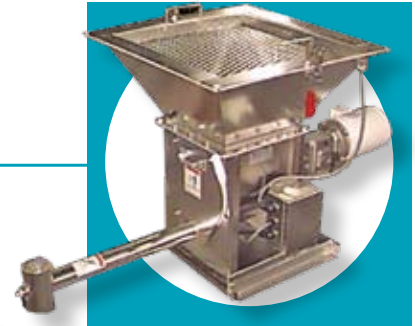


# THAYER SCALE

PROCESS MEASUREMENT & CONTROL EQUIPMENT

## POWDER FEEDER™ Volumetric Screw Feeder

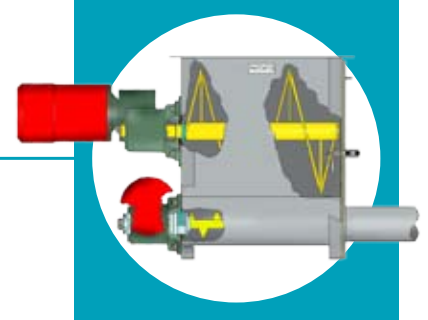
*HIGH ACCURACY*



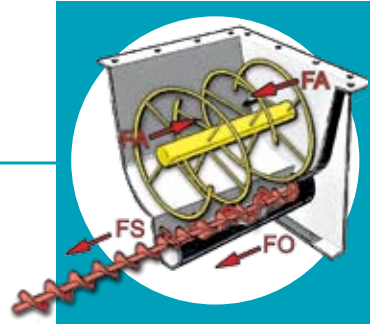
*RUGGED  
DURABLE  
RELIABLE*



*EASY TO MAINTAIN  
LOW MAINTENANCE*



*SIMPLE  
OPERATION*





Thayer Model PF-S Powder Feeder  
(shown without hopper)



Thayer Model PFM-S Powder Feeder  
(shown with "Multi-Shear" hopper)

## THAYER Patented POWDER FEEDER™

- Patented "U-Trough" feed chamber with independently driven agitator assures precise, reliable delivery of material to the feed screw.
- Eliminates material build-up, controls material aeration and delivers a steady and constant flow of material.
- Trough is designed for fast, easy, and thorough clean out. Feeder completely disassembles in less than one minute. High quality, rugged, stainless steel construction assures years of reliable, trouble free operation

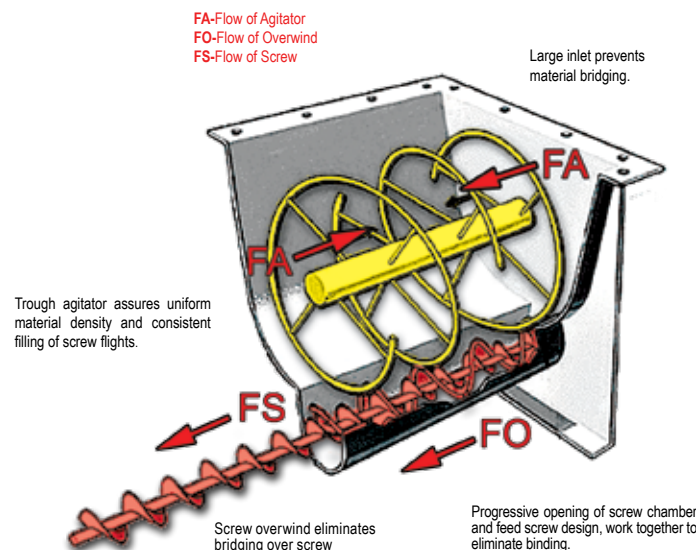
### Proven ability to feed difficult powders.

Thayer's Models PF-S and PFM-S Volumetric Powder Feeders control both flooding and clogging problems associated with difficult-to-handle powders.

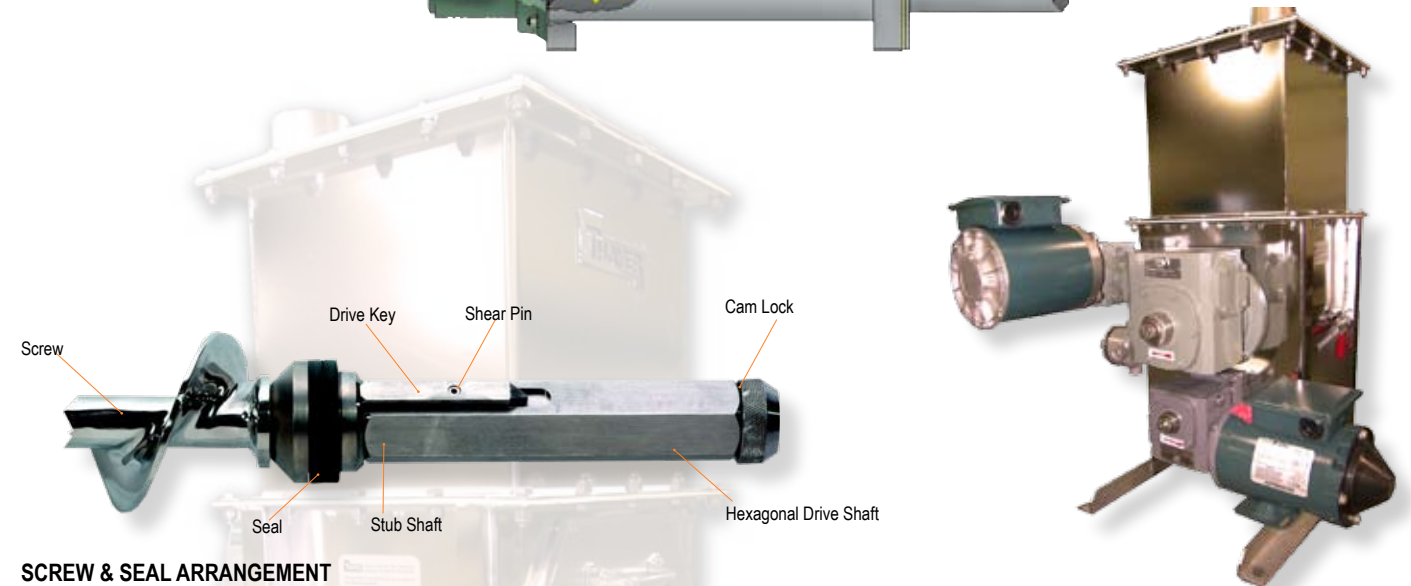
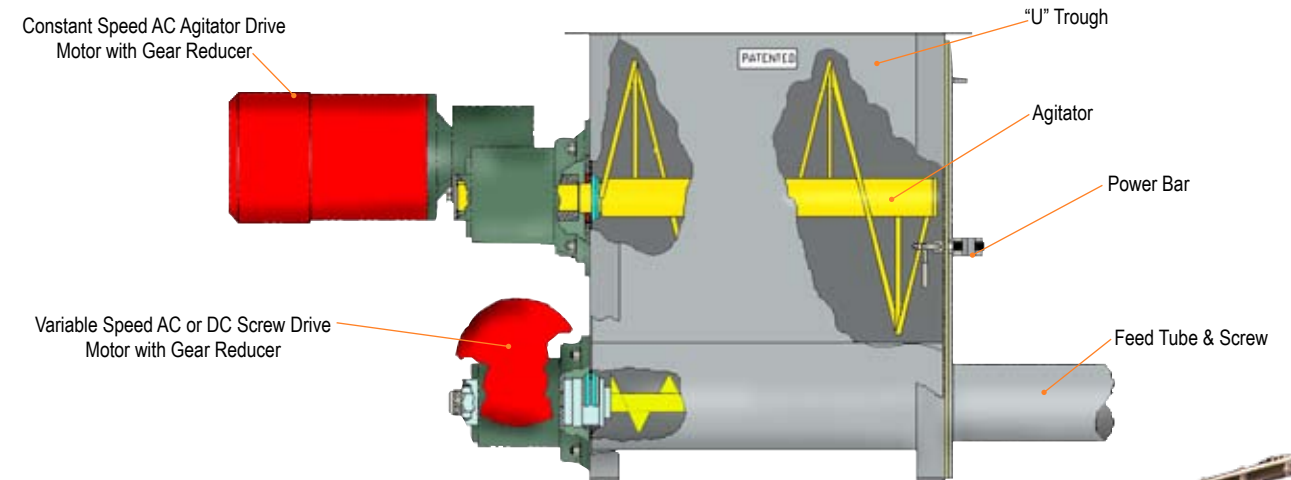
Deep Tear-Drop "U" trough screw feeder, featuring a dual wound horizontal agitator that moves material away from both front and back walls of the conditioning chamber above. The deepness of the trough assures that the screw is completely submerged in "quiet" material, free of the usual surface disturbances arising from the turning agitator above. This, along with an inherently larger trough "wrap-around" angle, provides for complete and efficient filling of each individual flight. The Tear-Drop shape of the trough is tapered in the direction of flow so as to relieve dynamic compaction forces as each flight advances toward the feed-tube entrance. This helps to maintain a more uniform material density throughout. Another advantage of the deep-trough design is that it is less susceptible to transient overfeeding that accompanies hopper refilling.

### Patented system that assures reliable metering.

The patented Thayer Scale "U-Trough" hopper and feed section provides the first practical and economical means for metering difficult powders. The geometry of the trough and agitator effectively de-aerate and contain the powder on initial fill to help prevent flooding. Independently driven agitator maintains optimum material conditioning while screw speed can vary to control flow rate. Material does not build up within the trough or within the continuous screw tube, preventing blinding or erratic feed. The combination of unique features provides the most reliable and accurate feed system for difficult powders.



No Flood Design  
Stream of Material is deflected by the agitator bar, then curved sidewalls. Material velocity is reduced, controlling the tendency to aerate and flood.



### SCREW & SEAL ARRANGEMENT

The totally unique Thayer process screw has many innovative concepts. The most obvious of these is the hex shaped, eccentric cam locking, quick release screw drive shaft assembly. This allows for hassle free "no tools" screw removal.

A more subtle but equally important concept is the shaft seal and how it is integrated into the process screw for ease of maintenance. With this shaft seal design the normal wear items (namely the seals) are mounted on and removed with the quick release process screw. They can then be easily cleaned, inspected or replaced without tools or additional disassembly.

The process screw is designed so that the seals do not turn with the screw, rather the screw has a special adapter mounted on it which acts as a seal gland surface. This adapter rotates with the screw and runs on the inside diameter of the non-rotating seals.

In normal service the seals are the only wear items, however if abnormal screw damage has occurred, the process screw can be disassembled. This feature allows the drive shaft assembly to be removed from a damaged screw and reused on the replacement screw. Also the rotating adapter and drive key can be reused or replaced in the field with a minimum amount of down time.

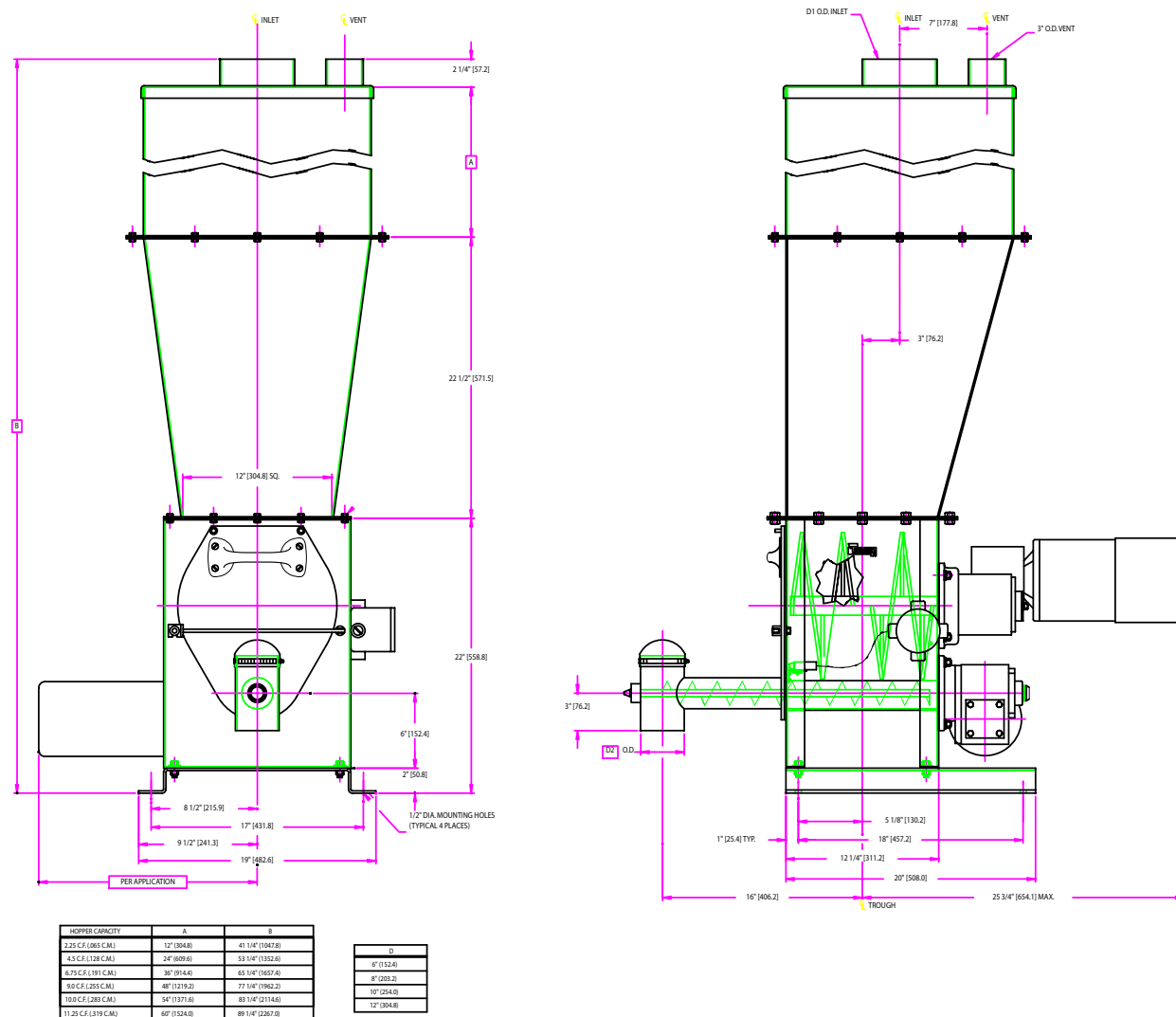
Seal construction is carbon fiber (graphite) reinforced PTFE with a 302 stainless steel canted-coil energizing spring.

The process screw has a round stub shaft which the adapter slides over prior to inserting into the mating hole in the screw drive shaft. This assembly along with the drive key is pinned together. This design allows for component replacement in the field. If required, the screw can be disassembled from the screw drive shaft assembly by driving the pin out. Once completed the drive shaft assembly and adapter can be withdrawn off the round stub portion of the screw.

If the screw becomes jammed the spring pin will shear and protect the screw, reducer and drive motor.

**TITANIUM DIOXIDE • ZINC POWDER • LIMESTONE • QUICK LIME • HYDRATED LIME • MILK POWDER • TALC  
ZINC BORATE • COCOA POWDER • PULVERIZED COAL • PIGMENTS • STARCH • FLOUR • RICE • FLUORSPAR  
SALT SPICE • ZEOLITE • COPPER PHOSPHATE POWDER • CALCIUM PHOSPHATE • CITRIC ACID • GUAR • PVC/  
RUBBER COMPOUND • STRAWBERRY ADDITIVE • PLATINUM POWDER • BENTONITE CLAY • GRAPHITE**

## MODEL PFM-S VOLUMETRIC FEEDER



### SPECIFICATION

**Feed Rate:** Up to 25 ft<sup>3</sup>/hr (0.70 m<sup>3</sup>/hr) at a material bulk density of 50 lbs/ft<sup>3</sup> (0.8 gr/cm<sup>3</sup>). Consult factory for high-feed rates.

**Screw Sizes:** range from 1.5" Ø. (variable pitch) to 2.0" Ø (variable pitch) solid flight or open helix with center through shaft.

**Hopper Capacity:** 2.25 ft<sup>3</sup> hopper expandable to 9.75 ft<sup>3</sup> with hopper extensions.

**Feeder Drive:** 0.75 to 1.5 HP max., variable speed DC motor, 90 or 180V armature, TENV.

- AC TEFC, Inverter Duty, 230 or 460 motor available.
- Wash Down, Chemical Duty and Explosion Proof available.

**Trough Agitator:** Independently driven, constant speed, horizontal mount with 0.5 HP, (0.37 kW AC motor 230/460) Continuously conditions material to aid in de-aeration & maintain a uniform bulk density.

**Material Contact Surface:** Electro-polish (material contact parts) or mill finish 304 and 316 Stainless Steel, other finishes available.

**Non-Material Contact Surfaces:** Carbon steel painted with primer and industrial grade enamel paint (special coatings and stainless steel available upon request).

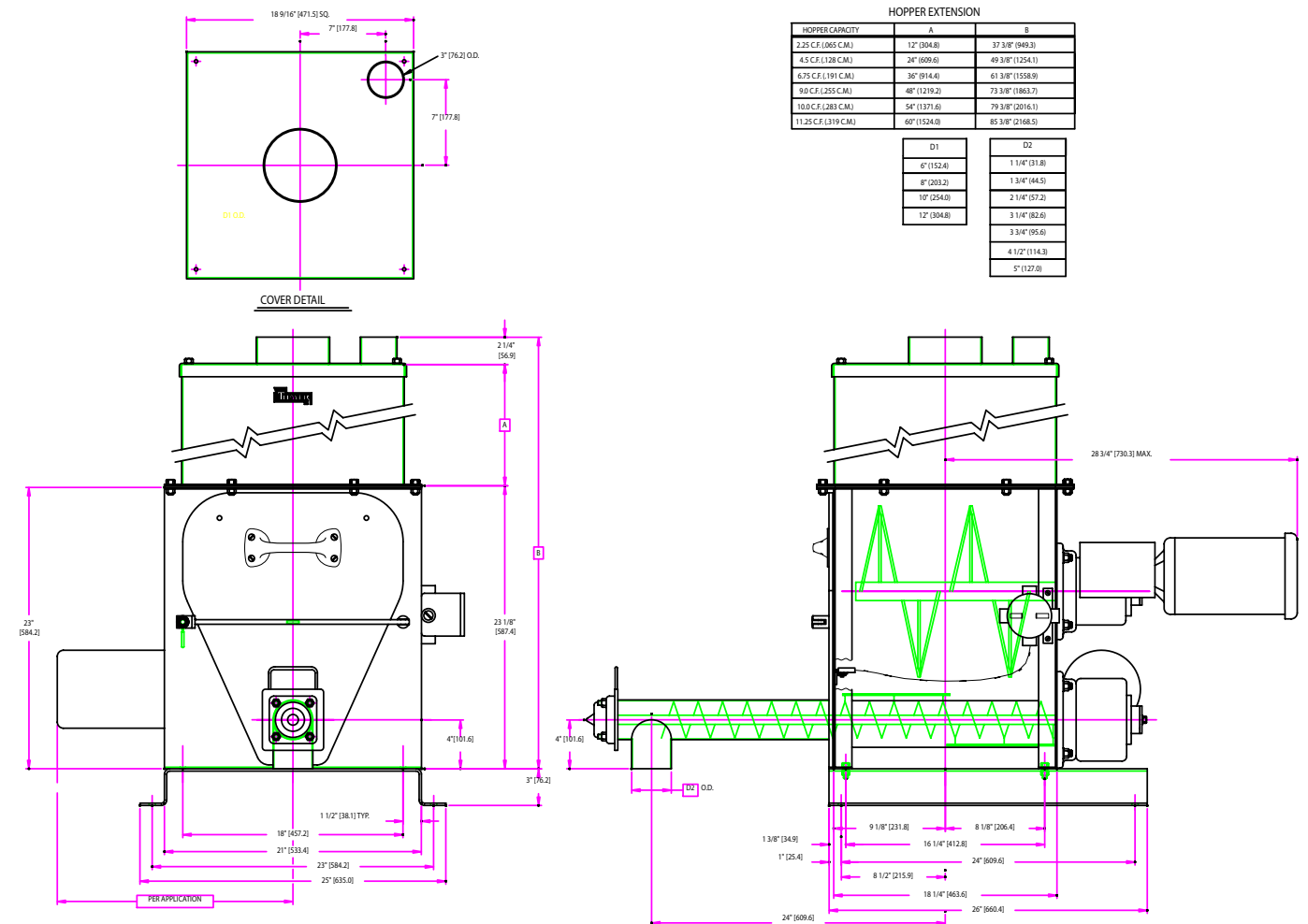
**Temperature Range-Material:** 32°F (0°C) to 130°F (55°C) standard. Consult factory for other temperatures.

**Accuracy:** ±1.0 to 2% of set rate @ 2 sigma based on thirty 1 minute samples.

#### Options:

- Sanitary Construction.
- Hazardous Area Modifications: includes UL/CSA approved explosion proof motors.

## MODEL PF-S-4 VOLUMETRIC FEEDER



### SPECIFICATION

**Volumetric Capacity:** Up to 205 ft<sup>3</sup>/hr (7.08 m<sup>3</sup>/hr). Consult factory for higher feed rates.

**Screw Sizes:** range from 2.0" Ø. (variable pitch) to 4.0" Ø (variable pitch) solid flight or open helix with center through shaft.

**Hopper Capacity:** 2.25 ft<sup>3</sup> hopper expandable to 11.25 ft<sup>3</sup> with hopper extensions.

**Feeder Drive:** 1.0 to 2.0 HP max., variable speed DC motor, 90 or 180V armature, TENV.

- AC TEFC, Inverter Duty, 230 or 460 motor available.
- Wash Down, Chemical Duty and Explosion Proof available.

**Trough Agitator:** Independently driven, constant speed, horizontal mount with 0.5 HP, (0.37 kW AC motor 230/460). Continuously conditions material to aid in de-aeration & maintain a uniform bulk density.

**Material Contact Surface:** Electro-polish (material contact parts) or mill finish 304 Stainless Steel, 316 SS, other finishes available.

**Non-Material Contact Surfaces:** Carbon steel painted with primer and industrial grade enamel paint (special coatings and stainless steel available upon request).

**Temperature Range-Material:** 32°F (-40°C) to 130°F (93°C), consult factory for higher temperature.

**Accuracy:** ±1.0 to 2% of set rate @ 2 sigma based on thirty 1 minute samples.

#### Options:

- Sanitary Construction
- Hazardous Area Modifications: includes UL/CSA approved explosion proof motors

