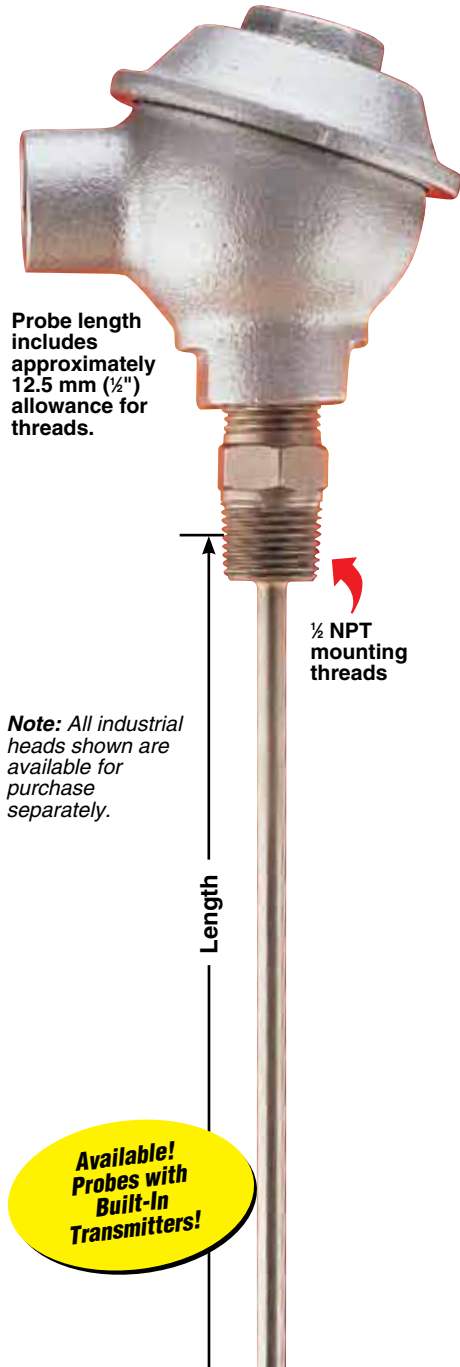


# Industrial Thermocouples Protection Head Design

- ✓ Sheath Materials:  
304SS, 310SS, 316SS,  
321SS, Inconel® or  
Super OMEGA CLAD® XL
- ✓ Probe Length 300  
mm (12"), 600 mm  
(24") Custom Lengths  
Available, Consult Sales

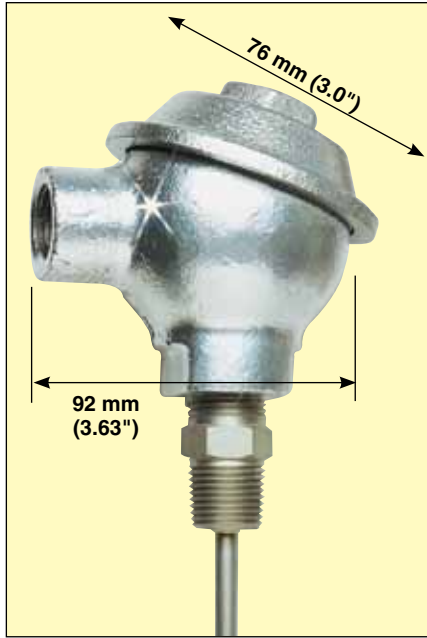


*Note: All industrial heads shown are available for purchase separately.*

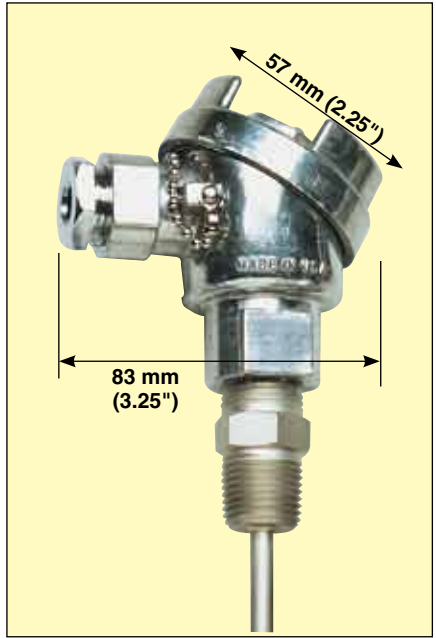
**Available!  
Probes with  
Built-In  
Transmitters!**

**Complete your application  
with OMEGA's extension wire.**

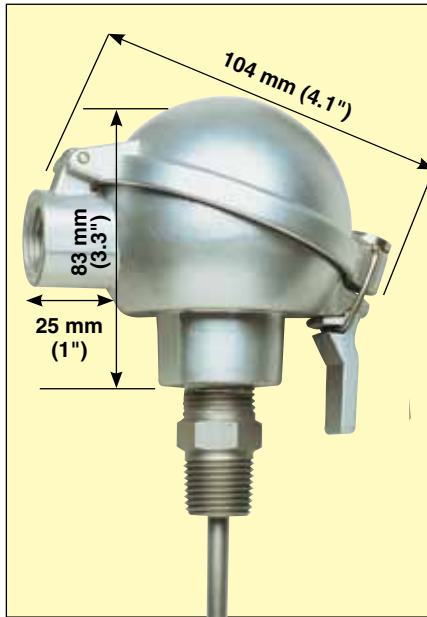
Available as  
**SUPER**  
OMEGA CLAD® XL  
THERMOCOUPLE PROBES  
MEETS OR EXCEEDS  
SPECIAL LIMITS  
OF ERROR (SLE)  
AND EN 60584-2:  
Tolerance Class 1



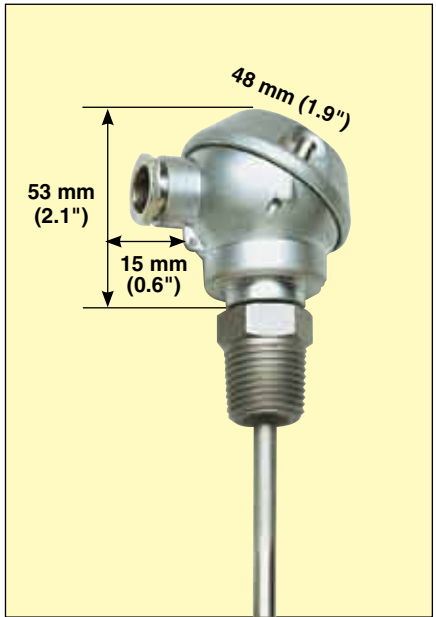
**NB1, Cast Iron**



**NB2, Aluminum**



**NB3, Aluminum  
with Snap-Lock**



**NB4, Sub-Miniature  
Aluminum**



For a complete selection of thermowells in both Standard and Metric dimensions, please visit us online.



# New and Improved Protection Heads

## Industrial Thermocouple Probes

Available as  
**MEETS OR EXCEEDS SPECIAL LIMITS OF ERROR (SLE) and EN 60584-2: Temperature Class 1**  
**SUPER OMEGA GLAD XL THERMOCOUPLE PROBES**

A



**Available!**  
 Probes with  
 Built-in Transmitters!



### Cast Iron

#### NB5

**Material:** Cast iron  
**Weight:** 1.6 kg (3.5 lb)  
**Dimensions:**  
 H=95 mm (3.8")  
 C=86 mm (3.4")



### Flip Top NB7

**Material:** Alloy-Aluminum  
**Weight:** 250 g (8.8 oz)  
**Dimensions:**  
 H=93 mm (3.7")  
 C=76 mm (3")

### Deep Base

#### NB6

**Material:** Alloy-Aluminum  
**Weight:** 250 g (8.8 oz)  
**Dimensions:**  
 H=82 mm (3.2")  
 C=82 mm (3.2")



### NB8

**Material:** Alloy-Aluminum  
**Weight:** 230 g (8 oz)  
**Dimensions:**  
 H=86 mm (3.4")  
 C=70 mm (2.8")

**Ordering Example:**  
**NB8-ICSS-18U-12,**  
 a 300 mm (12")  
 ungrounded ICSS  
 Type J stainless  
 steel thermocouple,  
 3 mm (1/8") sheath  
 diameter probe  
 with an NB8 protection  
 head.

# Industrial Thermocouple Protection Head Probe Assemblies



**Low Profile  
NB12**  
**Material:**  
 Alloy-Aluminum  
**Weight:** 274 g (9.7 oz)  
**Dimensions:**  
 H=87 mm (3.4")  
 C=82 mm (3.2")  
 IP67 Approval

**Miniature  
Bakelite  
NB10**  
**Material:** Bakelite  
**Weight:** 82 g (2.9 oz)  
**Dimensions:**  
 H=68 mm (2.7")  
 C=61.5 mm (2.4")  
 O-Ring Seal

**Available!  
Probes with  
Built-In  
Transmitters!**



**Miniature  
Aluminum  
NB11**  
**Material:** Alloy-Aluminum  
**Weight:** 140 g (4.9 oz)  
**Dimensions:**  
 H=67 mm (2.6")  
 C=62 mm (2.4")  
 IP67 Approval

**Nylon and  
Glass Fiber.**

**NB9**  
**Material:** Nylon  
 & Glass Fiber  
**Weight:**  
 144 g (5 oz)  
**Dimensions:**  
 H=87 mm (3.4")  
 C=82 mm (3.2")

**Length**

**To Order:**  
 Insert the style  
 number into the part  
 numbers shown in  
 the "How To Order"  
 table. See ordering  
 examples below and  
 on next page.

*Ordering Example:  
 NB9-CASS-18G-12,  
 a 300 mm (12")  
 grounded CASS  
 Type K stainless  
 steel thermocouple,  
 3 mm (1/8") sheath  
 diameter probe with  
 an NB9 protection  
 head.*

- NB1 Cast-Iron Protection Head with Internal Terminal Block
- NB2 Miniature Aluminum Head with Internal Terminal Block
- NB3 Aluminum Head Features Convenient Snap-Lock Design with Internal Terminal Block
- NB4 Subminiature Aluminum Head with Internal Terminal Block
- 1/2 NPT Mounting Thread
- 12" Length Standard†

**Standard Dimensions**

The industrial-style assemblies offer a variety of protection heads to meet the environmental and size requirements of most applications. They are available in J, K, T, E, or N calibrations, with 304 SS, 310 SS, 316 SS, 321 SS, Super OMEGA CLAD® XL, or Inconel® sheathing. Standard lengths are 12", including 1/2" for the pipe thread, with other lengths available. Both the thread on the probe and the extension-wire opening are 1/2 NPT. The NB2 and NB4 include a compression fitting nut and rubber ferrule for 1/8 to 1/4" OD wires or tubing. The internal terminal block is standard on all models.



**PFA Coating Available. Consult Sales**

To Order 12" Lengths				
Alloy/ANSI Color Code	Sheath Dia. (inch)	Grounded Junction	Ungrounded Junction	Exposed Junction
Iron-Constantan Inconel® Sheath <b>J</b>	1/16, 1/8, 3/16, 1/4	NB(*)-ICIN-116G-12 NB(*)-ICIN-18G-12 NB(*)-ICIN-316G-12 NB(*)-ICIN-14G-12	NB(*)-ICIN-116U-12 NB(*)-ICIN-18U-12 NB(*)-ICIN-316U-12 NB(*)-ICIN-14U-12	NB(*)-ICIN-116E-12 NB(*)-ICIN-18E-12 NB(*)-ICIN-316E-12 NB(*)-ICIN-14E-12
Iron-Constantan 304 SS Sheath <b>J</b>	1/16, 1/8, 3/16, 1/4	NB(*)-ICSS-116G-12 NB(*)-ICSS-18G-12 NB(*)-ICSS-316G-12 NB(*)-ICSS-14G-12	NB(*)-ICSS-116U-12 NB(*)-ICSS-18U-12 NB(*)-ICSS-316U-12 NB(*)-ICSS-14U-12	NB(*)-ICSS-116E-12 NB(*)-ICSS-18E-12 NB(*)-ICSS-316E-12 NB(*)-ICSS-14E-12
CHROMEALLOY®-ALOMEGA® Inconel® Sheath <b>K</b>	1/16, 1/8, 3/16, 1/4	NB(*)-CAIN-116G-12 NB(*)-CAIN-18G-12 NB(*)-CAIN-316G-12 NB(*)-CAIN-14G-12	NB(*)-CAIN-116U-12 NB(*)-CAIN-18U-12 NB(*)-CAIN-316U-12 NB(*)-CAIN-14U-12	NB(*)-CAIN-116E-12 NB(*)-CAIN-18E-12 NB(*)-CAIN-316E-12 NB(*)-CAIN-14E-12
CHROMEALLOY®-ALOMEGA® 304 SS Sheath <b>K</b>	1/16, 1/8, 3/16, 1/4	NB(*)-CASS-116G-12 NB(*)-CASS-18G-12 NB(*)-CASS-316G-12 NB(*)-CASS-14G-12	NB(*)-CASS-116U-12 NB(*)-CASS-18U-12 NB(*)-CASS-316U-12 NB(*)-CASS-14U-12	NB(*)-CASS-116E-12 NB(*)-CASS-18E-12 NB(*)-CASS-316E-12 NB(*)-CASS-14E-12
CHROMEALLOY®-Constantan Inconel® Sheath <b>E</b>	1/16, 1/8, 3/16, 1/4	NB(*)-CXIN-116G-12 NB(*)-CXIN-18G-12 NB(*)-CXIN-316G-12 NB(*)-CXIN-14G-12	NB(*)-CXIN-116U-12 NB(*)-CXIN-18U-12 NB(*)-CXIN-316U-12 NB(*)-CXIN-14U-12	NB(*)-CXIN-116E-12 NB(*)-CXIN-18E-12 NB(*)-CXIN-316E-12 NB(*)-CXIN-14E-12
CHROMEALLOY®-Constantan 304 SS Sheath <b>E</b>	1/16, 1/8, 3/16, 1/4	NB(*)-CXSS-116G-12 NB(*)-CXSS-18G-12 NB(*)-CXSS-316G-12 NB(*)-CXSS-14G-12	NB(*)-CXSS-116U-12 NB(*)-CXSS-18U-12 NB(*)-CXSS-316U-12 NB(*)-CXSS-14U-12	NB(*)-CXSS-116E-12 NB(*)-CXSS-18E-12 NB(*)-CXSS-316E-12 NB(*)-CXSS-14E-12
Copper-Constantan Inconel® Sheath <b>T</b>	1/16, 1/8, 3/16, 1/4	NB(*)-CPIN-116G-12 NB(*)-CPIN-18G-12 NB(*)-CPIN-316G-12 NB(*)-CPIN-14G-12	NB(*)-CPIN-116U-12 NB(*)-CPIN-18U-12 NB(*)-CPIN-316U-12 NB(*)-CPIN-14U-12	NB(*)-CPIN-116E-12 NB(*)-CPIN-18E-12 NB(*)-CPIN-316E-12 NB(*)-CPIN-14E-12
Copper-Constantan 304 SS Sheath <b>T</b>	1/16, 1/8, 3/16, 1/4	NB(*)-CPSS-116G-12 NB(*)-CPSS-18G-12 NB(*)-CPSS-316G-12 NB(*)-CPSS-14G-12	NB(*)-CPSS-116U-12 NB(*)-CPSS-18U-12 NB(*)-CPSS-316U-12 NB(*)-CPSS-14U-12	NB(*)-CPSS-116E-12 NB(*)-CPSS-18E-12 NB(*)-CPSS-316E-12 NB(*)-CPSS-14E-12
OMEGAALLOY®-NICROSIL-NISIL Inconel Sheath <b>N</b>	1/16, 1/8, 3/16, 1/4	NB(*)-NNIN-116G-12 NB(*)-NNIN-18G-12 NB(*)-NNIN-316G-12 NB(*)-NNIN-14G-12	NB(*)-NNIN-116U-12 NB(*)-NNIN-18U-12 NB(*)-NNIN-316U-12 NB(*)-NNIN-14U-12	NB(*)-NNIN-116E-12 NB(*)-NNIN-18E-12 NB(*)-NNIN-316E-12 NB(*)-NNIN-14E-12

**Note:** PFA coating is available, 400°F (204°C) max. † Other lengths available, consult Sales Department.  
 \* Insert the number "1" through "12" for NB1, NB2, NB3, NB4, NB5, NB6, NB7, NB8, NB9, NB10, NB11 or NB12 heads, respectively.  
 \*\* For highest temperature and stability rating, change "SS" or "IN" to "XL" for additional cost.  
 To order probes with lengths other than 12", change the last 2 digits of the model number from "12" to the desired length in inches, and add the appropriate price per additional foot from the last column.  
 To order with 310, 316 or 321 SS sheath, change "SS" in model number to "310SS", "316SS" or "321SS", respectively, no additional charge.  
 Consult Sales for lengths between 2 and 12", or for lengths over 24".

**Ordering Examples:** NB1-CASS-14G-12, 12" grounded 304 SS probe, Type K, 1/4" sheath diameter.  
 NB2-ICSS-14U-12, 12" ungrounded 304 SS, Type J, 1/4" sheath diameter.



- ✓ NB1 Cast-Iron Protection Head with Internal Terminal Block
- ✓ NB2 Miniature Aluminum Head with Internal Terminal Block
- ✓ NB3 Aluminum Head Features Convenient Snap-Lock Design with Internal Terminal Block
- ✓ NB4 Subminiature Aluminum Head with Internal Terminal Block
- ✓ 1/2" BSPT Mounting Thread
- ✓ 300 mm Length Standard†

## Metric Dimensions

The industrial-style assemblies offer a variety of protection heads to meet the environmental and size requirements of most applications. They are available in J, K, T, E, or N calibrations, with 304 SS, 310 SS, 316 SS, 321 SS, Super OMEGACLAD® XL, or Inconel® sheathing. Standard lengths are 300 mm, including 12 mm for the pipe thread, with other lengths available. Both the thread on the probe and the extension-wire opening are 1/2" BSPT. The NB2 and NB4 include a compression fitting nut and rubber ferrule for 3.2 to 6.3 mm OD wires or tubing. The internal terminal block is standard on all models.



## To Order 300 mm Lengths

Alloy/ANSI Color Code	Sheath Dia. (mm)	Grounded Junction	Ungrounded Junction	Exposed Junction
Iron-Constantan Inconel® Sheath	J 1.5 3.0 4.5 6.0	NB(*)-ICIN-M15G-300 NB(*)-ICIN-M30G-300 NB(*)-ICIN-M45G-300 NB(*)-ICIN-M60G-300	NB(*)-ICIN-M15U-300 NB(*)-ICIN-M30U-300 NB(*)-ICIN-M45U-300 NB(*)-ICIN-M60U-300	NB(*)-ICIN-M15E-300 NB(*)-ICIN-M30E-300 NB(*)-ICIN-M45E-300 NB(*)-ICIN-M60E-300
Iron-Constantan 304 SS Sheath	J 1.5 3.0 4.5 6.0	NB(*)-ICSS-M15G-300 NB(*)-ICSS-M30G-300 NB(*)-ICSS-M45G-300 NB(*)-ICSS-M60G-300	NB(*)-ICSS-M15U-300 NB(*)-ICSS-M30U-300 NB(*)-ICSS-M45U-300 NB(*)-ICSS-M60U-300	NB(*)-ICSS-M15E-300 NB(*)-ICSS-M30E-300 NB(*)-ICSS-M45E-300 NB(*)-ICSS-M60E-300
CHROMEQA®-** ALOMEGA® Inconel® Sheath	K 1.5 3.0 4.5 6.0	NB(*)-CAIN-M15G-300 NB(*)-CAIN-M30G-300 NB(*)-CAIN-M45G-300 NB(*)-CAIN-M60G-300	NB(*)-CAIN-M15U-300 NB(*)-CAIN-M30U-300 NB(*)-CAIN-M45U-300 NB(*)-CAIN-M60U-300	NB(*)-CAIN-M15E-300 NB(*)-CAIN-M30E-300 NB(*)-CAIN-M45E-300 NB(*)-CAIN-M60E-300
CHROMEQA®-** ALOMEGA® 304 SS Sheath	K 1.5 3.0 4.5 6.0	NB(*)-CASS-M15G-300 NB(*)-CASS-M30G-300 NB(*)-CASS-M45G-300 NB(*)-CASS-M60G-300	NB(*)-CASS-M15U-300 NB(*)-CASS-M30U-300 NB(*)-CASS-M45U-300 NB(*)-CASS-M60U-300	NB(*)-CASS-M15E-300 NB(*)-CASS-M30E-300 NB(*)-CASS-M45E-300 NB(*)-CASS-M60E-300
CHROMEQA®- Constantan Inconel® Sheath	E 1.5 3.0 4.5 6.0	NB(*)-CXIN-M15G-300 NB(*)-CXIN-M30G-300 NB(*)-CXIN-M45G-300 NB(*)-CXIN-M60G-300	NB(*)-CXIN-M15U-300 NB(*)-CXIN-M30U-300 NB(*)-CXIN-M45U-300 NB(*)-CXIN-M60U-300	NB(*)-CXIN-M15E-300 NB(*)-CXIN-M30E-300 NB(*)-CXIN-M45E-300 NB(*)-CXIN-M60E-300
CHROMEQA®- Constantan 304 SS Sheath	E 1.5 3.0 4.5 6.0	NB(*)-CXSS-M15G-300 NB(*)-CXSS-M30G-300 NB(*)-CXSS-M45G-300 NB(*)-CXSS-M60G-300	NB(*)-CXSS-M15U-300 NB(*)-CXSS-M30U-300 NB(*)-CXSS-M45U-300 NB(*)-CXSS-M60U-300	NB(*)-CXSS-M15E-300 NB(*)-CXSS-M30E-300 NB(*)-CXSS-M45E-300 NB(*)-CXSS-M60E-300
Copper-Constantan Inconel® Sheath	T 1.5 3.0 4.5 6.0	NB(*)-CPIN-M15G-300 NB(*)-CPIN-M30G-300 NB(*)-CPIN-M45G-300 NB(*)-CPIN-M60G-300	NB(*)-CPIN-M15U-300 NB(*)-CPIN-M30U-300 NB(*)-CPIN-M45U-300 NB(*)-CPIN-M60U-300	NB(*)-CPIN-M15E-300 NB(*)-CPIN-M30E-300 NB(*)-CPIN-M45E-300 NB(*)-CPIN-M60E-300
Copper-Constantan 304 SS Sheath	T 1.5 3.0 4.5 6.0	NB(*)-CPSS-M15G-300 NB(*)-CPSS-M30G-300 NB(*)-CPSS-M45G-300 NB(*)-CPSS-M60G-300	NB(*)-CPSS-M15U-300 NB(*)-CPSS-M30U-300 NB(*)-CPSS-M45U-300 NB(*)-CPSS-M60U-300	NB(*)-CPSS-M15E-300 NB(*)-CPSS-M30E-300 NB(*)-CPSS-M45E-300 NB(*)-CPSS-M60E-300
OMEGAALLOY®- NICROSIL-NISIL Inconel Sheath	N 1.5 3.0 4.5 6.0	NB(*)-NNIN-M15G-300 NB(*)-NNIN-M30G-300 NB(*)-NNIN-M45G-300 NB(*)-NNIN-M60G-300	NB(*)-NNIN-M15U-300 NB(*)-NNIN-M30U-300 NB(*)-NNIN-M45U-300 NB(*)-NNIN-M60U-300	NB(*)-NNIN-M15E-300 NB(*)-NNIN-M30E-300 NB(*)-NNIN-M45E-300 NB(*)-NNIN-M60E-300

**Note:** PFA coating is available, 204°C (400°F) max. † Other lengths available, consult Sales Department.

\* Insert the number "1" through "12" for NB1, NB2, NB3, NB4, NB5, NB6, NB7, NB8, NB9, NB10, NB11 or NB12 heads, respectively.

\*\* For highest temperature and stability rating, change "SS" or "IN" to "XL" for additional cost.

To order probes with lengths other than 300 mm, change the last 3 digits of the model number from "300" to the desired length in mm, and add the appropriate price per additional 300 mm from the last column. To order with 310 SS, 316 SS or 321 SS sheath, change "SS" in model number to "310SS", "316SS" or "321SS", respectively, no additional charge. Consult Sales for lengths between 50 and 300 mm or for lengths over 600 mm.

**Ordering Examples:** NB1-ICSS-M60G-300, 300 mm grounded 304 SS probe, Type J, 6.0 mm sheath diameter.

NB2-CASS-M60U-300, 300 mm ungrounded 304 SS, Type K, 6 mm sheath diameter.