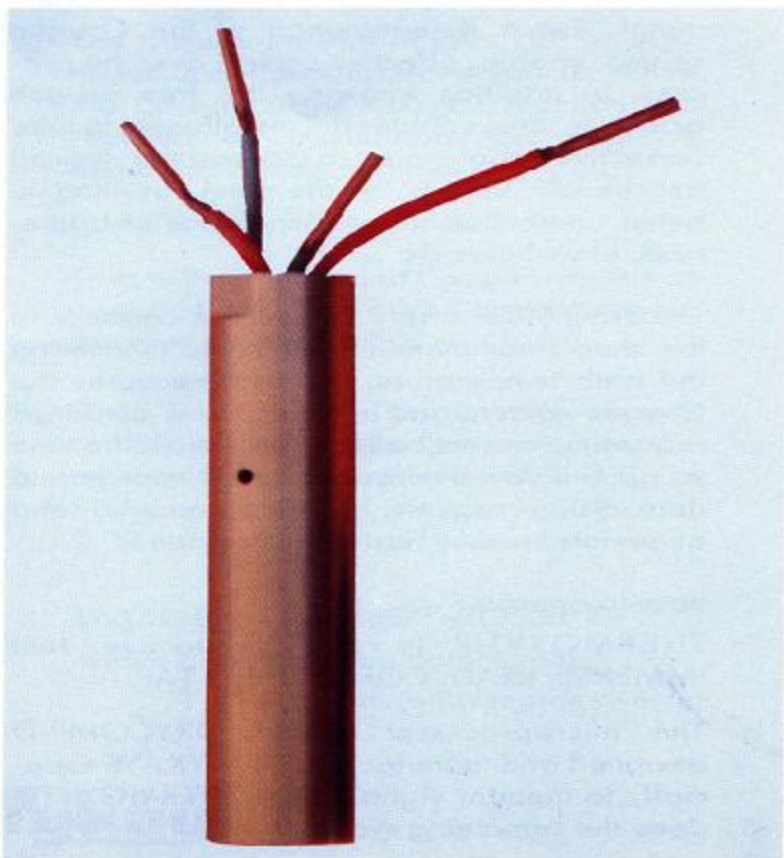
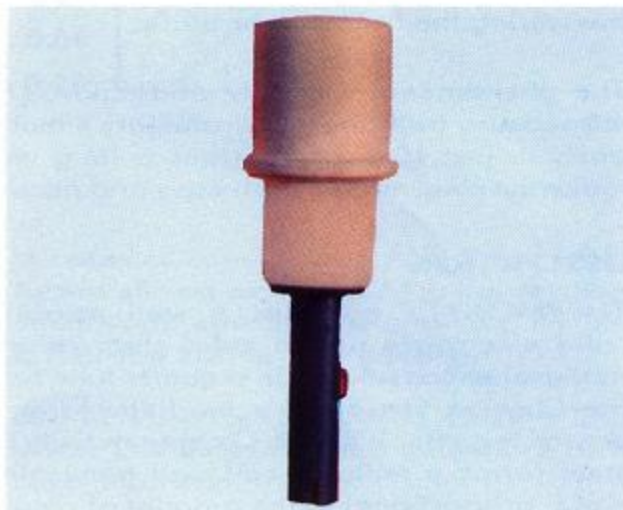




Thermoxytip[®]

INSTANT TWO-IN-ONE PROBE OXYGEN & TEMPERATURE



- THE PROBE WITH MULTIFACET ADVANTAGES
- MEASURES
 - OXYGEN IN STEELS & COPPERS
 - SILICON IN STEELS
 - ALUMINIUM IN STEELS
 - CARBON IN STEELS
- ANY/ALL OF THESE IN FEW SECONDS

Thermoxytip®

Instant Two-in-One Probe
OXYGEN & TEMPERATURE

The Simultaneous Oxygen & Temperature Sensor.

THERMOXYTIP enables the plant metallurgist to instantaneously determine dissolved Oxygen in molten steel while simultaneously measuring the bath temperature.

The phenomenal capacity of THERMOXYTIP to measure both these parameters simultaneously in just 10 seconds goes a long way to make the steel maker's job easy and accurate.

DESCRIPTION

THERMOXYTIP contains a well established solid electrolyte and a solid state reference material encapsulated in a quartz tube to form the Oxygen sensor in a modular form. This sensor together with the Oxygen activity in the steel forms a millivolt cell and generates an e.m.f. proportional to the amount of dissolved Oxygen in the molten steel bath. A high melting point virgin metal rod forms the bath electrode making contact with the molten metal thus completing the electric circuit. The well-known THERMOTIP brand Disposable Thermocouple forms the companion bath temperature sensor.

The twin probe assemblies are housed in a moulded resin body. A highly rarified refractory medium not only fixes the probes but also ensures minimum temperature of lead wires thus avoiding inaccuracies. The lead wires are brought to a three/four station terminal ensuring easy contact with the contact rings of the receptacle thereby ensuring proper electrical connections to the monitor. The projected parts of the probes are protected from damages and slag contamination by a steel cap which is sturdy enough to protect and yet quick-to-melt ensuring almost instantaneous response.

PRINCIPLE

The basic Oxygen cell principle is based on Nernst's equation governing the Oxygen partial pressures on either side of the electrolyte, viz:

$$E = \frac{\Delta G}{nF} = \frac{9.15T}{nF} \log \% O$$

Where E = the probe voltage in volts
 ΔG = Reaction free energy
n = Ionic transference number for $2 O^{2-}$
F = Faraday equivalent
T = Temperature in degrees Kelvin

20 Minutes reduced to 10 seconds:

THERMOXYTIP brings greater accuracy, economy, quality and confidence because it offers lead time many times more than any laboratory analyser could ever afford to the steel maker.

Grain structure & internal soundness:

Steel making of desired specifications is a delicate art. The grain structure and the soundness of steel are influenced considerably by the dissolved Oxygen content in the molten metal. Rapid determination of the Oxygen content enables effective control over the process. In addition knowing the free oxygen activity in steel enables the metallurgist to take corrective action so as to achieve the desired degree of "killing" of the steel resulting in better internal structure, avoidance of brittleness, blow holes etc.

THERMOXYTIP offers this crucial capacity to the shop floor metallurgist. While measuring the bath temperature, he also measures the Oxygen content and instantly takes decisions regarding correct bath deoxidisation. The time so gained saves consumption of energy and deoxidising agents, betters quality and augments furnace turn round.

Easy to operate:

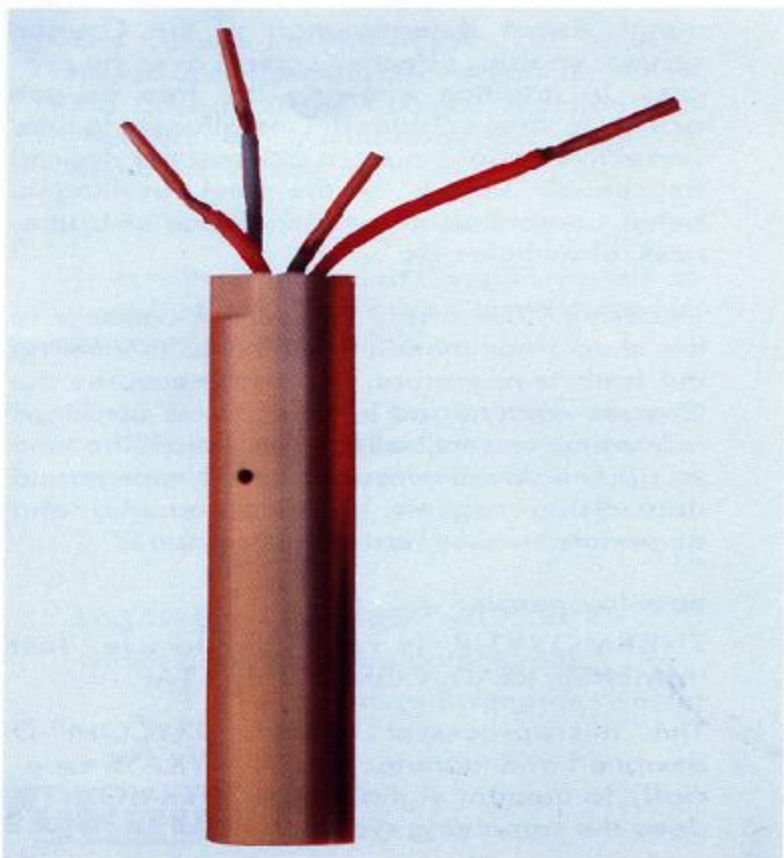
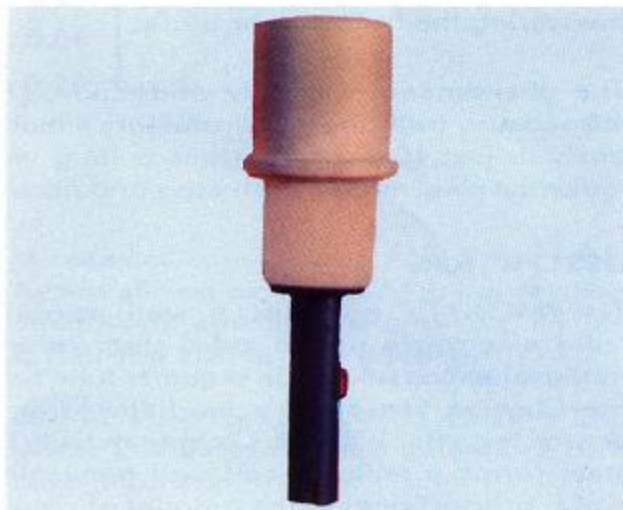
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The microprocessor based OXYCOMP-D designed and manufactured by FYKAYS especially to monitor signals from THERMOXYTIP does the remaining work.



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- * Heavy duty lance assemblies in various sizes provided with contact receptacles, multi conductor high temperature compensating cable and polarised connectors.
- * Disposable cartridges complete with protective sleeves in various lengths, complete with anti-splash coating etc., with R, S or B type thermocouples.
- * LATEST: Keeping in mind the great importance of proper dipping in molten metal FYKAYS now offer PLC Operated Micro-processor Controlled GMS-300 AUTOMATIC DIPPING SYSTEMS WITH MAGNETIC METAL LEVEL DETECTORS.

THERMOXYTIP belongs to the range of disposable devices developed by Fykays Engineering to assist modernisation of steel industry by effecting better and faster control by:

THERMOTIP and MINITIP for Temperature
CARBOTIP for Carbon and C.E.V.

and now THERMOXYTIP for Oxygen adding to the family of "Dependable Disposables" by FYKAYS.

Specimen Ready Reckoner

Emf mV	% Oxygen					
	0	100	200	300	400	490
Temp. °C						
1500	.2554	.0646	.0186	.0050	.0014	.0004
1525	.2997	.0824	.0226	.0062	.0017	.0005
1550	.3500	.0979	.0274	.0077	.0021	.0007
1575	.4070	.1159	.0330	.0094	.0027	.0009
1600	.4714	.1365	.0395	.0114	.0033	.0011
1625	.5438	.1600	.0471	.0139	.0041	.0014
1650	.6249	.1868	.0559	.0167	.0050	.0017
1675	.7156	.2173	.0660	.0200	.0061	.0021
1700	.8165	.2517	.0776	.0239	.0074	.0026
1725	.9284	.2905	.0909	.0325	.0089	.0031
1745	1.0266	.3249	.1028	.0325	.0103	.0037

Products

* Thermotip * Minitip * Ansplatip * Fondtip * Thermoxytip * Carbotip for C.I. * Carbotip for Hyper Eutectic C.I. * Carbotip for Steels * Metallipop: Samplers for metal bath, Streams, Ingots, 2-in-1 etc. * Digital pyrometers * Carbo Comp Automatic CEV, C & Si analyser * Carbocomp Automatic C analyser for Steels * Oxycomp Automatic 0% analyser for steels * Instameter Instant calibrator * Accessories * Micouple and Micab.



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