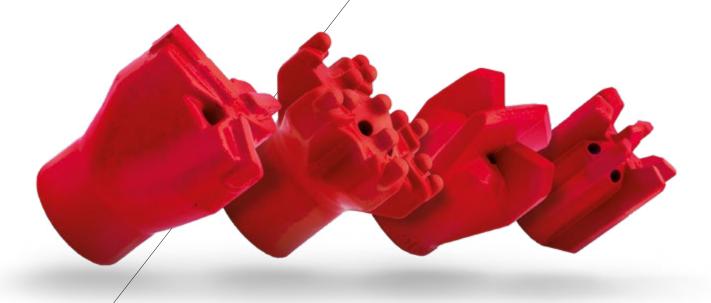


# WEAR PARTS + CONSUMABLES

PRODUCT INFORMATION



INTRODUCTION

### TAPPING MEASURING TECHNOLOGY

#### **ABOUT**

TMT is the fusion of two extraordinary companies which have merged their experience and expertise to ensure tapping solutions on a high-end level.

Many leading companies in the metalproducing industry trust our expertise, benefit from our ideas and rely on our team of highly qualified experts for their projects.





#### BEGINNINGS

Around 1900, the fist clay guns were manufactured at Dango & Dienenthal in Siegen.

In comparison to today's high end equipment, they could be considered rather simple, but demanding pneumatic constructions with a single cylinder, which made work around the taphole areas of blast furnaces easier and less dangerous.

Thereby, the furnace workers still had to operate in a dangerous area, but instead of plugging the taphole by hand, only had to fill the machine with clay and plug the tap hole by maneuvering the clay gun into an appropriate position.

Employing clay guns did not only improve working safety, but also enhanced the productivity of blast furnaces, because interrupting the air-flow became unnecessary.

#### IMPROVEMENTS

In 1979, the first full reverse hammer was manufactured at Paul Wurth in Luxembourg. This taphole drill was operating based on a pneumatic hammer unit. It considerably improved the safety of taphole operators. Later around 1997, both TMT mother companies introduced fully hydraulic taphole drills and reverse hammer drills. Those are still today the state-of-the-art of tapping technology, as only they satisfy the high demands for performance, reliability and safety.

INTRODUCTION

#### ROAD TO ZERO EMISSION

The whole steel industry is facing major challenges with regards to CO2 neutrality by 2050. There is still a long way to go.

However, TMT with its own factory in Haiger is already contributing to this target.

Large areas of our factory roof top are equipped with a photovoltaic system. The generated energy is used to run our factory.

The cooperation with TMT enables our partners/customers to improve their carbon footprint.

#### STILL STRIVE FOR MORE

Since the early bennings TMT has constantly developed and improved their taphole machinery to suit customers needs and requirements for a highly efficient and safe taphole operation.

Are you ready to exceed?



# HOW WE EXCEED

## PERFORMANCE IS THE RESULT OF THE INTERACTION BETWEEN MACHINES, WEAR PARTS AND CONSUMABLES.

As an Original Equipment Manufacturer of all these components, TMT understands the requirements best.

Only the use of original wear parts and the proper adjustment of machine settings and consumables ensure that performance-targets are met, costs are reduced and the operational safety is maximized. REFERENCES 5

## 30 YEARS OF EXPERIENCE

#### KEEP INCREASING YOUR PROFIT

Based on 30+ years of experience the people of TMT know a lot about drilling and plugging of tap holes.

TMT helps you to choose the right components for an optimized process which will save cost and eventually result in an increase of profitability.





references 6

# RELIABLE AND PREPARED FOR ALL CASES

#### DELIVERY IN SHORT TIME

At our new production facility located in Haiger / Germany, right in the centre of Europe, we keep our stock levels for all standard components and raw materials on high levels which enables us to serve our customers reliably and in a very reasonable time.

We are set up to handle emergency cases and ensure a dispatch within 24 hours from order of all standard consumables like drill bits and other standardised wear items.

#### WEAR PARTS AVAILABLE

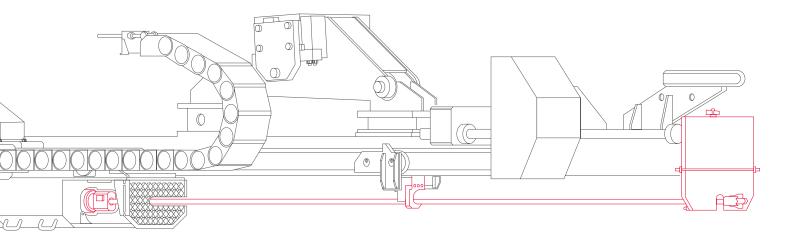
Keeping the production running at a steady pace is an essential challenge.

Therefore we have stored up to 3,000 tons of material and more than 150,000 drill bits in our warehouse in Haiger, Germany, to ensure fast and reliable delivery.



CONTENT

# CONTENT



11 - 14

ADAPTERS + UPGRADE-KITS

WEAR PARTS

17 - 18

DRILL RODS + PERCUSSION RODS

CONSUMABLES

19 - 24

**DRILL BITS** 

CONSUMABLES

25 - 28

FURTHER EQUIPMENT

CONSUMABLES

CONTENT 8

# IN EAR PAIS



BAYONET CONNECTION

WITHOUT SELF-CENTRING SYSTEM



KEYWAY
CONNECTION



THREAD CONNECTION



BAYONET CONNECTION

WITH SELF-CENTRING SYSTEM



WITH

#### **KEYWAY** CONNECTION



INDIVIDUAL PARTS:



#### LEG SPRING

**IDENT NO** 

3003527 / Ø 4 3003689 / Ø 5



#### **LOCKING PIN**

IDENT NO

260.126



#### **FLOW STOPPER**

**IDENT NO** 

3005670 / Ø 27 3005671 / Ø 24



#### **KEY**

**IDENT NO** 

3005940 /8,0



300 59 41 / 7,1 3005942 / 6,3



#### **CHECK VALVES**

IDENT NO

3003720 / Ø27 3003719 / Ø24



#### **BAYONET** CONNECTION

INDIVIDUAL PARTS:



#### **FLUSHING PIPE**

**IDENT NO** 

1004071 / Ø 24



#### **FLOW STOPPER**

**IDENT NO** 

3005670 / Ø27 3005671 / Ø 24



#### **CHECK VALVES**

**IDENT NO** 

3003720 / Ø27 3003719 / Ø24 WITH SELF-CENTRING

### BAYONET CONNECTION



INDIVIDUAL PARTS:



#### **FLUSHING PIPE**

IDENT NO

1004071 / Ø 24



#### **FLOW STOPPER**

**IDENT NO** 

3005670 / Ø 27 3005671 / Ø 24



#### **CHECK VALVES**

IDENT NO

300 37 20 / Ø 27 300 37 19 / Ø 24 WITH

## THREAD CONNECTION

INDIVIDUAL PARTS:



#### **FLOW STOPPER**

IDENT NO

3005670 / Ø 27 3005671 / Ø 24



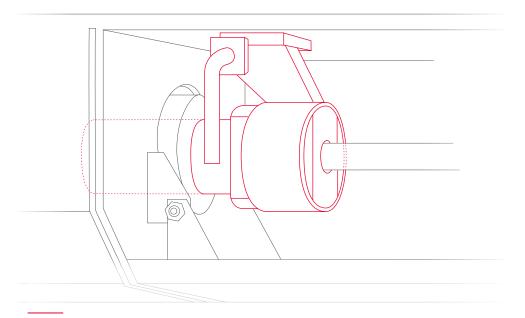
#### **CHECK VALVES**

**IDENT NO** 

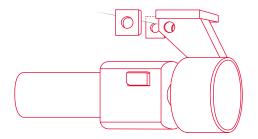
3003720 / Ø27 3003719 / Ø24

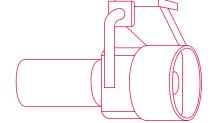


## WEDGE SAFETY DEVICE



IN USE / ASSEMBLED





#### **APPLICATION**

#### SIMPLE LOCK

This type of Wedge Safety Device without additional security elements combines the usual simple wedge connection with safe handling and is the next step towards reducing potential sources of danger.

The use of this unit is checked individually due to the different types of drill hammers.

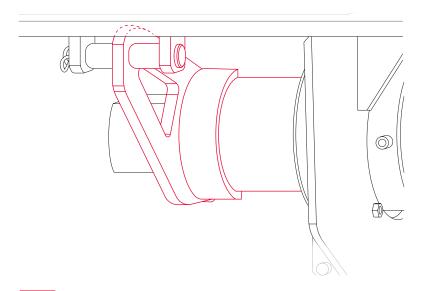
#### EASY MOUNTING

To secure the drill bar by means of a wedge, a safety device can be mounted on different types of drill hammers.

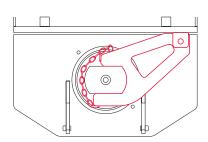
Due to the slidable design, the drill bar can be easily mounted as usual. After moving the safety device until it is locking, the position of the wedge is fixed and losing is impossible.

#### ADAPTER RELEASE DEVICE

FOR THE BAYONET ADAPTER AND WEDGE ADAPTER



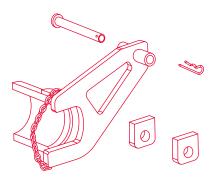
IN USE / ASSEMBLED



#### **APPLICATION**

#### SECURE ATTACHEMENT

In conjunction with the TMT adapters, the use of a release device is possible with various types of drill hammers. The holding device is securely attached to the hammer drill carriage and surrounds the key surface of the adapter.



#### SAFE EXCLUSION

Upon actuation of the rotary hammer in opposite directions to the thread direction, the adapter is released and can then be safely removed by installation personnel. The use of this device is checked individually due to the different types of drill hammers.

CONTENT 13

# CONSUM-ABLES

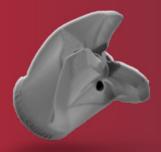


DRILL RODS +
PERCUSSION RODS



**DRILL BITS** 

WITH CARBIDE



**DRILL BITS** 

WITHOUT CARBIDE



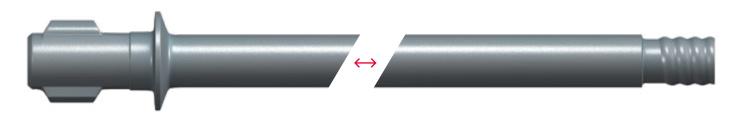
**WEAR PARTS** 

FOR TAPHOLE DRILLS + CLAY GUNS



## DRILL RODS + PERCUSSION RODS

#### **DRILL RODS**



#### SELF-CENTRING BAYONET CONNECTION

Outside diameters (mm): 31.8 / 35 / 38 Wall thickness (mm): 6.3 / 7.1 / 8



#### NON-SELF-CENTRING BAYONET CONNECTION

Outside diameters (mm): 31.8 / 35 / 38 Wall thickness (mm): 6.3 / 7.1 / 8



#### **KEYWAY CONNECTION**

Outside diameters (mm): 31.8 / 35 / 38 Wall thickness (mm): 6.3 / 7.1 / 8



#### THREAD CONNCECTION

Outside diameters (mm): 31.8 / 35 / 38 Wall thickness (mm): 6.3 / 7.1 / 8



## DRILL RODS + PERCUSSION RODS

#### **PERCUSSION RODS**



#### SELF-CENTRING BAYONET CONNECTION

Diameters (mm): 32 / 35 / 38 / 42 / 45 / 50



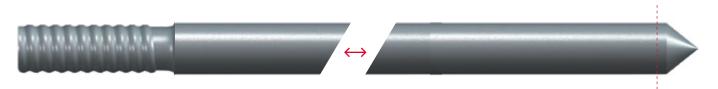
#### NON-SELF-CENTRING BAYONET CONNECTION

Diameters (mm): 32 / 35 / 38 / 42 / 45 / 50



#### **KEYWAY CONNECTION**

Diameters (mm): 32 / 35 / 38 / 42 / 45 / 50



THREAD CONNCECTION

With and without cone end

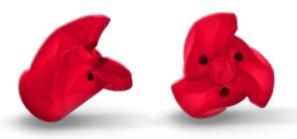
With and without cone end

With and without cone end

Diameters (mm): 32 / 35 / 38 / 42 / 45 / 50



## WITHOUT CARBIDE



#### **RACER**

IDENT NO	DESCRIPTION	Ø DRILL BIT	THREAD
300 32 00 300 32 01 300 32 02 300 32 03	TMT - RC - 40 - R 32 TMT - RC - 42.5 - R 32 TMT - RC - 45 - R 32 TMT - RC - 47.5 - R 32	40 mm 42.5 mm 45 mm 47.5 mm	R 32 left R 32 left R 32 left
3003204	TMT - RC - 50 - R 32	50 mm	R 32 left
300 32 05 300 32 06 300 32 07 300 32 08 300 32 09	TMT - RC - 52.5 - R 32 TMT - RC - 55 - R 32 TMT - RC - 57.5 - R 32 TMT - RC - 60 - R 32 TMT - RC - 62.5 - R 32	52.5 mm 55 mm 57.5 mm 60 mm 62.5 mm	R 32 left R 32 left R 32 left R 32 left R 32 left
300 32 10 300 32 12 300 32 14	TMT - RC - 65 - R 32 TMT - RC - 70 - R 32 TMT - RC - 75 - R 32	65 mm 70 mm 75 mm	R 32 left R 32 left R 32 left



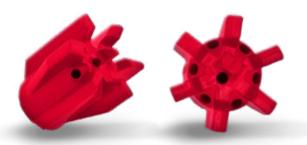


#### **CUTTER**

IDENT NO	DESCRIPTION	Ø DRILL BIT	THREAD
3003300	TMT-CT-40-R 32	40 mm	R 32 left
300 33 01	TMT-CT-42.5-R 32	42.5 mm	R 32 left
3003302	TMT-CT-45-R 32	45 mm	R 32 left
3003303	TMT-CT-47.5-R 32	47.5 mm	R 32 left
3003304	TMT-CT-50-R 32	50 mm	R 32 left
3003305	TMT-CT-52.5-R 32	52.5 mm	R 32 left
3003306	TMT-CT-55-R 32	55 mm	R 32 left
300 33 07	TMT-CT-57.5-R 32	57.5 mm	R 32 left
3003308	TMT-CT-60-R 32	60 mm	R 32 left
3003309	TMT-CT-62.5-R 32	62.5 mm	R 32 left
300 33 10	TMT-CT-65-R 32	65 mm	R 32 left
300 33 12	TMT-CT-70-R 32	70 mm	R 32 left
300 33 14	TMT-CT-75-R 32	75 mm	R 32 left



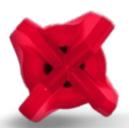
## WITHOUT CARBIDE



#### **MILLER**

IDENT NO	DESCRIPTION	Ø DRILL BIT	THREAD
300 38 00	TMT - ML - 40 - R 32	40 mm	R 32 left
300 38 01	TMT - ML - 42.5 - R 32	42.5 mm	R 32 left
300 38 02	TMT - ML - 45 - R 32	45 mm	R 32 left
300 38 03	TMT - ML - 47.5 - R 32	47.5 mm	R 32 left
300 38 04	TMT - ML - 50 - R 32	50 mm	R 32 left
3003805	TMT - ML - 52.5 - R 32	52.5 mm	R 32 left
3003806	TMT - ML - 55 - R 32	55 mm	R 32 left
3003807	TMT - ML - 57.5 - R 32	57.5 mm	R 32 left
3003808	TMT - ML - 60 - R 32	60 mm	R 32 left
3003809	TMT - ML - 62.5 - R 32	62.5 mm	R 32 left
300 38 10	TMT - ML - 65 - R 32	65 mm	R 32 left
300 38 12	TMT - ML - 70 - R 32	70 mm	R 32 left
300 38 14	TMT - ML - 75 - R 32	75 mm	R 32 left
300 38 16	TMT - ML - 80 - R 32	80 mm	R 32 left



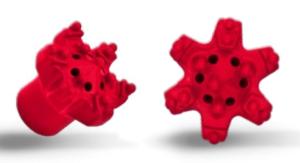


#### **SLITTER**

IDENT NO	DESCRIPTION	Ø DRILL BIT	THREAD
300 34 60	TMT - SL - 40 - R 32	40 mm	R 32 left
300 34 61	TMT - SL - 42.5 - R 32	42.5 mm	R 32 left
300 34 62	TMT - SL - 45 - R 32	45 mm	R 32 left
300 34 63	TMT - SL - 47.5 - R 32	47.5 mm	R 32 left
300 34 64	TMT - SL - 50 - R 32	50 mm	R 32 left
300 34 65	TMT - SL - 52.5 - R 32	52.5 mm	R 32 left
300 34 66	TMT - SL - 55 - R 32	55 mm	R 32 left
300 34 67	TMT - SL - 57.5 - R 32	57.5 mm	R 32 left
300 34 68	TMT - SL - 60 - R 32	60 mm	R 32 left
300 34 69	TMT - SL - 62.5 - R 32	62.5 mm	R 32 left
300 34 70	TMT - SL - 65 - R 32	65 mm	R 32 left
300 34 72	TMT - SL - 70 - R 32	70 mm	R 32 left
300 34 74	TMT - SL - 75 - R 32	75 mm	R 32 left



## WITHOUT CARBIDE



#### **SLUGGER**

IDENT NO	DESCRIPTION	Ø DRILL BIT	THREAD
3003150	TMT-SG-80-R 32	80 mm	R 32 left
3003151	TMT-SG-90-R 32	90 mm	R 32 left
3003152	TMT-SG-100-R 32	100 mm	R 32 left
3003153	TMT-SG-110-R 32	110 mm	R 32 left
3003154	TMT-SG-120-R 32	120 mm	R 32 left

## WITH CARBIDE





#### **TURNER**

IDENT NO	DESCRIPTION	Ø DRILL BIT	THREAD
3003600	TMT - TN - HM - 40 - R 32	40 mm	R 32 left
3003601	TMT - TN - HM - 42,5 - R 32	42,5 mm	R 32 left
3003602	TMT-TN-HM-45-R 32	45 mm	R 32 left
3003603	TMT-TN-HM-47,5-R 32	47,5 mm	R 32 left
3003604	TMT-TN-HM-50-R 32	50 mm	R 32 left
3003605	TMT-TN-HM-52,5-R 32	52,5 mm	R 32 left
3003606	TMT-TN-HM-55-R 32	55 mm	R 32 left
3003607	TMT-TN-HM-57,5-R 32	57,5 mm	R 32 left
3003608	TMT-TN-HM-60-R 32	60 mm	R 32 left
3003610	TMT-TN-HM-65-R 32	65 mm	R 32 left
3003612	TMT-TN-HM-70-R 32	70 mm	R 32 left
3003614	TMT-TN-HM-75-R 32	75 mm	R 32 left
3003616	TMT-TN-HM-80-R 32	80 mm	R 32 left

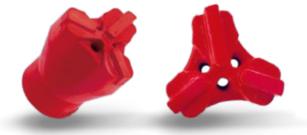


## WITH CARBIDE



#### **SCRAPER**

IDENT NO	DESCRIPTION	Ø DRILL BIT	THREAD
300 59 62 300 59 64 300 59 65 300 59 66 300 59 68	TMT - SC - HM - 45 - R 32 TMT - SC - HM - 50 - R 32 TMT - SC - HM - 52.5 - R 32 TMT - SC - HM - 55 - R 32 TMT - SC - HM - 60 - R 32	45 mm 50 mm 52.5 mm 55 mm 60 mm	R 32 left R 32 left R 32 left R 32 left R 32 left
3005970	TMT-SC-HM-65-R 32	65 mm	R 32 left

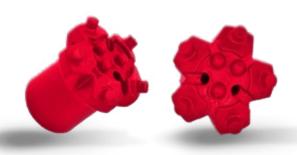


#### **GRAVER**

IDENT NO	DESCRIPTION	Ø DRILL BIT	THREAD
3003400	TMT - GV - HM - 40 - R 32	40 mm	R 32 left
3003401	TMT-GV-HM-42.5-R 32	42.5 mm	R 32 left
3003402	TMT-GV-HM-45-R 32	45 mm	R 32 left
3003403	TMT-GV-HM-47.5-R 32	47.5 mm	R 32 left
3003404	TMT-GV-HM-50-R 32	50 mm	R 32 left
3003405	TMT-GV-HM-52.5-R 32	52.5 mm	R 32 left
3003406	TMT-GV-HM-55-R 32	55 mm	R 32 left
3003407	TMT-GV-HM-57.5-R 32	57.5 mm	R 32 left
3003408	TMT-GV-HM-60-R 32	60 mm	R 32 left
3003409	TMT-GV-HM-62.5-R 32	62.5 mm	R 32 left
3003410	TMT-GV-HM-65-R 32	65 mm	R 32 left
3003412	TMT-GV-HM-67.5-R 32	67.5 mm	R 32 left
3003414	TMT-GV-HM-70-R 32	100 mm	R 32 left
3003416	TMT-GV-HM-75-R 32	110 mm	R 32 left
	TMT-GV-HM-80-R 32	120 mm	R 32 left



## WITH CARBIDE



#### **SLUGGER**

IDENT NO	DESCRIPTION	Ø DRILL BIT	THREAD
3003643	TMT - SG - HM - 45 - R 32	45 mm	R 32 left
3003644	TMT-SG-HM-50-R 32	50 mm	R 32 left
3003658	TMT-SG-HM-52.5-R 32	52.5 mm	R 32 left
3003645	TMT-SG-HM-55-R 32	55 mm	R 32 left
3003659	TMT-SG-HM-57.5-R 32	57.5 mm	R 32 left
3003646	TMT-SG-HM-60-R 32	60 mm	R 32 left
3003660	TMT-SG-HM-62.5-R 32	62.5 mm	R 32 left
3003647	TMT-SG-HM-65-R 32	65 mm	R 32 left
3003648	TMT-SG-HM-70-R 32	70 mm	R 32 left
3003649	TMT-SG-HM-75-R 32	75 mm	R 32 left
3003650	TMT - SG - HM - 80 - R 32	80 mm	R 32 left
3003651	TMT-SG-HM-90-R 32	90 mm	R 32 left
3003652	TMT-SG-HM-100-R 32	100 mm	R 32 left
3003653	TMT-SG-HM-110-R 32	110 mm	R 32 left
3003654	TMT-SG-HM-120-R 32	120 mm	R 32 left

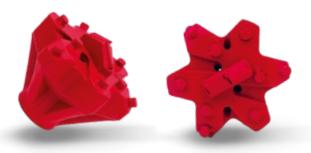


#### **TAPHOLE REAMER**

IDENT NO	DESCRIPTION	Ø DRILL BIT	THREAD
300 59 82	TMT - TR - 210 - R 32	210 mm	R 32 left
3005983	TMT-TR-245-R 32	245 mm	R 32 left
3005984	TMT-TR-260-R 32	260 mm	R 32 left
300 59 85	TMT-TR-300-R 32	300 mm	R 32 left



## WITH CARBIDE



#### **PUNCHER**

IDENT NO	DESCRIPTION	Ø DRILL BIT	THREAD
300 37 90	TMT-PC-HM-80-R 32	80 mm	R 32 left
300 37 91 300 37 92	TMT-PC-HM-90-R 32 TMT-PC-HM-100-R 32	90 mm 100 mm	R 32 left
300 37 93	TMT-PC-HM-110-R 32	110 mm	R 32 left
300 37 94	TMT - PC - HMC - 120 - R 32	120 mm	R 32 left
300 37 95	TMT-PC-HM-125-R 32	125 mm	R 32 left



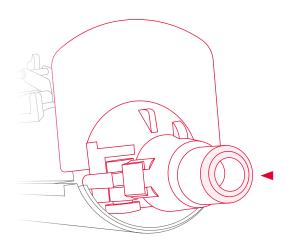
#### **STARTER BIT**

IDENT NO	DESCRIPTION	Ø DRILL BIT	THREAD
300 59 92	TMT-ST-HM-80-R 32	80 mm	R 32
3005993	TMT-ST-HM-80-R 38	80 mm	R 38

EQUIPMENT 22

## NOZZLE PROTECTION

FOR TAPHOLE DRILLS + CLAY GUNS



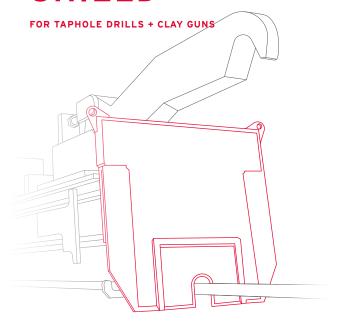
IN USE / ASSEMBLED



#### USAGE

In order to protect components of the clay gun and taphole drill from iron projections and heat radiation and considerably extend their life time, TMT offers to upgrade your equipment with protections specifically designed and made of special refractory concrete.

## PROTECTIVE SHIELD



IN USE / ASSEMBLED



#### USAGE

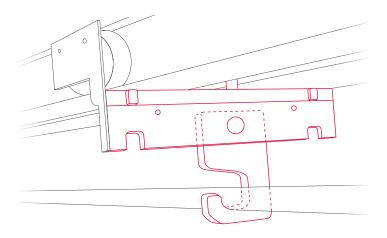
By tapping into the blast furnace hot fluid metal spatters out and sparks are spraying. To protect humans and sensitive parts of the technical equipment, TMT machines have pre-installed protective shields.

The latest design of protection shields makes use of special refractories which increase the lifetime of these parts and help reducing the maintenance costs.

EQUIPMENT 23

## CENTRING DEVICE

FOR TAPHOLE DRILLS + CLAY GUNS



IN USE / ASSEMBLED



#### USAGE

The centring device prevents excessive bending of the bar.

Using original parts helps the operators to drill a straight taphole channel and protect the taphole.

## CUSTOMIZED VERSIONS

Customized versions and designs for your requirements are available as well. Let's get in touch.

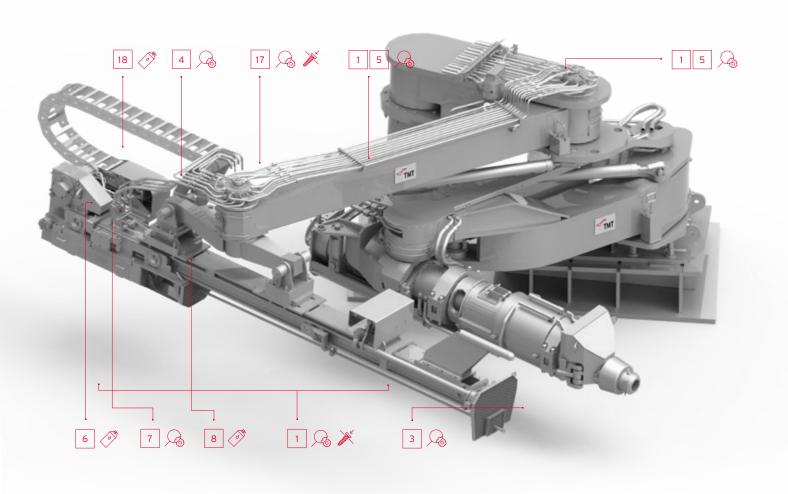
#### CONTACT

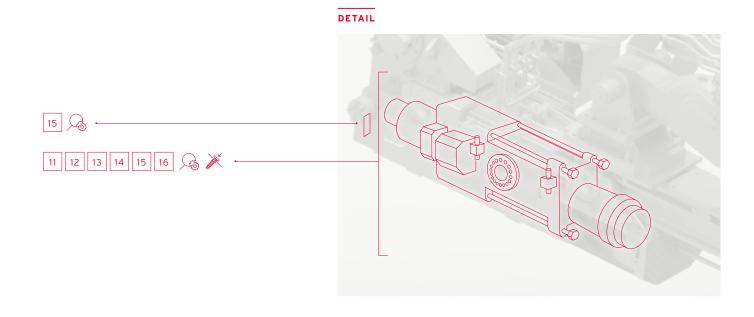
TMT - Tapping Measuring Technology GmbH T +49 271 4014-0 | contact@TMT.com

**TMT - Tapping Measuring Technology S.à r.l.**T +352 261920-0 | F +352 261920-2779 | contact@TMT.com

SERVICE 24

## INSPECTION + MAINTENANCE





SERVICE 28

#### **INSTRUCTIONS**

POS.	CHECK	INTERVENTION		TASK	INFORMATION
1	Daily	Machine and working area	Q	Visual inspection of the machine for: defects, damages, loosened connec- tions, leakages, etc.	Repair any defect immediately
				Checking of the signal lamps function	
2	Daily	Hydraulic system	31	Check oil level. Check oil temperature. Check dirt indicator of filter elements	Refill oil if necessarl. Level must be between MIN and MAX. Reflace Filter if it is dirty.
3	Daily	Protective plate	Q	Visual inspection. Check for complete filling with refractory	Repair if necessary
4	Daily	Adapter	Q	Visual Inspection.	Replace Adapter if it is broken
5	Weekly	Pneumatic device Hydraulic device Electric device	Q	Visual Inspection. Check hydraulic pipes, hoses and screwed connections for leakage and damages	Repair any defects immediately
				Check electric motor for dirt	
6	Weekly	Rollerchain	(3 <sup>th</sup>	Lubricate with grease spray. Check roller chain tension.	If too much slack, restretch
7	Weekly	Roller conveyor	Q	Visual inspection.	Clean
8	Weekly	Wheels	(a)	Lubricate with grease spray or grease gun.	Repair if necessary
9	Weekly	Oiler		Check oil level. Check oil temperature. Check dirt indicator of filter elements.	Refill oil if necessary; Level must be between MIN and MAX. Reflace Filter if it is dirty.
10	Weekly	Central lubrication system	Q X	Visual inspection.	Refill grease if necessary. Repair if necessary.
11	Weekly	Tightness of hydraulic hoses and screw connections	Q X	Visual inspection.	Repair if necessary.
12	Weekly	Expansion screw connection to interface: rotator, gearbox and ham- mer, slide	Q X	Visual inspection.	Repair if necessary.
13	Weekly	Impact piston striking surface on the drill adapter	Q ×	Visual inspection.	Repair if necessary
14	Weekly	High and Low pressure accumulator	Q X	Visual inspection. Pressure test.	Repair if necessary. Correct pressure if necessary.
15	Weekly	Flushing tube seal, flushing pipe	Q X	Visual inspection.	Repair if necessary New set of seals if necessary.
16	Weekly	Hammer lubrication		Visual inspection.	Repair if necessary.
17	Monthly	Suspension	Q ×	Visual inspection. Check all screws on mast for tight fit	Repair if necessary.
18	Monthly	Cable track chain	(a)	Lubrication with grease spray	Repair if necessary