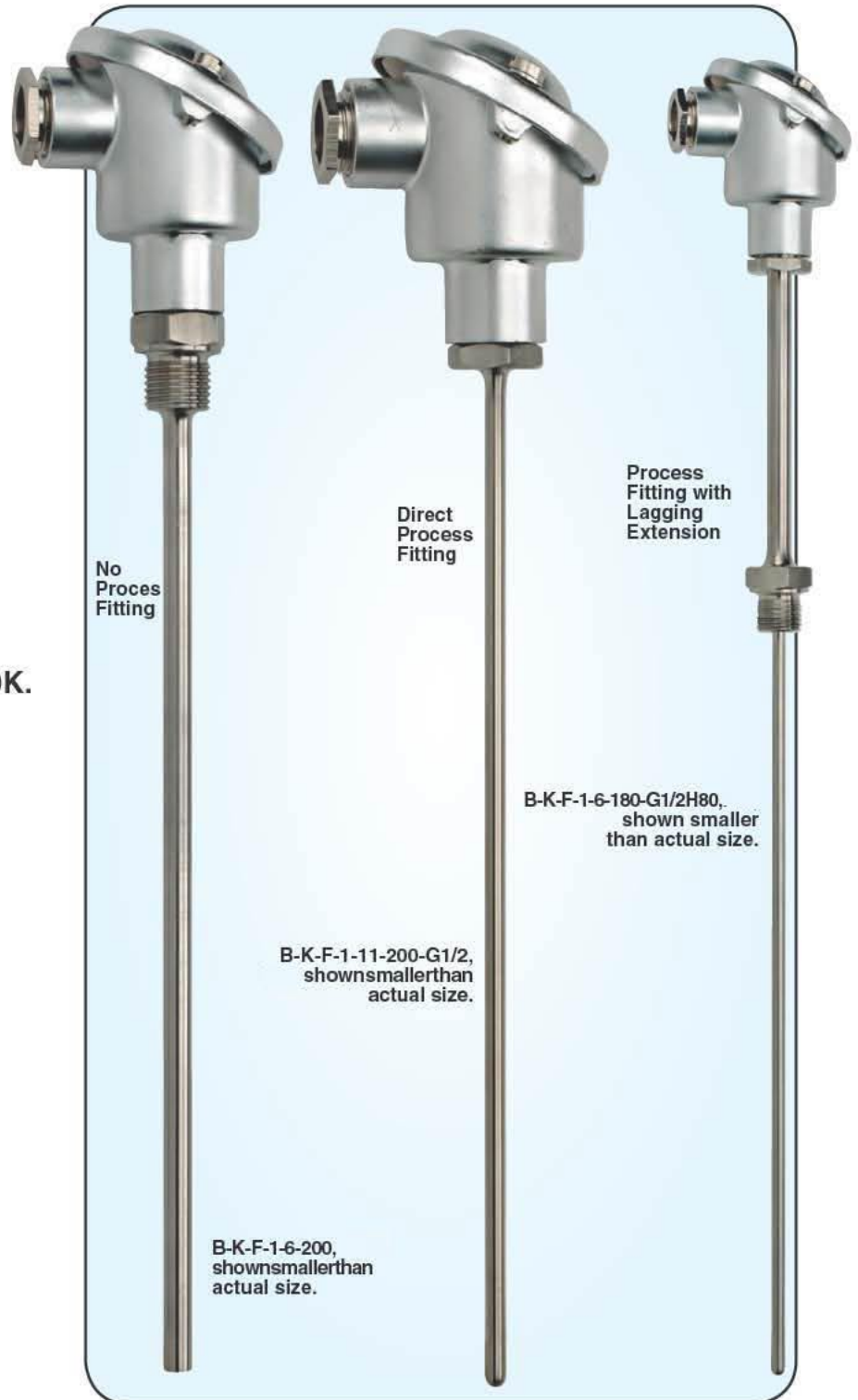


- ✓ Wide Range of Protection Head Styles and Materials
- ✓ Pt100 in Class A, 1/3 DIN and 1/10 DIN Available, Max 400°C
- ✓ Thermocouples Type J, K, N and T Accuracy IEC Class 1, Max 800°C
- ✓ Thermistors: 2K2, 3K, 5K, 10K.
- ✓ Sheath Lengths of 20 to 500 mm Standard
- ✓ Sheath Diameters of 6, 9, 11 and 15 mm
- ✓ Wide Range of Process Fittings/Threads
- ✓ Optional Head-Mount Transmitters

OMEGA's industrial protection head temperature probes are offered in 3 different mechanical constructions and with many options and fittings, making them suitable for a wide range of applications.

The following may be specified at time of order:

- ✓ Sensor Type
- ✓ Fixed, Replaceable or Mineral Insulated Construction
- ✓ Accuracy Class
- ✓ Diameter
- ✓ Insertion and Lagging Lengths
- ✓ Process Fittings and Optional Head-Mount Transmitter



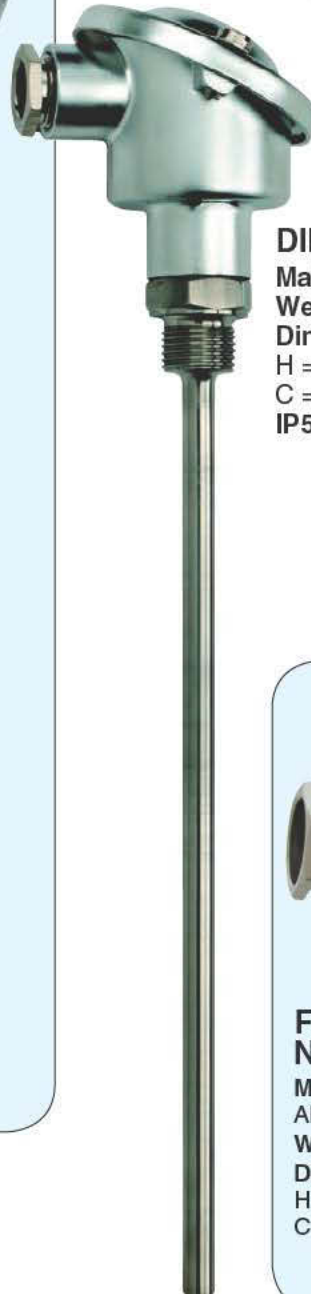


**NB12**

**Material:**  
Alloy-Aluminium  
**Weight:**  
230 g  
**Dimensions:**  
H = 87 mm,  
C = 82 mm  
**IP68<sup>†</sup> Rated**

Probelengthincludes  
approx. 12 mm  
allowance  
for tapered threads.

**Available!**  
Probes with Built-In  
Transmitters!  
See page 67



**DIN Form B**

**Material:** Alloy-Aluminium  
**Weight:** 250 g  
**Dimensions:**  
H = 72 mm,  
C = 72 mm  
**IP53<sup>†</sup> Rated**



**Cast Iron  
NB5**

**Material:** Cast iron  
**IP67<sup>†</sup> Rated**  
**Weight:** 1.6 kg  
**Dimensions:**  
H = 95 mm,  
C = 86 mm



**Flip Top  
NB3**

**Material:**  
Alloy-Aluminium  
**Weight:** 250 g  
**Dimensions:**  
H = 73 mm,  
C = 69 mm

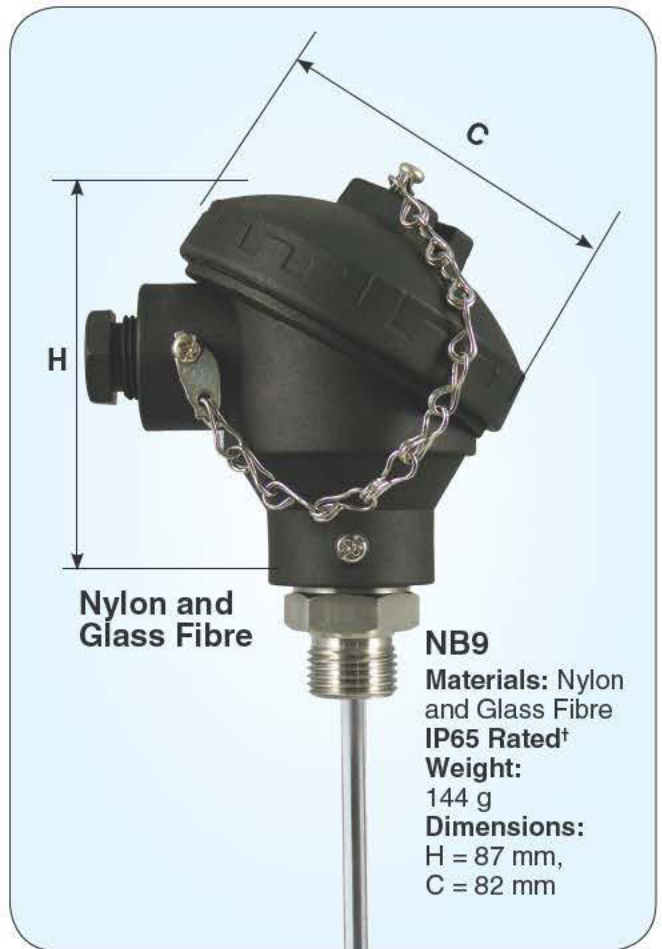
<sup>†</sup> Final IP rating depends on quality of installation.



**Miniature  
Aluminium  
Head  
NB11**

**Material:**  
Alloy-Aluminium  
**Weight:** 140 g  
**Dimensions:**  
H = 64 mm,  
C = 62 mm  
**IP68 Rated†**

*†Final IP rating depends on quality of installation.*



**Nylon and  
Glass Fibre**

**NB9**

**Materials:** Nylon  
and Glass Fibre  
**IP65 Rated†**  
**Weight:**  
144 g  
**Dimensions:**  
H = 87 mm,  
C = 82 mm

**Specifications**

**Sheath Material:** 316 SS

**Max Head Temperature:**

70°C: With transmitter

150°C: Without transmitter

**Standard Pt100 Wiring:**

**Class A:** 2 wire

**Class ½ and ¼ DIN:** 4-wire

**Pt100 Transmitter:**

**Minimum Span:** 20°C

**Accuracy:**  $\pm(0.1^\circ\text{C} + 0.1\%$   
range)  $\pm 5\mu\text{A}$  for -100 to 500°C

$\pm(0.2^\circ\text{C} + 0.1\%$  range)  $\pm 5\mu\text{A}$   
for -200 to 850°C

**Thermal Drift:**

**Zero:**  $\pm 0.01^\circ\text{C}/^\circ\text{C}$

**Span:**  $\pm 50$  ppm

**Output:** 4 to 20 mA,  
2 wire, loop powered

**Operating voltage:**

8 to 30Vdc

**Loop Resistivity:**

800  $\Omega$  @ 24 Vdc

**Thermocouple Transmitter:**

**Minimum Span:** 75°C

**Accuracy:**  $\pm 0.1\%$  FS (0/100°C  
range) Excl. CJ

**Overall Stability (inc. CJ):**

400 ppm/°C, 8 to 30 Vdc

**Stainless  
Steel Head**



**NB13**

**Material:** 316 SS  
**IP68 Rated†**  
**Weight:**  
820 g  
**Dimensions:**  
H = 87 mm,  
C = 82 mm

**Cold Junction Compensation:**

Automatic 1 to 70°C; accuracy  
0.2°C @ 20°C, tracking  
 $\pm 0.05^\circ\text{C}/^\circ\text{C}$

**Output:** 4 to 20 mA, 2 wire,  
loop powered

**Operating Voltage:**

10 to 30 Vdc

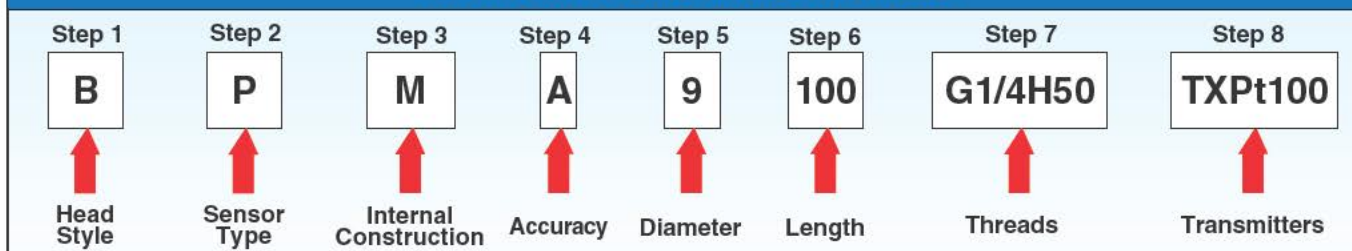
**Loop Resistance:**

$(V_{\text{supply}} - 10)/0.021$

**Thermistor Transmitter:**

**See TX206TH Data Sheet**

## Multi Point Probe Model Numbers



**Ordering Example:** B-P-M-A-9-100-G1/4H50-TXPt100, £102.00.

### Head Type (step 1)

B = DIN Form B IP53 .....  
 NB5 = Cast Iron IP67 .....  
 NB3 = Flip-Top Aluminium Alloy IP65 .....  
 NB8 = Domed Top Aluminium Alloy IP67 .....  
 NB9 = Glass Filled Nylon IP67 .....  
 NB11 = Mini Aluminium Alloy IP67 .....  
 NB12 = Aluminium Alloy IP67 .....  
 NB13 = 3/6 Stainless Steel IP67 .....

### Internal (step 3)

F = Fixed Sensor Element.....  
 G = Replaceable Pt100 Sensor.....  
 (Only for 9, 11 & 15 mm Diameter)  
 M = Mineral Insulated Pt100.....

### Diameter (step 5)

6 = 6 mm Diameter .....  
 9 = 9 mm Diameter .....  
 11 = 11 mm Diameter .....  
 15 = 15 mm Diameter .....

### Sensor Type (step 2)

P = Pt100 (RTD) Probe .....  
 J = J Thermocouple .....  
 K = K Thermocouple .....  
 T = T Thermocouple .....  
 N = N Thermocouple .....  
 2K2 = 2,252 Ω Thermistor .....  
 3K = 3K Ω Thermistor .....  
 5K = 5K Ω Thermistor .....  
 10K = 10K Ω Thermistor .....

### Accuracy (step 4)

A = Accuracy Class A .....  
 1/3 = Pt100 Accuracy 1/3 DIN .....  
 1/10 = Pt100 Accuracy 1/10 DIN .....  
 1 = Accuracy Class 1 .....  
 TH1 = 0.1° Thermistor .....  
 TH2 = 0.2° Thermistor .....

### Length (step 6)

20-200 = Length 5-200 mm .....  
 201-500 = Length 201-500 mm .....

### Threads (step 7)

0 = No thread.....  
 M18 = M18 x 1.5.....  
 G1/4 = G1/4 with 19 mm Hex .....  
 G1/2 = G1/2 with 24 mm Hex .....  
 R1/4 = R1/4 with 19 mm Hex .....  
 R1/2 = R1/2 with 24 mm Hex .....  
 M18Hxxx = Lagging Ext. with M18x1.5.....  
 G1/4Hxxx = Lagging Ext. with 19 mm Hex .....  
 G1/2Hxxx = Lagging Ext. with G1/2 with 24 mm Hex .....  
 (xxx Specify the distance from the thread to the sensor head)

### Transmitters (step 8)

TX-Pt100 = Transmitter for Pt100 .....  
 TX-TC = Transmitter for Thermocouple .....  
 TX-TH = Transmitter for Thermistor .....

**Note:** When ordering a transmitter, specify required scaling.  
 Ex: range 0 to 120°C = output 4 to 20 mA

**Ordering Example 1:** B-K-M-1-6-50-M18  
 Thermocouple type K probe with Class 1 accuracy and diameter of 6 mm. The probe length is 50 mm with M18 x 1.5 mounting thread.

Base price - K  
 Additional price for M18 thread  
**Total Price**

**Ordering Example 2:** NB13-P-M-A-9-100-G1/4H50-TXPt100  
 Pt100 probe with Class A accuracy and diameter of 9 mm. Stainless steel protection head The probe length is 100 mm with a G1/4 mounting bush, 50 mm lagging extension and a head mounted transmitter.

Base price - P  
 Additional price for Stainless Steel Head  
 Additional price MI Construction  
 Additional price for process connection/extension  
 Additional price for transmitter  
**Total Price**

