



Innovating long tendon technology

ACARP
Roadway Development Operators' Workshop
October 2011



Contents

Hilti Ground Control

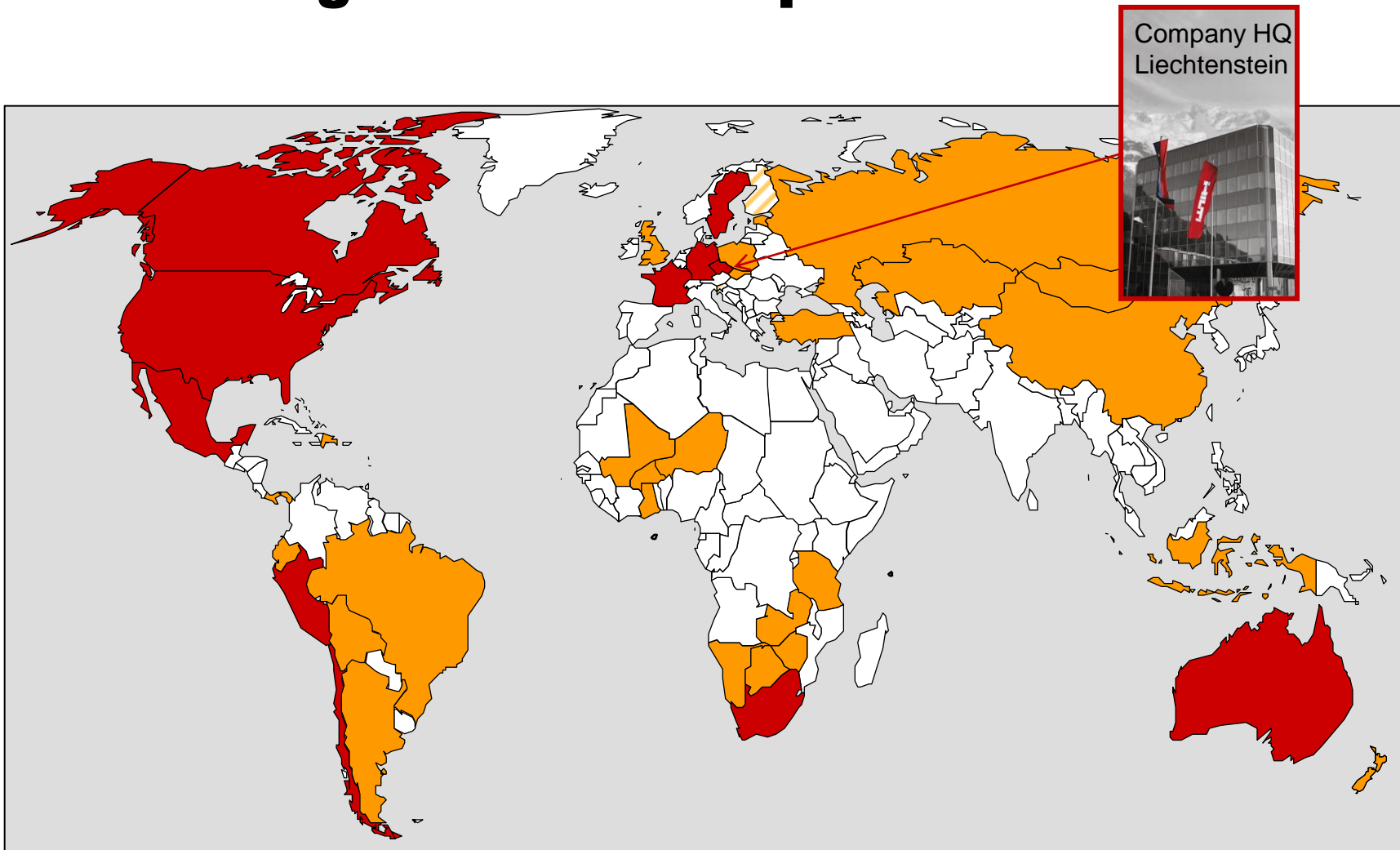
Product idea / origin

Product features

Installation



Hilti Mining – a worldwide presence



dark red: Established Hilti Mining Key Markets; **orange:** Current Business build-up

The Hilti Mining package - overview



Surface Construction & Operations

System solutions

- Mines & quarries
- Processing plants



Underground Infrastructure & Utility

- Mine infrastructure
- Mine development
- Utility work



Ground Control Systems

- HOS OneStep & HTS TwoStep rock bolts
- HTT long tendons
- HFD fiber & HES expansion shell bolts
- HMS mining screws

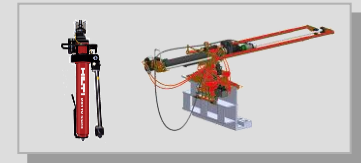


Underground Production Drilling

- TE MD20 electric rock drill system



- Handheld & portable bolting drill systems

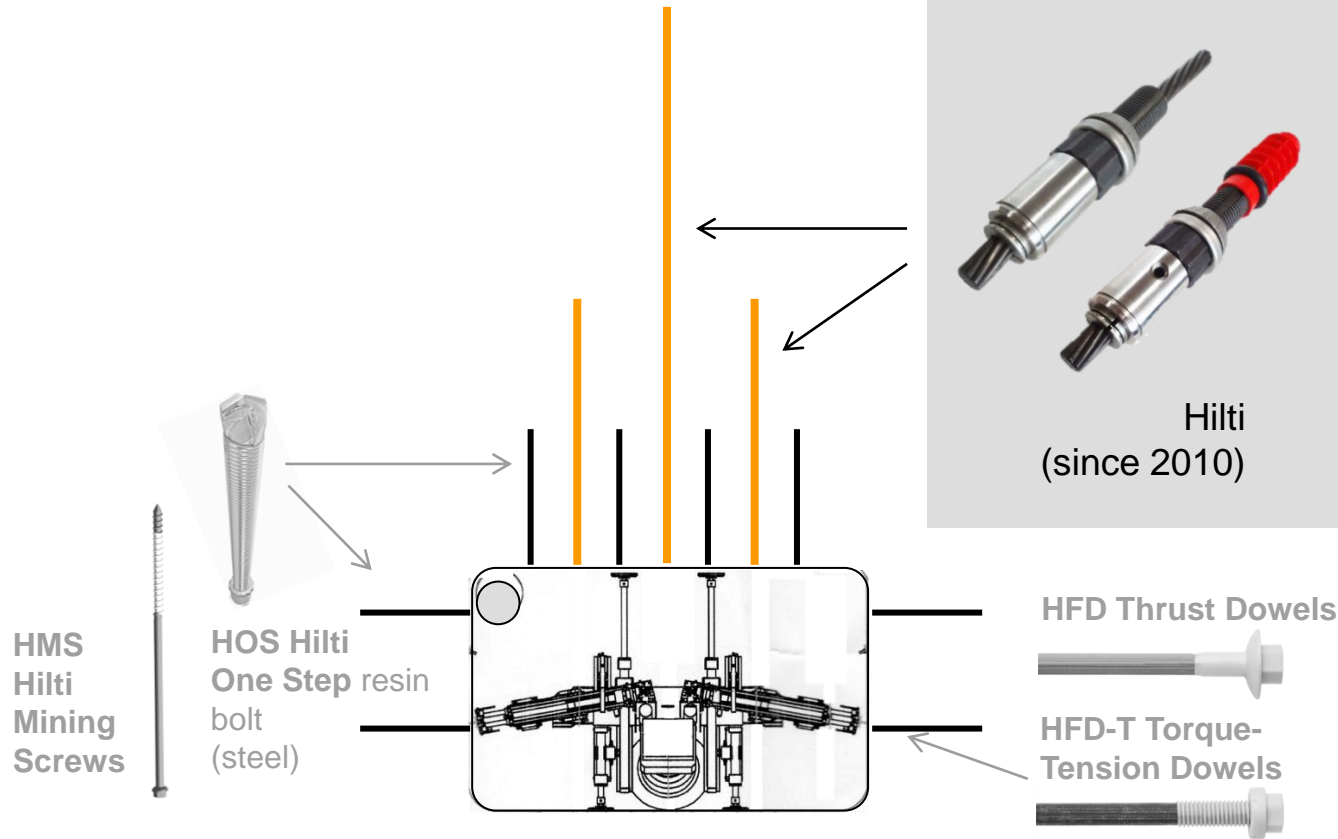


Best in class productivity partner

- mining competence
- productivity consulting
- direct sales approach
- system approvals & specifications
- mine-specific customizations
- service and AMS



Hilti ground control systems



Hilti Tendon Technologies (HTT) Hilti Cable Bolts



Hilti
(since 2010)

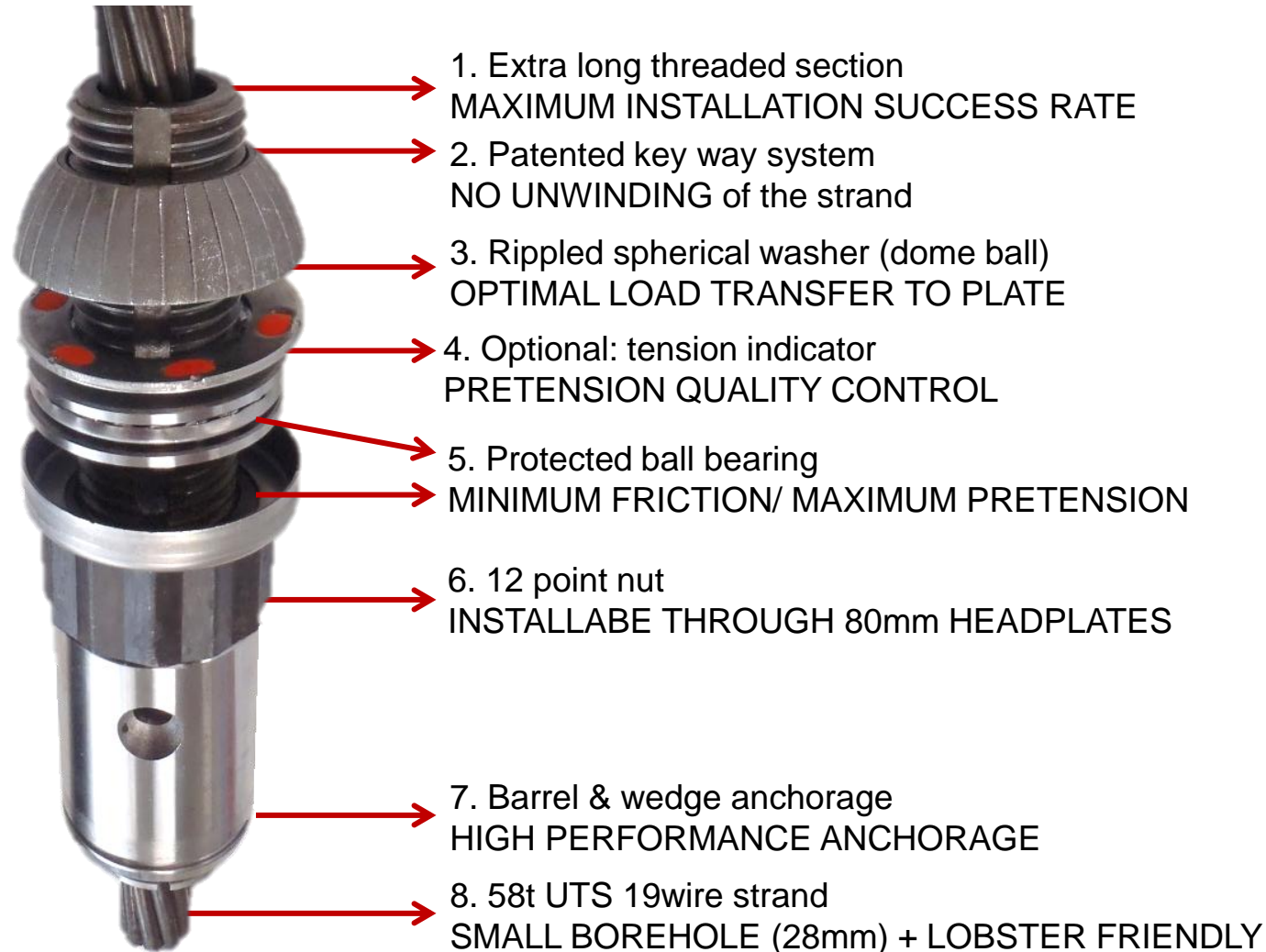


Developed with NSW mines to allow high **SPEED** automated installation off the drill rig with maximum **SAFETY**

Hilti HTT-UX cable bolt key features

Torque tension system allowing:

- Complete install off the drill rig
- Minimum operator manual interference
- No hydraulic tensioner



The Hilti HTT cable bolts

HTT-UX

Point-anchored
torque-tension
bolt



+

post-
grouting



HTT-UXG

Bottom-up post-groutable
torque tension bolt



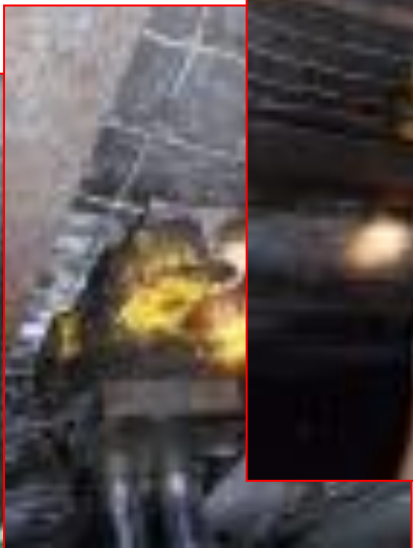
- Self-sealing
NO EXTRA HOLE PACKING/
SEALING
- Self-breathing strand
NO EXTRA BREATHING OR
GROUT TUBES
28mm SMALL BOREHOLE

Installation and tensioning off the miner – Safe, simple and reliable

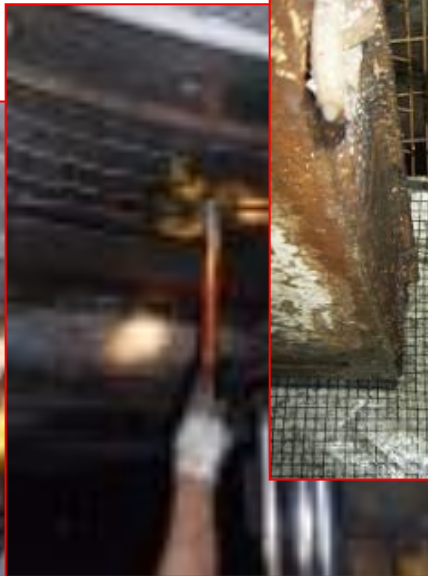
Drill &
ream hole



Attach
plate



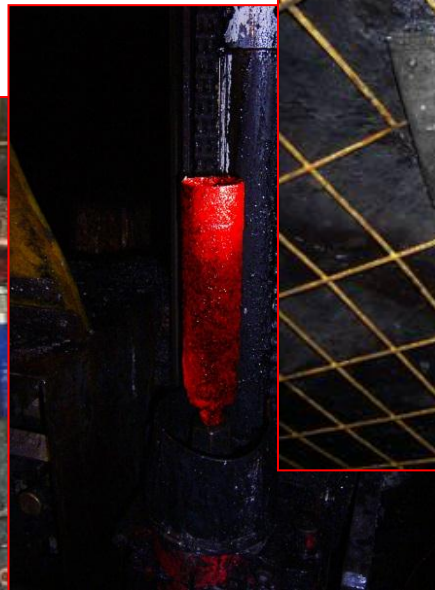
Insert
resin



Insert +
spin cable



Torque-
tension cable



Installation
complete



Postgrout (optional)



HTT system advantages at a glance



Improved Safety

Immediate support after installation
Eliminates the need for hydraulic tensioners

Simple, Fast and Reliable Installation

Complete installation with continuous miner or hand held rigs
6-12t pretension with standard motors, 12-25t using torque multipliers

Unique Grouting Solution - UXG Post Groutable Cable

Effective and reliable connection system for quick and efficient bottom-up grouting
Fully groutable in 28mm holes – significantly reducing grouting time and grout volume
Self-breathing strand – no grout tubes, no breather tubes, no extra cable hole sealing