# Blast Room

## I. Working Process

The blast room is core equipment for surface pretreatment of metal workpieces, mainly adopting the "pressure-type blasting + abrasive recovery" process, using compressed air as dual power to achieve surface rust removal, slag removal, oil contamination removal, and stress relief on workpieces, laying a foundation for subsequent coating processes. It is essential equipment for long-term corrosion protection and workpiece strengthening. Equipment can be classified into mechanical and pneumatic types according to the abrasive recovery method, adapting to different production conditions.

Core process flow: Adopting the pressure-type blasting principle, compressed air establishes stable working pressure inside the pressure tank, fully mixing and pressurizing the abrasive with compressed air; the mixed abrasive is then pressed through the outlet valve into the transport hose, further accelerated by compressed air, and ejected at high speed from the nozzle onto the workpiece surface. The impact action of the abrasive thoroughly removes weld slag, rust, oxide scale, oil contamination, and other impurities from the workpiece surface. After blasting, the used abrasive is recovered, screened, and recycled through a mechanical or pneumatic recovery system, enabling abrasive circulation and reducing consumable costs. The processed workpiece surface roughness is uniform, effectively improving the adhesion of subsequent coatings. If shot peening treatment is used, it can also eliminate surface stress and improve workpiece strength.

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## II. Key Parameters

Processing Technology: Pressure-type dry blasting (compressed air as power), equipped with mechanical/pneumatic abrasive recovery system

Power Source: Compressed air (serves as both feeding power and jet acceleration power)

Equipment Classification: Mechanical blast room and pneumatic blast room, classified by abrasive recovery method

Processing Range: Medium and small metal workpiece surface pretreatment (suitable for irregular workpieces)

Processing Effect: Thoroughly removes weld slag, rust, oxide scale, and oil contamination; shot peening treatment eliminates surface stress and improves workpiece strength

Core Function: Improves metal surface coating adhesion, achieves long-term corrosion protection and strengthening treatment Applicable Abrasives: Silica sand, corundum, steel shot, and other common blasting/peening abrasives (configurable as needed)

Operation Mode: Batch/continuous operation (customizable based on workpiece batch)

Applicable Workpieces: Blank parts, castings, weldments, heat-treated parts, steel structures, containers, transformer shells, irregular parts, etc.

## III. Operating Instructions

1. Startup Preparation: Check pressure tank seal integrity and whether compressed air pressure meets standards; confirm that the transport hose and nozzles are free of blockages and damage. Check that the abrasive recovery system (mechanical/pneumatic) is operating normally and that abrasive storage is sufficient and meets processing requirements. Clear debris inside the blast room to ensure a smooth working space.

2. Startup Operation: First start the compressed air system; after the pressure tank reaches the set working pressure and the abrasive is fully mixed with air, activate the blasting device. Adjust the nozzle distance, blasting pressure, and abrasive type according to the workpiece material and surface contamination level to ensure processing results.

3. Operating Procedure: Place the workpiece steadily inside the blast room; adjust the nozzle angle to ensure the workpiece surface is evenly blasted, avoiding missed spots. When using shot peening treatment, adjust the abrasive specifications and ejection intensity to achieve the goal of eliminating surface stress and strengthening the workpiece.

4. Daily Maintenance: Regularly check nozzle wear and replace damaged nozzles promptly. Regularly clean the abrasive recovery system, screen out impurities, and replenish new abrasive. Regularly inspect compressed air pipelines and pressure tanks to ensure no leaks. After blasting operations are complete, clean residual abrasive and debris from inside the blast room and keep the equipment clean.

5. Safety Precautions: Professional protective equipment (face shield, protective clothing, gloves, etc.) must be worn during operation to prevent injury from abrasive splash. Smoking and open flames are strictly prohibited inside the blast room to avoid safety hazards. During equipment operation, do not arbitrarily disassemble the pressure tank or transport hose to prevent high-pressure gas and abrasive leaks. When shutting down: first close the blasting device, then shut down the compressed air system, and finally clean up the abrasive and work area.During equipment operation, do not arbitrarily disassemble the pressure tank or transport hose to prevent high-pressure gas and abrasive

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## IV. Product Advantages

1. **Excellent processing effect, strong adaptability**: Pressure-type blasting provides sufficient power and can thoroughly remove various impurities from workpiece surfaces with uniform processing. Suitable for medium and small metal workpieces of all types, including irregular parts and steel structures, while also supporting shot peening strengthening treatment with comprehensive functions.

2. **Abrasive recycling, controllable costs**: Equipped with mechanical/pneumatic abrasive recovery system; abrasive can be repeatedly screened and reused, significantly reducing consumable loss and operating costs.

3. **Essential process, improves subsequent quality**: Processed workpiece surface roughness meets standards, effectively improving coating adhesion and achieving long-term corrosion protection. Shot peening treatment eliminates surface stress and improves workpiece strength, making it the core equipment for metal workpiece surface pretreatment.

4. **Clear classification, adapts to different conditions**: Classified into mechanical and pneumatic types according to abrasive recovery method; suitable type can be selected based on workshop scale and workpiece batch with strong practicality.

5. **Easy operation, stable operation**: Mature equipment structure; blasting pressure and nozzle angle are flexibly adjustable, abrasive recovery system runs stably, daily maintenance is simple, and can meet continuous or batch production needs.

## V. Applicable Industries

Widely applicable to surface pretreatment and strengthening treatment of various metal workpieces, covering **mechanical manufacturing, steel structure processing, automotive parts, marine components, hardware processing,** transformer **manufacturing, container production, casting,** and welding industries. Mainly used for surface rust removal, slag removal, and oil contamination removal of medium and small metal workpieces such as blank parts, castings, weldments, heat-treated parts, steel structures, transformer shells, and irregular parts, as well as workpiece shot peening strengthening, providing a high-quality surface foundation for subsequent coating and corrosion protection processes.