OVERVIEW

BLASTING CAPS PRODUCTION LINE

FULLY AUTOMATED HIGH PRECISION CAPS MANUFACTURING

The Blasting Caps Production Line represents the most advanced automated solution for high volume and high precision manufacturing of blasting caps. The line is engineered for maximum safety, accuracy, and repeatability while minimizing human interaction.

All production stages are fully automated and operate within an ESD protected and ATEX compliant environment. Only four operators are required per shift, enabling continuous twenty four hour production with full remote supervision and control.

FISAZA designs the line as a modular system, allowing future expansion and customization based on production requirements.

AUTOMATED PROCESS FLOW

RAW MATERIAL INPUT
Aluminium sheet coil unwinding

FORMING
Coating and progressive servo press forming of caps

INSPECTION
Visual inspection and rejection of defective parts

TRANSFER
ESD protected levitating plates handling caps

FILLING
High precision powder dispensing
Up to five caps filled simultaneously
Up to three powder mixtures

CLOSING
Cap closing and pressing

FINAL INSPECTION
Visual inspection after closing

PACKAGING
Robotic tray packing and palletizing

The entire process is synchronized to maintain precise control over forming, filling, and closing operations. Defective parts are automatically detected and removed, ensuring consistent output quality and production efficiency.

PROCESS FLOW

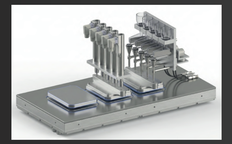
The top floor hosts automated robotic systems responsible for filling silos with powder material. Powder is transported by gravity through an ESD protected environment into the production line below.

Advanced valve protection systems isolate sections in case of an incident, ensuring the rest of the line remains protected. All operations are remotely monitored, with telemetry data, serial number tracking, and integrated quality control systems providing full traceability.

The building must be ATEX certified and prepared to support the line, including structural, ventilation, and safety requirements.

FISAZA delivers customized automation and production solutions tailored to specific operational and safety requirements.

ADVANCED POWDER DISPENSING TECHNOLOGY



The powder dispenser is a key innovation developed by FISAZA and forms the core of the Blasting Caps Production Line. The system delivers exceptional filling accuracy with sub milligram level precision while maintaining maximum safety during powder handling.

The dispenser supports standard filling, press filling, and multi mixture configurations on the same production line. ESD protected levitating plates transport caps through the filling process, enabling safe handling of different powder mixtures without cross contamination.

Line capacity can be increased by integrating additional dispensers without redesigning the entire system, providing scalable production flexibility.

POWDER DISPENSING AND SAFETY CONCEPT

Custom powder handling and dispensing configurations are available upon request.

TECHNICAL SPECIFICATIONS

CATEGORY	SPECIFICATION
Product types supported	Cup type blasting caps
Cap dimensions	Diameter 4 to 7 mm configurable, length up to 12 mm
Raw material input	Aluminium sheet coil
Forming technology	Progressive servo press with multi staging
Press stroke rate	10 to 15 strokes per minute
Parts per stroke	5 pieces per stroke
Forming throughput	1500 to 2000 pieces per hour
Nominal output	1750 pieces per hour
Daily output	38400 pieces
Electrical supply	3 phase, 400 to 480 V, 50 or 60 Hz

FISAZA provides custom automation solutions tailored to specific operational requirements.

MELT CAST TNT FILLING LINE

FULLY AUTOMATED EXPLOSIVE FILLING SYSTEM

The Melt Cast Filling Line is a fully automated production system developed for safe, precise, and continuous filling of explosive materials into shells. The line is designed to operate twenty four hours per day with only four personnel per shift, ensuring maximum productivity while minimizing human exposure.

Advanced automation, integrated safety systems, and controlled process conditions deliver consistent filling quality and high operational reliability. The system is engineered to meet the strictest defense industry requirements and complies with the latest NATO standards for safety and quality.

OVERVIEW

AUTOMATED PROCESS FLOW

RAW MATERIAL HANDLING
Robotic feeding into silos

MELTING AND MIXING
Redundant melters and mixers with precise temperature control

CRYSTALLIZATION ENHANCEMENT
Powder unit improving material structure

SHELL PREPARATION
Inductive shell preheating and demagnetization

FILLING PROCESS
Automated conveyor with advanced melt filling technology

PALLETIZING
Filled shells placed on pallets

CONTROLLED COOLING
Regulated cooling room for optimal solidification

LOGISTICS
Autonomous forklifts transport pallets

Each stage of the process is fully automated and synchronized to ensure stable material properties, accurate filling, and repeatable product quality throughout the entire production cycle.

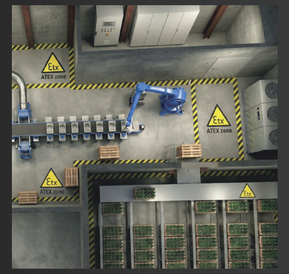
PROCESS FLOW

SAFETY AND INTELLIGENT CONTROL

The Melt Cast Filling Line is designed for installation in ATEX certified buildings equipped with blast walls. Safety mechanisms are integrated at every stage of the process, continuously monitoring critical parameters and automatically responding to abnormal conditions.

Redundant systems allow fast cleaning and servicing or uninterrupted production when required. In the event of a failure, risks are minimized and material waste is kept to the lowest possible level.

The entire line is remotely monitored. Each shell receives a unique serial number, enabling full traceability, quality control, and production monitoring through integrated IoT systems. The line supports multiple shell types and calibers, including customized production configurations.



SAFETY, MONITORING, AND FLEXIBILITY

TECHNICAL SPECIFICATIONS

CATEGORY	SPECIFICATION
Shell caliber	122 to 155 mm, customizable
Production capacity	Up to 140 shells per hour
Melting temperature	80 to 90 °C with ± 0.5 °C control
Feeding method	Gravity fed or pump assisted via heated pipeline
Shell preheat temperature	60 °C ± 1 °C
Preheating system type	Inductive heater
Filling accuracy	± 1.5 % per shell
Automation level	Fully automated
Personnel per shift	4
System footprint	Up to 1500 m² including warehouse, customizable

Custom production layouts and automation solutions available upon request.