WIRTGEN

NJAPA

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CONNECTED MILLING

IN THE BEGINNING. . .

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There was Intelligent Compaction.

WE WENT FROM CONVENTIONAL TESTING . . .

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Troxler

PQI/PDM

Core

TO A GPS BASED SYSTEM . . .

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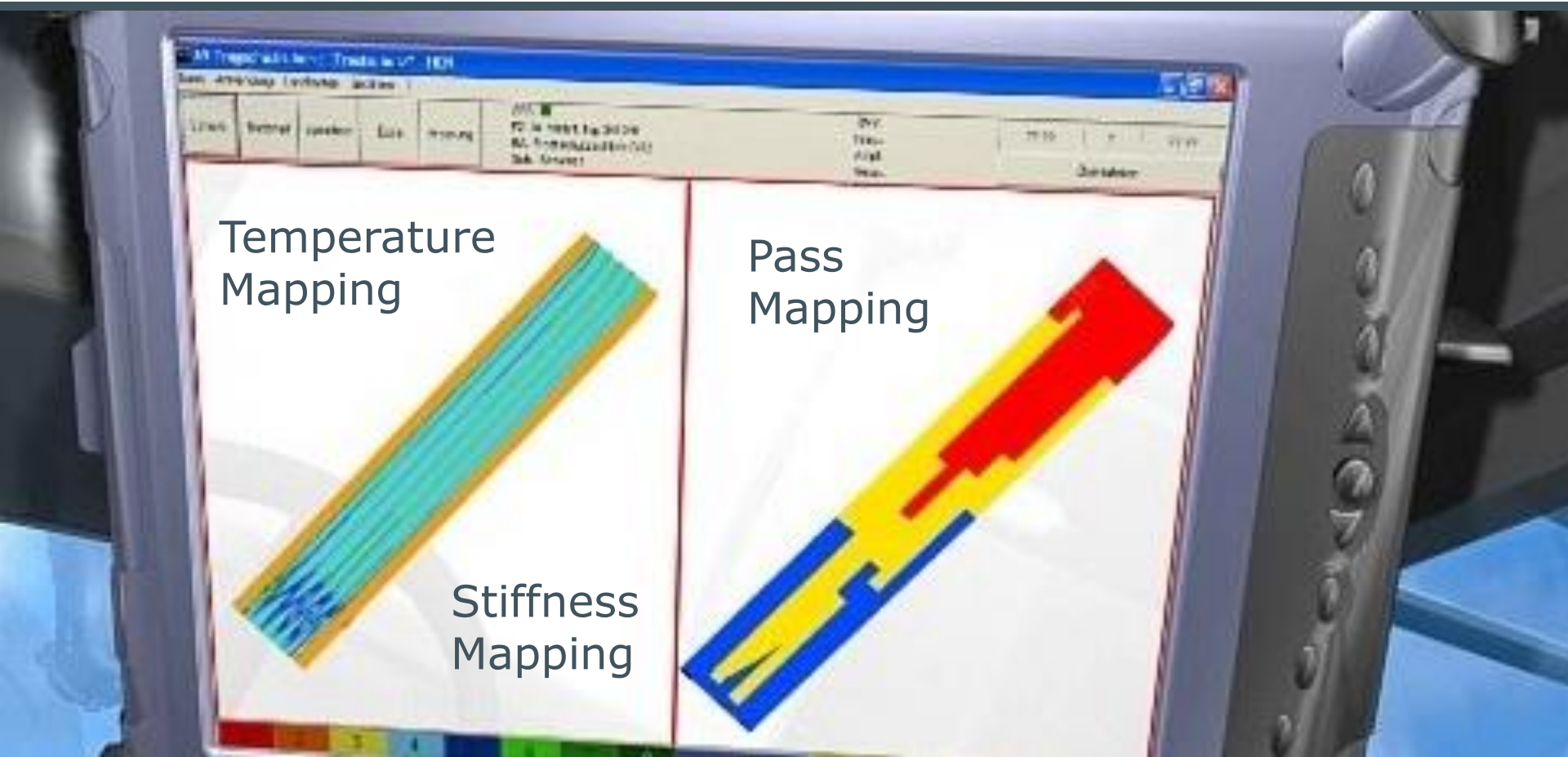
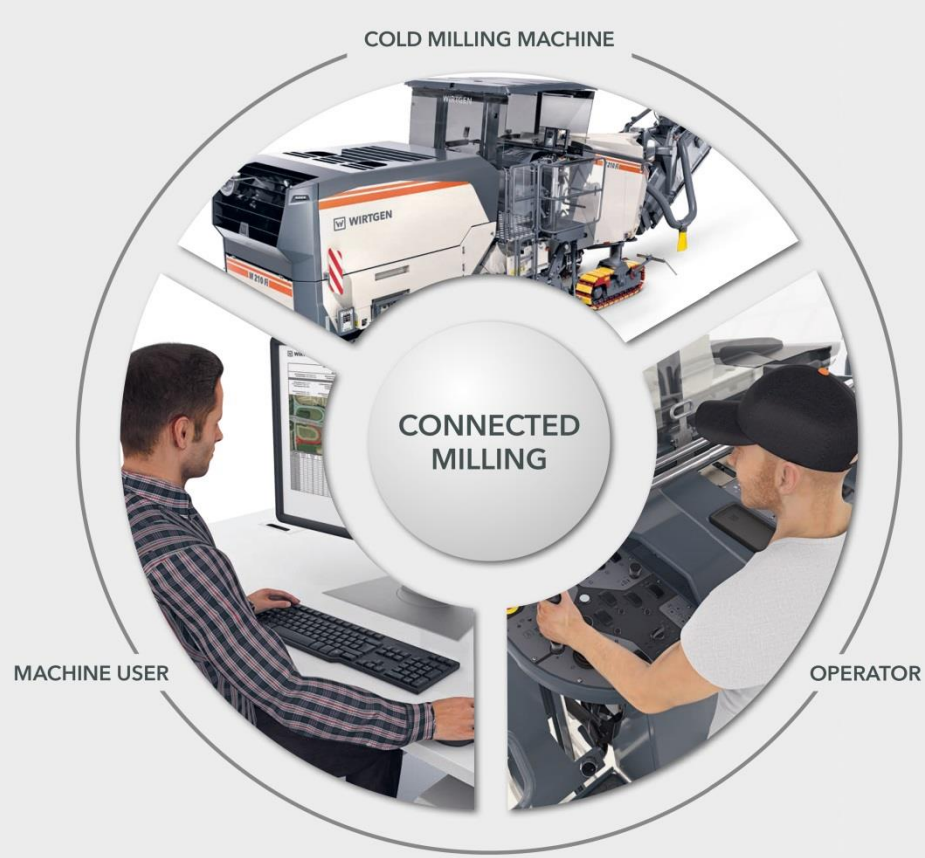


TODAY WE HAVE CONNECTED MILLING



- Seamlessly connects the machine, the operator and the project manager
- Performs and array of functions to simplify the operator’s job
- Provides and array of information to simplify the manager‘s job

CONNECTED MILLING CONSISTS OF . . .

Automated Functions
- Divot prevention
- Match cut assist
- Obstacle assist
- Conveyor swing assist
- Segmented water spray system

Mill Assist Technology
- ECO mode
- Power mode
- Quality mode

Wirtgen Performance Tracker
- Laser sensors
- GPS receiver
- Complete job reporting

AUTOMATED FUNCTIONS

DIVOT PREVENTION

DIVOT PREVENTION

- When the milling machine stops with the drum running, it makes a divot in the milled surface.
- This ultimately affects the rideability of the finished pavement.
- Unless the machine takes care of it automatically.

DIVOT PREVENTION

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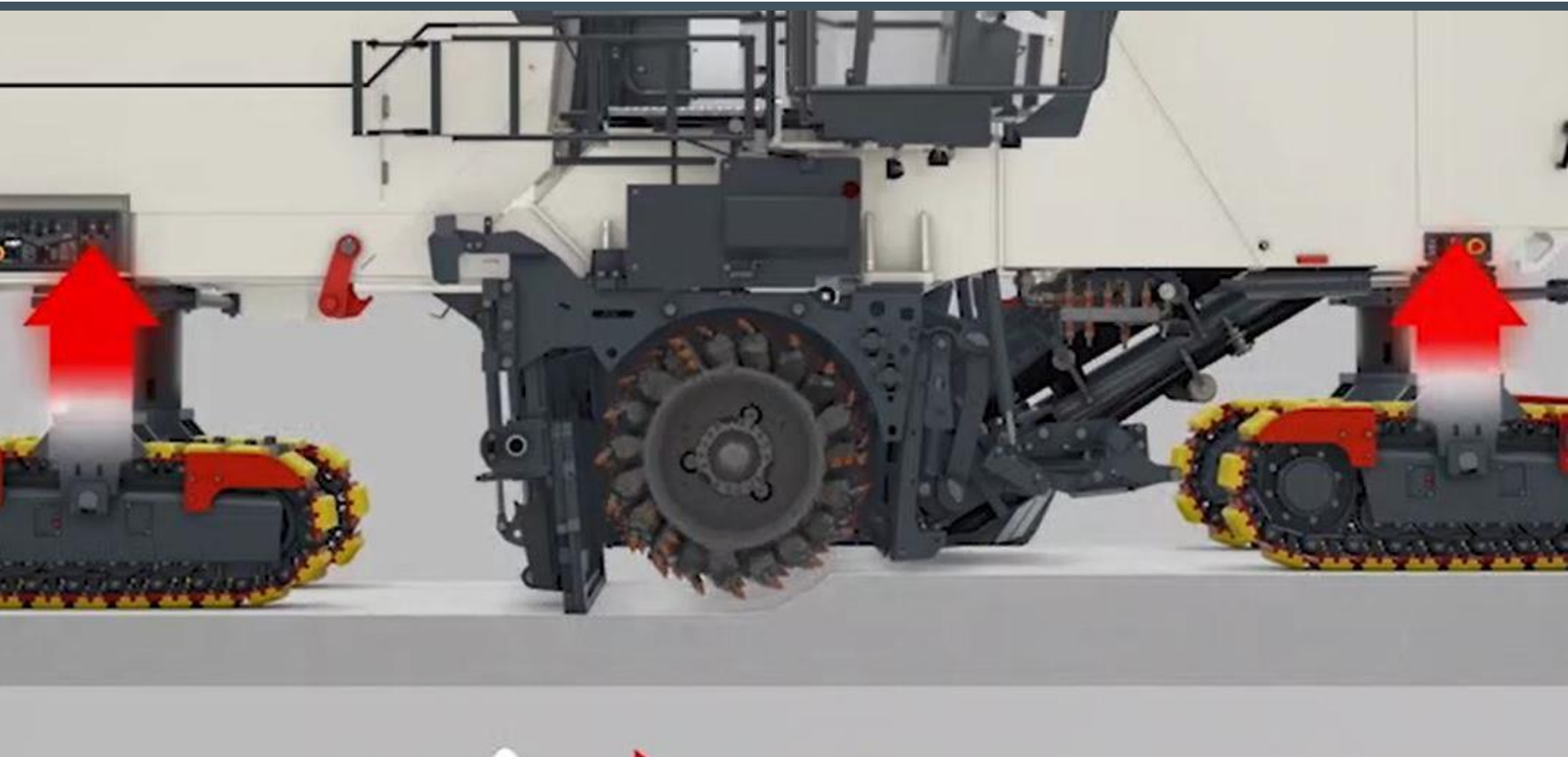

DIVOT PREVENTION

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DIVOT PREVENTION

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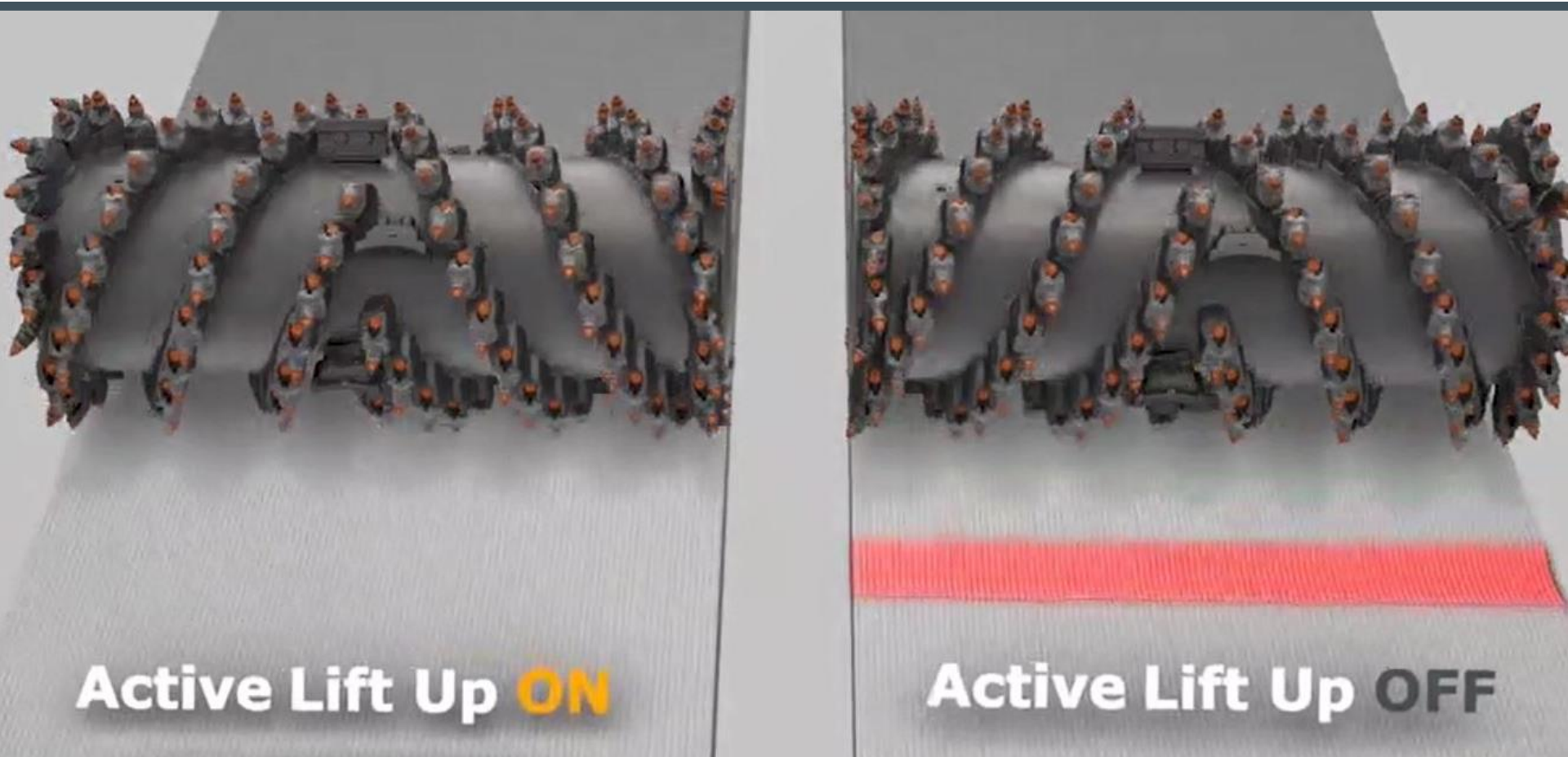

MATCH CUT ASSIST

MATCH CUT ASSIST

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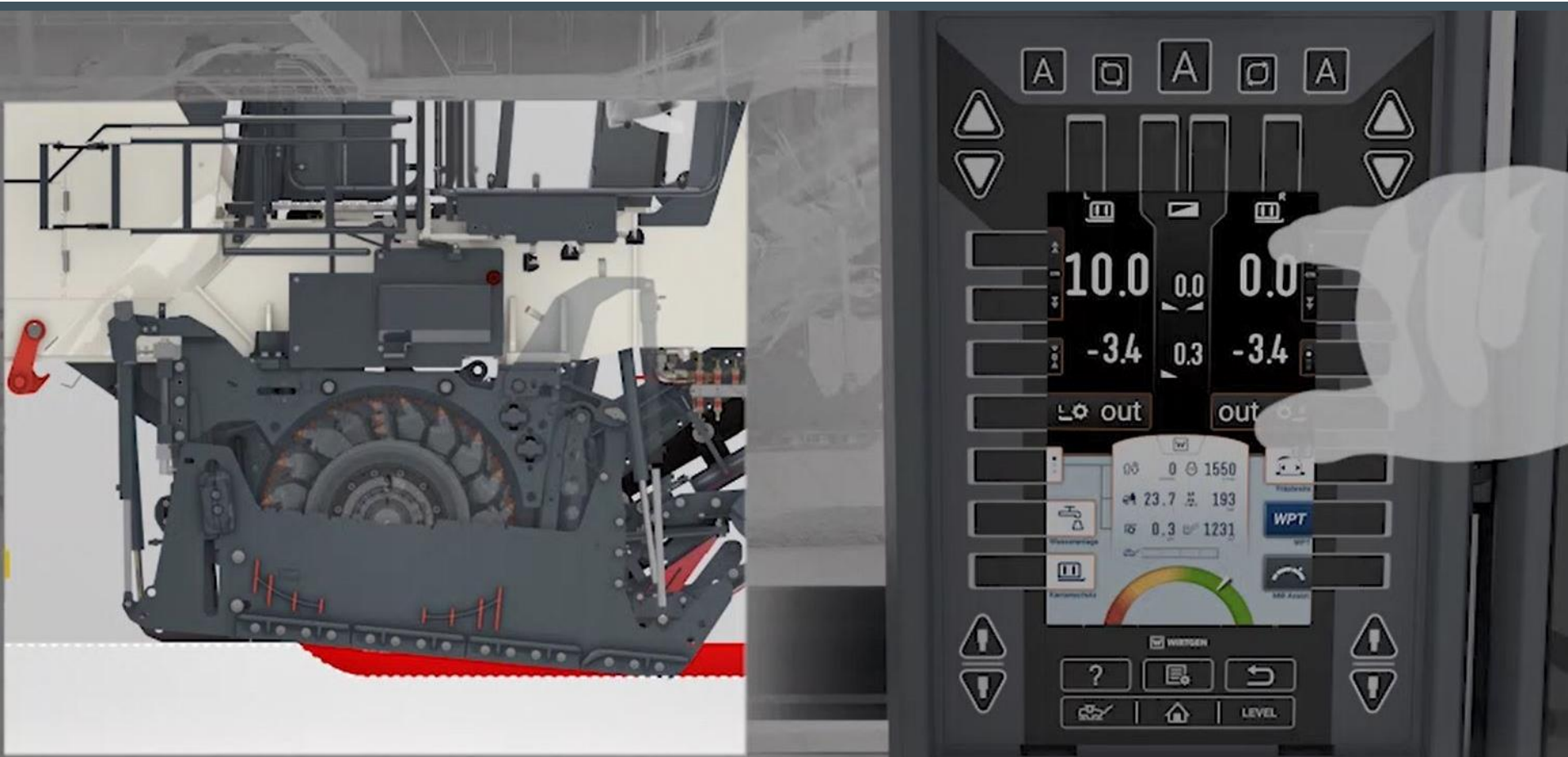

MATCH CUT ASSIST

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MATCH CUT ASSIST

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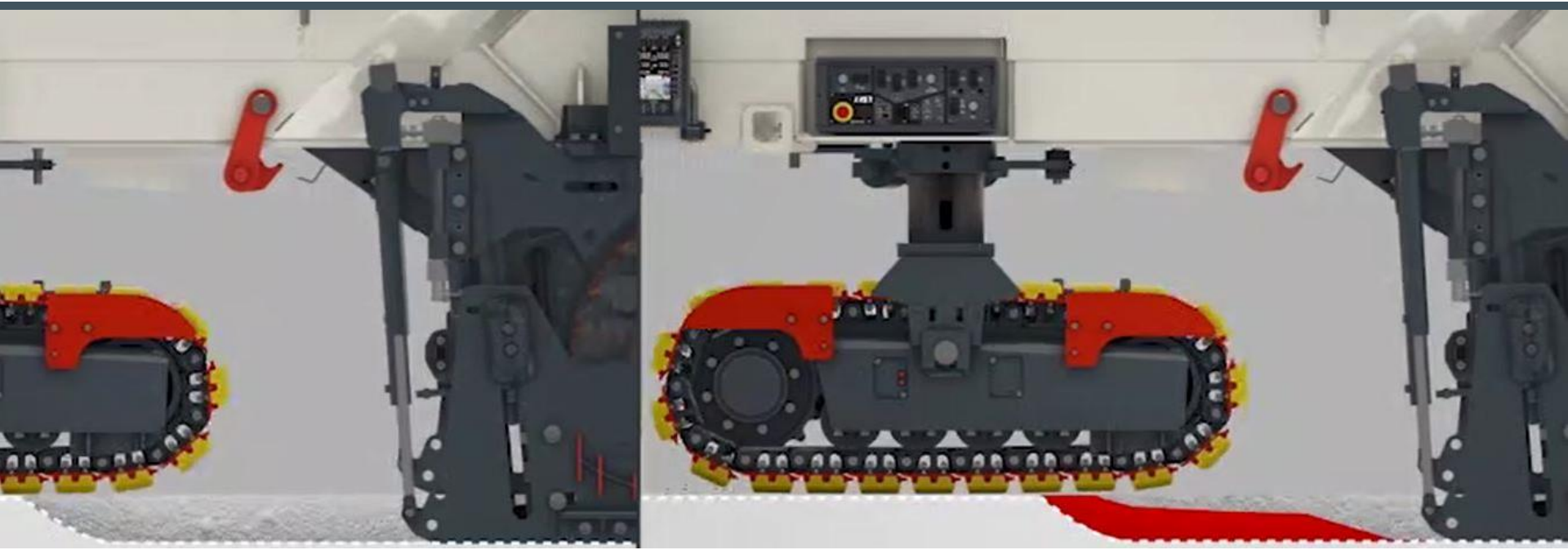

- Match cut assist ON
- Match cut assist OFF

OBSTACLE ASSIST

OBSTACLE ASSIST

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OBSTACLE ASSIST

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OBSTACLE ASSIST

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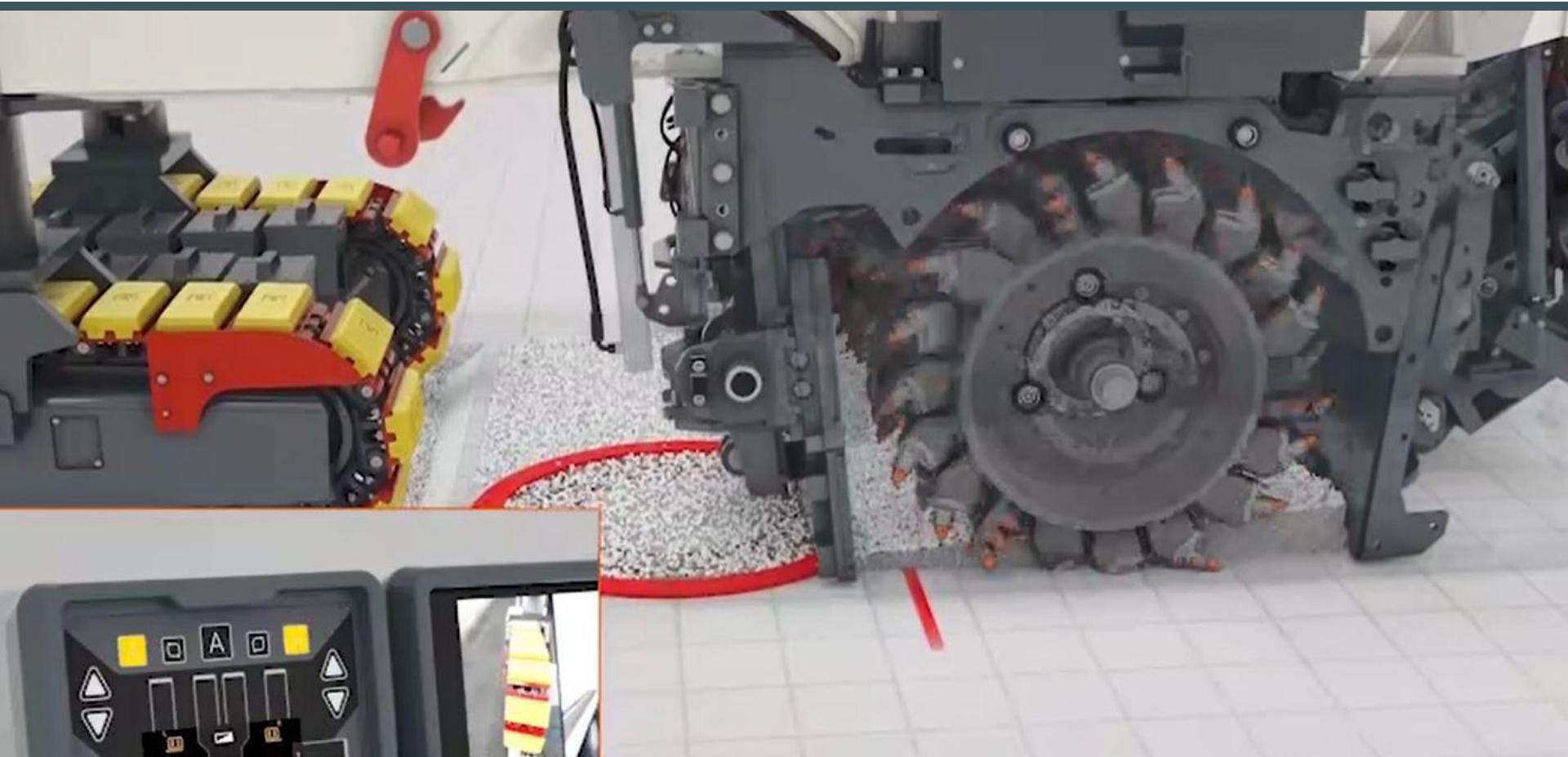

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CONVEYOR SWING ASSIST

CONVEYOR SWING ASSIST

- Uses ***smart*** conveyor swing cylinders and the steering sensors
- Operator positions conveyor over the truck bed
- System help maintain conveyor position over truck bed while steering around obstacles

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SEGMENTED SPRAY SYSTEM

SEGMENTED SPRAY SYSTEM

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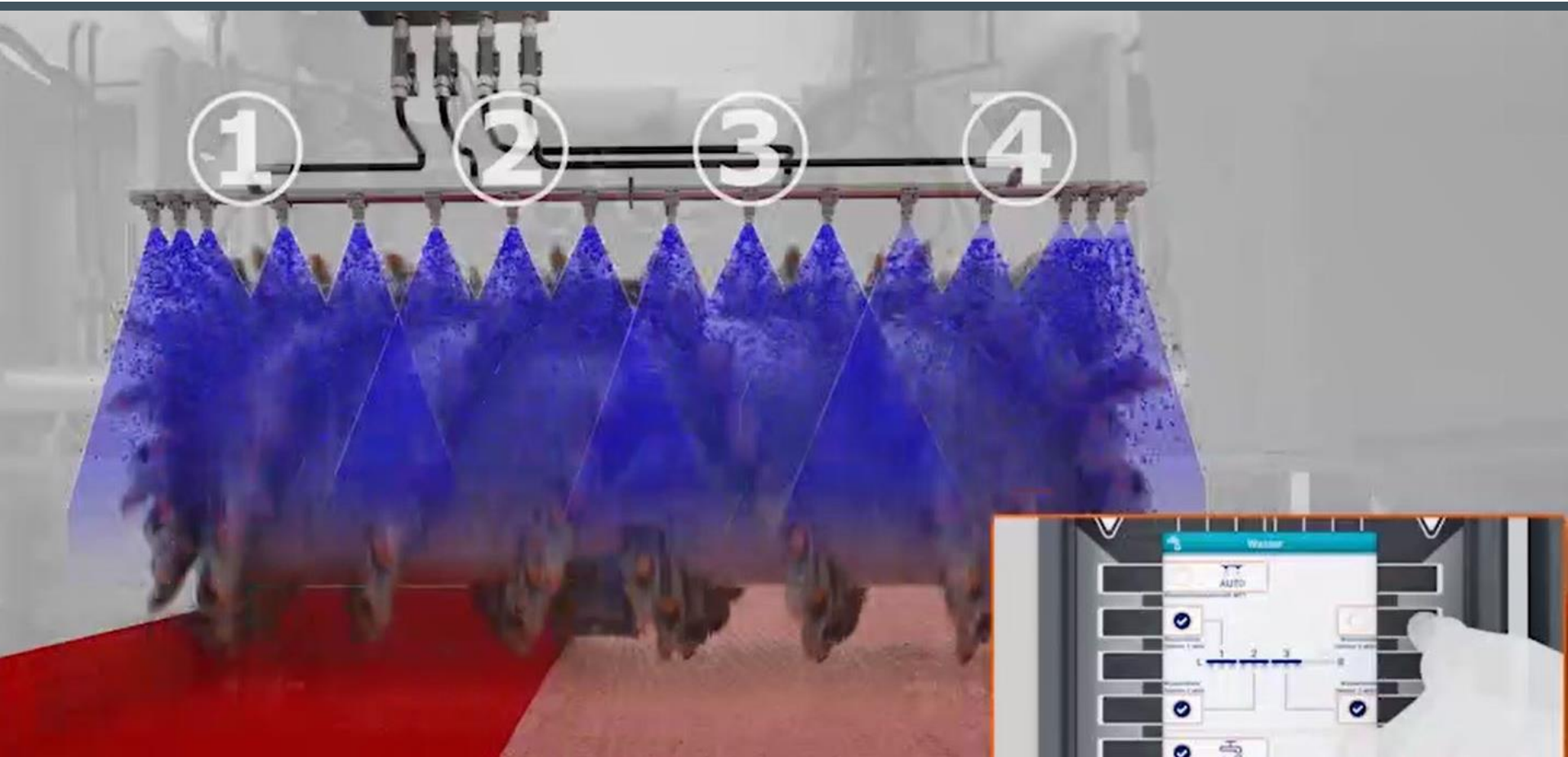

SEGMENTED SPRAY SYSTEM

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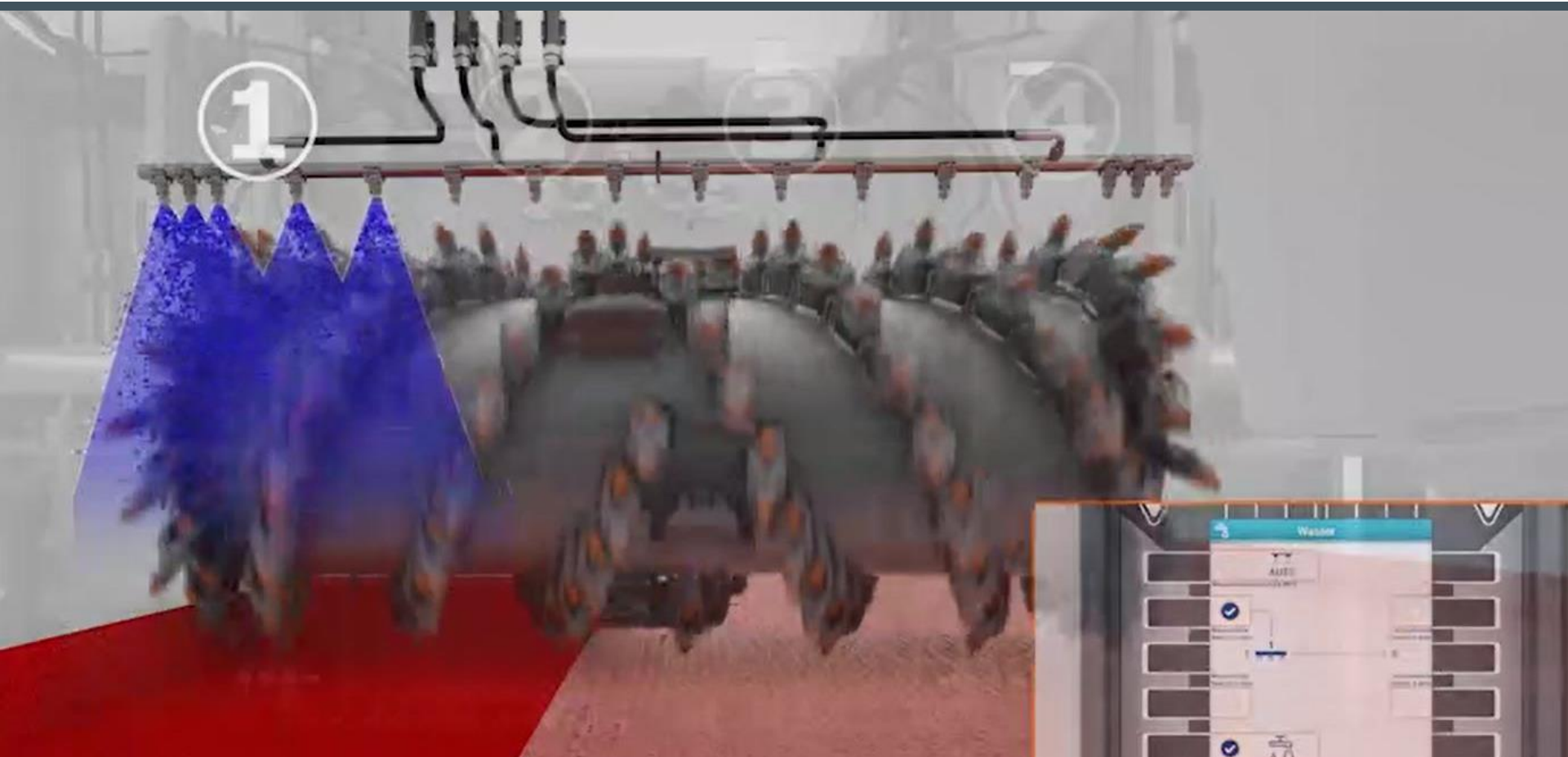

MILL ASSIST TECHNOLOGY

OPERATING STRATEGY

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AUTOMATIC
Balance performance and costs

ECO
Minimize costs (fuel, teeth, and water)

POWER
Maximize performance

QUALITY (PATTERN)
Consistent surface quality

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MILL ASSIST TECHNOLOGY

ECO MODE

ECO MODE

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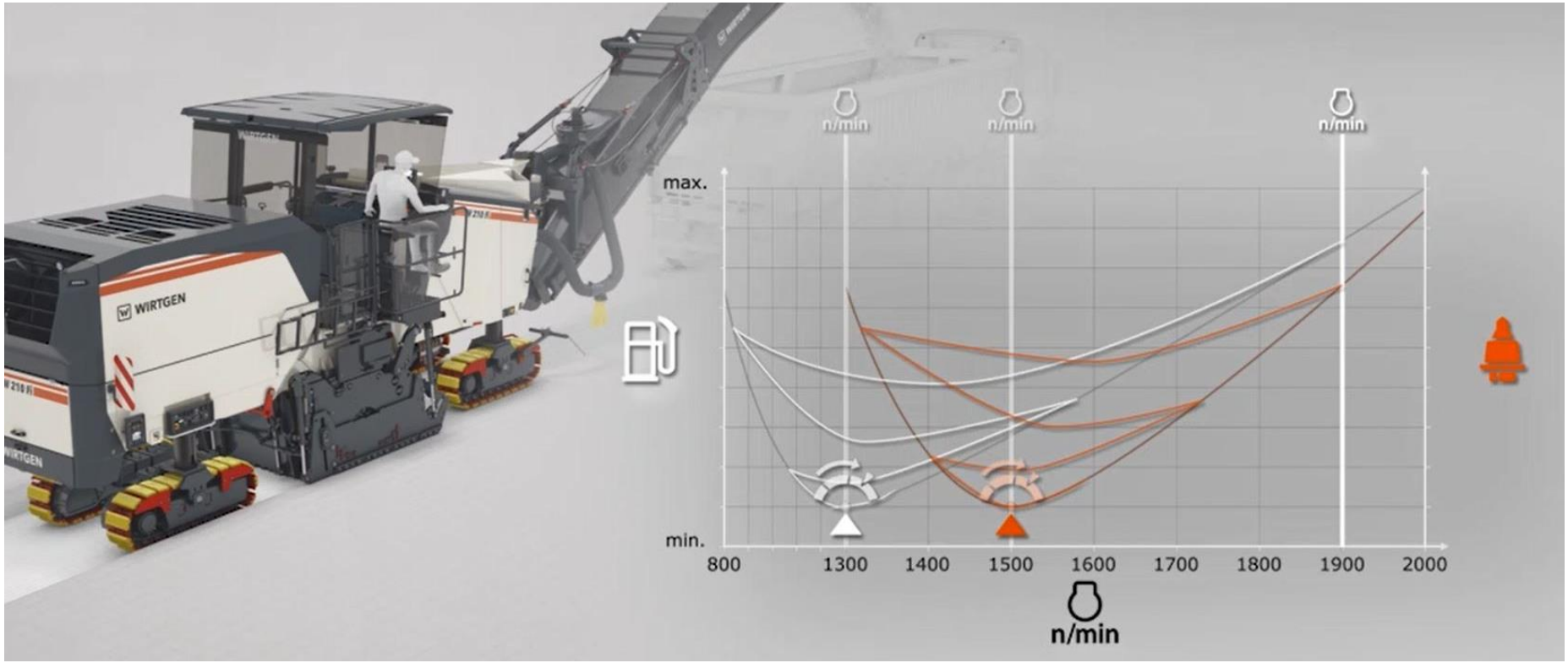
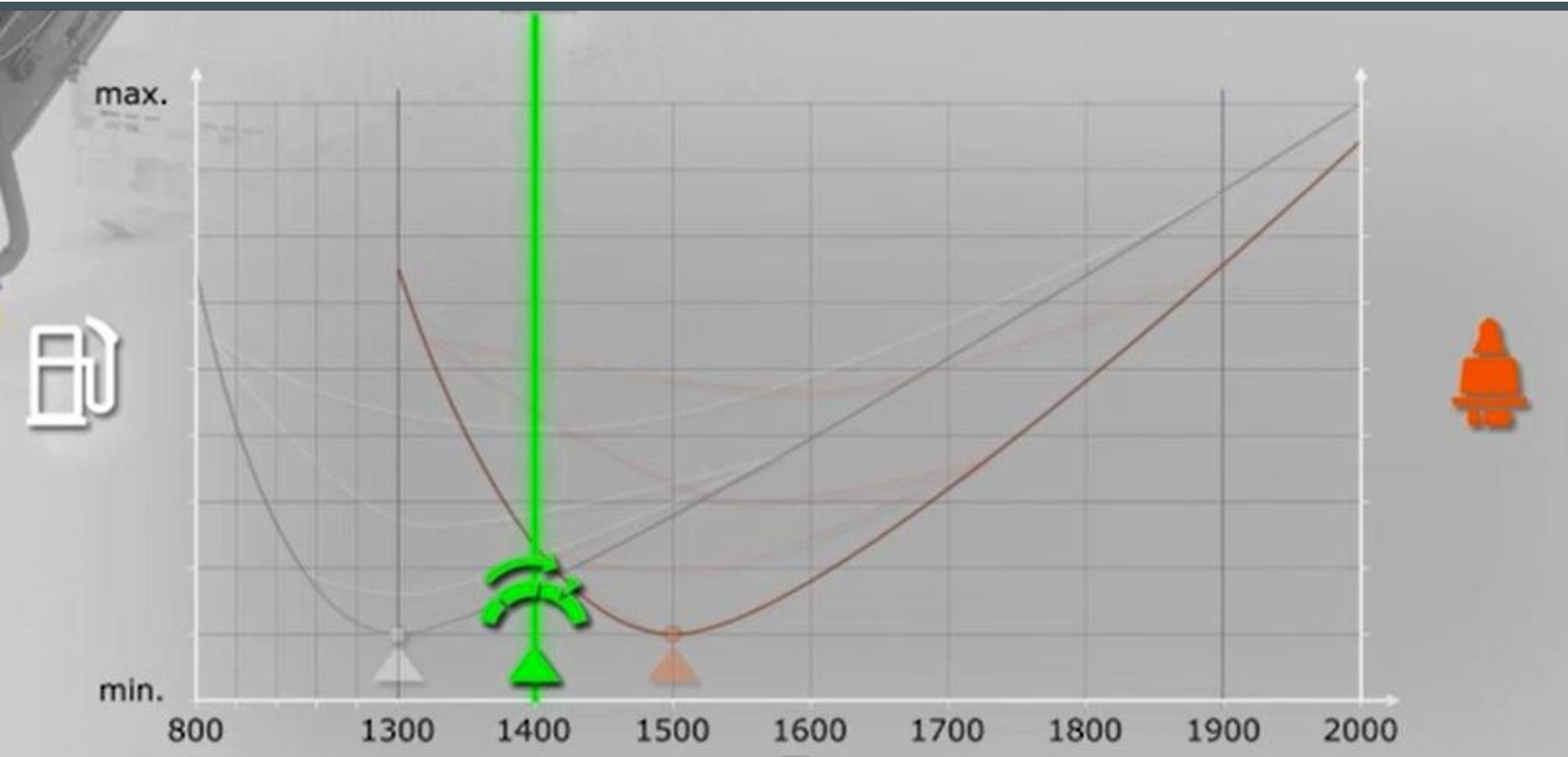
ECO MODE


WIRTGEN
n/min
n/min
n/min
max.
min.
800
1300
1400
1500
1600
1700
1800
1900
2000
n/min

ECO MODE



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MILL ASSIST TECHNOLOGY

POWER MODE

POWER MODE

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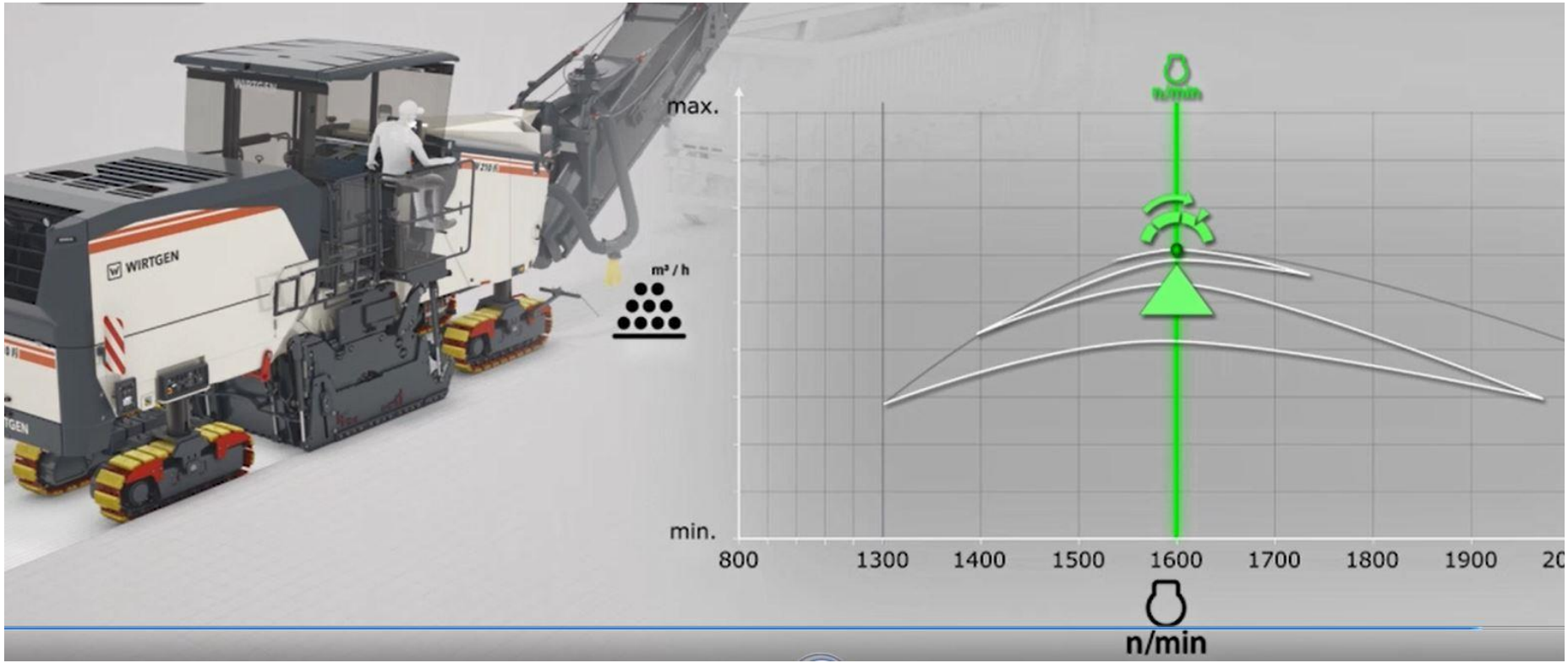
POWER MODE


WIRTGEN
max.
m³ / h
min.
800
1300
1400
1500
1600
1700
1800
1900
n/min

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MILL ASSIST TECHNOLOGY

QUALITY MODE

PATTERN/QUALITY MODE

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PATTERN/QUALITY MODE

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MILL ASSIST TECHNOLOGY

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Surface quality index
1 - 10

Cutting tooth designation

Milling drum line spacing

Comparison of
cost vs. performance

PATTERN/QUALITY MODE

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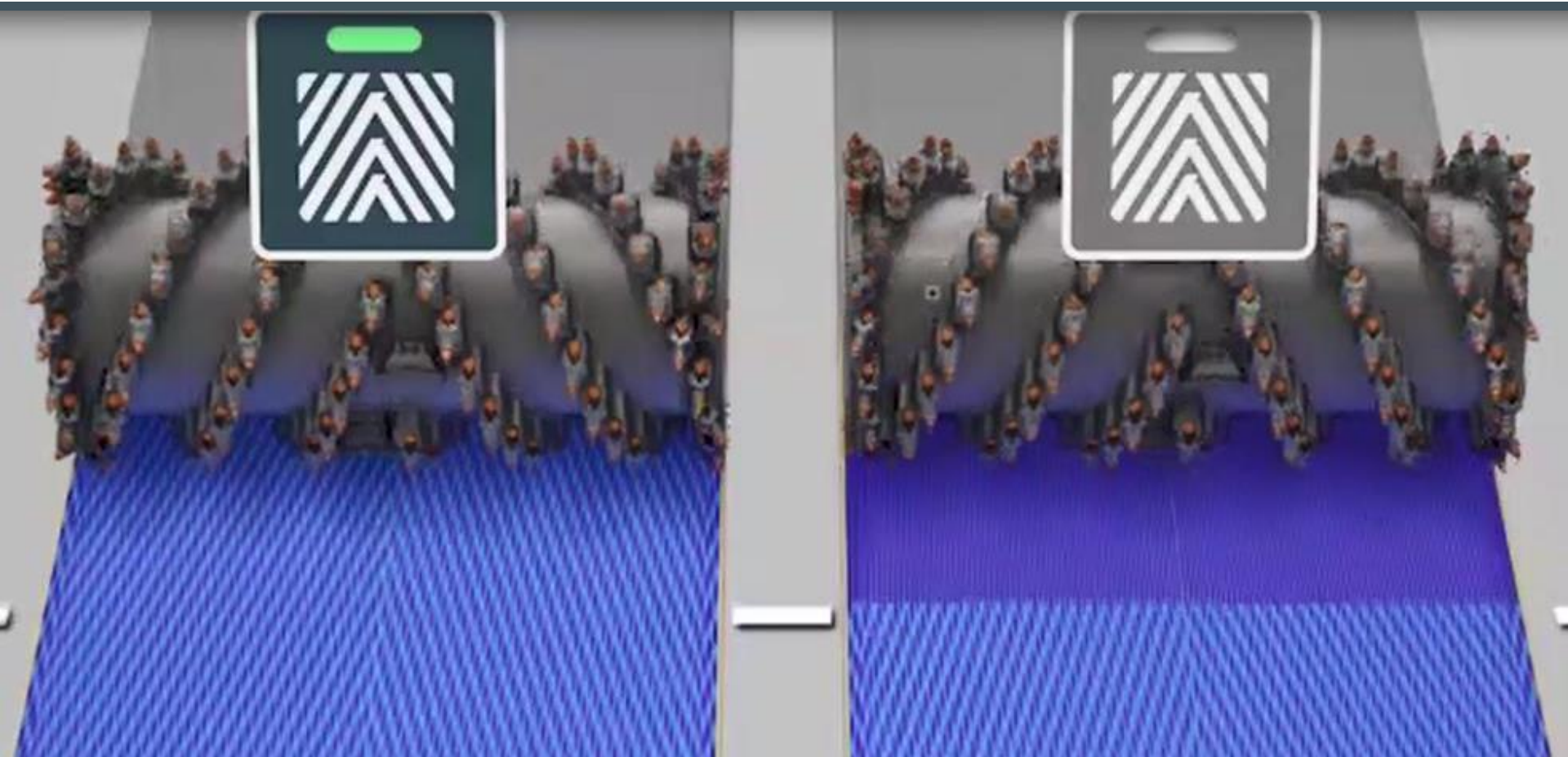

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WIRTGEN PERFORMANCE TRACKER

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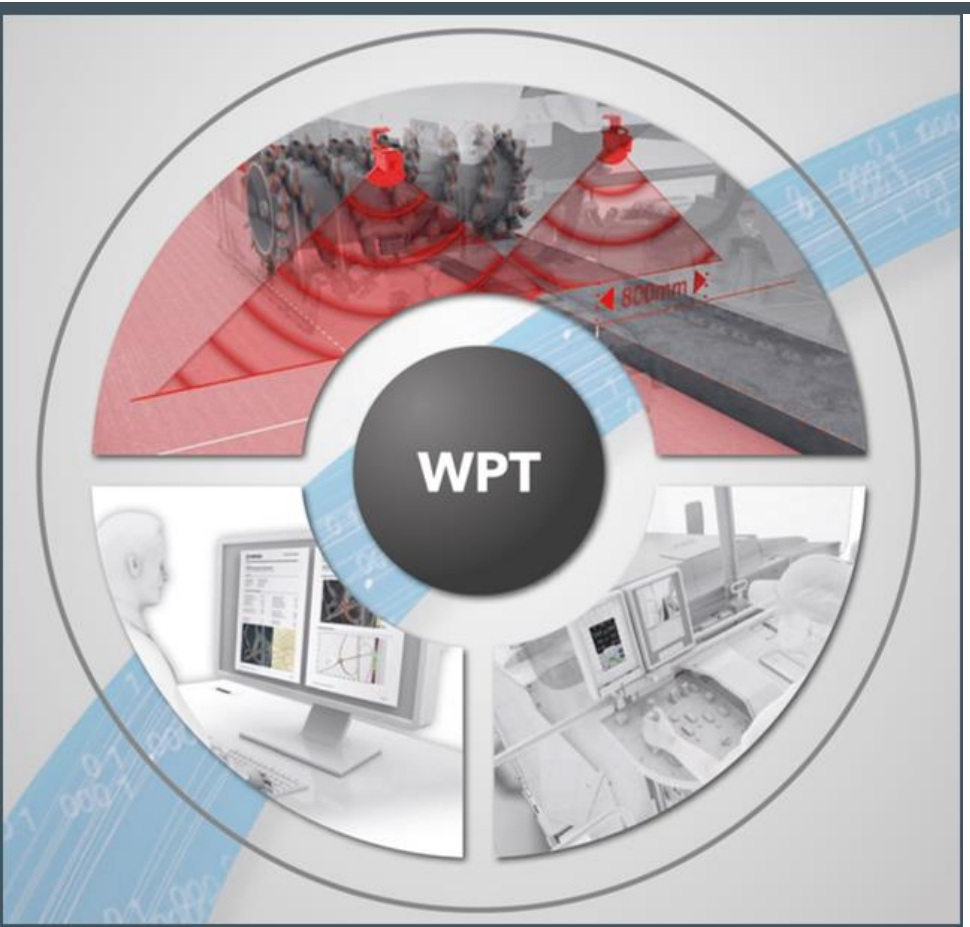

- Documentation of work progress and work performed
- Precise data for job cost calculations
- Documented working efficiencies
- Documented machine performance

HOW DOES IT WORK?

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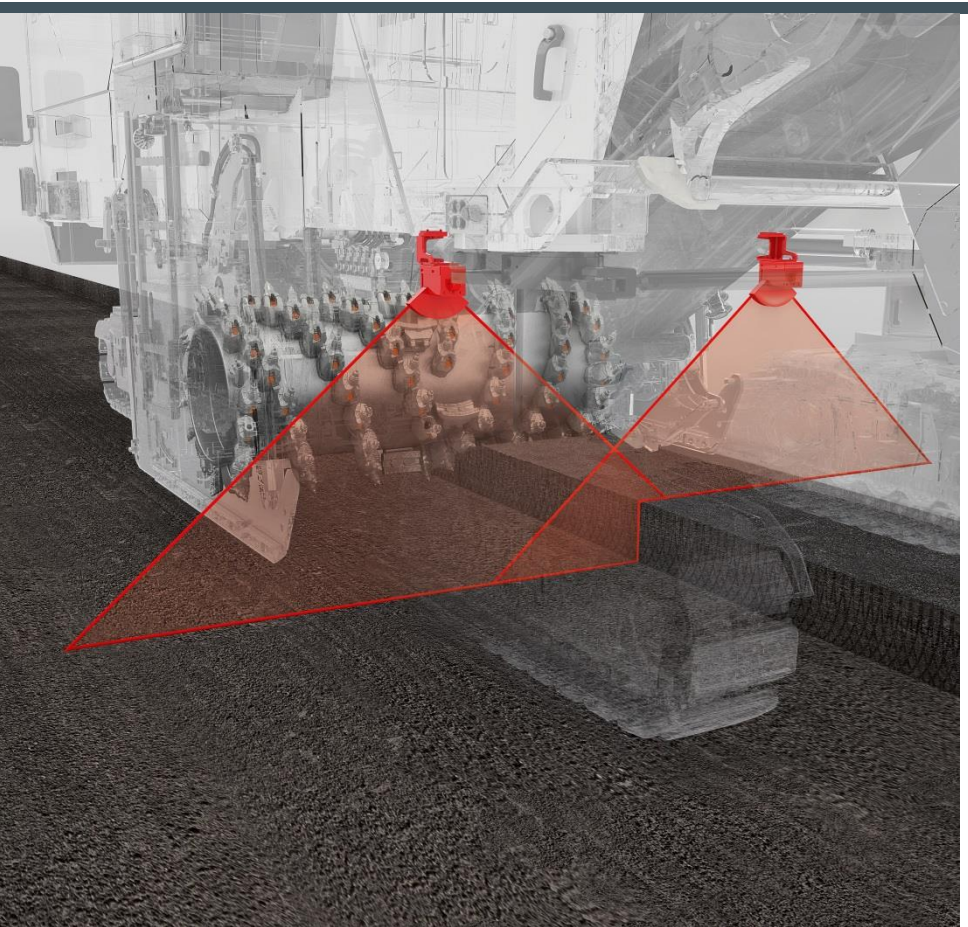
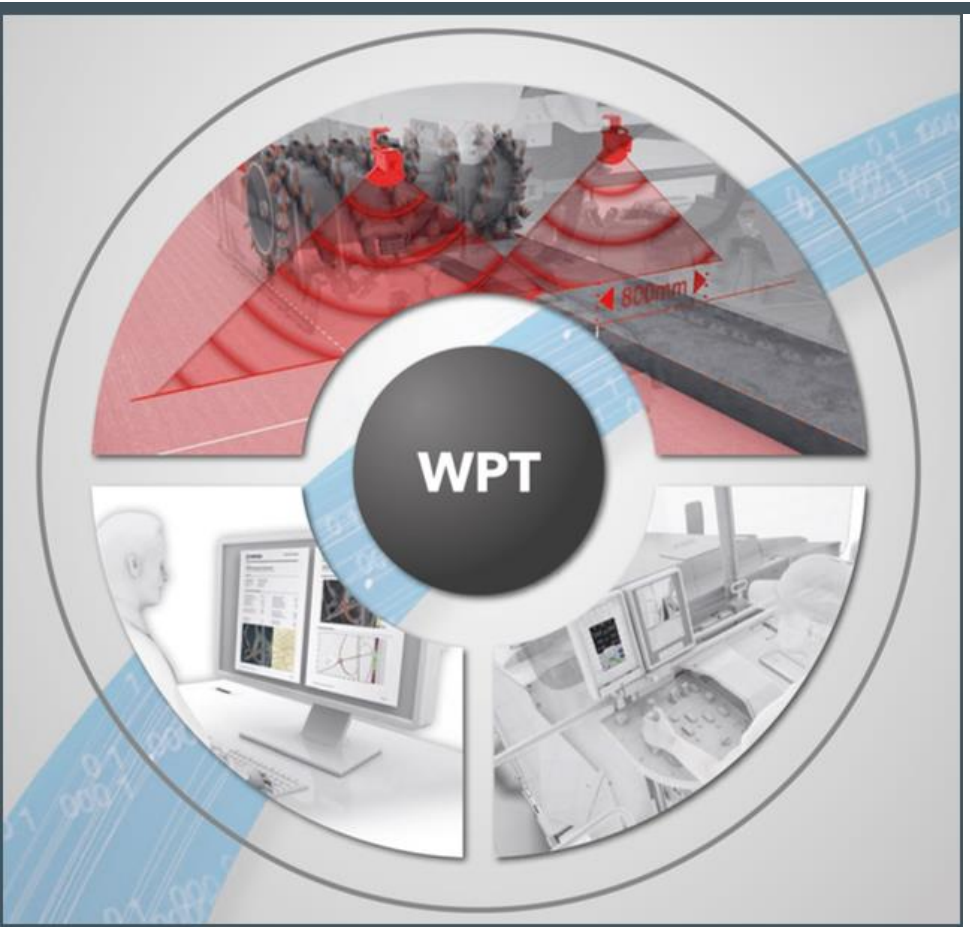


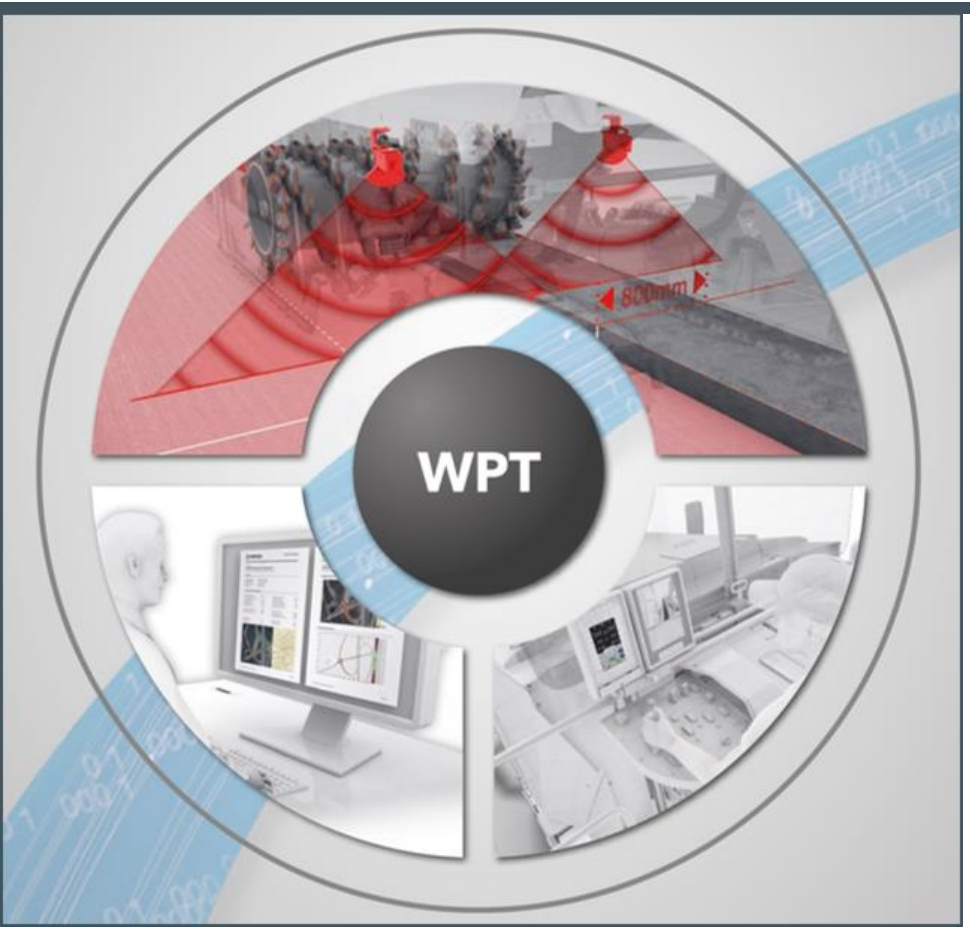
- **Laser sensors** constantly determine the exact profile of the material to be milled.
- **GPS** receiver determines precise machine positioning.
- **Level Pro** grade control system uses drum side plate and moldboard sensors determine the precise amount of milled material.

OPERATOR INPUTS



- Bulk density of milled material
- Drum type
- Cutting tooth type
- Pattern index

SYSTEM OUTPUTS



- Milled material
  -
  yd², yd³, tons, truckloads
- Fuel consumption
- Water consumption
- Tooth consumption
  - recorded by hydraulic tooth ejector
- GPS job map
  - color coded milling depths
  - job segments

CONVENTIONAL JOB REPORTING

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WPT JOB REPORTING

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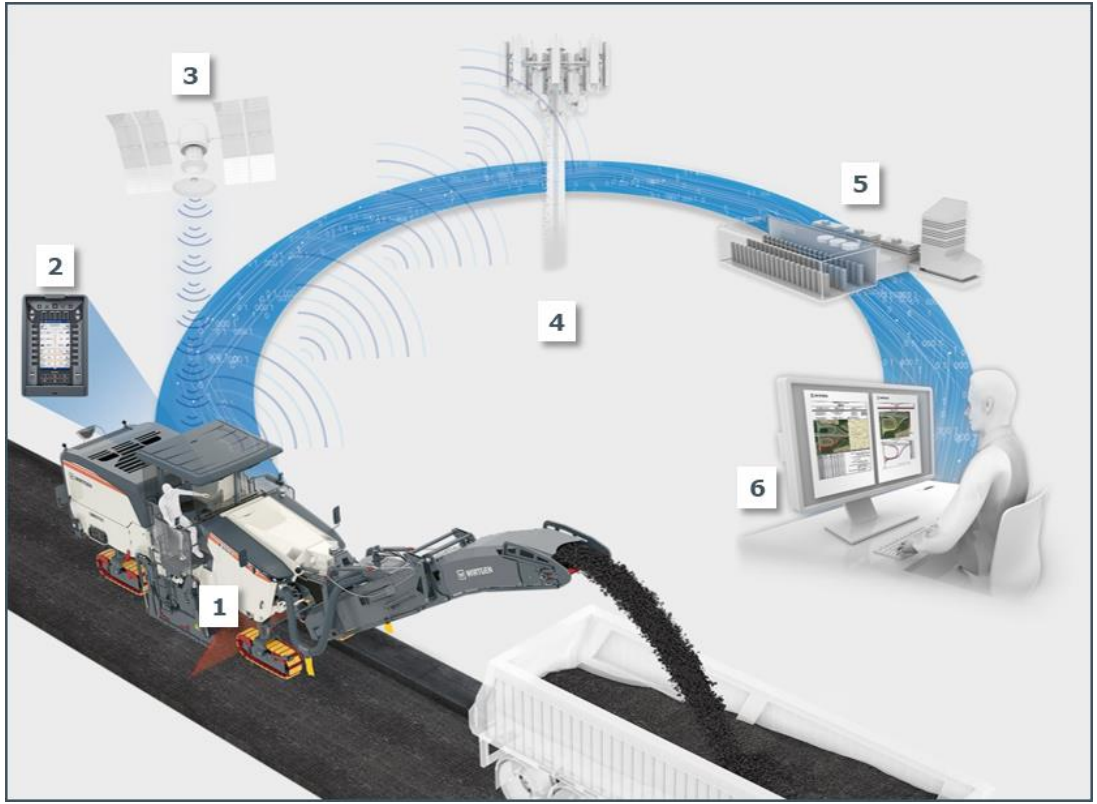

1. **Laser scanner** to measure the cross-sectional profile to be milled
2. **Control panel** on the operator´s platform with current milling data
3. **Satellite connection** for precise position sensing
4. **Mobile connection** to transmit the data
5. **Data centre** to automatically generate the WPT report
6. **WPT report** with the most important performance and consumption data for the materials requirements planner

WPT Reporting

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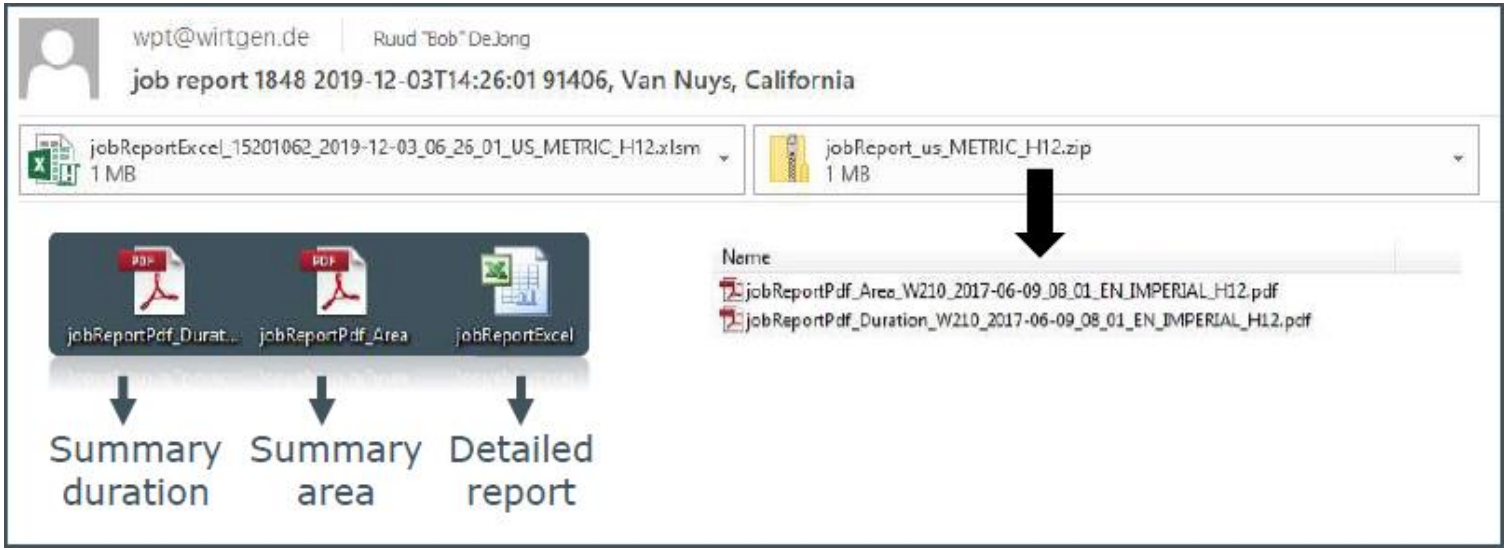
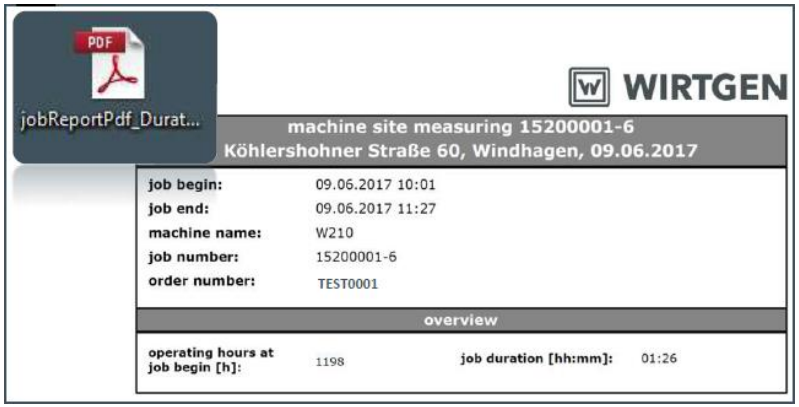
- Job reports are sent via email



WPT Reporting

- Job report PDF‘s
  - The two .pdf files contain a **summary of the job milling area** and **job duration**.



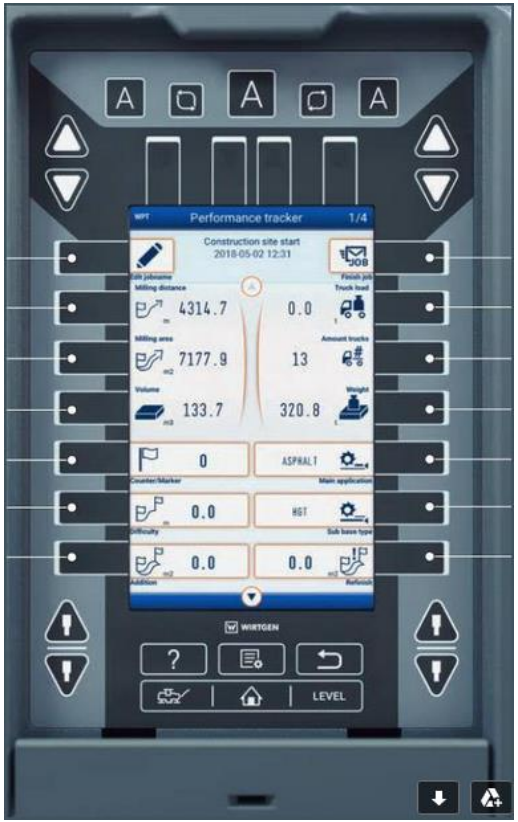
WPT Reporting

- Job Report in Excel provides detailed results and is editable

WPT Reporting

- An automatically generated report shows the daily milling performance including all consumables, a precise layout diagram, etc.

WPT Reporting



- The machine operator is directly supplied with all job information via the display panel.

CONNECTED MILLING

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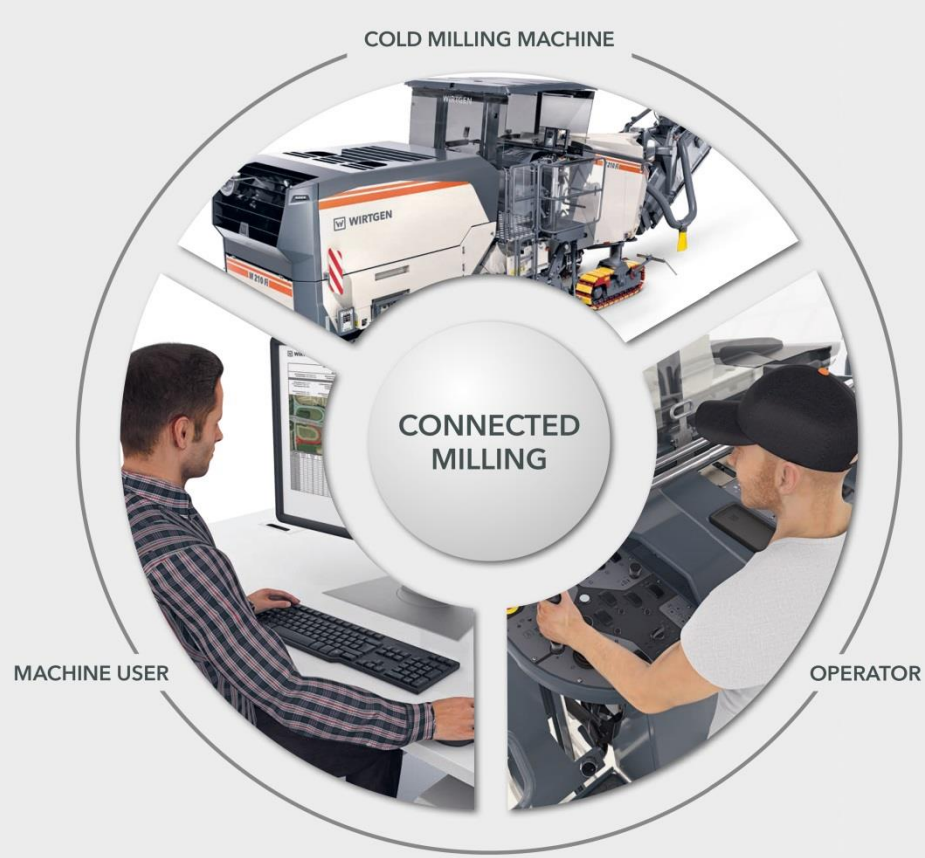

- Seemlessly connects the machine, the operator and the project manager
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. . . AND JUST AROUND THE CORNER

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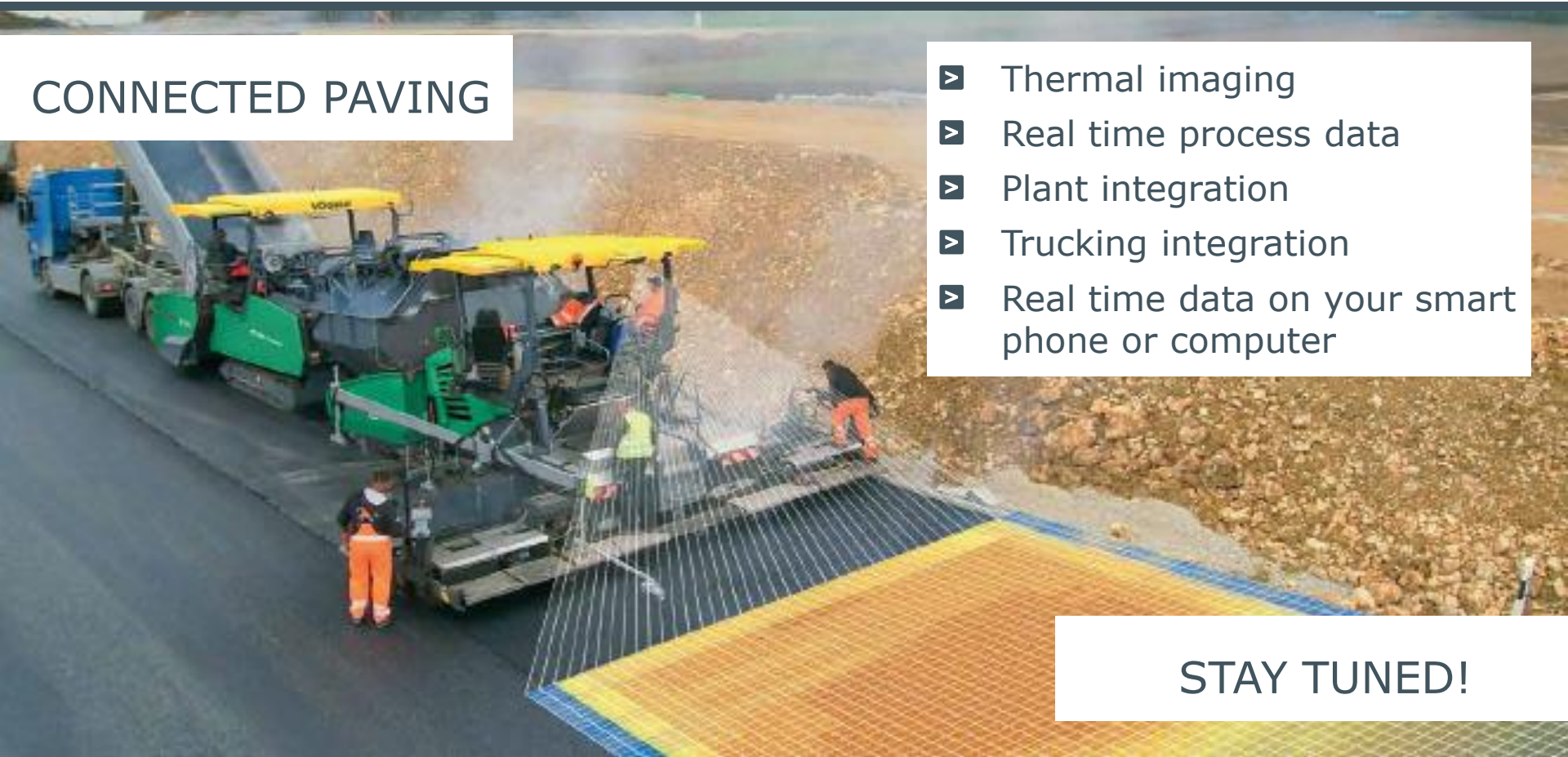

CONNECTED PAVING

- Thermal imaging
- Real time process data
- Plant integration
- Trucking integration
- Real time data on your smart phone or computer

STAY TUNED!

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THANK YOU!

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