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**ABB, Boliden and LKAB complete successful testing of industry-first automated robot charger for increased safety in underground mines**

* Technology leader working with the major Swedish mine operators to advance automation and robotics for safer working environments
* ABB Robot Charger detects drilled holes in a rock face and installs explosive charges during mining operations, removing the need for human presence
* Technology development will end this year with control of the robot handed over to the customer to run the blasting sequence

ABB has successfully completed testing of the industry-first automated robot charging technology for underground mines in partnership with mine operators Boliden and LKAB. The goal is to make mines safer by automating one of few manual processes left in mining: charging the blasting holes with explosives.

Blasting schedules in underground mines can vary, but the process takes place up to 15 times per day in larger mines as miners expand the chambers to extract mineral and metal ores. ABB Robot Charger automatically detects boreholes and fills them with charges without the presence of humans, removing the need for people to be near the unsupported rock face during blasting sequences.

The completed testing phase confirms the effectiveness of integrating the robot charger with a carrier vehicle, communication with bulk emulsion and vision systems and incorporation of a second robot arm to assemble prime and detonator. It ensures full reach to all borehole levels and areas of the rock face and remote control for operators.

The program has been undertaken at Boliden Garpenberg, which is the world's most productive underground zinc mine and is located 180 kilometres northwest of Stockholm.

ABB is now embarking on the final stage of development that aims to execute the full blasting sequence in the underground mine with full control of the robot handed over to the customer. ABB is also starting discussions with other mine operators to eventually join the co-development project, so that the technology can be tested in different mine environments and in regions beyond Northern Europe with varying climate and rock composition.

“This is a significant technology development for ABB and the wider industry where safety is part of overall ESG commitments,” said Vedrana Spudic, Head of Technology, Business Line Mining, ABB. “The robot locates the drilled holes on the rock face using a vision system, and these recent tests show all can be reached and charged with the cycle fully automated. This removes the need for human operators in a small, unsupported area right at the face.”

ABB developed the robot charger technology with vision systems and automation solutions to communicate with the truck, crane and ABB industrial robotic arm. The solution can be retrofitted to any truck.

ABB draws on 130 years of experience in the mining industry and is a pioneer in the integration of electrification, automation and digitalization in mining.

**ENDS**

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