ROBIT® NON-STOP CASING SYSTEM FOR ANCHORING AND MICROPILING

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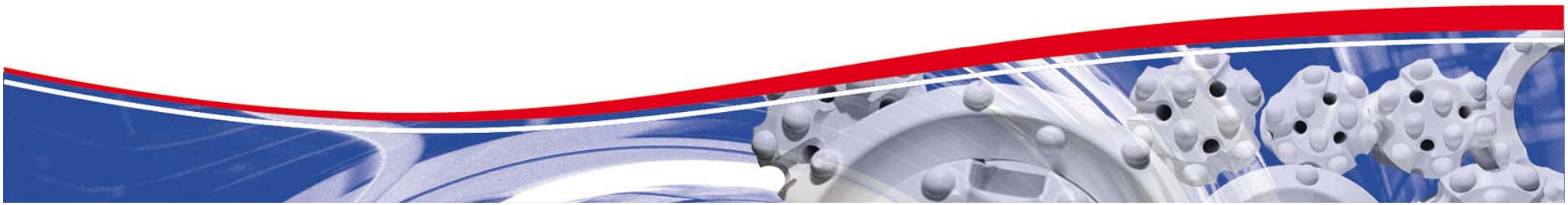
International Workshop on Micropiles
Washington, DC – September 22-25, 2010

Contents

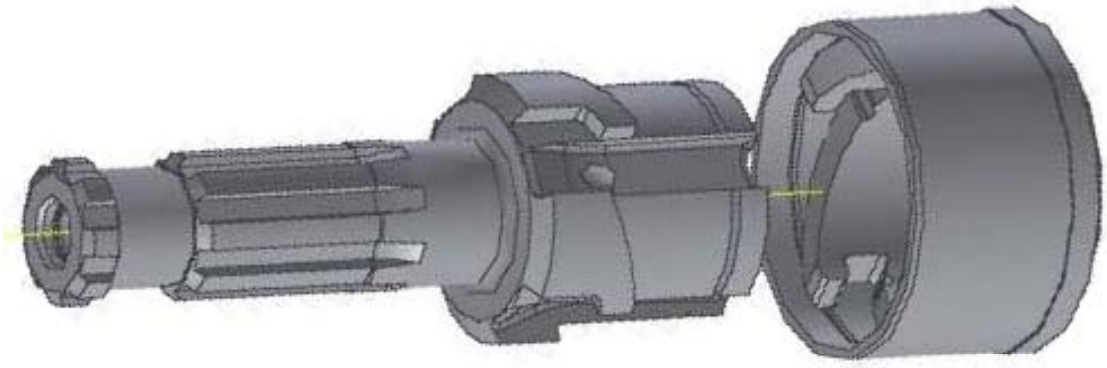
- System definition
- Working principle
- Case study: Sea-to-Sky

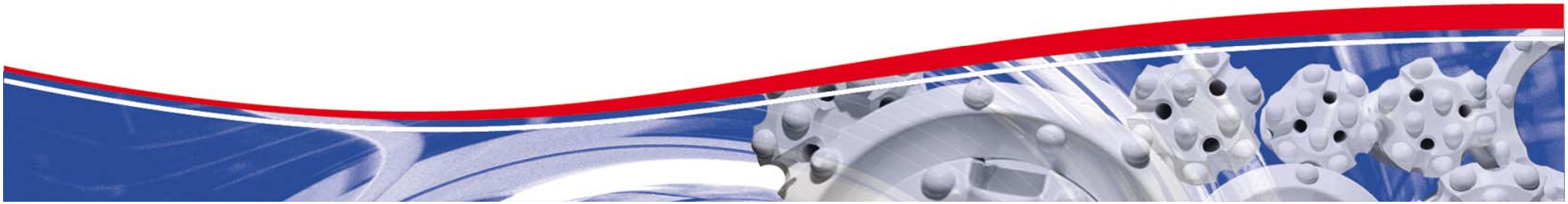


System Definition

– ”Full concentric” or ”ring bit” casing system

Pilot Bit **Ring Bit**



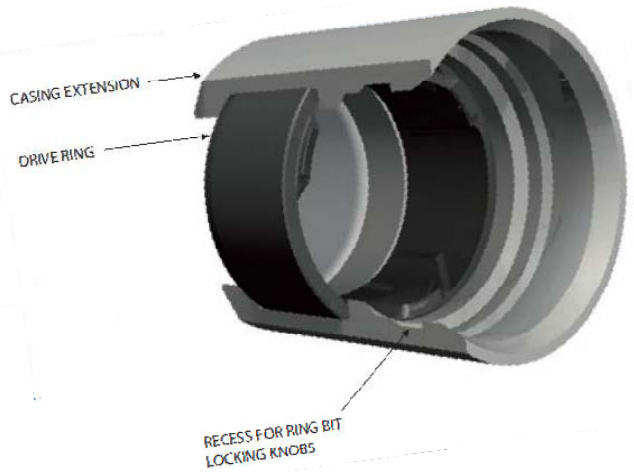


System Definition

- Non-Stop Casing System
  - For combined overburden and rock drilling
  - E.g. for **micropiling** and **anchoring** applications

Pilot Bit

Casing Extension



Ring Bit

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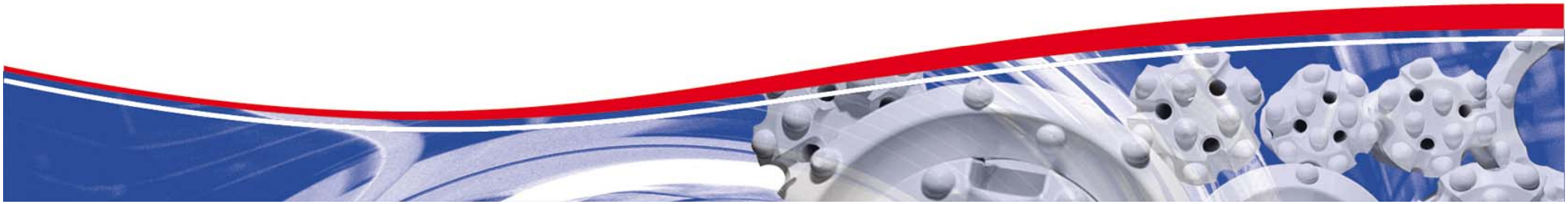


Working Principle

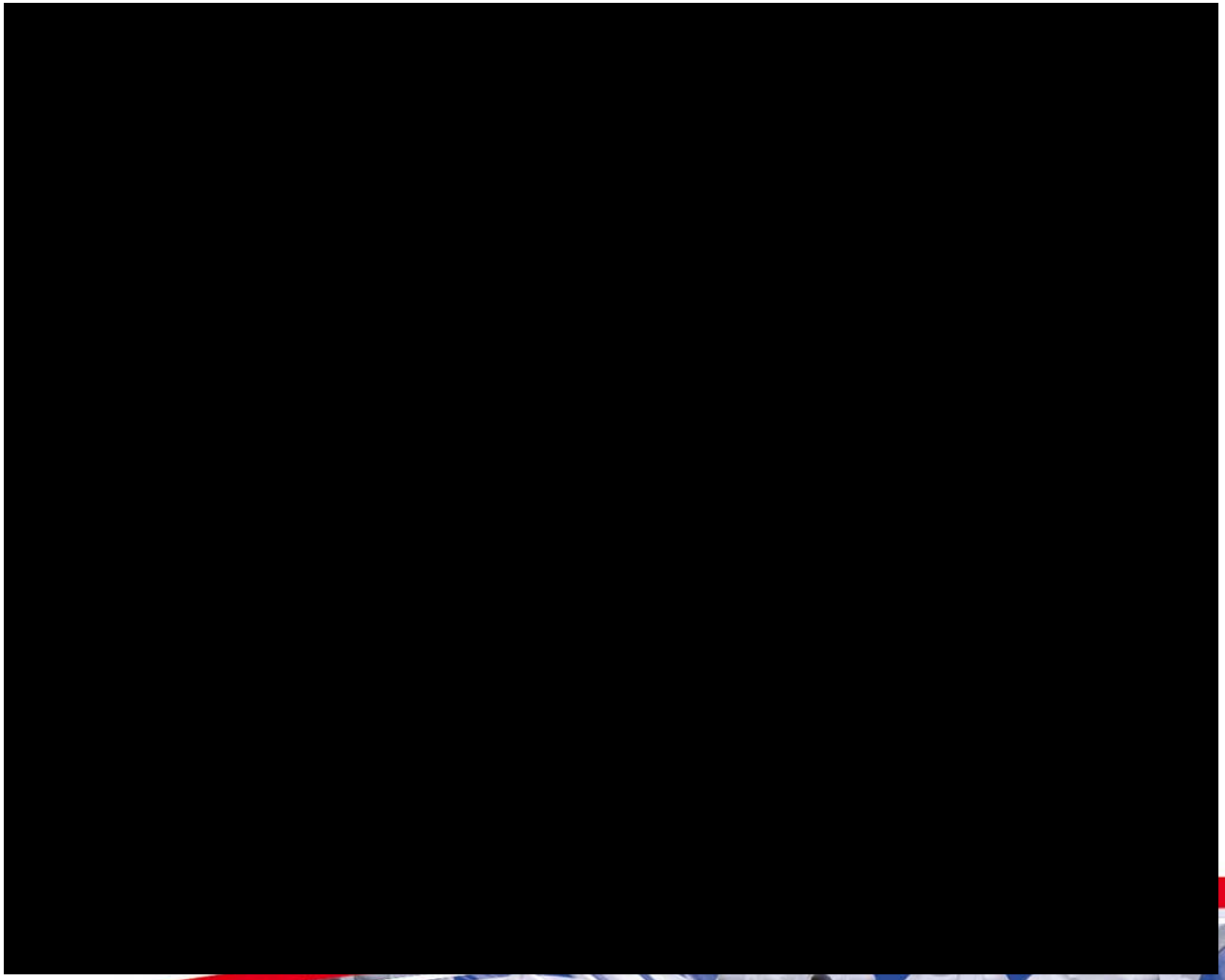
1) Drill the casing to the targeted depth

Same diameter

2) Unlock the pilot and continue drilling beyond the casing

Working Principle

- VIDEO
  - System preparation
  - Drilling with casing
  - Drilling beyond the casing
  - Anchor installation



Case: Sea-to-Sky

- Highway improvement in British Columbia:
  → Vancouver – Whistler
- Anchoring of the highway footing
- Due in the end of 2009, before the 2010 Winter Olympic Games

Case: Sea-to-Sky

- Surrounded by sea and mountains → limited routing options

Case: Sea-to-Sky

- Anchor specifications
  - DCP bar tied by grouting to the bedrock
  - Typical length 15 meters (~45 feet)
  - 2 meters (~6 feet) spacing between the anchors
- Installing the anchor
  - Temporary casing drilled until the bedrock
  - Drilling into the bedrock
  - Installation of the anchor
  - Grouting and casing retrieval
- Drilling conditions
  - Boulders of 0.5 – 4 m thick
  - Smaller fill (gravel, sand)
  - Large voids

Case: Sea-to-Sky

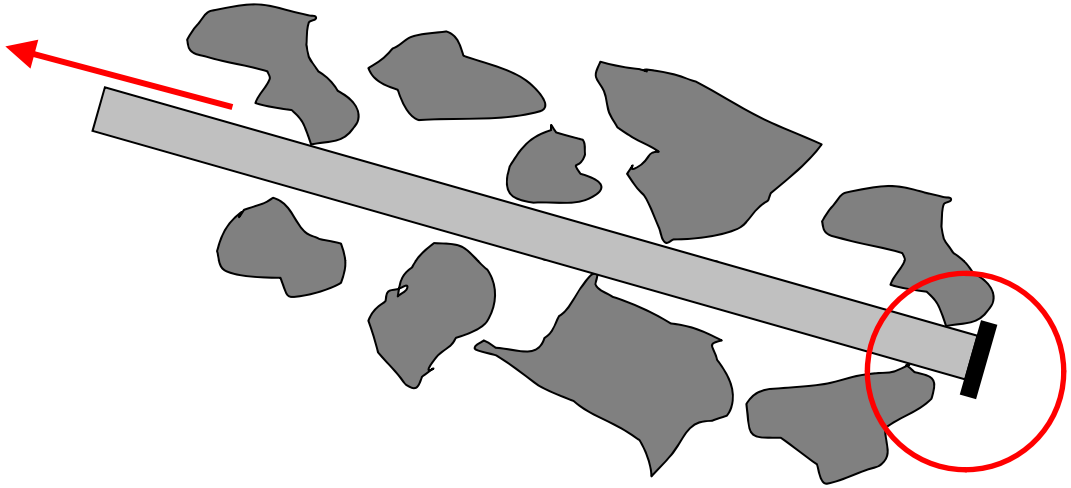
- Main challenge
  - Removing the temporary casing

    → Ring bit stucks to the boulders
- Solution
  - Robit Non-Stop system leaves the ring bit in the ground

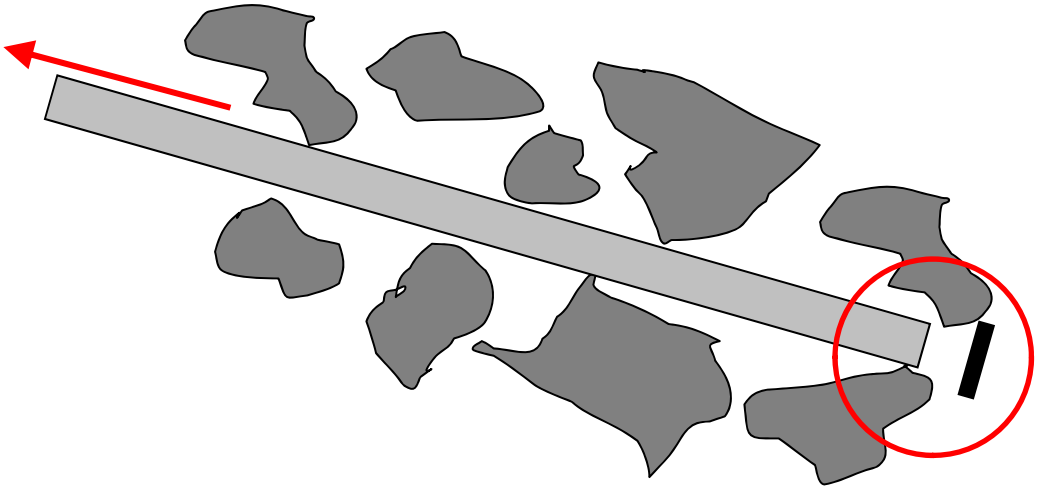
    → Casing can be removed easily as the surface is smooth

	Average time consumed per anchor
Competitors system	60 – 75 minutes
Robit® Non-Stop system.	25 – 30 minutes

Other concentric casing system



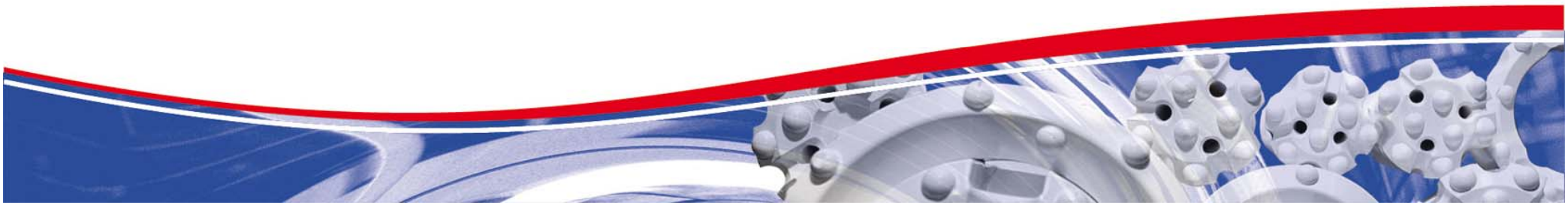
Robit Non-Stop



Conclusion

FEATURES:

- *Fast and straight drilling*
- *Single pass operation*
- *No loss of diameter*
- *Easy retrieval of the casing*



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Thank you!