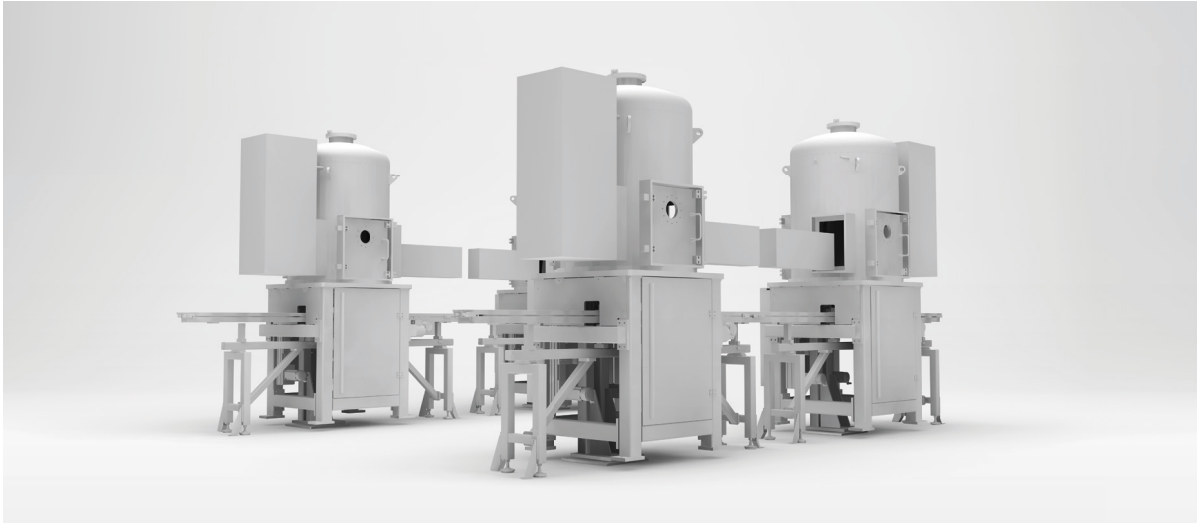


Powder dosing unit ATEX version



Task

Two types of explosives need to be dosed in a milligram range to fill the igniter of the airbag gas cartridge. The dosing accuracy is ± 2 mg. Two types of powder are inserted into the igniter in layers. The cycle time of filling must be 8 seconds per dosing. The complete unit cycle time is 2 seconds per igniter. A workpiece carrier system with conveyor belts is specified for processing the igniter. The powders are inserted into the units by trained personnel with protective suits in minimum quantities.

Solution

Two filling units with two dosing stations each were designed per explosive type. The powders are dosed onto the weighing module by means of a spiral conveyor and filled in afterwards. A tested pressure vessel with a pressure-release opening at the top protects personnel from potential detonations. With the help of the refiller, the personnel can load minimum quantities, which are then automatically added into the dosing stations. Two YZ-axle systems help enable safe and fast transportation of the workpiece carrier system between the transport belts and filling stations.

Result

Two filling stations with two dosing stations each guarantee secure filling of the two powder types. With a dosing time of 6.9 seconds maximum, the requirement of 8 seconds was met. A conveyor belt system is located below the dosing towers, which guarantees seamless workpiece conveyor handling between unfilled and filled igniters. The production line was implemented in close cooperation with other suppliers. With a complete cycle time of 1.75 seconds per igniter, the project was successfully handed over to the customer.

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