

RELATED EQUIPMENT FOR INDUSTRIAL DETONATION CHAMBERS

OZM Research adapts the industrial detonation chambers with new command and control system, electrical and hydraulic circuits, supplementary electrical and machinery equipment and technical documentation in order to fulfill safety regulations for the European Union and other international markets. CE marking and declarations of conformity with related EU directives are provided with the chambers.

Control Panel

Control panel of the detonation chambers is industrial computer (PLC)-operated and provides full control over automatic operations of opening and closing the chamber, checks proper sequence of operations in the working cycle and allows electric firing of the explosive charge only if the chamber is in fully closed state. Software of the control panel is easily adjustable when changes in automated working sequence are required. According to user requirements, the control panel can have form of either personal computer workstation with the operating software or a standard working panel with buttons, signals and a small display.

The detonation chambers are always operated from a separate control room equipped with monitors of CCTV cameras. All contacts of operators with moving parts, high voltage or pressurized fluids are thus eliminated. Electric exploder for the firing circuit is integrated as a part of the control panel. The integrated electric exploder and firing circuit contain multiple independent safety features (mechanical, electrical, physical, software) protecting against premature initiation of the charge before completion of the working cycle of the detonation chamber. The control panel can also contain switches and controls for the off-gas treatment unit when supplied along with the detonation chamber.



Off-Gas Treatment

Where necessary (e.g. for industrial disposal of ammunition by explosion), the chambers can be equipped with an off-gas treatment unit (pollution abatement system) for post-explosion gases.

Typical features of the detonation chambers important to off-gas treatment are following:

- Chambers are practically gas-tight during charge explosion
- Shock wave and explosion heat are quickly absorbed by heavy steel bodies
- Post-explosion gases can be steadily released from the chamber in adjustable manner
- Total volume of the gases is less than 2.5 m³/kg explosive (at standard conditions)
- Temperature of the gases is less than 100 °C
- Stabilized overpressure of the gases is less than 10 bars

These properties make the units for treatment of post-explosion gases very cost-effective in terms of both investment and operational costs.

Off-gas treatment unit for the industrial detonation chambers, where they are required (typically for disposal of munitions containing heavy metals), are designed always type-specific according to:

- Type of a detonation chamber
- Chemical composition of gases from detonations of a specific explosive material
- Local environmental regulations
- Supplier's proven technology

Suppliers of the off-gas treatment units are reputable EU chemical engineering companies.

