

## RESEARCH & DEVELOPMENT

### Machines & Components

- Multi-mode TBM
- MH Box Machine
- Pipe Express
- E-Power Pipe
- ISP
- Mud pump monitoring system
- Bentonite lubrication system

### > DCRM

- Erector simulator

### New applications

### Energy-efficient TBM

### KNOW-HOW



### Your contact person

#### David Salameh

Division Manager Project Management | Traffic Tunnelling

Phone +49 7824 302-5700  
Salameh.David@herrenknecht.com

### 00 Your Selected Files

-  **DCRM**
-  **DCRM data sheet**

## DCRM – Disc Cutter Rotation Monitoring

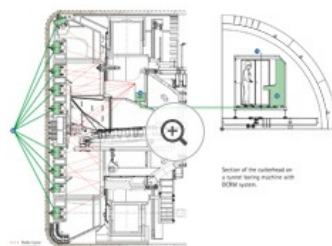
### For the optimum maintenance of disc cutters

By localizing damaged or blocked disc cutters, the Herrenknecht **DCRM** system optimizes the maintenance intervals on the **cutterhead**. Frequent standstills due to manual inspections of the disc cutters are reduced to a minimum - which makes **tunnelling** more efficient and avoids secondary damage to the adjacent disc cutters or to the steel construction of the cutterhead.

### Targeted control of cutter disc maintenance

Detecting wear on **cutting knives** and buckets is already a well-established practice on tunnel boring machines at Herrenknecht AG. Expanding our wear management to disc cutters as a next step makes sense technologically.

The DCRM system monitors the rotation and temperature of the disc cutters continuously during tunnelling. It is an independent monitoring system and can be used both in new Hard Rock TBMs and in those already at work, without any additional installations on the cutterhead.



Space requirements are low and the assembly and maintenance of components are easy. The evaluation of the measured data can be individually adjust by the machine driver.

The **DCRM System** assists in early planning and targeted realization of maintenance intervals.

**Data capture:**

Pulse generators are integrated into the cutter disc hub. As soon as the cutter disc rotates, several signals per rotation are generated in the sensor system 5 thus recording the rotations. At the same time, the sensor system measures the temperature directly next to the disc cutter.

**Wireless data transmission:**

The DCRM units 6 with sensor system, antenna and self-sufficient energy supply are fixed in the cutterhead directly next to the disc cutters. The data collected are transmitted wirelessly by antenna 7 in the DCRM unit to the receiver unit 10.

**Receiver:**

The receiver unit 10 transmits the measured data per cable to the control cabin 11.

**Evaluation and display:**

The industrial PC 12 evaluates the measurement data using software developed by Herrenknecht. The state of the disc cutters is displayed for each track individually. Critical deviations can be seen and are automatically displayed as warning and alarm messages.

- › targeted control of disc cutter maintenance
- › machine standstill times for maintenance inspections are reduced
- › online rotation monitoring for every single cutter disc
- › area of application: hard rock (open mode)
- › cutter size: 17 inch or 19 inch
- › flexible autonomous monitoring system (retrofitable and reusable)
- › measurement and data evaluation continuously during tunnelling
- › data display in the control cabin
- › simple assembly and maintenance

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