SURFACE PREPARATION

BLAST ROOMS

CYM MATERIALES S.A.
INDUSTRIAL SOLUTIONS

BLAST ROOMS

CYM Materiales S.A. manufactures high-performance blast rooms for industrial surface preparation of components that, due to their size, geometry, or production requirements, cannot be processed in automatic turbine-type equipment.

Each blast room is engineered as an integrated system combining abrasive projection, recovery, separation, dust filtration, and control systems to ensure stable, safe, and repeatable operation.

The enclosed blasting environment allows operators to perform abrasive blasting using pressure units (blast pots) with precise abrasive flow regulation, ensuring effective removal of coatings and contaminants such as paint, mill scale, rust, foundry sand, and oxidation layers.

The process generates the appropriate surface roughness profile required for proper adhesion of protective coatings, achieving consistent surface quality in accordance with internationally recognized preparation standards.

Operator safety and environmental responsibility are integral to the design. Each system incorporates “dead man” safety controls with automatic shut-off and controlled airflow with efficient dust extraction, ensuring safe operation and minimal environmental impact.

Heavy-duty construction, reliable process control, and modular design allow long-term industrial operation with flexibility for future expansion or reconfiguration.

MAIN FEATURES

- Ideal solution for parts that cannot be processed in automatic turbine-type blasting equipment due to size or complexity.
- Modular heavy-duty construction designed for long-term industrial operation and future expansion.
- Provides a controlled and enclosed blasting environment, replacing open and inefficient sandblasting practices.
- Suitable for integration with paint booths and other downstream finishing processes.
- Engineered to ensure safe operation, protecting personnel and surrounding installations when properly operated.
- Environmentally controlled operation with efficient dust filtration and low particulate emissions.

TYPICAL APPLICATIONS

- Welded structures, structural profiles, and steel plates
- Pipes, spools, and wind tower sections
- Railcars, truck trailers, semi-trailers, and mining equipment components
- Agricultural and heavy machinery components
- Electrical transformers and enclosures
- Stainless steel components for food and sanitary industries
- Large castings and forgings
- Storage tanks and pressure vessels for oil, gas, and water
- Shipbuilding structures and marine components.
- Aircraft structures and aerospace components
- General cleaning and surface preparation of metallic parts

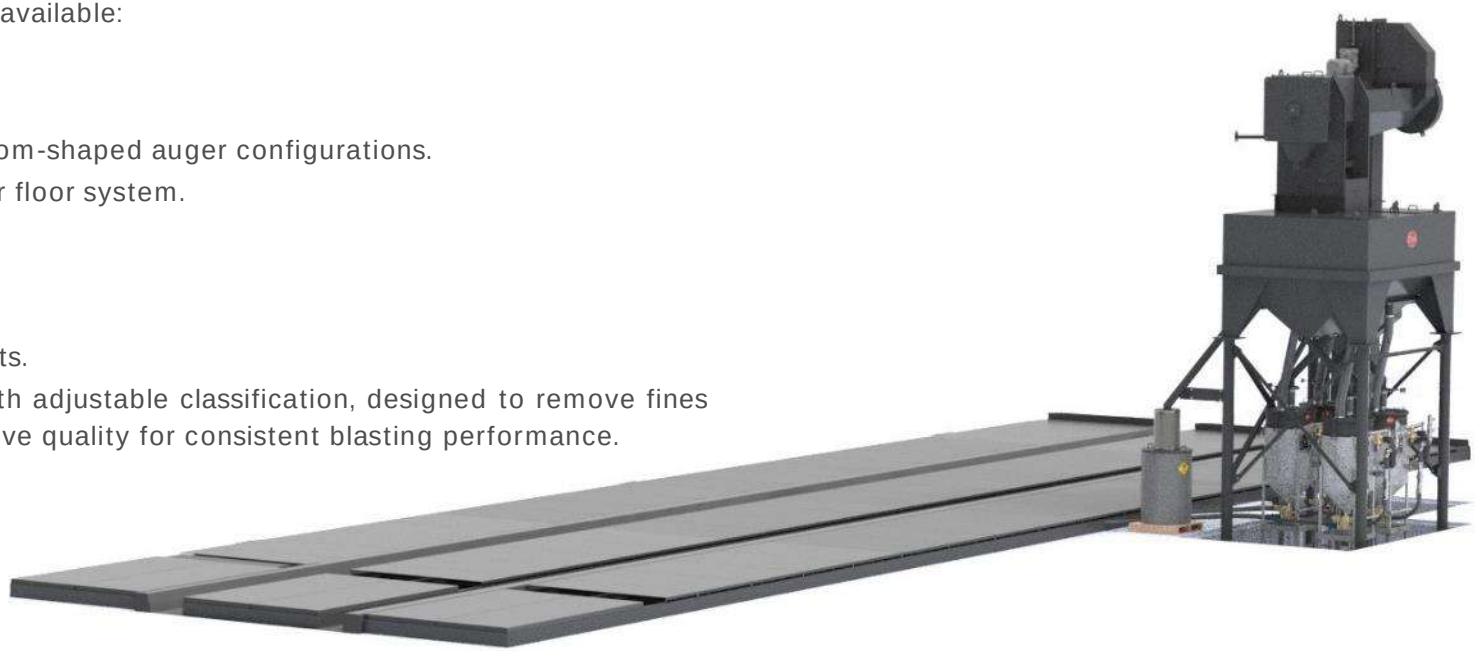
CONSTRUCTION FEATURES

BLAST ROOM ENCLOSURE

- Customizable dimensions according to specific operational requirements.
- Available construction options:
  - Modular steel panel structure.
  - Masonry construction.
  - Integration into existing facilities
- Swing, sliding, or roll-up type access doors.
- Internal lining of the blasting chamber with high wear-resistant rubber.
- External LED lighting system installed outside the enclosure, projecting through sealed laminated safety glass panels.

ABRASIVE RECOVERY AND SEPARATION

- Four abrasive recovery configurations are available:
  - Manual recovery with side hopper.
  - Manual recovery with central auger.
  - Manual recovery with +, H, T and custom-shaped auger configurations.
  - 100% automatic recovery with scraper floor system.
- System components include:
  - Abrasive distribution screw conveyor
  - Bucket elevator: SAE 1035 cast buckets.
  - High-efficiency air wash separator with adjustable classification, designed to remove fines and contaminants and maintain abrasive quality for consistent blasting performance.
  - Abrasive storage silo.



BLAST POTS

- Manufactured in accordance with the ASME Boiler and Pressure Vessel Code, Section VIII.
- Working pressure options: 7 kg/cm² (100 psi) and 10 kg/cm² (145 psi).
- Remote control system (electric or pneumatic) incorporating a "dead man" safety control mounted at the blast hose end, providing immediate interruption of air and abrasive flow when released.
- Designed to ensure precise and stable abrasive metering for consistent surface preparation quality under industrial working conditions.
- Available valve and depressurization configurations:
  - Tank depressurization system (D and DE models) with automatic abrasive refilling.
  - Dual depressurization system (DD and DDE models) with automatic abrasive refilling and selection between abrasive blasting or air blow-off through the same hose.
  - Double-acting pinch valve system (P and PE models) without depressurization, designed to reduce hose wear and improve valve durability.
- Screen sieve with airtight cover

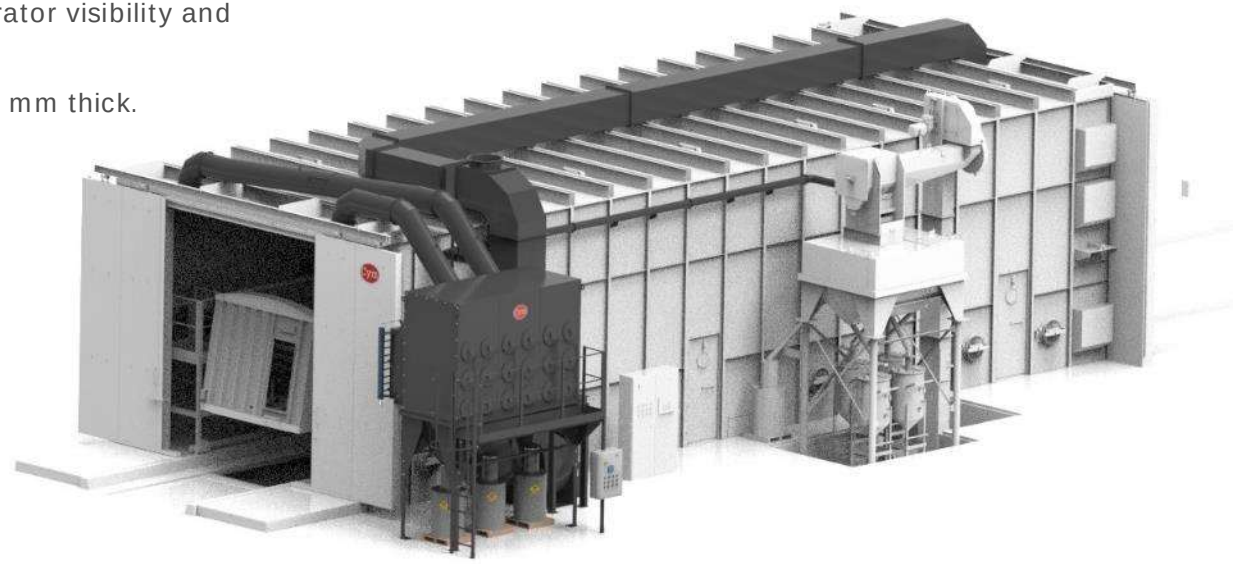
Models	Load Capacity		Optional	Max. working pressure (kg/cm²)	Outputs	
	Liters	Shot (kg)	Grids and covers		Cant.	Type of Control
CY-70	70	300	CYT08054 CYT08054T	7	1	D DE DD DDE P PE
CY-150	170	700	CYT08052 CYT08052T		1	
CY-500	500	2000	CYT08053 CYT08053T		1 o 2	
CY-550	500	2000	-	10		

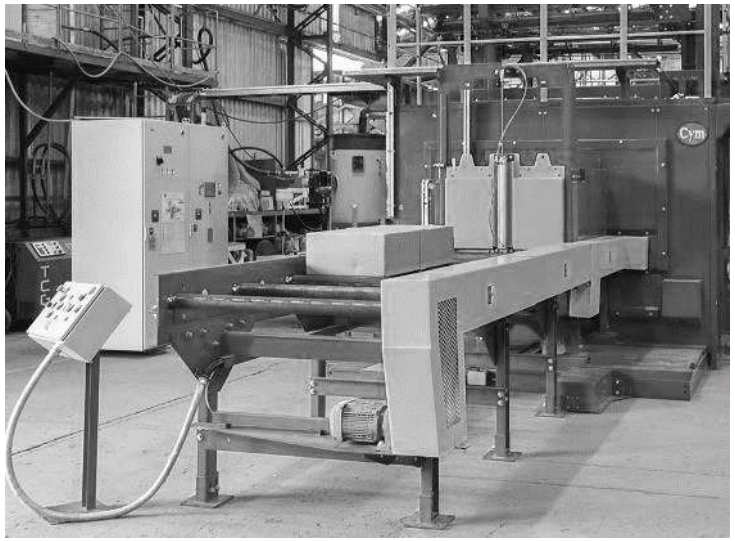
OPERATOR SAFETY

- Positive pressure respiratory protective equipment compliant with applicable international standards.
- Abrasion-resistant blasting helmet with replaceable protective cape and internal air circulation system.
- Double-sealed replaceable viewing lens system.
- Three-stage breathing air filtration system with disposable cartridges and activated carbon for air purification.

DUST FILTRATION AND EXTRACTION SYSTEM

- Continuously renews the air inside the blast room, improving operator visibility and preventing dust emissions to surrounding areas
- Heavy-duty steel structure manufactured from SAE 1010 steel, 3.2 mm thick.
- Maximum particulate emissions ≤ 5 mg/Nm³.
- Filtration efficiency: 99.9% for particles ≥ 0.5 microns.
- Easy replacement of filter elements.
- Automatic pulse-jet filter cleaning system.
- Differential pressure gauge for filter monitoring.
- Ductwork for connection to the blast room enclosure.
    - Optional closed-loop air recirculation system.





ELECTRICAL AND CONTROL SYSTEM

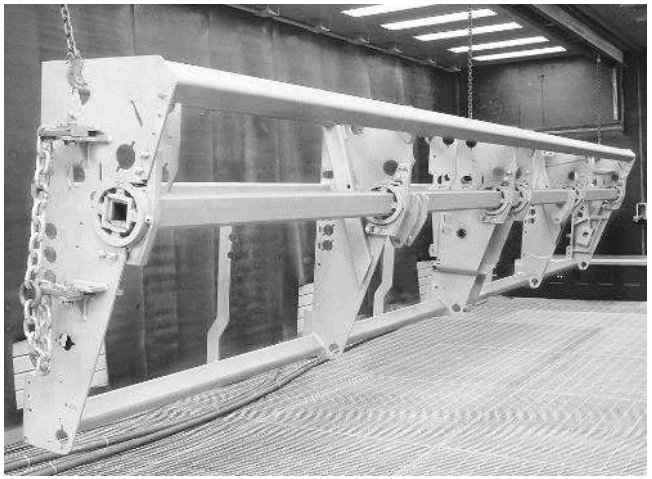
- Control panel manufactured in accordance with IEC, NEMA, or UL standards, as required.
- Industrial-grade electrical components designed for reliable operation in demanding industrial environments.
- Integrated control system for safe and efficient blast room operation.
- Emergency stop system and safety interlocks.
- Designed for integration with plant automation systems.
- Optional features: motion sensors, soft starters, air conditioning system, and remote communication interface.

OPTIONAL ACCESSORIES

- Automated nozzle handling systems for abrasive blasting operations
- Part handling and movement systems:
  - Overhead conveyor systems.
  - Trolleys with manual or electric drive.
  - Heavy-duty support trolleys with integrated turntable for large components.
  - Roller conveyors or parallel wheel conveyors.
- Blast room with sliding roof for loading by overhead crane.
- Work platforms with fixed, lifting, or lateral displacement configurations.
- Maintenance access platforms and service walkways.
- Noise reduction package:
  - Double-wall acoustic panels for the enclosure.
  - Silencer for dust collector exhaust outlet.
- Air dehumidification systems.

SURFACE TREATMENT APPLICATIONS

- Removal of rust and mill scale from metallic surfaces.
- Surface preparation for the application of protective coatings.
- Removal of liquid and powder coatings.
- Removal of burrs, foundry sand, forging scale, and machining marks.
- Decorative finishing of stainless steel, aluminum, and other non-ferrous metals.
- Surface texturing and etching of glass, stone, and metals.
- Cleaning of injection and extrusion molds.
- Shot peening operations (where applicable).



AVERAGE PRODUCTION RATES – LONG VENTURI NOZZLES

The following reference table shows the estimated production rates of long Venturi blasting nozzles, according to the type of surface condition and final cleanliness level.

Surface Condition Cleanliness Level		Production per blasting nozzle diameter m²/h					
		12.5	11	9.5	8	6.4	4.8
White metal SA 3 – SSPC 5	Light rust	24.5	19.0	13.8	9.3	5.8	3.0
	Heavy scale	20.0	16.1	11.3	7.9	4.7	2.5
	Tightly adherent scale	12.0	9.0	6.6	4.7	2.8	1.5
	Multi-layer coating	9.5	7.2	5.2	3.7	2.3	1.2
Near white metal SA 2½ - SSPC 10	Light rust	26.0	19.7	14.9	10.0	5.9	3.3
	Heavy scale	21.3	16.8	11.6	8.2	6.0	2.6
	Tightly adherent scale	12.8	10.0	7.0	5.9	3.0	1.6
	Multi-layer coating	10.0	8.0	5.6	4.0	2.4	1.3
Commercial blast SA 2 – SSPC 6	Light rust	62.5	49.0	35.1	24.6	15.0	8.0
	Heavy scale	41.9	32.2	23.3	16.0	10.0	5.0
	Tightly adherent scale	31.1	24.2	17.2	11.9	7.0	3.8
	Multi-layer coating	20.6	15.9	11.3	7.8	4.7	2.5

Note: Production rates shown in the table are estimates and may vary depending on abrasive type, surface condition, operator technique, and working pressure.
Cleanliness levels are defined according to ISO 8501-1, with equivalent SSPC surface preparation standards.

COMPRESSED AIR CONSUMPTION

Based on nozzle diameter, without considering wear.

Model	Diam.	Air Comp. (*)	
		CFM	m³/min
3	4.8	45	1.27
4	6.4	81	2.29
5	8.0	137	3.87
6	9.6	198	5.59
7	11.2	254	7.17
8	12.7	338	9.54

Note: (*) Compressed air consumption per nozzle at 7 kg/cm² (100 psi) measured at the nozzle inlet, without considering nozzle wear.

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