

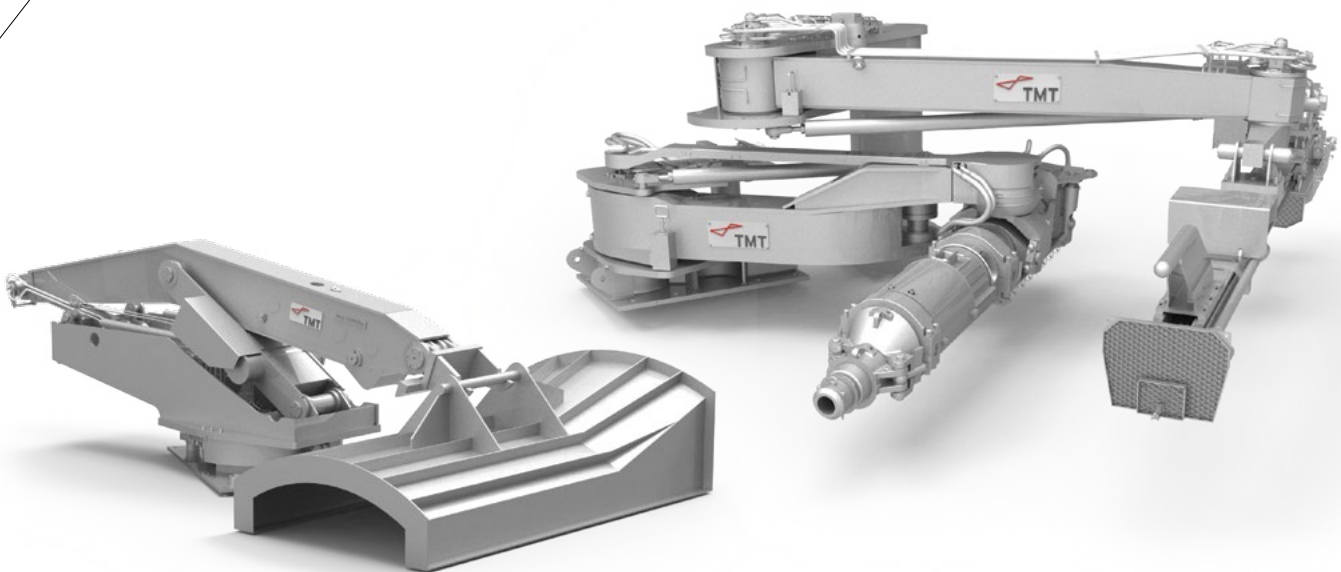
READY TO EXCEED.



TMT TAPPING
MEASURING
TECHNOLOGY

ADVANCED CASTHOUSE TECHNOLOGY

FOR BLAST FURNACES



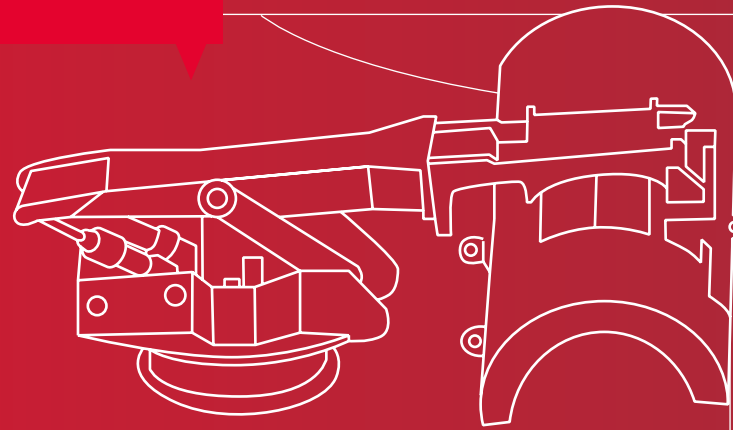
> **250**
UNITS IN OPERATION

HIGHEST OPERATOR SAFETY

BEST ENVIRONMENTAL PROTECTION

COVER MANIPULATOR

- ▶ Presently 15 customized types designed
- ▶ More than 250 in operation



DON'T LET TAPPING EQUIPMENT LIMIT YOUR BLAST FURNACE PROCESS

CUSTOMIZED LAYOUTS FOR BLAST FURNACES FROM **300-6,000 m³**

- ▶ Clay Guns
- ▶ Taphole Opener
- ▶ Cover Manipulators and Covers
- ▶ Tilting Runner Drives and Cradles
- ▶ Torpedo Level Measurement
- ▶ Cast House Hydraulic System
- ▶ Electric Control Systems (from manual to full automatic)
- ▶ Consumables
- ▶ Tapping Manager Software
- ▶ Condition Monitoring
- ▶ Auxiliaries: Jack Dam Drill, Rod Changer, Clay Loader
- ▶ Turnkey Installation Services

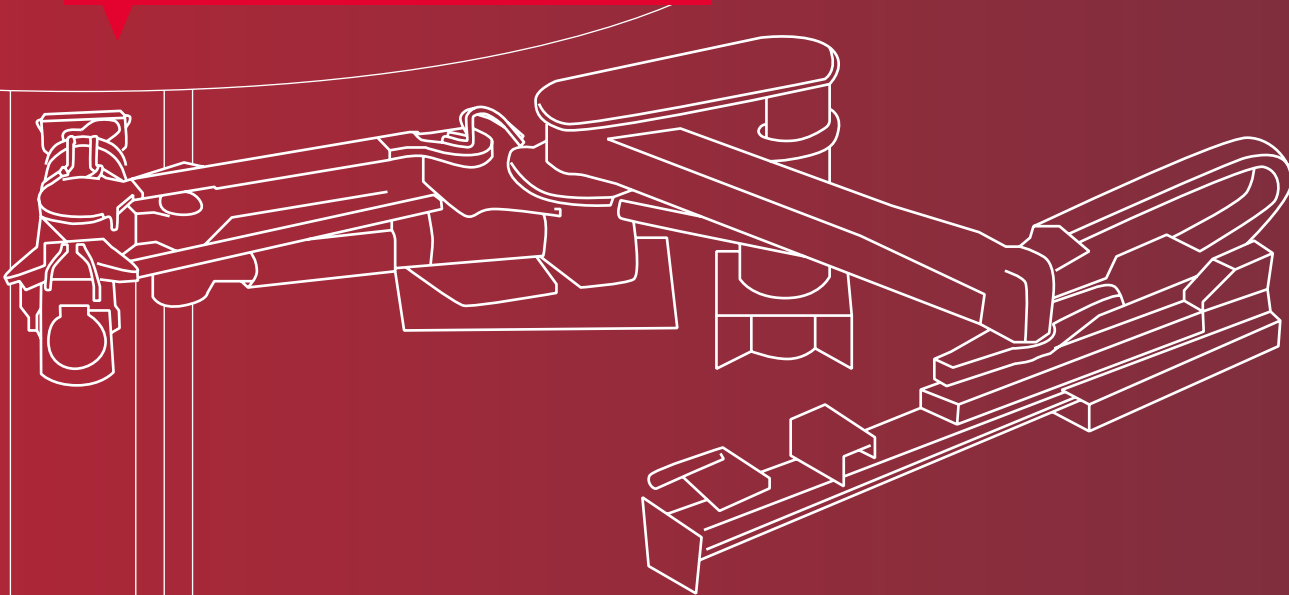
> 700

UNITS IN OPERATION

REPEATABLE SAFE PLUGGING

CLAY GUN

- ▶ Highest reliability based on more than 700 units in operation
- ▶ Barrel tempering for less clay consumption



SMOOTH DRILLING FOR HIGHEST TAPHOLE PROTECTION

TAPHOLE OPENER

- ▶ More than 800 units in operation
- ▶ 8 drill hammer types to match your furnace size
- ▶ Up to 1'200 Nm torque

> 800

UNITS IN OPERATION

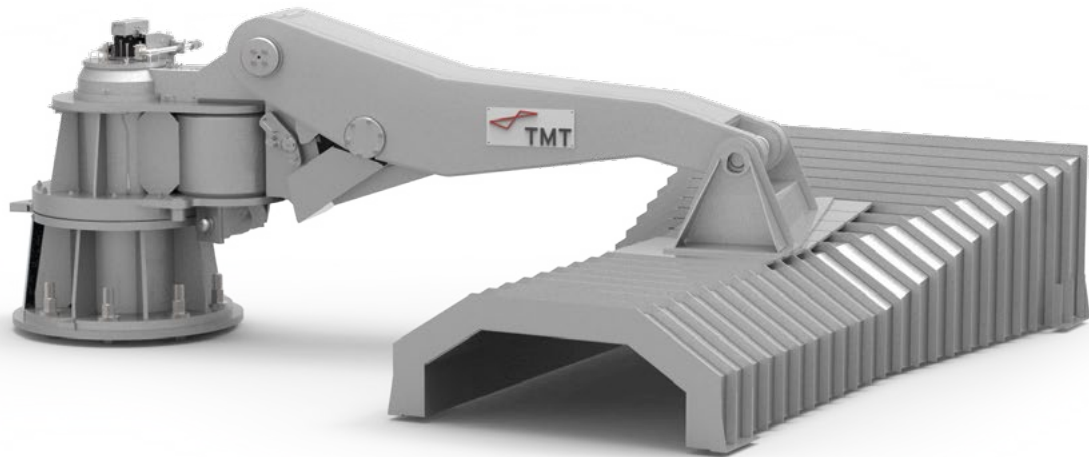
FLEXIBLE SAFE EFFICIENT

COVER MANIPULATOR

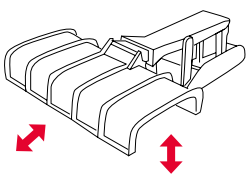
Customized Solutions

Safety of casthouse personnel and casthouse emission control call for cover manipulators.

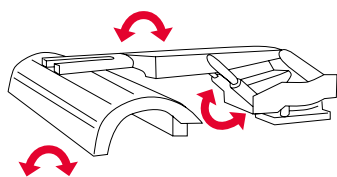
For highest layout flexibility TMT cover manipulators combine tilting, linear and slewing movements with rail or column mounted and low-profile floor mounted solutions.



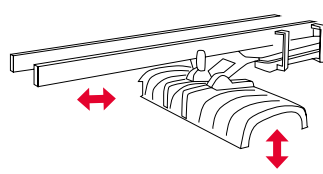
/ MOVEMENT TYPES



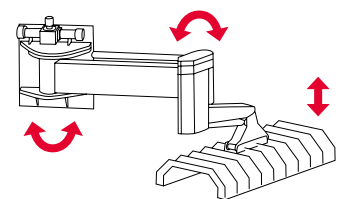
Linear Type



Slewing Type



Rail Type



Column-mounted

/ YOUR BENEFITS

Fits any furnace size

Lifting capacity 30 tons and more

Fits any new or existing casthouse layout

Flexible and adaptable designs

Reliable and low maintenance cost

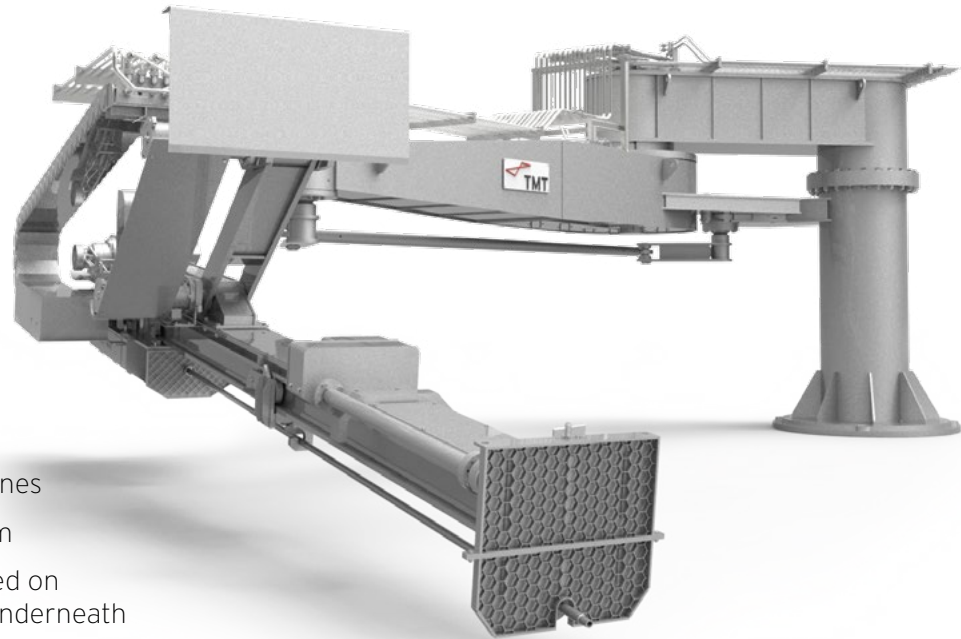
Based on hundreds of furnaces equipped

REPEATABLE ACCURATE DRILLING

**TMT offers largest range of performance levels
and designs suitable for any operational demands**

All TMT-BBG drill hammer types have been developed in-house, specifically for casthouse applications.

TAPHOLE OPENER



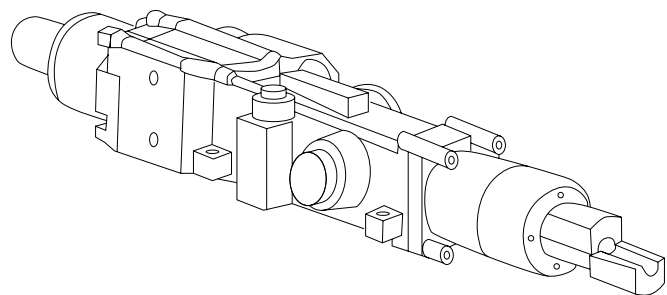
/ LAYOUT VARIANTS

- ▶ Single motion type
- ▶ Slewing and tilting machines
- ▶ Slewing and lifting system
- ▶ Taphole Openers mounted on pedestal, BF column or underneath tuyere platform

/ PRODUCT INNOVATION HS600

World's only hammer with online performance adaption

Full automatic operation available for highest level of taphole protection



/ YOUR BENEFITS

Highest reliability, lowest lifecycle costs

Based on more than 5 decades of experience in design and manufacturing

Avoid sticking drill bars

Integrated reverse hammering guarantees drill bar pull out under any circumstances

One bit + bar

Proven one bit + bar per opening performance

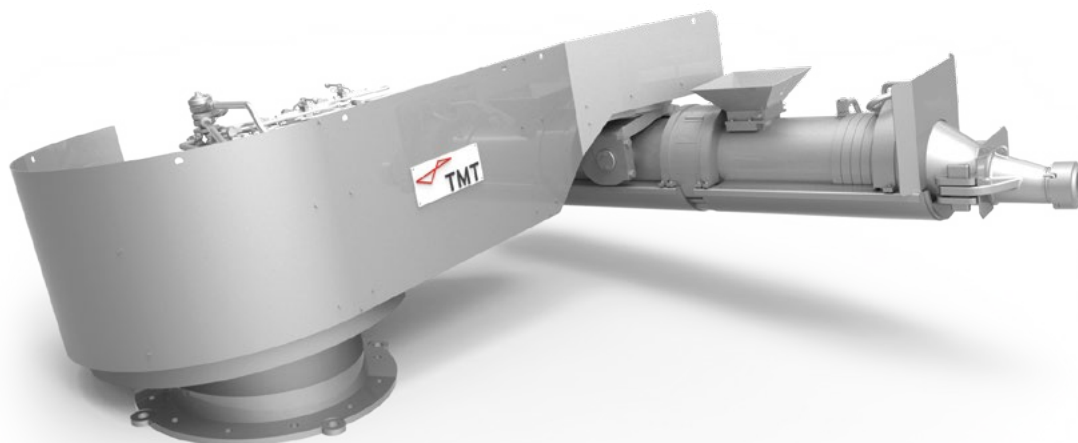
PRECISE REPEATABLE SAFE PLUGGING

CLAY GUN

Lowest Operational Cost

Ultra high wear resistant barrels and barrel sleeve solutions far exceed standard barrel lifetimes.

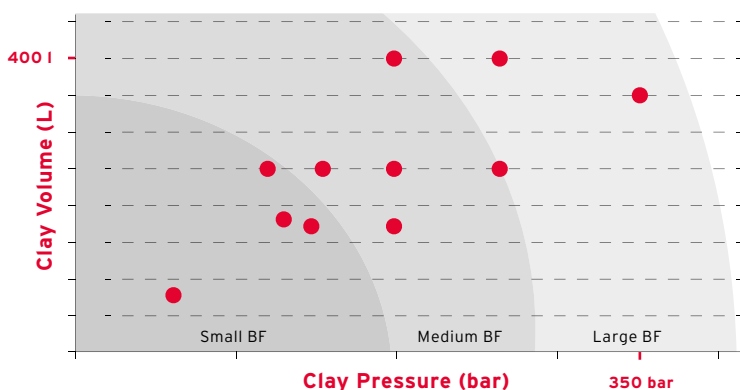
High performance tempering technology to process even the most demanding clay masses.



/ CLAY VOLUME AND PRESSURE

Performance range matching any blast furnace size

Multiple performance levels and sizes are readily available to optimally match your blast furnace requirements.



/ YOUR BENEFITS

Taphole protection

Sophisticated control solutions prevent damage to the taphole structure and refractory (soft touch)

Availability

Clay guns are relevant for processing safety. Reliability and availability guide the design

Cost reduction

Tempering technology reduces clay consumption and maintenance efforts

RELIABILITY HIGHEST SAFETY STANDARDS

CONTROLS OF CASTHOUSE MACHINES



Hydraulic and electrical controls designed for normal and emergency operation

Controls span from full automatic manless casthouse operation to simple manual operation. Specially developed algorithms like “soft touch”, “interval ramming”, intelligent hammer control ... provide complete process flexibility and record process data.

This data is the basis for Industry 4.0 / IoT tools like our “Tapping Manager” or “Condition Monitoring”, providing operators with valuable information. Naturally, TMT control systems easily integrate or interface to higher level blast furnace controls.

Compact high end hydraulics reliably provide power and equipment control in easy to maintain packages.

/ YOUR BENEFITS

Industry 4.0 / IoT

Tapping Manager
Condition Monitoring
Process Monitoring

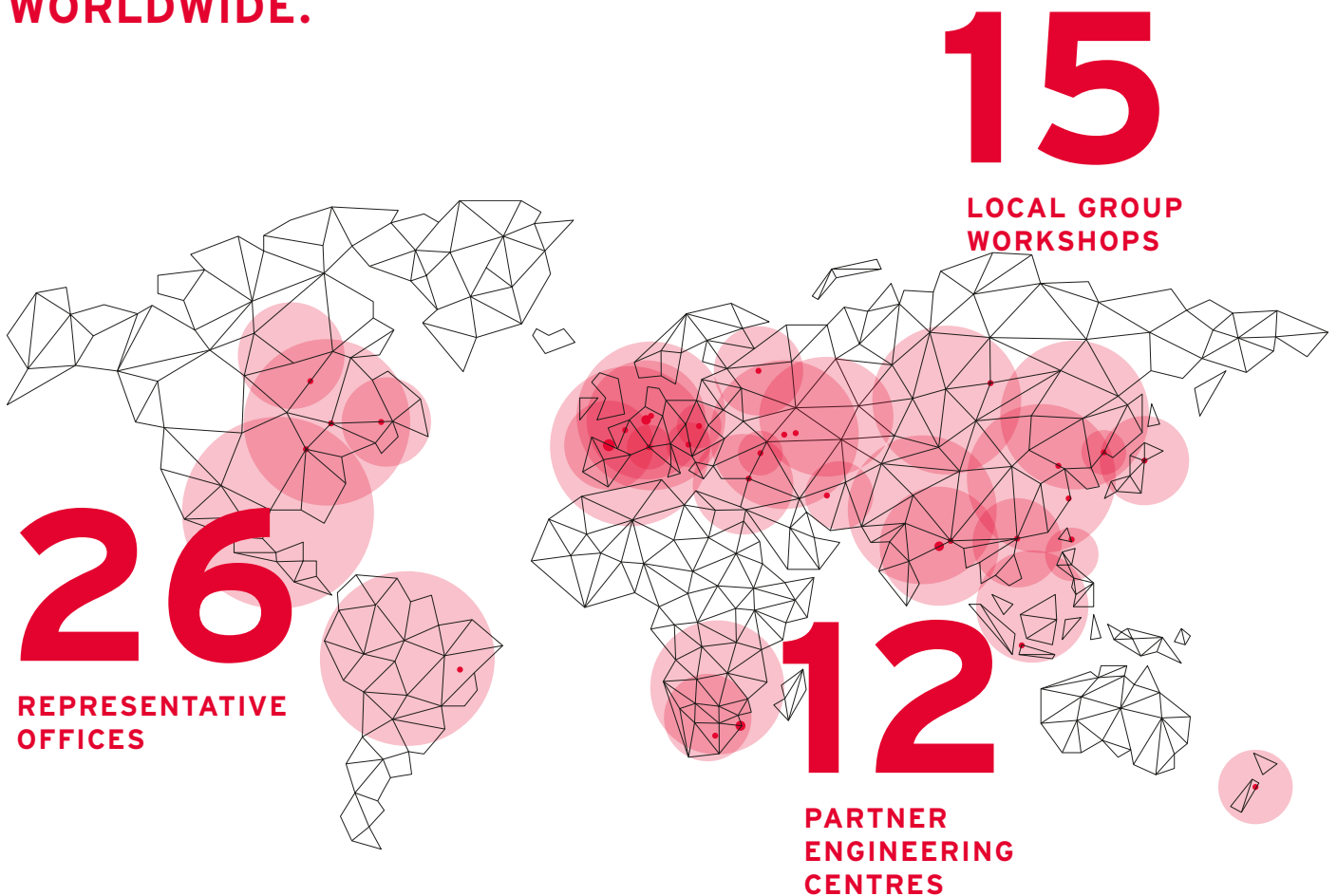
No interface issues

Fully integrated and single point responsibility

Fast commissioning and steep plant ramp-up

Extensive workshop testing and preset controls

**NO MATTER WHERE,
SUPPORT IS JUST
AROUND THE CORNER.
WORLDWIDE.**



Maximum equipment availability

With TMT you have local support around the world. OEM subsidiaries and workshops spread around the globe are ready to assist you throughout the lifetime of the equipment.

/ SERVICES

- ▶ Comprehensive refurbishments to extend the lifetime of your equipment
- ▶ Tailor made technology upgrades to boost the performance of existing equipment and to increase the safety level
- ▶ Site surveys and preventive maintenance to ensure availability of the equipment
- ▶ Supply of OEM spare parts and consumables to ensure reliable performance