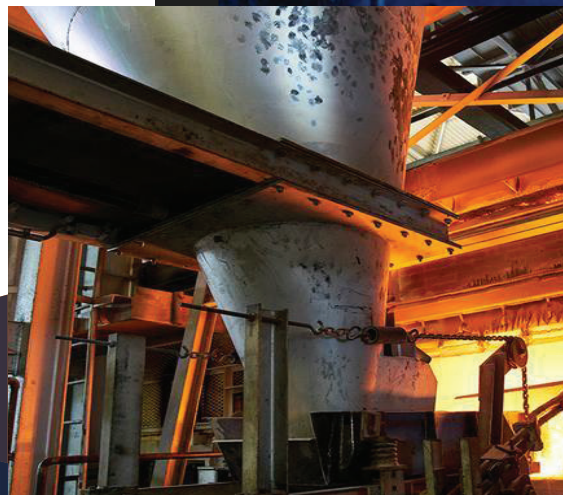




# THERMOCOUPLES FOR GLASS INDUSTRIES

Temperature Sensors  
To Meet Your Industry Needs



[www.eurekaengg.com](http://www.eurekaengg.com)



S. No. 7, Plot 42, PCNTDA,  
MIDC Bhosari, PUNE - 411026.



+91-020-66345100



[senstemp@eurekaengg.com](mailto:senstemp@eurekaengg.com)



## ABOUT US

Eureka Engineering Enterprises (Quality temperature sensors since 2000), is an ISO 9001-2015 certified, leading manufacturer of Temperature sensing and control systems founded by technocrats with their factory located at MIDC Bhosari, Pune. The company handles global, as well as national clientele. The factory is equipped with dynamic and autonomous machinery like Deep Hole Drilling Machine, CNC Turning Machine, Lathe Machines, TIG Welding for accurate machining. Their manufacturing program in a state-of-the-art manufacturing facility includes Thermocouples (K, N, J, N, R, S, T, E, and B types), Resistance Temperature Detectors (RTDs), Thermowells (Bar stock, Fabricated and Customized), Temperature Indicators, Controllers, and PID Controllers, etc. Eureka stands on three central pillars of – Quality, Value, and Delivery.

Leading manufacturer of Temperature sensing and control systems founded by technocrats



2000



State-of the art manufacturing factory located at MIDC Bhosari, Pune

## THREE PILLARS FOR EUREKA MOMENT

### Quality - Value - Delivery



We are an ISO 9001:2008 certified company specializing in manufacturing and supplying temperature measurement and control systems. We help improve productivity and provide growth opportunities to employees and suppliers while adhering to business philosophy of Total Quality Management. We have appropriate infrastructure & technical expertise supported by qualified and experienced engineers.



At Eureka, we believe in providing quality at optimum cost. Our manufacturing program includes Resistance Temperature Detectors (RTDs), Thermocouples (J, K, N, R, S, T, E, and B types), Thermowells (Bar stock, Fabricated and Customized), Temperature Indicators, Controllers, and PID Controllers etc. Our instruments have been successfully employed in various Process control Industries.



In today's world, speed is the most sought after parameters of reliability. We strive to deliver within proposed time frame and ensure that the delivery of the products are within reasonable duration so that our customers can trust us in long term. Today, we take pride in announcing us as one of the most trusted manufacturers and suppliers of Temperature measurement and control systems.

# SINCE 2000

ISO 9001-2015 certified by TUV Nord

CE Marking certification by Ente Certificazione Macchine Srl, Italy

2020

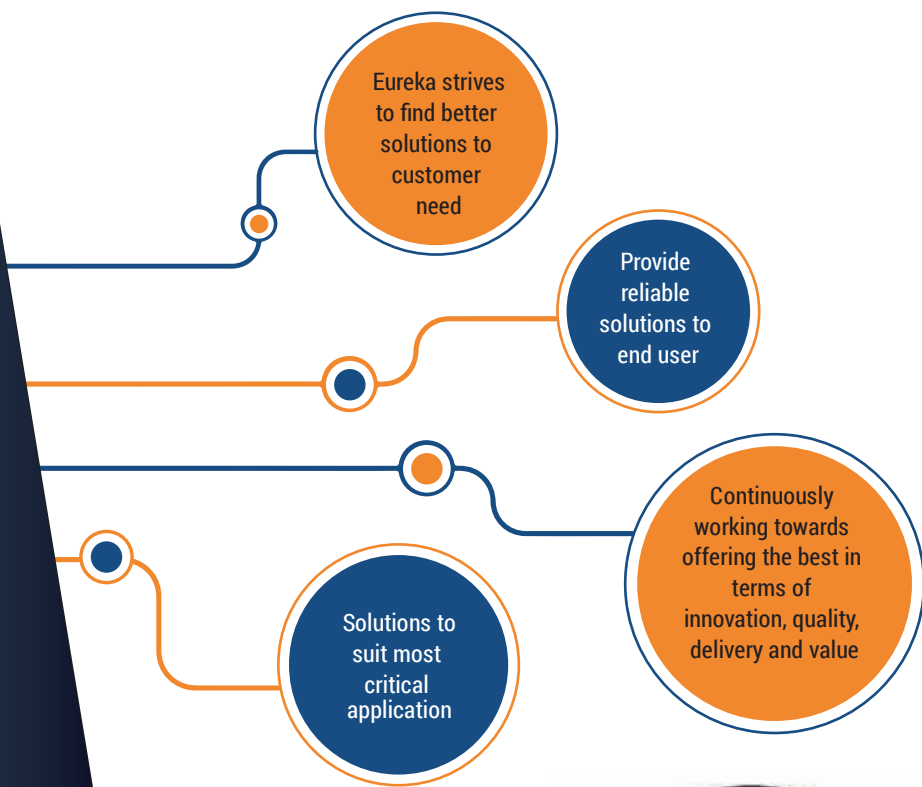


50 + number of employees working to give standard quality products

Annual turnover crosses Rs.83 million

## PROPELLING INNOVATIONS

Besides standard products, we have capabilities to fulfill almost any custom design requirement in temperature sensing



At Eureka we thrive to deliver quality products at competitive price and prompt delivery lead by dedicated workforce in a state of the art manufacturing facility where 'Therma' stands as a leading brand manufacturer of Temperature Sensing Instruments



**MANOJ KHATAN**

Managing Director

## There are Two major categories of Glass Manufacturing :

**Container Glass** : Bottles, Jars, Drinkware, Bowls, etc.

**Float Glass** : Glass Panels ,Sheets , Mirrors, Automotive glass, windows..etc

The main raw materials are sand, soda ash, limestone, Re Cycled Glass & other Chemicals.

### Container Glass:

The Raw material mixture is melted at high temperature, around 1600 deg C, in the Melting Furnace until it becomes a molten material . The molten glass passes through narrow Neck, Distributor & Fore Hearth Furnace , where it reaches around 1100 deg C called gobs. The gobs are pressed and blown in to the mold to form the shape of bottles, jars etc.

### Float Glass:

In the Melting furnace, the molten glass is homogenized and refined.

The molten glass will exit through narrow Throat at approximately 1000°C.

The molten glass is floated onto a bath of molten tin, forming a flat surface like a ribbon. The width and thickness of the glass ribbon is controlled by the rate at which the glass is pulled through the tin bath.

## TEMPERATURE MEASUREMENT

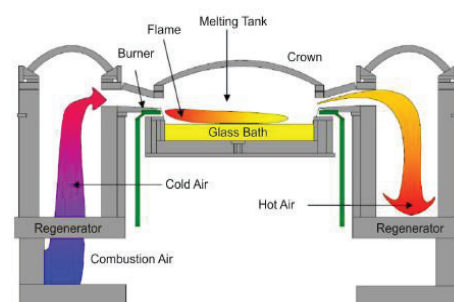
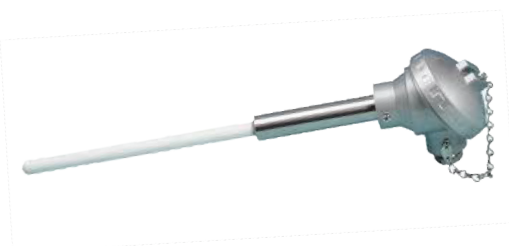
Precise temperature measurement during the various production stages are critical for efficient operation of the process and to achieve Quality of the Glass & to improve the life of refractory walls. **Therma Instruments** design and manufacture wide range of **Thermocouples** for every section of the Glass manufacturing.

- ▶ Melting Furnace Crown Thermocouple
- ▶ Re-Generator Thermocouple
- ▶ Furnace Bottom Thermocouple
- ▶ Fore Hearth Thermocouple
- ▶ Distributor Thermocouple
- ▶ Spout Bowl Thermocouple
- ▶ Blank Mould Thermocouple
- ▶ Annealing Lehr Thermocouple
- ▶ Tin Bath Thermocouple

### Melting Furnace - Crown Thermocouples:

Glass melting Furnace is made with Specific Refractories , to hold molten glass at 1600 deg C. The roof Arch of this furnace chamber is known as Crown. It is important to measure and control the Crown temperature precisely to ensure Long life of Furnace and the Molten glass properties .

Therma Instruments offers highly reliable Noble Metal Thermocouples for Furnace Crown and Furnace walls .



Glass Melting Furnace

Thermocouple Type : R / S/ B.

..up to 1600 Deg C.

Wire size : 0.45 mm/ 0.5 mm .

Protection Sheath : Very Thick wall. Re-Crystal-lysed Alumina Ceramic.

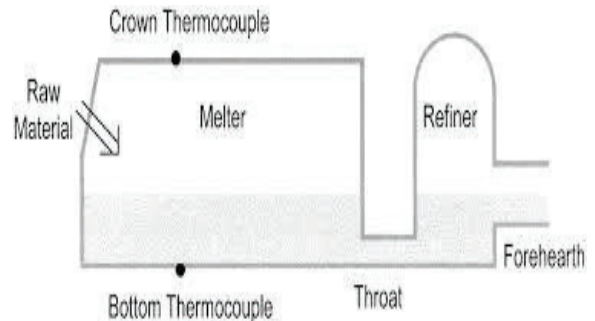
Single or Double Protection Tube. IP 67, Weath-er proof Head .

**Suitable for Regenerator Crown & Walls also.**



## FURNACE BOTTOM THERMOCOUPLES

Energy saving and Longevity of the furnace is achieved by accurate measurement & Control of the Bottom temperature, using robust and highly reliable 'Therma Instruments' Noble metal Thermocouples with Platinum Thimble.

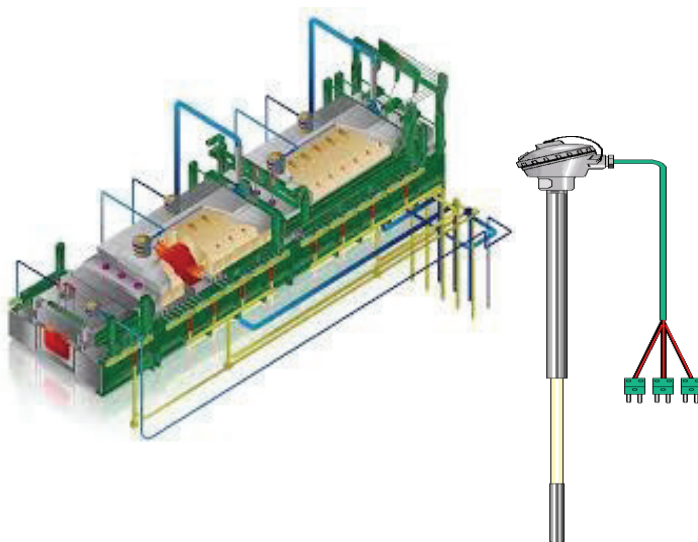


Type R / S / B Thermocouple . Wire Size : 0.3 mm to 0.5 mm  
 Protection Tube : Ceramic Re Crystallized Alumina.  
 Platinum Thimble ,over the Ceramic tube , if the tip is directly immersed in molten Glass.  
 Thimble : Pure Platinum, 6 mm to 12 mm dia and thickness 0.2 mm and above.  
 Length : As required.

## FORE HEARTH THERMOCOUPLE

Forehearth is a refractory lined Tank Furnace . Molten glass from melting furnace flows in to one or more Forehearths to form gobs and then dropped in to mould to form the shape by blowing air. Maintaining the appropriate temperature in the forehearth is essential & critical to ensure the molten glass is in the correct homogenous condition for proper gob viscosity.

'Therma Instruments' – Tri Level Thermocouples are specifically designed for precise temperature measurement of Molten glass.



Thermocouple has three measuring points to measure Top, Middle, and Bottom temperatures.

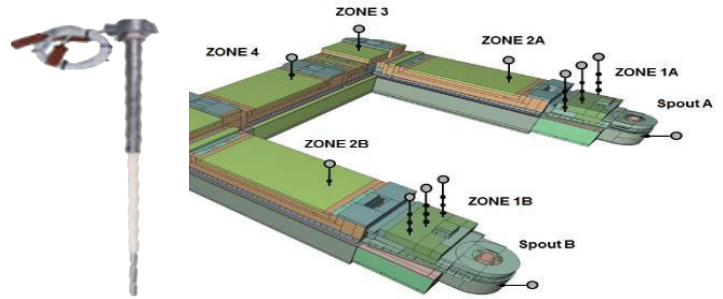
Type R / S / B ..up to 1700 Deg C  
 Protection Tube : Re Crystallized Alumina  
 Platinum Thimble : Hardened Platinum & Platinum Alloy.  
 Weather proof Head with special Terminal Block for connection.  
 Inconel 600 -Support Pipe.

## SPOUT THERMOCOUPLE

Molten Glass flows through Fore Hearth and reaches Spout located at the end , where it is cooled to for the gob.

The temperature measurement here also is very important and critical.

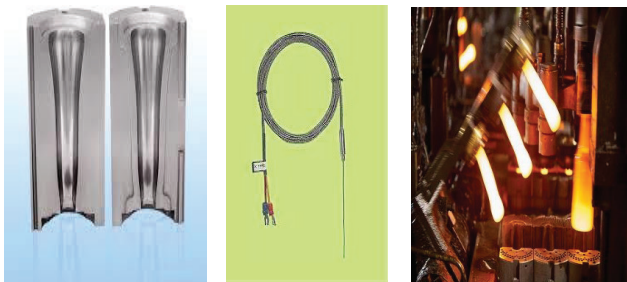
'Therma Instruments' Noble metal Thermocouple with Platinum Thimble which is directly immersed in molten Glass is most suitable.



## BLANK MOULD THERMOCOUPLE :

The glob is dropped in to the Blank Mould and Initial forming is made. Further it is dropped in to the final mould to form the container. The temperature is around 500 deg C.

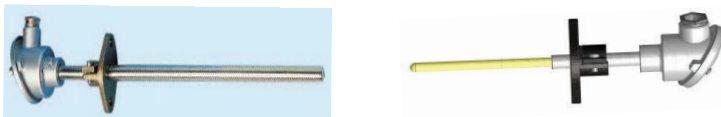
Temperature measurement is necessary to monitor and control the Thermal variations in the Blank mould. Maintaining optimum temperature in Blank Mould will result in product quality and energy saving.



**Type K / J , Mineral Insulated Thermocouple** - 1.5, 2.0 , 3.0, 6.0 mm Size , with high Temperature Extension cable and Connector.

## FLOAT GLASS – TIN BATH THERMOCOUPLE

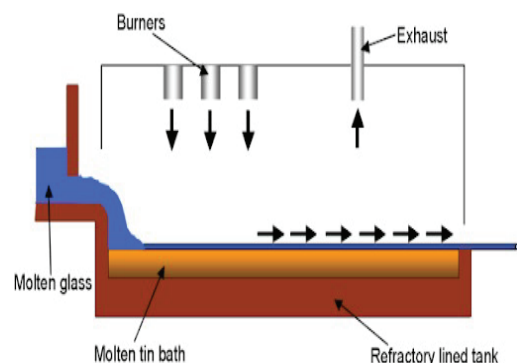
The float Tin bath Furnace is a Closed chamber with a controlled atmosphere of nitrogen and hydrogen It contains pure molten tin at 800 deg c. Molten glass from the melting furnace is poured onto the surface of molten tin bath and a thin layer of floating glass forms as ribbon



At the Molten glass entry point the temperature is more than 1000deg C , therefore **Therma Instruments** offers Type R / S Thermocouple, with Ceramic sheath.

At the exit location of float Glass the temperature is around 600 degc.

Type K / N Thermocouple with Inconel Sheath is suitable



## ANNEALING - LEHR THERMOCOUPLE

Since the glass float is continuously cooled over tin bath, significant amount of stress is developed in the glass. The stress is removed to protect it from breaking by Annealing process, in a Furnace called Lehr at 500 deg C.



Temperature sensors for different zones in Annealing Lehr are designed by **Therma Instruments**.

Type K or N, Mineral Insulated, Class1, Special Limit accuracy Thermocouples. Calibration certificate Traceable to NIST can be supplied up on request.

## THERMOCOUPLE EXTENSION & COMPENSATING CABLES

### CABLES

#### THE TYPE OF CABLES

- ▶ Thermocouple Extension Cables & Compensating Cables
- ▶ RTD Cables
- ▶ Control Cables
- ▶ Instrumentation Cables
- ▶ Multi Pair, Multi Core, Twisted, Shielded, Braided & Armored

#### INSULATION TYPES

- ▶ **PVC:** Flame Retardant PVC insulation Provides good chemical resistance and suitable up to 105 deg c
- ▶ **FEP / PFA / TFE :** Teflon insulation has excellent resistance to Abrasion, solvent, Chemical and Moisture, Suitable up to 260 deg c
- ▶ **Fiber Glass:** Individual conductors and overall insulated with glass fiber, used in very high temperature, up to 700 deg C. Ceramic Fiber: Extreme high Temperature applications up to 1000 deg C.





[www.eurekaengg.com](http://www.eurekaengg.com)



S. No. 7, Plot 42, PCNTDA,  
MIDC Bhosari, PUNE - 411026.



+91-020-66345100



[senstemp@eurekaengg.com](mailto:senstemp@eurekaengg.com)

