FEECO INTERNATIONAL

GRANULAR
FERTILIZER SYSTEMS



TOMORROW'S PROCESSES, **TODAY.**

FEECO.com

SINCE 1951

ORGANIC & INORGANIC
FERTILIZER GRANULATION SYSTEMS

FEECO was founded in 1951 as the Fertilizer Engineering & Equipment Company. Since our founding, we've developed a reputation as the premier name in custom equipment and complete process systems for the production of both organic and inorganic fertilizers.

You can rest assured when you purchase FEECO systems and equipment, you're getting equipment that was engineered around the material to be processed, and built with longevity in mind. Our engineers work closely with our in-house fabricators to ensure everything is crafted just right. We use only the best materials to provide you with a dependable solution that will work reliably for years to come.

Whether you need replacement equipment, are looking to modify your current process, or you have an idea for a new product you'd like to test out, FEECO can help take you from idea to full-scale production.

WHO WE WORK WITH

FEECO's expertise has been sought by nearly every big name in the fertilizer industry. Producers come to FEECO for the best in innovative solutions in process design, engineering, and manufacturing. Some of these companies include:

Mosaic®

Midwestern BioAg — Better Farming Through Better Soil

IFDC

PotashCorp — Helping Nature Provide

Cargill™

Simplot — Bringing Earth's Resources to Life

FEECO CAN SUPPLY

- Acidulators
- Bucket Elevators
- Coating Drums
- Combustion Chambers
- Conveyor Systems
- Disc Pelletizers
- Fluid Bed Dryers
- Granulation Drums
- Hammer Mills
- Pin Mixers
- Pug Mills (Paddle Mixers)
- Rotary Dryers & Coolers
- Tanks, Hoppers, and Chutes

ORGANIC & INORGANIC MATERIALS

FEECO has experience processing a wide variety of fertilizers and soil amendments, including:

- Ammonium Sulfate
- Chicken Litter
- Chicken Manure
- Compost
- Dairy/Cattle Manure
- Gypsum
- Hog Slurry
- Limestone
- MAP, DAP
- Municipal Sewage Sludge/Biosolids
- NPK
- Potash
- Separated Dairy Manure
- SSP, TSP
- Urea





CE

CE Certification is available on request

EQUIPMENT

BUILT FOR LONGEVITY

AGGLOMERATION EQUIPMENT

AGGLOMERATION DRUMS



ABOUT
Agglomeration drums are diverse in their ability to accomplish a variety of objectives. They are favored for their durability and high throughput.

SIZE
Diameters from 36" - 15' (1 - 4.6m)

APPLICATIONS
- Granulation
- Agglomeration
- Conditioning
- Coating
- Mixing



PUGMILL MIXERS

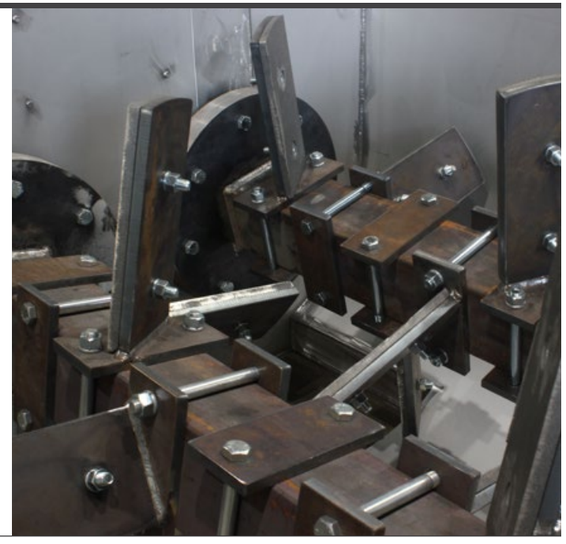


ABOUT
Pugmill mixers (paddle mixers) use kneading and folding action to thoroughly mix solid and liquid feed components and if desired, produce granules.

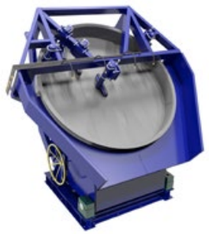
SIZE
14" - 78" (355 - 1,980mm)

CAPACITY
500 lb/hr - 250 TPH

APPLICATIONS
- Granulation
- Agglomeration
- Conditioning
- Coating
- Mixing



DISC PELLETIZERS

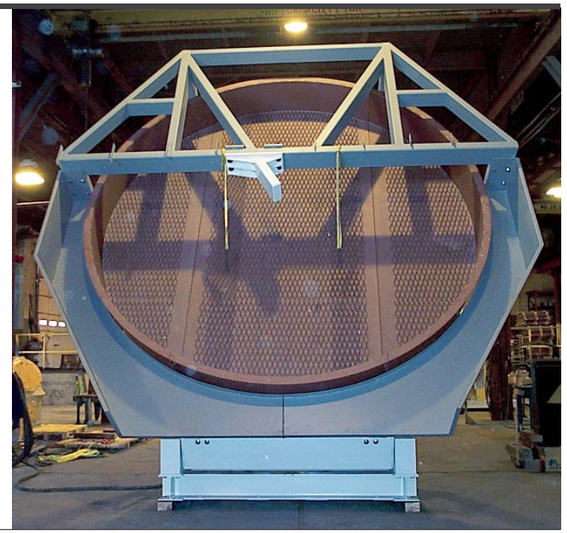


ABOUT
Disc pelletizers offer a high level of particle size control, producing refined, rounded pellets. They are often combined with a pin mixer.

SIZE
24" - 25' (0.6 - 7.5m)

CAPACITY
100 lb/hr - 100 TPH

APPLICATIONS
- Granulation
- Agglomeration



PIN MIXERS

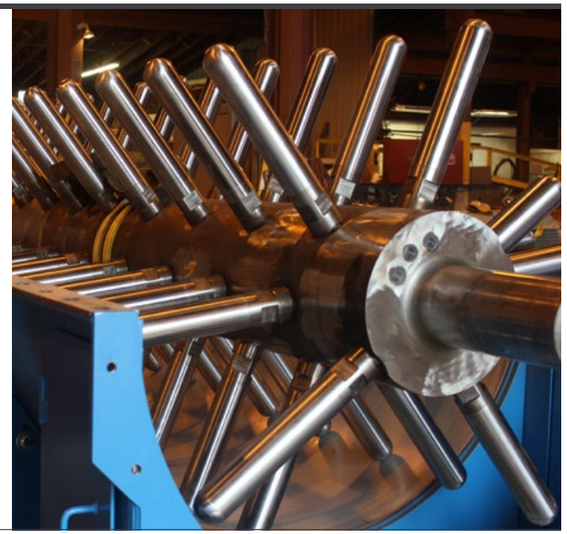


ABOUT
Pin mixers use an intense spinning action to homogeneously mix solid and liquid feed components and produce dense granules.

SIZE
10" - 50" (255 - 1,270mm)

CAPACITY
200 lb/hr - 70 TPH

APPLICATIONS
- Granulation
- Agglomeration
- Conditioning
- Coating
- Mixing



For additional details and specifications on agglomeration equipment, see our **Agglomeration Equipment brochure**.

DRYING & COOLING EQUIPMENT

ROTARY DRYERS





ABOUT
Rotary dryers are known as a workhouse when it comes to drying bulk solids. They offer a high throughput, tolerance to changes in feedstock, a robust build, and long-term longevity and reliability.

SIZE
3' - 15' (1 - 4.6 m)

CAPACITY
1 TPH - 200 TPH+
(1 MTPH - 181 MTPH+)

CONFIGURATIONS
- Direct
  - Co-Current
  - Counter-Current
- Indirect

ROTARY COOLERS



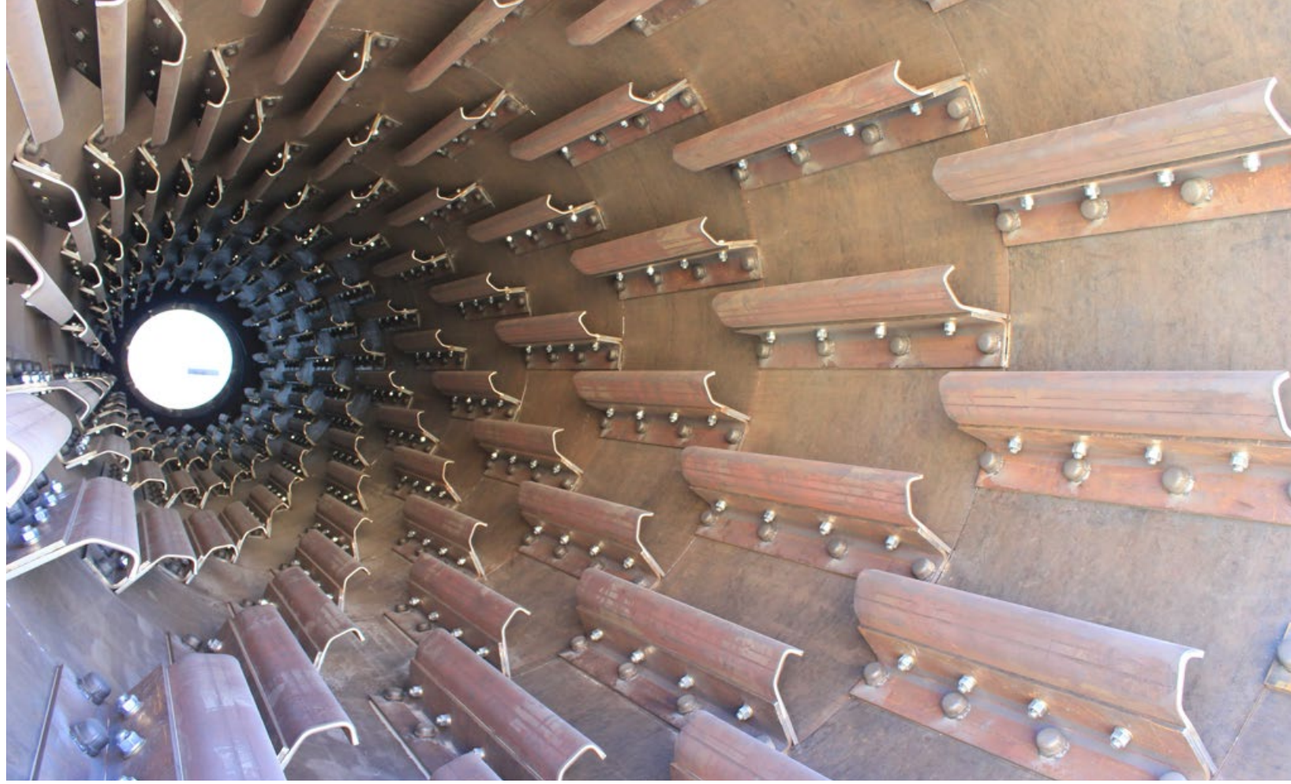


ABOUT
Like rotary dryers, rotary coolers offer a high-throughput processing solution for cooling bulk solids. They are also recognized for their heavy-duty construction, reliability, and long lifespan when properly maintained.

SIZE
3' - 15' (1 - 4.6 m)

CAPACITY
1 TPH - 200 TPH+
(1 MTPH - 181 MTPH+)

CONFIGURATIONS
- Direct
  - Co-Current
  - Counter-Current
- Indirect Water Deluge



HAMMER MILLS

ABOUT
FEECO double rotor hammer mills are a heavy-duty crusher for use in size reduction efforts. Two sets of chain/bar links reduce dry and semi-moist materials with a minimum amount of fines and caking or plastering within the crusher.

Hammer mills are ideal for use in fertilizer production and can convert oversize agglomerates into the desired product range of minus 4 mesh to plus 20 mesh.



FEATURES
- Utilizes a cracking action instead of grinding or pulverizing
- Non-clogging design
- Designed for easy accessibility
- Durable construction
- Simplified maintenance
- High throughput
- Removable screen

For additional details and specifications on thermal processing equipment, see our **Rotary Dryer & Cooler** brochure.

BULK MATERIAL HANDLING EQUIPMENT

BUCKET ELEVATORS



ABOUT
Bucket elevators are the industry standard for vertical handling, capable of moving everything from ores to fine chemicals.

SIZE
Buckets from 8" - 52" (0.2 - 1.3 m wide)

CAPACITY
20 - 600 TPH

CONFIGURATIONS
- Centrifugal Chain
- Centrifugal Belt
- Continuous Chain
- Continuous Belt



TROUGHED BELT CONVEYORS



ABOUT
Troughed belt conveyors horizontally convey a wide range of materials at angles between 0°-20°, or up to 30° with cleated belting.

SIZE
18" to 72" (0.5 - 1.8 m) wide

CAPACITY
up to 6,000 TPH



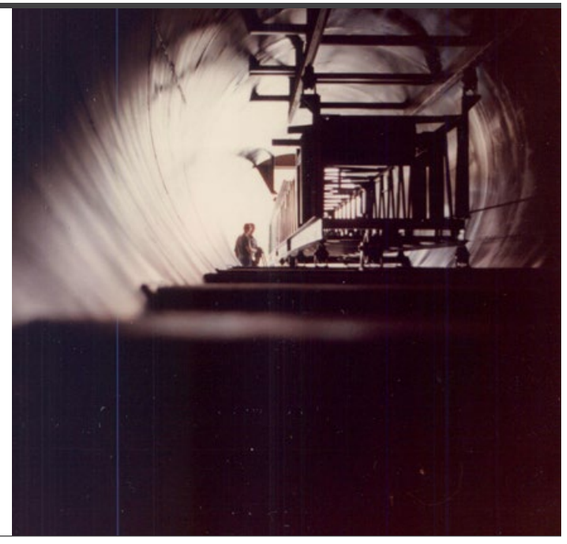
REVERSING SHUTTLE CONVEYORS



ABOUT
Reversing shuttle conveyors are used for building in-line, continuous piles, or feeding multiple fixed discharge points.

SIZE
18" to 72" (0.5 - 1.8 m) wide

CAPACITY
Up to 6,000 TPH



STEEP INCLINE CONVEYORS



ABOUT
Steep incline conveyors are a great substitute for drag chains or bucket elevators, because of the reduced noise and the elimination of transfer points.

SIZE
18" to 72" (0.5 - 1.8 m) wide

CAPACITY
Up to 600 TPH



For additional details and specifications on agglomeration equipment, see our **Belt Conveyor** & **Bucket Elevator** brochures.

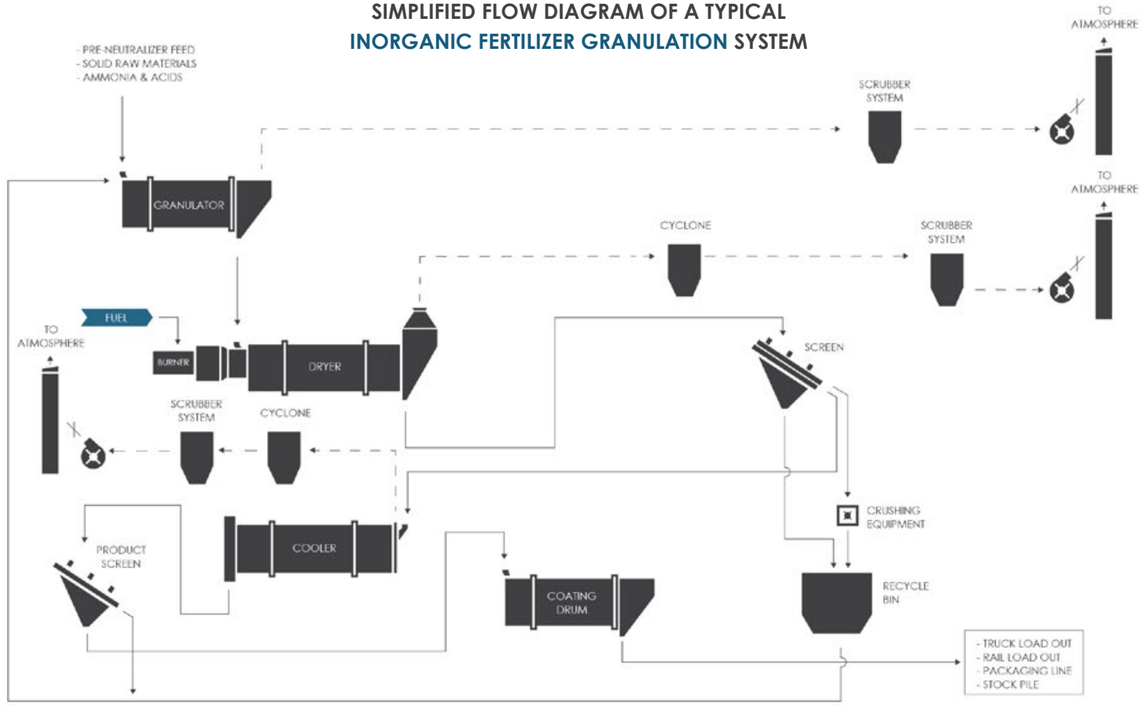
SYSTEMS

DESIGNED TO PERFORM

ORGANIC & INORGANIC **SYSTEMS**

FEECO offers expertise in all approaches to fertilizer granulation, from traditional processes to the latest advancements, as well as novel processing techniques and custom formulations. We can provide everything from a single piece of equipment, to a complete granulation system.

SIMPLIFIED FLOW DIAGRAM OF A TYPICAL
INORGANIC FERTILIZER GRANULATION SYSTEM

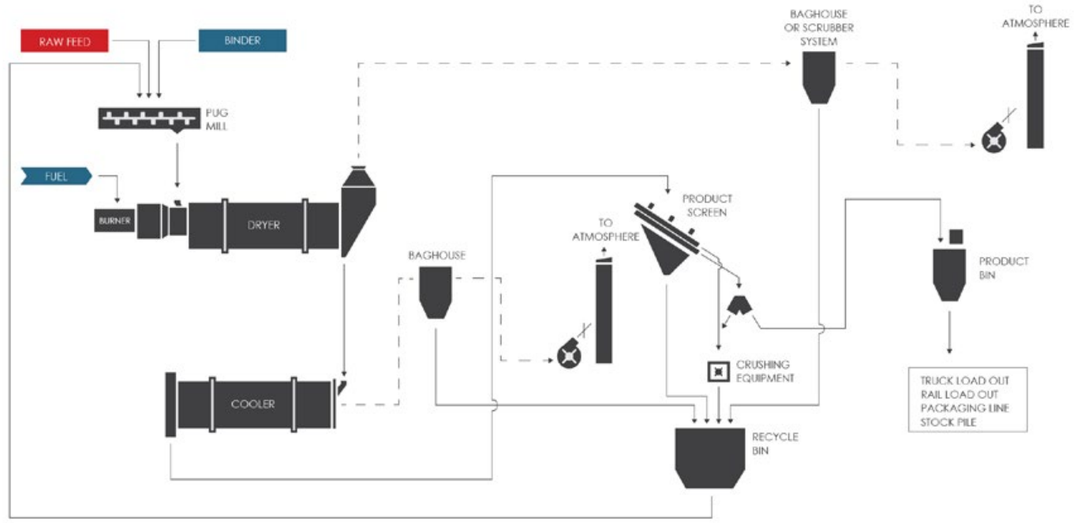






Manure-based
fertilizer

SIMPLIFIED FLOW DIAGRAM OF A TYPICAL
ORGANIC FERTILIZER GRANULATION SYSTEM



ENGINEERED

TO DELIVER

ENGINEERING CAPABILITIES

One of the advantages to working with FEECO is our extensive experience in engineering; our highly qualified staff of chemical, mechanical, and electrical engineers provides a well-rounded approach to system design, whether you are in need of a single piece of equipment, or a complete process system.

We can help bring your project to fruition with our versatile capabilities in front-end engineering, including the provision of:

- Equipment engineering
- Process flow diagrams/Mass balance
- Conceptual plant layouts
- Plant general arrangement drawings
- Civil works guide drawings with static and dynamic loads
- Structural steel and access platform guide drawings
- Chute and ductwork guide drawings
- Vendor interface, bid evaluation and analysis
- P&ID development
- Electrical and control systems engineering
- Material handling engineering
- Installation and commissioning review
- Site supervision for installation & start-up

Our engineering department works closely with our on-site fabrication facility to ensure stringent design and quality standards are met.

Project managers work to oversee your system is designed, manufactured, and installed to spec—on time and on budget.





Covered Pugmill Mixer with observation panels for use in animal feed production

Copper Ore Agglomeration Drums



Rotary Dryer Interior

All project managers and sales team members are experienced engineers and work with our staff of fully trained CAD and Inventor users to engineer a system around your unique requirements.


UNMATCHED
R&D

THE FEECO **INNOVATION CENTER**

The FEECO Innovation Center is a unique testing facility where we can test your material at both batch and pilot scale. Testing offers a host of invaluable information, allowing you to gain critical data on your material, work out process variables, fine-tune product characteristics, and develop a recipe for process scale-up. We've built a vast database on a variety of materials and test procedures. We offer comprehensive testing services in four categories:

1. **Feasibility/Proof of Concept -** An initial, non-witnessed batch testing phase in which the possibility of creating a product is explored.

2. **Proof of Product -** A more in-depth batch testing phase in which more time is spent determining whether a product can be made to desired specifications.

3. **Proof of Process -** A continuous testing phase that aims to establish the equipment setup and parameters required for continuous production of your specific material.

4. **Process/Product Optimization -** An in-depth study to optimize your specific material's characteristics and/or production parameters

UNPARALLELED REPORTING CAPABILITIES

The FEECO Innovation Center features a Rockwell Automation PLC/MCC system, which utilizes current technologies for optimizing testing operations through the collection and reporting of critical process data. These capabilities not only provide real-time insight into process performance, but they also allow returning customers to pick up exactly where they left off.

TYPES OF TESTING CONDUCTED IN THE FEECO INNOVATION CENTER:

AGGLOMERATION

- Pelletizing (Rotary drum, disc pelletizer, pin mixer)
- Micro-Pelletizing
- Coating
- Conditioning

THERMAL

- Drying
- Calcination
- Carbon Activation
- Catalyst Production
- Heat Setting
- Metal Recovery
- Organic Combustion
- Reduction
- Thermal Desorption
- Upgrading of Ores

INTERESTED IN TESTING?

It's easy!

1. *Fill out some **paperwork***
2. *Send us a **sample***
3. *We'll run some **tests***
4. *We'll mail you the **results***

Get started today by going to: **FEECO.com/contact-us/**



Rotary Kiln
Batch Testing



Synthetic Gypsum
pelletized at FEECO





COMPREHENSIVE

PARTS & SERVICE

SERVICE

From start-up and installation support, to preventative maintenance, FEECO offers a comprehensive customer service program to help keep your equipment running its best for years to come, whether your equipment is FEECO brand or otherwise. We offer the following services:

- Installation & Start-up Support
- Spare Parts
- Field Services
- Tire & Trunnion Grinding
- Drum Trunnion Training
- Alignments
- Gear Replacement
- Spare Parts Installation
- Laser Alignment
- Inspections
- Equipment Audits
- Training Programs
- Process Optimization

PARTS

FEECO offers an extensive parts program to assist customers in keeping an inventory of wear-critical parts, as well as providing parts on an as-needed basis. In addition to providing parts for all FEECO equipment, we will also provide replacement parts for equipment built by other brands.

Our line of parts includes everything from the smallest component, to major items, including:

ROTARY DRUMS
- Tires (Riding Rings)
- Trunnion Wheels
- Thrust Rollers
- Drum Shells
- Drive Components
- Girth & Pinion Gears
- Seals
- Bearings

DISC PELLETIZERS
- Spray Systems
- Disc Assembly
- Drive Motor
- Scrapers/Plows
- Gear Reducer
- Bearings

MIXERS
- Pins & Paddles
- Shafts
- Shaft Bearings
- Drive Motors
- Spray Ports/System

ELEVATORS & CONVEYORS
- Buckets
- Chains & Belts
- Drive Motors
- Pulleys
- Gear Reducers
- Guarding
- Bearings
- Idlers
- Covers
- Drives
- Dust Collection Hoods
- Trippers
- Plows
- Feeders



◀ Rotary Drum Repair

Rotary Drum Tire Mounting ▶





ABOUT FEECO

FEECO International, Inc. was founded in 1951 as an engineering and equipment manufacturer. We are recognized globally as an expert in industry-leading process design, engineering capabilities (including everything from process development and sample generation, to feasibility studies and detailed plant engineering), custom equipment manufacturing, and parts and service. We serve a range of industries, including fertilizer and agriculture, mining and minerals, power/utility, paper, chemical processing, forest products, and more. As the leading manufacturer of processing and handling equipment in North America, no company in the world can move or enhance a concept from process development to production like FEECO International, Inc.

The choice to work with FEECO means a well-rounded commitment to quality. From initial feasibility testing, to engineering, manufacturing, and parts and service, we bring our passion for quality into everything we do.

FOR DETAILED PRODUCT INFORMATION & CAPABILITIES, **DOWNLOAD THE FEECO HANDBOOK** AT: **FEECO.com/FEECO-handbook/**

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