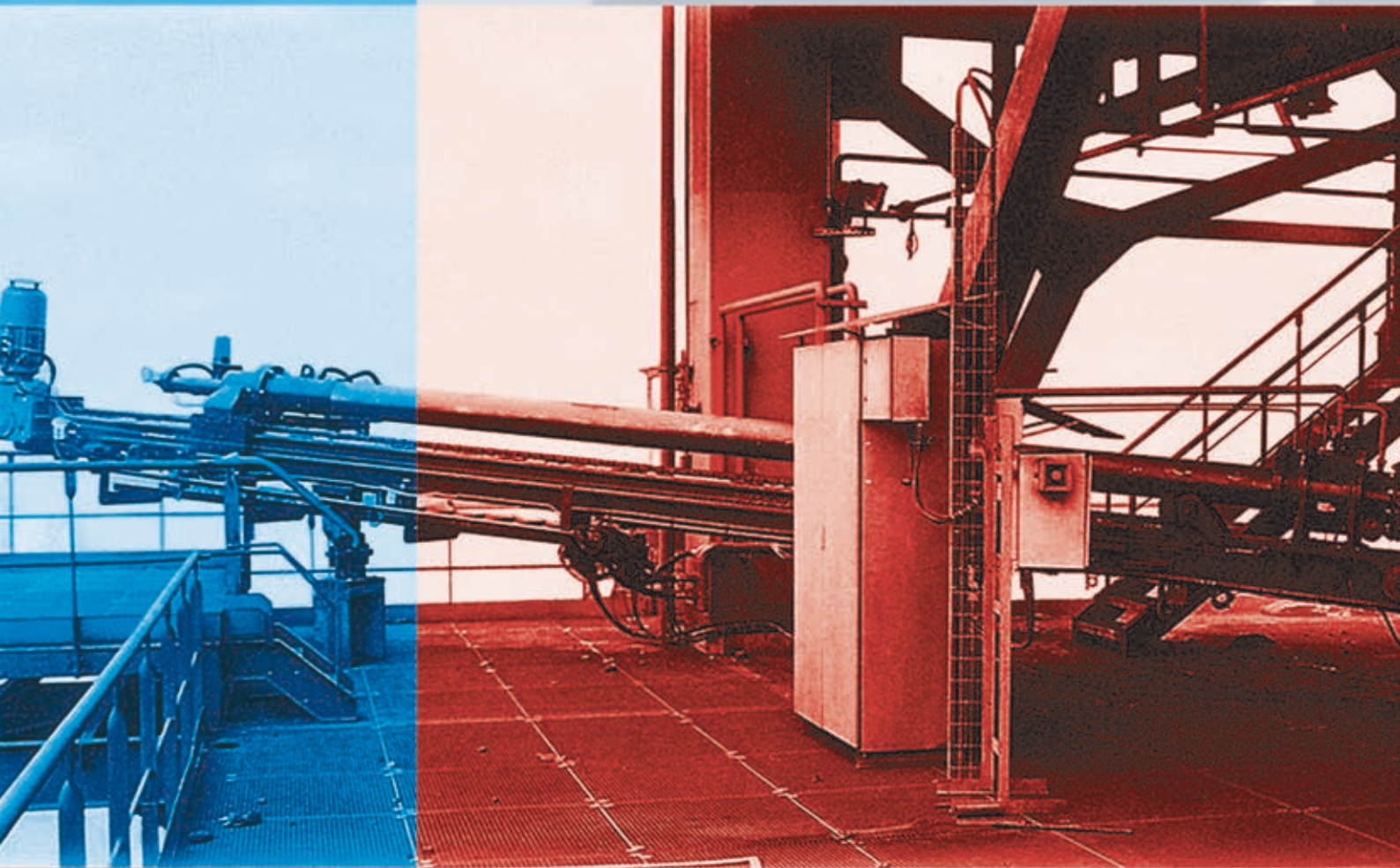


TMT

Tapping - Measuring - Technology



**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

THE TRANSPARENT BLAST FURNACE PROCESS



TMT's blast furnace probe product range

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.

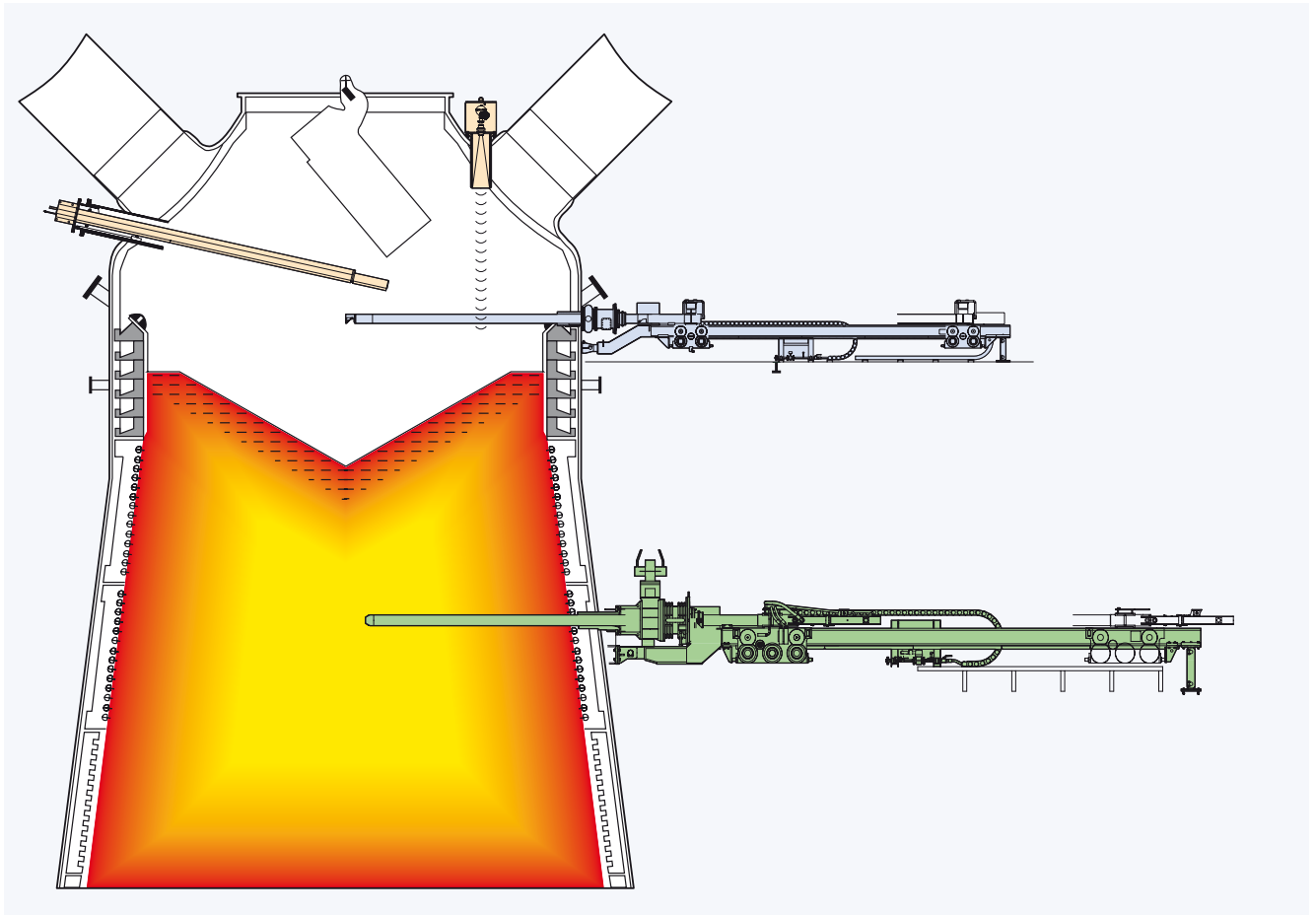
RELIABLE MEASURING TECHNOLOGY

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.

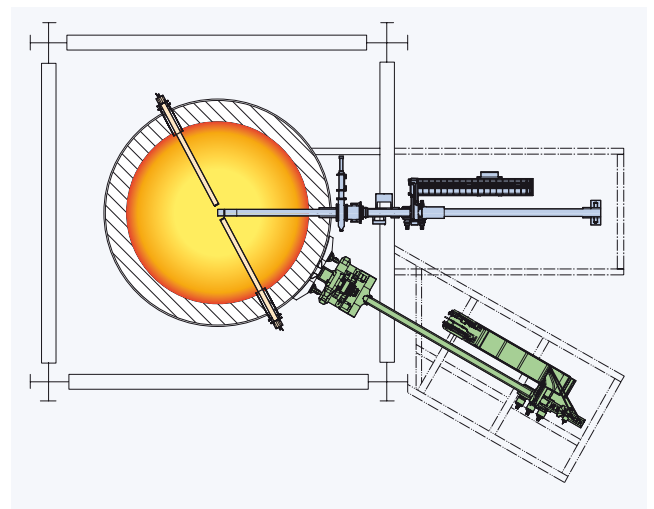
Custom engineering of the probe layout and optimised evaluation of the measurement results are the foundations for success.

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.



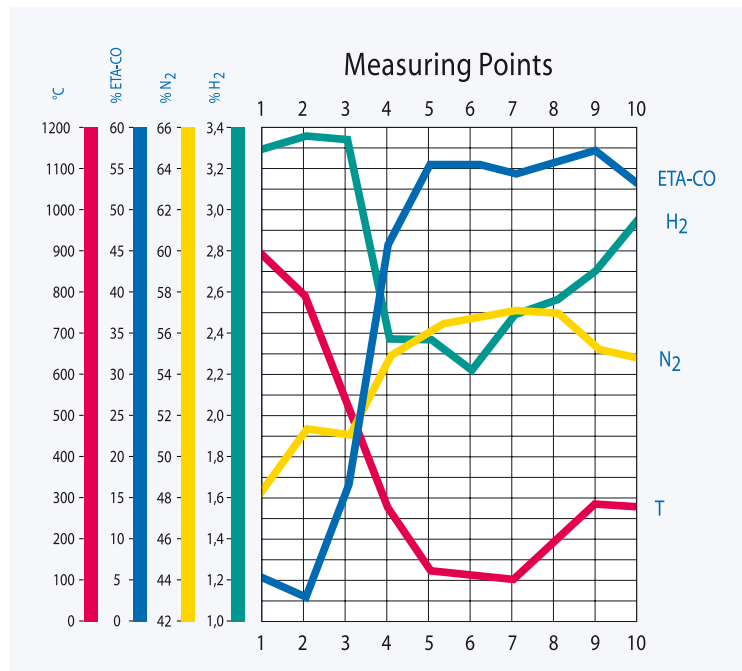
Typical probe layouts. All probes can be linked to blast furnace expert systems.



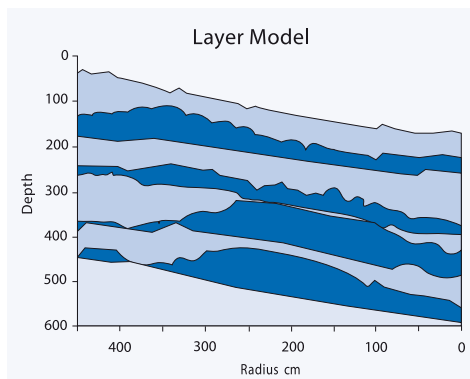
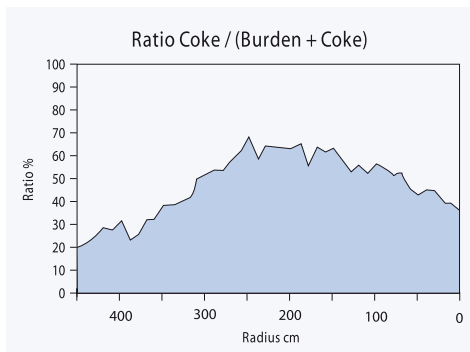
IN-BURDEN PROBES

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.

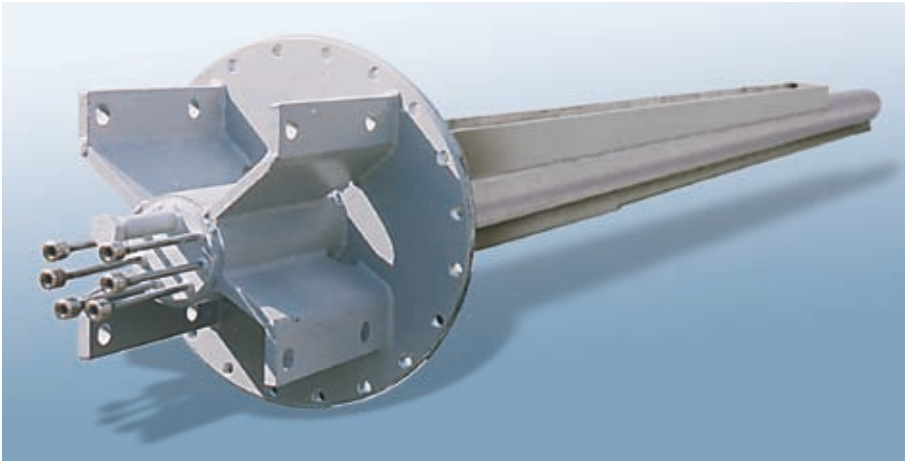


PROFILEMETER



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 Probe

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.

RADAR STOCKLINE DETECTOR

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



Protected radar electronics for the blast furnace environment

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
 ERDEMIR
 FERROATLANTICA
 HKM
 ISDEMIR
 MMK
 NLMK
 NTMK
 OUTOKUMPU
 PRIMOREC
 RDME
 RIVA GROUP
 RUUKKI
 SAINT-GOBAIN
 SALZGITTER
 SEVERSTAL
 SSAB
 TINFOS
 TK
 TRINECKE ZELEZARNY
 TULACHERMET
 UMICORE
 US STEEL (all BF works)
 VOEST ALPINE STEEL
 ZAPSIB

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
 SHOUGANG JINGTANG
 SHOUGANG QIANAN
 SUMITOMO
 TAIYUAN IRON & STEEL
 TANGSHAN IRON & STEEL
 TATA STEEL
 TIANJIN IRON & STEEL
 TIANTIE 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
 ACESITA
 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
 HISMELT
 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

Tapping - Measuring - Technology



- together -
one step ahead



DANGO & DIENENTHAL



PAUL WURTH

TMT's product range also includes:

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

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