



# Temperature Sensors

Thermocouple

RTD'S

Pyrometer

Thermocouple Protection Tubes

cables

Services



# Non Ferrous Industries



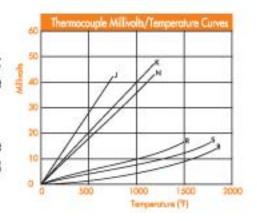
www.tempsensindia.com



# **Thermocouple Element**

BASE METAL ELEMENT Tempsens offer following type of base metal thermocouples; Insulated wire, bare element and ceramic insulated elements. These element are available in K, N, J and T Type

NOBLE METAL ELEMENT Tempsens Noble Metal thermocouple offer high temperature range and greater accuracy than base metal elements. These elements are available in R, S and B Type



Thermocoupie Type	Element	Temperature	Sensitivity	Tolerance as per ASTM E-230		
		Rungu (°C)	(th/k/_c)	Standard Tolerance("C) Whichever is greater	Special Yalerance("C) Whichever is greate	
1	Copper/Constantan	up to 350	42	±1 or 0.75%	± 0.5 or 0.4%	
ū	Iron/Constantan	up to 750	55	±2.2 or 0.75%	±1.1 or 0.4%	
E	Chromal/Constantes	up to 750	68	± 1.7 or 0.5%	±1 or 0.4%	
Kerl	NIG/MIAI OR NIG-SI/NISI	up to 1200	39	2.2 or 0.75%	± 1.1 or 0.4%	
RorS	Pr - 13585/Pr OR Pr-10585/Pr	up to 1500	6-12	†1.5 or 0.25%	† 0.6 or 0.1%	
1	h-30% Rh/h-6%Rh	up to 1750	6-12	±0.5%	±0.25%	

# **Resistance Temperature Detector**

Resistance thermometers may be called as RTDs (resistance temperature detectors), PRT's (platinum resistance thermometers), or SPRT's (standard platinum resistance thermometers). These thermometers operate on the principle that, electrical resistance changes in pure metal elements, relative to temperature. They are suitable for temperature rang -100 to 400 °C
Tempsens Provide RTD's in Class A, Class B in 1/3, 1/5, 1/10 DIN Accuracy



# TEMPSENS

# **Thermocouple Protection Tubes**



#### **Cast Iron & Enamel Coated cast Iron**

Are widely used common protection tube designed to provide Excellent Physical Strength, Durability & Robustness. Useful in aluminium zinc furnaces, the charging of scrap and ignot, as well as other application requiring physical strength

The Enamel coating provides for longer life and less routine maintenance then the uncoated tube, over all better life.

#### Nitride Bounded Silicon Carbide

Due to Non-wetting to aluminium these tubes are best suitable for for use in molten aluminium/zinc application. These tubes have Excellent thermal response properties, high level of oxidation resistance, high chemical corrosion & high abrasion resistance.





#### Silicon Nitride

These tube provide Excellent thermal shock resistance and excellent thermal conductivity for quick response to temperature changes with availability in wide variety of formulations. Most suitable and gives very long life for Molten Aluminium application.

#### Recrystalized SiC

These tubes provide high resistance to acids and alkalis.

Recommended for use in air neutral atmospheres up to 1,400 Deg C and also in high temperature. Due to its recrystalized microstructure it provide good oxidation resistance, good response time.





#### Tempguard

Protection tubes are constructed of a phosphate bonded refractory material developed for use in molten non-ferrous metals, specifically molten aluminium and zinc. This tube has excellent non wetting properties allowing easy slag removal. The smaller diameter provides fast thermal response to process temperature changes

#### LT-1

Thermocouple tubes are specially designed for immersion in molten copper, brass, zinc and lead. They are unique blend of metal and ceramic. The rfreatory surface of the LT-1 resist ersion by molten metal up to temperature of 1375 °C No additional coatings are required to prolong useful life.



#### Other Protection Tube

MATERIAL	Melting Point 'C	Usable Temp.'C	Feature	
Alumina99.7% (KER 710)	1800	1500	Good capability to withstand thermal sock, Excellent resistance to corrosion.	
Mulite (60 %Alumina)	1700	1500	Recommended for use in heating furnace regenerator, impervious	
SS304	1430	800	Widely used as a common protection tube against heat & corrosion. Good physical strength	
SS316	1430	900	Excellent resistance to corrosives, heat, acids &Alkalies	
SS310	1410	1100	Higher corrosion resistance than SS304 and excellent resistance to grain boundary corrosion	
HRS-446	1400	1150	Suitable for use in non-ferrous molten metal & other higher temperature application, but less mechanical strength	
INCONEL-801	1410	1100	Excellent resistance to oxidizing & reducing atmospheres at high temperature. Bululphurous atmospheres should be avoided.	
INCONEL-600	1400	1100	Superior exidation resistance at higher temperature to Incone/600, by virtue of strong bonding of metal exide film.	



#### Accessories

Accessories as connectors, compensating and extension cable and plug in connection head are available.

# Connectors

Plug and jack compensated connectors for thermocouples. J,K,R,S,B,T,E Types Standard, Miniature, Panel Mounted, Simplex, Duplex Material: Special PVC and CERAMIC



# Thermocouple Cable

Thermocouple & Compensating Cables for thermocouple J,K,R,S,B,T,E Types.

Wire Gauge : 14 to 36 Gauge (AWG/SWG)

Conductor : Solid/Multistrand

Insulation : Single and double fibre glass, Teflon Ceramic fiber, silica fibre,

ss braided PVC etc.

Protection : Armored/Unarmored



#### **Calibration Services**

Tempsens has always tried to anticipate and accommodate customer needs in temperature measurement, To this end Tempsens has commenced new "Calibration Center". The calibration center function as per ISO 17025/NABL. Calibration of contact type sensor can be made in temperature range of -38 to 1500 Deg C. Calibration of Non- contact type sensor can be made in temperature range of 50 to 1500 Deg C.

- In house calibration facility for contact and Non-contact type sensor.
- State-of-the art mobile labs provide cost effective services at your facility.
- First private company to install fixed point temperature calibration for triple point of water (TPW), Gallium (Ga), Tin (Sn), Zinc (Zn), & Aluminum Cells.

# **Calibration Equipments**

The highly innovative calibration bath, furnaces and master sensor to fulfill most demanding calibration of temperature sensors & most precise NABL Accredited temperature calibration facility upto 1500 Deg C



	Type	#d/pm		Temperature Range ("C)	
	Contact Type	Nos Costed Type	Stelling	# 1 10 20 10 40 10 10 10 10 10 10 10 10 10 10 10 10 10	
Calsys-40/200	80		0.01	-40 200 200	
Calsys-30/50	80		0.1	-30 💹 50	
Calays-15/110	8		0.2	-15 110	
Calsys300	8		0.1	80 280	
Calsys50088			1.0	50 500	
Calsys650			0.1	50 650	
Calsys1200			0.5	290	
Calays1200L			0.5	300 1200	
Calsys120088			0.5	300 1200	
Calays1500L			1.0	800 1900	
Calsys150088			1.0	500	
Calsys1700L			2.0	500	
Calsys170068			2.0	500	
88 Bath ® Dry Block ■ Black Body					



#### Non-contact temperature measurement



Accurate Sensing Technologies, Israel has brought to the market a line of Infrared Non-contact pyrometers for the remote measurement of target temperatures using no physical contact. AST pyrometers use a totally new approach for remote temperature measurement achieving a degree of accuracy far better than can be achieved with pyrometers available.



#### **SPECIFICATION**

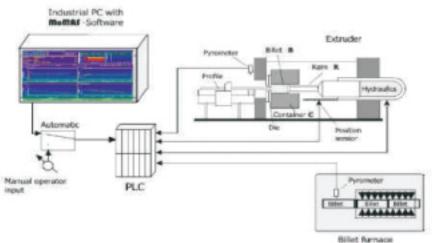
Model	Application	Temperature Range 'C	Emissivity Range	Spot from a distance of 1 Mtr
AE3000	Extrusion	350-650 °C	0.1-0.6	20mm
AB3000	Billet	300-600 °C	0.1-1.0	20mm
AC3000	Contineous Casting	200-600 °C	0.1-0.6	20mm
AD3000	Dies	300-650 °C	01-1.0	20 mm
AM3000	Molten Metal	450-900 °C	0.1-1.0	20 mm



Response Time 51mSec - 10Sec Accuracy & Repostability ± 1% Power Supply AC 100-240V 50/80Hz Sensor overall dimensions 114 x 127 x 273

# **MoMAS® Optimal Isothermal Extrusion**

MoMAS is a system for optimizing the operation of extruders for aluminum with the goal of achieving high productivity and enhance product quality. Basis for the optimization is the mastering of the thermal processes underlying the extrusion process. In particular MoMAS consists of measurement and control sub-systems which serve to achieve tight control of crucial variables such as extrusion rate and exit temperature. MoMAS provides operators and managers of extrusion plants with a flexible and effective tool which can be employed to achieve various optimization and automation goals. Thereby the operator can himself select the degree of autonomy with which MoMAS operates. Most importantly, he can operate the extruder manually and still exploit the information of process variables acquired and supplied by MoMAS. This provision for introducing the automation in steps alleviates its application and makes it easily acceptable on the part of operating personnel. MoMAS controls the exit temperature by suitably varying the extrusion rate automatically. It can be employed to achieve a reduction in the extrusion time per billet by employing exit temperature control in conjunction with a successive lowering of the furnace temperature. In case controlled tapered heating is possible, MoMAS can be employed to obtain constant exit temperature with control ram velocity.





Display for operaor



### Always one step ahead.....Committed to success

TEMPSENS Instruments (1) Pvt. Ltd. is a part of Pyrotech group which was established by four technocrats in 1976 at Udaipur, with our first product as Thermocouples and RTDs. To enhance our customer's success we provide high quality products and services for "Temperature Solution", tailored to their needs, and delivered to meet their schedule.

We have tied up with world leaders in Temperature measuring technology for critical components, Non contact Temperature measurement and Thermal imaging solutions. We add value to these products and deliver complete engineered solutions, backed by efficient service and application support.

Today we have strong sales and service network operating from important locations of India and Abroad. Continuing our constant endeavor of delivering solutions for temperature technology to our large base of over two thousand satisfied customers.

- 35 years of experience.
- Large Customer base.
- Executed Major Projects in India and Abroad.
- Production Expertise-Specialised Team & Facility











#### TOTAL SOLUTION TO TEMPERATURE SENSOR TECHNOLOGY





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