



PROC-X

MANUFACTURING GROUP

PreciXion

DP

AS

FuXion

EmuXion

QuantumX

PRINTED METALS

The Next Generation of Defense Armament

Advanced Powder Milling, Mixing,
Material Handling & Automation for
Defense Additive Manufacturing

*The printer gets
the attention.
The powder determines
the performance.*

www.procxinc.com | john.paul@procxinc.com

THE NEXT GENERATION OF DEFENSE STARTS AS POWDER

In metal additive manufacturing, the printer can only perform as well as the material entering it.

Advanced metal components for defense are increasingly produced through additive manufacturing—where design freedom, performance, and speed converge.

But performance doesn't begin in the printer. It begins with the powder. Particle size, flowability, distribution, homogeneity, purity, feed consistency, handling conditions, and repeatability—every detail matters.

If the powder isn't right, nothing downstream can fix it.

At Proc-X, we engineer the powder before the printer ever sees it. Because in defense, there is no second chance.

“ We don't build the printer.
We engineer what makes
the printer perform. **”**

WHY PRINTED METALS MATTER



Complex Geometries – Designs once impossible are now mission-ready.



Optimized Structures – Lighter, stronger, and built for performance.



Rapid Production – Accelerate development and shorten lead times.



Advanced Alloys – Tailored materials for extreme environments.



Repeatable Feedstocks – Consistent powder. Consistent results.

MILLING & CLASSIFICATION

*Engineer the particle before
you engineer the part.*



1 PRECISION MILLING

Advanced milling technologies deliver consistent, repeatable particle size reduction and conditioning tailored to your material and application.

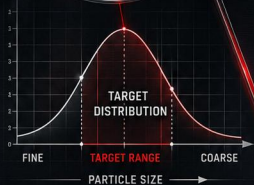
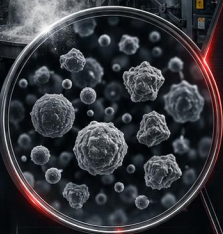
- ▶ Precision particle-size reduction
- ▶ Powder conditioning
- ▶ Fine and ultrafine grinding
- ▶ Particle-size distribution control
- ▶ Deagglomeration
- ▶ Recovery and reprocessing



2 INTEGRATED CLASSIFICATION

High-efficiency classification and separation ensure precise control of particle size distribution and maximum yield.

- ▶ Air classification
- ▶ Fines separation
- ▶ Precision screening
- ▶ Particle recovery
- ▶ Sieving
- ▶ Closed-loop recycle systems
- ▶ Oversize removal



**CONTROL THE PARTICLE.
CONTROL THE PROCESS.**

PROVEN TECHNOLOGIES. PRECISION RESULTS.



JET MILLS



AIR CLASSIFIER MILLS



PIN MILLS



HAMMER MILLS



CONE MILLS

HOMOGENEITY AT THE PARTICLE LEVEL

Advanced powders demand advanced blending.

Advanced metal feedstocks often require precise blending of alloys, specialty powders, reclaimed material, virgin material, or minor components.

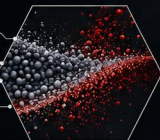
Proc-X mixing technologies are engineered to deliver uniform distribution at the particle level—ensuring chemical consistency, performance reliability, and repeatable results from lab scale through full production.

ALLOY POWDERS

RECLAIMED
MATERIAL

VIRGIN POWDERS

MINOR
COMPONENTS



APPLICATIONS

- > Alloy powder blending
- > Powder homogenization
- > Masterbatch preparation
- > Minor-component incorporation
- > Virgin and reclaimed powder blending
- > R&D formulations
- > Production-scale feedstock preparation



“Designed around
the **material** -
not around a
standard machine.”

PROC-X MIXING TECHNOLOGIES



QUANTUMX FLUIDIZED ZONE MIXERS

Gentle, high-efficiency blending for the most difficult-to-mix powders.



PLOW MIXERS

Rugged and versatile for high-throughput, uniform blending of dry powders.



CONICAL & VERTICAL MIXERS

Space-saving designs for efficient blending with excellent discharge and flow.



3D MIXERS

Multi-axis motion for rapid, homogeneous mixing of free-flowing powders.



CUSTOM ENGINEERED MIXING SYSTEMS

Tailored solutions for unique materials, processes, and performance targets.



BULK MATERIAL HANDLING

Move the powder without losing control of the powder.

Powder performance depends on more than what happens inside the printer—it begins the moment material starts moving. At every transfer point, risk increases.

Segregation. Contamination. Moisture exposure. Dust generation. Material loss. Operator exposure. Uncontrolled transfer. Each can compromise material integrity, consistency, and safety.

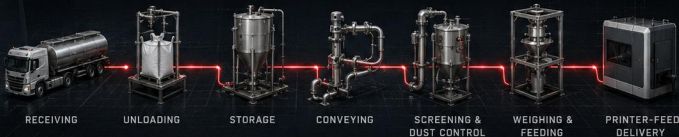
Proc-X engineers the entire material path—so your powder arrives exactly as it should.

INTEGRATED HANDLING SOLUTIONS

- Vacuum Conveying
- Pneumatic Conveying
- Screw Conveying
- Flexible Screw Conveying
- Bulk Bag Unloading
- Bulk Bag Filling
- Drum and Tote Handling
- Intermediate Bulk Containers
- Storage Hoppers
- Automated Weighing
- Gain-in-Weight Batching
- Loss-in-Weight Feeding
- Dust Collection
- Screening
- Enclosed Transfer
- Printer-Feed Preparation



*From receiving to final feedstock delivery, Proc-X approaches the system as **one continuous manufacturing process.***





MORE THAN EQUIPMENT. A COMPLETE MANUFACTURING PLATFORM.

One engineering partner for
advanced powder processing.

Modern manufacturing demands more than individual machines—it demands performance, reliability, and integration.

Instead of sourcing separate mills, mixers, conveyors, and controls from multiple suppliers, you get one engineered solution from Proc-X.

We combine deep process expertise with proven equipment and automation to deliver a **complete, seamless manufacturing platform**—designed, built, and supported for your success.

IT BEGINS WITH PROC-X.



PROC-X CAN INTEGRATE

- › Process Engineering
- › Milling
- › Classification
- › Mixing
- › Screening
- › Powder Storage
- › Automated Batching
- › Bulk Material Handling
- › Dust Collection
- › Containment
- › Process Skids
- › Electrical Engineering
- › PLC/HMI Automation
- › System Integration
- › Factory Acceptance Testing
- › Installation Support
- › Commissioning
- › Training
- › Lifecycle Support



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CONTROL THE ENVIRONMENT

BECAUSE ADVANCED METALS DEMAND MORE.

Reactive and high-performance alloys are only as good as the environment they're processed in. Proc-X systems are engineered to control the critical variables that protect powder integrity, ensure consistent performance, and safeguard people and equipment.

We design containment and atmosphere-control solutions that minimize risk and maximize reliability—from powder receipt to final part.



SYSTEM OPTIONS CAN INCLUDE

- > Closed processing
- > Inert-gas purging
- > Nitrogen integration
- > Vacuum operation
- > Controlled-atmosphere vessels
- > Sealed powder transfer
- > Dust containment
- > Grounding and bonding provisions
- > Static-control strategies
- > Environmental isolation
- > Explosion-protection strategies where required
- > Specialized filtration and collection

CONTROLLED VARIABLES

- ☒ ATMOSPHERE
- ☒ CONTAMINATION
- ☒ MOISTURE
- ☒ DUST
- ☒ STATIC ELECTRICITY
- ☒ OPERATOR EXPOSURE



**EVERY SYSTEM BEGINS
WITH THE POWDER,
THE PROCESS,
AND THE APPLICABLE
SAFETY REQUIREMENTS.**

THE COMPLETE POWDER-TO-PRINT ECOSYSTEM

**One process. One architecture.
One engineering partner.**

Proc-X engineers and integrates the complete powder handling and additive manufacturing ecosystem—from raw material receiving through powder recovery—delivering a seamless, connected, and controlled process that ensures repeatability, quality, and mission readiness.





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ADVANCED MATERIALS REQUIRE ADVANCED PROCESSING

The final component can only be as consistent as the material used to create it.

Proc-X systems are engineered to process the world's most advanced metallic and specialty materials with precision, reliability, and repeatability—empowering defense manufacturers to push the boundaries of performance and mission readiness.

From refractory metals to nickel-based superalloys, our integrated hardware, software, and automation solutions ensure your most critical components meet the highest standards—every time.



MATERIALS



- Titanium Alloys
- Nickel-Based Superalloys
- Stainless Steels
- Tool Steels
- Aluminum Alloys
- Cobalt-Chromium Alloys
- Copper Alloys
- Tungsten-Based Materials
- Refractory Metals
- Specialty Alloy Systems

DEFENSE MANUFACTURING OPPORTUNITIES



Advanced structural components for extreme environments and mission-critical systems



High-performance propulsion and combustion hardware



Aerospace systems and subassemblies built for precision and durability



Hypersonic vehicle and advanced research development support



Specialty metallurgy and exotic material processing capabilities



Next-generation manufacturing solutions for emerging defense needs



Repeatable, scalable production infrastructure for long-term readiness



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AUTOMATION TURNS EQUIPMENT INTO A PROCESS

*Connect them, control them,
and make them repeatable.*

Mills, mixers, conveyors, feeders, and handling equipment are powerful on their own. But when they are integrated and automated, they become more than machines—they become a true manufacturing system.

Proc-X designs and delivers automation and control solutions that turn your equipment into repeatable, trackable, and scalable processes that improve quality, reduce variability, and drive performance.



INTEGRATED CONTROLS CAPABILITIES

- > PLC controls
- > HMI interfaces
- > Recipe management
- > Automated batch sequencing
- > Gravimetric dosing
- > Load-cell weighing
- > Ingredient verification
- > Automated valve control
- > Motor monitoring
- > Process interlocks
- > Alarm management
- > Batch records
- > Material tracking
- > Production data
- > Equipment communication
- > Remote diagnostics

**NOW YOU HAVE
A PROCESS.**

