Measuring technology for Blast Furnace Process Control
TMT - TOGETHER - ONE STEP AHEAD

For more than one hundred years, the names DANGO & DIENENTHAL and PAUL WURTH have been renowned for robust and reliable measuring technology.

The new joint venture company TMT combines the experience of both DDS and PW, to contribute to the creation of measurement technology for the future.

Shared objectives are:
» ongoing product improvement
» expanded service offering
» an improved price-performance ratio
» broader distribution network
» individual system solutions

In-burden probe in operation
There is an ongoing effort to reduce pig iron production cost which requires furnace productivity improvement, coke and fuel rate reductions and longer furnace campaign life – often while dealing with poorer raw material quality. To meet the objectives and the limitations, the blast furnace process has to be transparent and it has to be modelled accurately.

With the help of TMT measuring technology, process parameters can be gathered reliably and an optimized plant operation can be achieved by means of expert systems.
**RELIABLE MEASURING TECHNOLOGY**

Products conceived with the help of state of the art design tools and with “hands on experience” have proven themselves in the harsh blast furnace environment. Operational safety and a high degree of automation are key design criteria. Custom engineering of the probe layout and optimised evaluation of the measurement results are the foundations for success.

By combining various measurements into one probe, the tight space around a blast furnace is used optimally.

If you would like to measure a parameter not covered by any measuring system today, **TMT** is your partner. New challenges have always been the driving force of our developments.

*Typical probe layouts. All probes can be linked to blast furnace expert systems.*
TMT’s proven In-burden Probes can be installed at virtually any level, right down to the cohesive zone. In addition to standard probes, TMT offers customized equipment, adapted to existing plants as well as for particular research purposes.

The hydraulic or electrically driven Radar Profilemeter provides accurate burden profile feedback. Burden profile models visualize the burden distribution and help to optimize the furnace charging models.
**OTHER MEASURING EQUIPMENT**

### ABOVE-BURDEN PROBES

Modern and robust electronics provide temperature measurements around the clock. Gas sampling can be integrated into the same probes.

**TMT** Above-burden Probes are designed to remain inside the furnace continuously.

---

### MATERIAL SCANNING PROBES

- **Above-burden Probe**

### RADAR STOCKLINE DETECTOR

High precision radar stockline detectors eliminate charging time losses compared to mechanical systems.

---

### ADDITIONAL PRODUCTS AND SERVICES:

- Material Scanning Probes
- Tuyere Probes
- Mechanical Stockline Detectors
- Core Samplers
- Impact Probes
- Torpedo Ladle Level Radar Probes
- Resistance Measuring in the Furnace Shell
Several hundred blast furnaces across the world produce with our machines!

**Europe**

ALCHEVSK
ARCELORMITTAL (all BF works)
CARSID
CORUS (UK / NL)
DILLINGER HÜTTE
ELKEM
ERDEMİR
FERROAALANTICA
HKM
ISDEMİR
MMK
NTMK
OUTOKUMPU
PRIMOREC
RDME
RIVA GROUP
RUUKKI
SAINT-GOBAIN
SALZGITTER
SEVERSTAL
SSAB
TINFOS
TKS
TRINECKE ZELEZARNY
TULACHERMET
UMICORE
US STEEL (all BF works)
VOEST ALPINE STEEL
ZAPSI

**Asia**

ANSHAN
ARCELORMITTAL (all Bf works)
BAOSTEEL
BAOTOU STEEL
BENXI
CSC
ESCO
HYUNDAI
JFE
JINAN IRON & STEEL
JINDAL
LAIWU IRON & STEEL
MASTEEL
NSC
POSCO
RINL
SAIL
SHAGANG
SHAOGUAN IRON & STEEL
SHOUHANG JINGTANG
SHOUHANG QIANAN
SUMITOMO
TAIYUAN IRON & STEEL
TANGSHAN IRON & STEEL
TATA STEEL
TIANJIN IRON & STEEL
TIANJIE IRON & STEEL
WISCO

**North America**

AHMSA
AK STEEL
ALGOMA
ARCELORMITTAL SICARTSA
ARCELORMITTAL USA (all BF works)
INMETCO
SEVERSTAL NORTH AMERICA
STELCO
STILLWATER MINING
US STEEL (all BF works)
WCI STEEL
WHEELING

**Latin America**

ACEPAR
ACESTÀ
ARCELORMITTAL (all BF works)
CODELCO
CSN
ENAMI
FERROVEN
GERDAU ACOMINAS
LOMA DE NIQUEL
SIDERAR
USIMINAS
VOTORANTIM

**Africa**

ANGLO PLATINUM
ARCELORMITTAL (all BF works)
ASA METALS
ASSMANG
HIGHVELD
INTERNATIONAL FERROMETALS
METALLOYS
MOPANI
STEELPORT
TICOR
TRANSALLOYS
TUBATSE
XSTRATA

**Australia**

BHP BILLITON
BLUESCOPE STEEL
HISMETL
ONESTEEL
SIMCOA

This is an extract from our reference list for blast furnace machines. Please contact us for the full list.
Benefit from more than 100 years of experience

TMT’s product range also includes:

- Tapping technology
- Clay Guns
- Taphole Drills
- Combined Tapping and Drilling Machines
- Runner Cover Manipulators
- Tilting Runners

- Consumables
- Services