

Diamond Award 2019



BRAUN Bridge Wire Saw
BRAUN Maschinenfabrik GmbH



Description of the product

- **Title of the product:** BRAUN Bridge Wire Saw
- **Description of the case story:** This bridge wire saw is used to dismantle 6 radioactively contaminated steam generators / heat exchangers in the Russian nuclear power plant Nowoworonesch. Each steam generator is located in an individual chamber that is only accessible through a normal door. A crane is not available in the chambers.
- **When did the product start?:** May 15th, 2018
- **When did the product finish?:** November 14th, 2018

Description of the product



This project faced very difficult challenges, as all 6 heat exchangers are located in individual chambers which can only be entered through a normal door. Even a crane, for the assembling of the bridge wire saw and the removal of sawn components, is not available in the chambers. In the heat exchangers are tube bundles that carry radioactive water. Consequently, the tubes are radioactively contaminated inside. Moreover, wire sawing for several reasons is not the optimal method for dismantling the heat exchangers. On the one hand because the heat exchangers are made of steel, and on the other hand because it can come to wire clamps when cutting the pipes. Furthermore, wire saws carry away the contamination. In order to find a solution to all these problems, BRAUN had to completely rethink the concept of a usual bridge wire saw.

Complexity of planning and execution



The first problem was solved by means of a modular construction. The key to this is the grid construction made of aluminum, so that the entire system can be disassembled into small parts (not heavier than 40 kg and not longer than 2.5 m) and manually transported. Furthermore, a gantry crane is integrated in the system. This is necessary for the removal of sawn parts. Thus, the second hurdle is overcome. Since the pipes are internally contaminated with radioactivity, the system had to be largely automated and remotely controlled via cameras. In addition, the bridge wire saw can be combined with the patented BRAUN cold cutting saw. The saw blade creates larger chips and is covered by a dust extraction hood. This also solves the problems with the contamination and wire sawing.

Innovative elements



The result is a worldwide unique, mobile, movable bridge wire saw that, with a height of 10.5 m and a width of 6.5 m, can dismantle large objects. The combination of cold cutting (the patented BRAUN cold cutting saw is 10 times more efficient when cutting steel than a diamond wire saw) and wire sawing makes it possible to dismantle any materials very effectively and efficiently, so that everything that comes under the "bridge" can be sawed and dismantled. In general, the BRAUN bridge wire saw is universally applicable and could, for example, also be used in the construction industry. Due to the modular construction method it is possible to adjust the bridge wire saw to objects of different sizes. Therefore, it would also be possible to further increase the size of the bridge wire saw.

Thanks for your attention



Contact

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