SANDVIK

Robotics case

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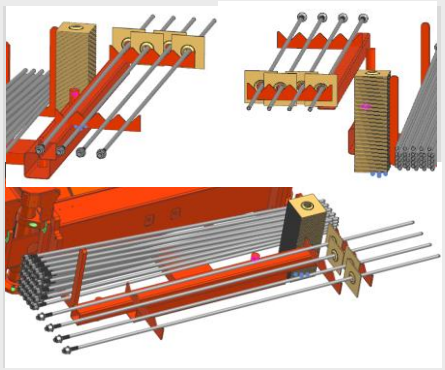
Rock bolt pre-assembly in harsh environment

Assembly parts

- 3m rebar bolts with nuts
- Plates 200x200x8mm
- Magnetic material

Environment

- 5x5m tunnel
- Dust, mud, moisture, snow, rain
- Darkness and bright daylight
- Temperature -40-+40



Use Case

- Pre-assembly of rock bolts by robotic manipulator in harsh environment
- Robot can be located behind bolt stock or between bolt stock and bolt tray.
- Assumption: bolts for the stock are delivered in well organized bundel with possible jigs.

Robotic task

1. Place plate into a slot
2. Push rebar through the hole
3. Repeat until tray is full

- Real life demonstration in 1:5 scale
- Robot cover design to withstand harsh environment

Rock bolt pre-assembly in harsh environment

- Even bolt alignment. Nuts and ends aligned.
- Middle area of tray, between the bolt supports, free. Space needed for mechanism that grabs ready bolts.
- Everything else can be re-designed for easier gripping and installing of plates or bolts.