

www.tempsens.com



TEMPSENS
INSTRUMENTS

Thermocouples

RTDs

Thermowells

Ceramic tubes

Connection heads
& Accessories

Compensating Cables

Non contact pyrometers

Thermal Imagers

Furnace Monitoring
Systems

Klin Shell Scanner

Calibration systems

Electronics & Automation
Services

CORPORATE PROFILE

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

TEMPSENS Instruments (I) 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. We have focused ourselves for the supply of high quality Temperature sensors, related products accessories; services built to specific customer needs.

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. Continuing our constant endeavor of delivering solutions for temperature technology to our large base of over two thousand satisfied customers.

1976 Pyrotech International Established, with first product being Thermocouple

1985 Established Tempsens a dedicated facility for thermocouples/RTDs

1990 Expansion and tie up with European companies Ceramtec, B+B, ISOTECH

1992 Major breakthrough orders from Steel plants Visakhapatnam, Bokaro, TISCO, ESSAR etc

1994 Export of Thermocouple accessories to Germany . Awarded ISO 9002

1995 Tie up with ISOMIL Germany for MI Cables

1998 Tie up with IMPAC Germany for Non-contact pyrometers Breakthrough in Glass industry- Approval by International consultants

1999 Breakthrough in Steel Industry

2000 Tie up with IRISYS UK for Thermal Imagers

2003 Expansion of factory building, manufacturing Temperature Calibration Equipments.

2004 Tie up with Young Kook Korea for Furnace monitoring camera
Tie up with HGH France for Kiln Shell Scanners
Started state of the art calibration laboratory

2005 NABL Accreditation for Calibration Lab upto 1500°C
Tie up with Rossel Messtechnik GmbH, Germany
Export orders from Srilanka, Pakistan, Nigeria, Germany, Netherlands etc.

2006 Rajeev Gandhi National Quality Award



Tempsens Instruments (I) Pvt. Ltd.
Temperature Sensors Non-Contact Pyrometers

*Pyrotech Marketing &
Projects Pvt. Ltd.*
**Projects &
System Integration**

*Pyrotech Electronics
Pvt. Ltd. Unit I*
**Electronic Process
Control Instruments**



*Pyrotech Controls
India Pvt. Ltd.*
**Enclosures,
Control Panels**

*Pyrotech Electronics
Pvt. Ltd. Unit II*
**Controls Panels / Desks,
Mosaic & Video Wall &
Industrial Furniture**



FACILITIES

Today "Tempsens" is one of the renowned brands in the country for Temperature sensors and allied products. We have full-fledged production facility with most modern equipments and skilled work force. The perfection in quality is achieved by advanced CNC machines installed in house.

Our production house is equipped with Micro plasma welding by which we are able to offer our customers miniature Thermocouple with small diameter upto 1 mm dia.

CUSTOMER SERVICE WITH 30 YEARS OF EXPERIENCE

We provide expert support during product selection, customization and commissioning, to achieve maximum techno-economic effectiveness. The close partnership with our customers starts long before goods are delivered Intensive individual consultation is always available.

SUCCESS AS A TEAM

During the last 30 years, our team of professionals have recorded numerous achievements, generating remarkable growth. The managerial staff and technical personnel have good training, technical knowledge and experience for their assigned functions.

Our team work has resulted in successful development of products, system, approach, services and above all, the confidence of our customers.

SOURCING

All critical raw material are sourced from the world best possible sources. This ensures the guarantee of the final product.

PRODUCTION EXPERTISE TECHNOLOGY

Our Production process is planned for high output and consistent quality. Many of the products depicted are specific process standards, and others are customer driven special designs. Our designers help you to visualize your products in advance by using CAD software.

We not only supply the ideal sensor which the customer requires but also the accessories such as compression fittings and connection heads, nipples, cables and wires as per customer requirement.

QUALITY ASSURANCE & CALIBRATION SERVICES

We have always tried to anticipate and accommodate customers needs in temperature measurements. To this end Tempsens has commenced new "R&D center" NABL Accredited. Temperature calibration lab has high stable calibration furnaces, measurements and accurate master sensors traceable to National and International Standards. The R & D center functions as per ISO 17025/NABL standards. Calibration of contact type sensors can be made in temp. range of -35°C to 1500°C. Calibration of non contact type sensors can be made in temperature range of 50°C to 1500°C.

PACKAGING AND SHIPPING


If your shipment needs special handling, packaging, crating, or any other specific requirement, we are equipped to meet your needs. In certain cases the material is hand delivered. The special attention allow us to deliver the most fragile or the bulkiest products with utmost confidence that your order will arrive in perfect condition.



THERMOCOUPLE

High accurate Thermocouples for variety of application


BASE METAL THERMOCOUPLES



Various types of base metal thermocouples, including standard probe types and a coiled cable type.

| | |
|-------------------|---|
| Type | : J, K, T, E, N |
| Element size (MI) | : 1, 1.5, 3, 4.5, 6, 8 (mm) |
| (Non-MI) | : 1.2, 1.6, 2, 2.5, 3.2 (mm) |
| Protection sheath | : Seamless SS 316, SS 310, HRS 446, INCONEL, Nickel, Monel, Hastalloy, Titanium, Ceramic, Silicon carbide etc |
| Configuration | : Simplex / Duplex / Multipoints |


NOBLE METAL THERMOCOUPLES



Noble metal thermocouples featuring specialized designs like tri-level probes, coated probes, and probes with IBR-approved thermowells.

| | |
|-------------------|--|
| Type | : R, S, B |
| Element size | : 0.30, 0.35, 0.4, 0.45, 0.5 (mm), others on request. |
| Protection sheath | : Ceramic (KER 710), 610, Inconel, Silicon carbide etc. |
| Configuration | : Simplex / Duplex / Multipoint |
| Special | : Tri level, Platinum cladding etc. Hot Blast & Stove dome Thermocouples Furnace Temperature Thermocouples |

SPECIAL THERMOCOUPLES



Specialized thermocouple designs including a squeezed probe with a small tip diameter, a tri-level probe, a coated probe, and a probe with an IBR-approved thermowell.

- Squeezed Thermocouple with small tip dia
- Trilevel Thermocouples
- Coated Thermocouples
- Thermocouples with IBR Approved Thermowells

RESISTANCE TEMPERATURE DETECTORS

High accurate RTDs for General and demanding of application

MINERAL INSULATED RTDs

| | |
|-------------------|--|
| Type | : Pt 100 , 200 , 500 , 1000 Copper 50, 53 etc. |
| Element | : Wire wound ceramic encapsulated Wire wound Glass encapsulated Thin film ceramic encapsulated |
| Connection | : 2 , 3 , 4 wire |
| Accuracy | : Class A, B, 1/2 , 1/3 , 1/5 DIN |
| Protection sheath | : SS 304, SS 316, SS 310, INCONEL, Hastalloy, Monel etc. |

SPECIAL RTDs

Slide shoe RTDs
Vibration proof RTDs for DG sets
Bearing & Winding temperature RTDs
Handheld & Probe in various designs
RTDs with IBR approved Thermowells.

THERMOWELLS AND PROTECTION TUBES

A wide choice of refractory and Stainless Steel protective sheathing is available to suit for various applications.

METAL



| | |
|--------------------|--|
| Material | : SS304, SS 316, SS 316L, SS 321 : HRS 446, INCONEL 600/800 : Hastalloy, Monel, Alloy 20 : Titanium etc |
| Type | : Drilled barstock, Fabricated |
| Construction | : Tapered, Straight |
| Process connection | : Screwed, Flanged |

CERAMICS



| | |
|------------------|---|
| Material | : Recrystallised Alumina 99.7% |
| Type | : KER 710 (C-799) |
| Length | : 350, 530, 600, 650, 740, 900, 1030, 1200 1430 mm |
| OD x ID | : 6x4, 8x5, 10x6, 12x8, 15x10, 20x15 24x18mm etc. |
| Insulating Tubes | : 2/4/6 Holes. |
| OD | : 2.8, 3.5, 5.5, 8.5, etc. |

CeramTec
Germany

SPECIAL

Metal Thermowells with Tungsten carbide /
Ceramic / PTFE / PVDF / PFA coatings
Solid sintered tungsten carbide
Silicon carbide
Platinum thimble
Tantalum, Titanium, Nickel cladding
Graphite Thermowells

ACCESSORIES

Accessories as connection heads of various standards, compensating and extension cables and plug in connectors are available.

CONNECTION HEADS

| | |
|------------------|---|
| Material | : Die cast Aluminium, Stainless Steel, Plastic |
| Type | : A, B, AA, DNAG, KNE etc. Single entry, double entry, miniature |
| Cable entry | : $\frac{3}{4}$ " ET, $\frac{1}{2}$ " NPT/BSP |
| Protection class | : IP 67, Ex-proof II A/B, II C |



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



COMPENSATING CABLE

Compensating cables for thermocouples J,K,T,E,N,R,S,B Types.
Wire Gauge : 14 to 36 gauge (AWG/SWG)
Conductor : Solid / Multistrand
Insulation : Single and double fibre glass, teflon, ceramic fibre, silica fibre, SS braided, PVC etc.
Protection : Armored / Unarmored



ELECTRONICS

Temperature indicators
Temperature controllers
Universal controllers
Signal Isolators
Signal Converters RS 232 / 485
Head mounted transmitters
Temperature Scanners



PYROMETERS - HMDs

A wide range of non-contact pyrometers are available for hand held and on line application for temperature range from -100 4000°C.

PORTABLES



| | |
|---------|--|
| IN 14 | : -32....500°C with laser pilot light |
| IN 15+ | : -32....900°C with laser pilot light and data storage |
| IGA 15+ | : 250....1800°C with laser pilot light and data storage |
| IGA 8+ | : 300...1300°C Through the lens sighting, focusable optic |
| IS 8+ | : 600....1600 / 900...2500 / 1000...2000°C Through the Lens sighting, focusable optic. |

ON LINE



| | |
|-------------|---|
| Series 3000 | : 0.....500°C |
| Series 500 | : -50.....700°C |
| Series 5 | : -32...3000°C in different temp. range |
| Series 12 | : 250...3500°C High end model |
| Series 140 | : 5.....3300°C in different temp.range. High end series |
| Special | <ul style="list-style-type: none">- Two colour pyrometers- Pyrometer for Aluminium Industry- Fibre optic pyrometers- Pyrometers for Glass Industry |



HOT METAL DETECTORS



Hot Metal Detector is mainly used in metallurgy field. It can detect the position & presence of the hot product. It provided a controlling signal when hot product arrive at the position.



Hot Metal Detector has several types:

- Normal Hot Metal Detector
- Scanning Hot Metal Detector
- Optical Fiber Hot Metal Detector



THERMAL IMAGERS - FURNACE CAMERA

Affordable portable thermal imagers for predictive and preventive maintenance
Most economic high performance Furnace Monitoring Camera
Technically Superior, Cost effective high performance KILN SHELL SCANNERS

THERMAL IMAGERS - For Predictive Preventive Maintenance

| Secification | Model IRI 4010 | Model IRI 1011 |
|---------------------|-------------------------------------|--|
| Field of View | 20° x 15° | 20° x 20° |
| Focus | Manual | Fixed |
| Thermal Sensitivity | 150mK @ 25° C | 0.3K @ 30° C |
| Detector | 160 x 120 pixels | 16 x 16 pixels (interpolate 128x128) |
| Image Storage | Up to 1000 Images | Up to 1000 Images |
| Display | 3½" colour LCD 4 colour palettes | On Pocket PC supplied 3 colour palettes |
| Temp. Range | -10°C to + 250°C | -10°C to + 300°C |
| Emissivity | 0.2 to 1.0 adjustable | 0.2 to 1.0 adjustable |
| Accuracy | ±2% of reading or ± 2°C | ±2% of reading or ± 2°C |
| Interfaces | USB type B | Serial port |



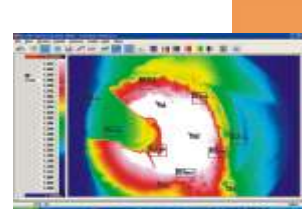
IRISYS®

FURNACE MONITORING SYSTEM

Most economic in the world market
Self retraction spring winding
Easy to maintain
Lens block and camera in single vision tube
No water cooling
Operates to Max. 1,800°C
Reduced weight & Size
Normal view and Thermal view
Field of view (h x v x d) : 85 x 62 x 105

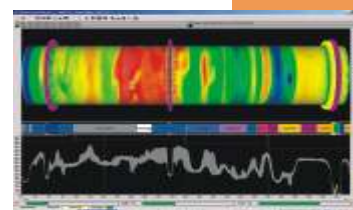


young kook
South korea



KILN SHELL SCANNER

Scanning Rate : 20 Hz
Scanning Angle : 90° (optional 140°)
Thermal Range : Ambient to 600°C
Thermal Resolution : 0.5°C at 100°C
0.05°C at 300°C
Spatial Resolution : 0.9 mrad at 50% of modulation
2.0 mrad at 90% of modulation
Accuracy : ±2°C
FOR A KILN LENGTH OF 60 METRES
Spot detection size : 2.7 cm
Spot measurement : 6 cm



HGP
France

CALIBRATION BATH, MASTER SENSOR, NABL SERVICES

The highly innovative Calibration baths and master sensors to fulfill most demanding calibration of temperature sensors & most precise NABL Accredited temperature calibration facility upto 1500°C

HIGHLY STABLE TEMPERATURE CALIBRATION BATH -40 ... 1500°C



| Model | Range | Stability |
|-------------|-----------------|-----------|
| CALsys -30 | -30 ... +50°C | ±0.1°C |
| CALsys 100 | Amb ... +100°C | ±0.1°C |
| CALsys 300 | 50 ... +250°C | ±0.1°C |
| CALsys 650 | 50 ... +650°C | ±0.3°C |
| CALsys 1100 | 250 ... +1100°C | ±0.5°C |
| CALsys 1200 | 300 ... +1200°C | ±0.5°C |
| CALsys 1500 | 400 ... +1500°C | ±1°C |

BLACK BODY SOURCES

| | | |
|----------------|-----------------|--------|
| CALsys 500 BB | Amb ... +500°C | ±0.5°C |
| CALsys 1200 BB | 400 ... +1200°C | ±1°C |
| CALsys 1500 BB | 400 ... +1500°C | ±1°C |

HIGHLY ACCURATE MASTER SENSORS

(for Temperature Calibration)



RTD - Pt 100

Accuracy 1/5, 1/3, 1/2 DIN, Class A
Sheath Material SS316 / Inconel / Glass

Thermocouple - K/N/R/S

Accuracy Special, Class 1, with Cold junction compensation
Sheath Material Inconel / Ceramic (KER 710-C 799)

Cold Junction Probe for Thermocouple Type

- J/ K/ E/ N/ R/ S/ B

Dual Probe Possible in one Housing

NABL CALIBRATION SERVICES



C-0321
NABL
ACCREDITED



 **TEMPSENS**

| S.# | Parameter Measured | Range | B.M.C. |
|-----|---|--------------------|--------|
| 1 | Contact type temp sensors Thermocouples, RTDs, Digital Temp. Indicator, Thermometers | -20 250 °C | ±0.2°C |
| | | 250 500 °C | ±0.8°C |
| | | 500 650 °C | ±1.2°C |
| | | 650 1100 °C | ±1.4°C |
| | | 1100 1200 °C | ±3.1°C |
| 2 | Non-contact Infrared pyrometers | 50 ... 400°C | ±1.2°C |
| | | 400 ... 800°C | ±2.8°C |
| | | 800 ... 1000°C | ±3.4°C |
| | | 1000...1200°C | ±4.2°C |
| | | 1200...1500°C | ±6.1°C |

TECHNICAL REFERENCES

THERMOCOUPLES REFERENCE DATA (ITS 90) mV v/s Temperature

| TYPE | | "T" Cu-CuNi | "J" Fe-CuNi | "K" NiCr-NiAl | "N" NiCrSi-NiSi | "S" PtRh10%-Pt | "R" PtRh13%-Pt | "B" PtRh30%-PtRh6% | "E" NiCr-CuNi |
|----------------|----------|-------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|-------------------|
| Calibration | | IS 2056/ASTME 230 | IS 2057/ASTME 230 | IS 2054/ASTME 230 | ASTME 230 | IS 2055/ASTME 230 | IS 2055 | IS 6720 | ASTME 230 |
| Tolerances | Standard | ± 1°C or ± 0.75% | ± 2.2°C or ± 0.75% | ± 2.2°C or ± 0.75% | ± 2.2°C or ± 0.75% | ± 1.5°C or ± 0.25% | ± 1.5°C or ± 0.25% | ± 0.5% | ± 1.7°C or ± 0.5% |
| | Special | ± 0.5°C or ± 0.4% | ± 1.1°C or ± 0.4% | ± 1.1°C or ± 0.4% | ± 1.1°C or ± 0.4% | ± 0.6°C or ± 0.1% | ± 0.6°C or ± 0.1% | Over 800°C | ± 1°C or ± 0.4% |
| TEMPERATURE °C | -100 | -3,379 | -4,633 | -3,554 | -2,407 | - | - | - | -5,237 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 100 | 4,279 | 5,269 | 4,096 | 2,774 | 0,646 | 0,647 | 0,033 | 6,319 |
| | 200 | 9,288 | 10,799 | 8,138 | 5,913 | 1,441 | 1,469 | 0,178 | 13.421 |
| | 300 | 14,862 | 16,327 | 12,209 | 9,341 | 2,323 | 2,401 | 0,431 | 21.036 |
| | 400 | 20,872 | 21,848 | 16,397 | 12,974 | 3,259 | 3,408 | 0,787 | 28.946 |
| | 500 | - | 27,393 | 20,644 | 16,748 | 4,233 | 4,471 | 1,242 | 37.005 |
| | 600 | - | 33,102 | 24,905 | 20,613 | 5,239 | 5,583 | 1,792 | 45.093 |
| | 700 | - | 39,132 | 29,129 | 24,527 | 6,275 | 6,743 | 2,431 | 53.112 |
| | 800 | - | 45,494 | 33,275 | 28,455 | 7,345 | 7,950 | 3,154 | 61.017 |
| | 900 | - | - | 37,326 | 32,371 | 8,449 | 9,205 | 3,957 | 68.787 |
| | 1000 | - | - | 41,276 | 36,256 | 9,587 | 10,506 | 4,834 | 76.373 |
| | 1100 | - | - | 45,119 | 40,087 | 10,757 | 11,850 | 5,780 | |
| | 1200 | - | - | 48,838 | 43,846 | 11,951 | 13,228 | 6,786 | |
| | 1250 | - | - | 50,644 | 45,694 | 12,554 | 13,926 | 7,311 | |
| | 1300 | - | - | 52,410 | 47,513 | 13,159 | 14,629 | 7,848 | |
| | 1400 | - | - | - | - | 14,373 | 16,040 | 8,956 | |
| | 1500 | - | - | - | - | 15,582 | 17,451 | 10,099 | |
| | 1600 | - | - | - | - | - | - | 11,263 | |
| | 1700 | - | - | - | - | - | - | 12,433 | |

SHEATH MATERIALS

| SHEATH | MELTING POINT °C | USABLE TEMP. °C | CHARACTERISTICS |
|--------------------------------|------------------|-----------------|---|
| SS-304 | 1430 | 800 | High resistance to heat and corrosion |
| SS-316 | 1430 | 900 | Excellent resistance to Heat, Acids & Alkalies |
| SS-321 | 1400 | 900 | Excellent resistance to corrosion |
| SS-310 | 1410 | 1100 | Good oxidation resistance at low temperature and sulphur atmosphere |
| HRS-446 | 1400 | 1150 | Excellent oxidation resistance at elevated temperature and sulphur atmosphere |
| Inconel 600/800 | 1400 | 1100 | Excellent oxidation resistance (do not use in sulphur atmospheres) |
| High Alumina 610 | | 1500 | General purpose |
| Sintered Alumina 710/C-799 | 1800 | 1500 | Excellent thermal, mechanical, electrical and corrosion resistant. |
| Recrystallised Silicon Carbide | 1850 | 1500 | Outstanding resistance to thermal shock, good mechanical strength. |

Other sheath materials like Titanium, Molybdenum, Graphite, Aluminum etc. are available against specific requirement

TOLERANCE VALUES OF RTD PT-100 (IEC 751)

| TEMP (°C) | BASIC VALUES | TOLERANCE | | | |
|-----------|--------------|-------------|------------|-------------|------------|
| | | CLASS A | | CLASS B | |
| | | (\pm °C) | (\pm W) | (\pm °C) | (\pm W) |
| -200 | 18.52 | 0.55 | 0.24 | 1.3 | 0.56 |
| -100 | 60.26 | 0.35 | 0.14 | 0.8 | 0.32 |
| 0 | 100 | 0.15 | 0.06 | 0.3 | 0.12 |
| 100 | 138.51 | 0.35 | 0.13 | 0.8 | 0.30 |
| 200 | 175.86 | 0.55 | 0.20 | 1.3 | 0.48 |
| 300 | 212.05 | 0.75 | 0.27 | 1.8 | 0.64 |
| 400 | 247.09 | 0.95 | 0.33 | 2.3 | 0.79 |
| 500 | 280.98 | 1.15 | 0.38 | 2.8 | 0.93 |
| 600 | 313.71 | 1.35 | 0.43 | 3.3 | 1.06 |
| 700 | 345.28 | - | - | 3.8 | 1.17 |
| 800 | 375.70 | - | - | 4.3 | 1.28 |
| 850 | 390.45 | - | - | 4.6 | 1.34 |

COLOUR CODE OF COMPENSATING CABLES & THERMOCOUPLES

| Type | BRITISH BS 1843 | AMERICAN to ANSI/MC96.1 | GERMAN to DIN 13714 | INDIAN to IS : 8784 | JAPANESE to JIS C 1610-1981 |
|------|--------------------|-------------------------------|---------------------------|---------------------------|-----------------------------------|
| K | | | | | |
| T | | | | | |
| J | | | | | |
| E | | | | | |
| R | | | | | |
| S | | | | | |
| B | | | | | |
| N | | | | | |

EMISSIONITY CHART

| | EMI in % | | EMI in % |
|------------------|----------|-------------------|----------|
| "Black body" | 100 | Oil Paints | 85..95 |
| Human skin | 98 | Asphalt | 85 |
| Black matter | 95 | Textiles | 75..95 |
| Carbon black | 95 | Graphite | 75..92 |
| Wood | 80..92 | Cement | 90 |
| Masonry | 85..95 | Water | 95 |
| Chamotte | 85..95 | Glass | 80 |
| Rubber | 85..95 | Quartz | 80 |
| Porcelain | 85..95 | Steel (Oxidized) | 60..80 |
| Ceramics | 85..95 | Steel (Blank) | 10..30 |
| Paper | 85..95 | Aluminium (Blank) | 2..15 |
| Plaster of Paris | 85..95 | Aluminium (Elox) | 92 |

Power

Cement

Fertilizer

Chemical

Glass

Ceramic

Steel

Metallurgical

Paper

Petrochemical

Textile

Food

ABB Limited Bangalore; Ace Glass Containers Limited, Pondicherry; Acryon Engg. & Instruments Faridabad; Agi Glaspac Hyderabad; Alstom Limited, Kolkata; Ambuja Cement Eastern Limited Raipur; Andhra Pradesh Power Gen Corp Paloncha; Andhra Pradesh Gas Power Gen. Corp. L Vijjeswaram; Aryan Ispat & Power Pvt. Ltd Sambalpur - 768 004 (Orissa); Astral Glass Pvt. Ltd., Nashik; Barghar Cement Limited Bardol; Bharat Heavy Electricals Ltd., Korba; Binani Cement Ltd. Sirohi; Birla Cellulosic Bharuch; Birla Corporation Limited, Chittorgarh; Birla Ngk Insulators Pvt.Ltd., Kalol; Birla Ngk Insulators Pvt.Ltd., Rishra; Bisazza India Pvt.Limited, Kadi; Cements Manufacturing Co.Ltd., Delhi; Century Cement Raipur; Cethar Vessels Pvt.Ltd., Tiruchirapalli; Ceylon Glass Company Limited, Sri Lanka; Chettinad Cement Co.Ltd. Madras; Conductotherm Industries Mumbai; Daurala Organics Ltd. Meerut; Dell Calibration Centre Noida; Digital Promoters (I) Pvt. Ltd., New Delhi; Efd Induction Limited, Attibele; Ellenbarrie Ind. Gases Ltd. Calcutta; Essar Steel Ltd (Hrc Plant) Surat; Euro Coke & Energy Private Ltd Bangalore; Evo Tech Pvt.Ltd., Bhilai; Excel Glasses Limited, Allappuzha; Flender Limited, Kharagpur; Ge Lighting India Pvt Ltd. Kheda; Global Steel Works International In Philippines; Goa Carbon Limited, Bilaspur; Goa Glass Fibre Ltd., Goa; Grasim Cement Mumbai; Grasim Industries Limited, Nagda; Gujarat Ambuja Cements Ltd., Mumbai; Gujarat Ambuja Cements Ltd., New Delhi; Gujarat Glass (P) Limited, Surat; Gupta Metallics & Power Ltd., Nagpur; Haldyn Glass Limited, Mumbai; Heg Limited Mandideep; Heg Limited, Durg; Hindalco Industries Limited, Haruch; Hindalco Industries Ltd Renukoot; Hindustan Copper Ltd Khetrinagar; Hindustan Zinc Limited, Chittorgarh; Hindustan Zinc Ltd Debari; Hindustan National Glass&Ind. Kolkata; Hindustan National Ahadurgarh; Honey Well Automation India Limited Wedag India Pvt.Ltd. New Delhi; Ib Thermal Power Station Rayon & Industries Ltd Veraval; Instronix India New Delhi; Germany; Ispat Industries Limited, Nagpur; Ispat Metallics J.K.Cment Works (Mangrol) Nimbahera; Jagjan Private Ltd. Works Baroda; Jasubhai Engineering Pvt.Limited, Baroda; Raipur; Jaypee Rewa Cement New Delhi; Jindal Stainless Steel & Power Ltd., Raigarh; Jindal Strips Ltd, Hisar; Jindal Bellary; Jubilant Organosys Ltd., Jyotiba Phulay Nagar; Inds.Ltd., Renukoot(U.P.); Kbs Param Ltd., Nagpur; Kesoram Cement Hyd., Lak pur; Siro & Toubro ed, n nai; sen & Toubro ed, Nasik; heat Induction Lloyds Steel s Ltd Wardha; Maihar Unit No.2, Satna; Mark Steels Mideast Integrated Steels Ltd, Milly Glass Works Limited, Kenya; Nigam Limited, Hyderabad; Modern Limited, Abu Road; Modipon Fibres Company Mohan Breweries And Distilleries Lt Chennai; Co.Ltd. Jaipur(Raj.); Motor Industries Co.Ltd., Multimode Engineers India Pvt. Ltd ; Nahar Colours & Udaipur; Nahar Colours & Coating Ltd., Bharuch; Nalwa Raigarh; Narmada Cement Company Ltd Jafarabad(Guj); Company Ltd. Angul; National Thermal Power Corp.Ltd National Thermal Power Corp.Ltd Shaktinagar; National Corp.Ltd Sidhi; National Thermal Power Corp.Ltd Unchahar; Corporation Talcher; Nava Bharat Ferro Alloys Ltd Paloncha; Limited, Duburi; Nirospat (P) Limited, Bhilai; Nishitronics India Limited, Rajgangpur; Ordnance Factory Ambajhari; Refractories Ltd., Mumbai; Panchmahal Steel Limited, Kalol; Jagatsinghpur; Paras Glass Works Pvt. Ltd. Agra (U.P); Philips Phoenicia Glass Works Ltd. Izrael; Premier Bars Pvt.Ltd., Jaipur; Psl Limited, Mumbai; R & D Engineers Hyderabad; R.B.Jodhamal Industries Pvt.Ltd., Jammu Tawi; Raj.Rajya Vidhyut Utpadan Nigam Ltd Kota; Raj.Rajya Vidhyut Utpadhan Nigam Ltd Suratgarh; Ras Al Khaimah Cement Company Uae; Rivon Engg.Co. 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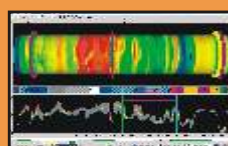
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