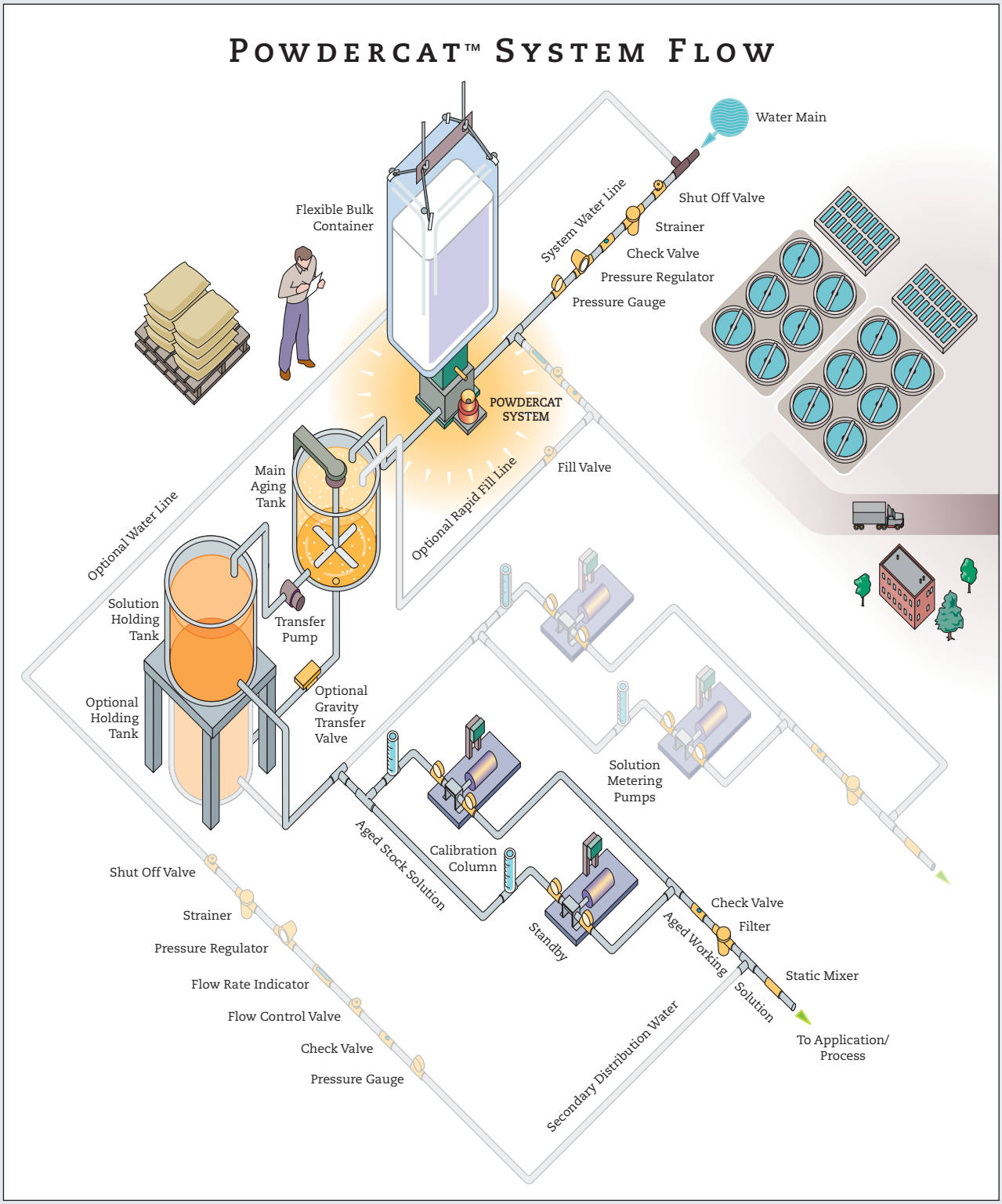
POWDERCAT™

DRY POLYMER PROCESSING

NORCHEM

POWDERCAT™ SYSTEM FLOW



Dry polymer daily capacities are based on polymer hydration time of 50 minutes. This process model achieves 24 complete cycles within a 24 hour day. Lengthening mix times will decrease daily dry polymer capacities. Factors affecting polymer solubility (mix time) are dry polymer characteristics (molecular weight/ charge density), dilution water quality/ temperature, and polymer particle morphology/rheology.

Norchem will provide specifications on custom storage and handling designs such as silos and pneumatic transfer installations as designated by the plant requirements. Contact our engineering department for more assistance.

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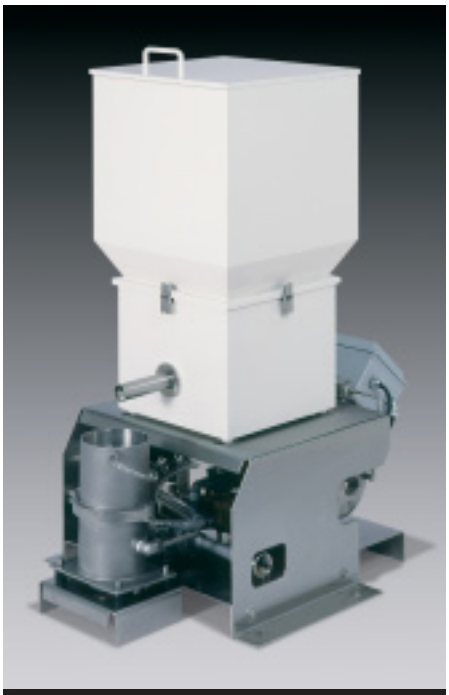


Powdercat Model NP 250

Norchem Industries is a leader in polymer processing and a prime supplier of chemical preparation and delivery equipment. We specialize in the design and manufacture of both liquid and dry polymer processing as well as control systems for industrial groups including chemical processing, coal preparation, mining, mineral recovery, petroleum refining, petrochemicals, plastics, pulp and paper, steel, textiles, water treatment, and wastewater management.

The Norchem Powdercat™ combines high-impact mixing with high-velocity hydraulic processing to deliver the very highest quality of aqueous polymer solution. Whether you use granular, flake, bead, super-fine dry polymer powder, or optional liquid polymer, the Powdercat's multi-stage processing module provides maximum particle separation and wetting to produce the highest quality polymer solution in the shortest possible time. The Powdercat's true three dimensional system of wetting dry polymer particles means consistent solution quality, greater operating efficiencies, higher process performance, and significantly lower costs.

The polymer processing module utilizes a high speed dispersing assembly to accelerate polymer particles for consistent and discrete wetting

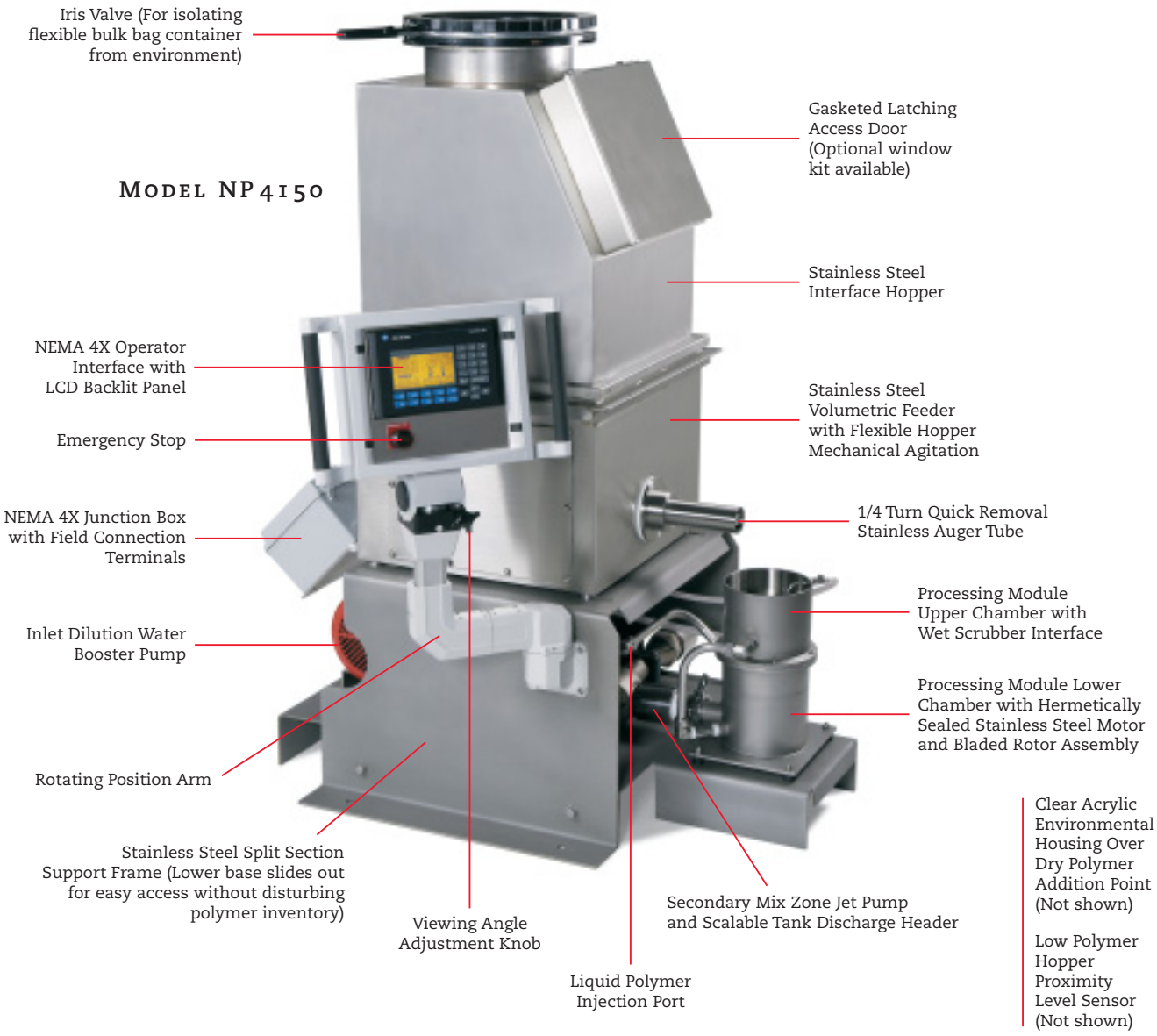
Features

- Prepares 10 to 4000 lbs./day of dry polymer product
- Wets, disperses and delivers precise concentrations of 0.1 to 1.0%, weight-on-weight or higher
- Processes all dry polymers at wetting rates from 0.1 to 30 lbs./minute
- Mix tank fill rates from 30 to 300 gallons/minute
- Delivers 3 to 20 times more dry polymer than comparable systems
- Eliminates difficult dispersion problems through high-energy particle separation and wetting
- Induced air scrubbing controls and suppresses dust
- Compatible with all commercially available dry polymer products
- Eliminates wetting interface buildup
- Eliminates the need for air blowers, dry air purge systems, special transport devices, dust collection systems, and other unnecessary suppression handling equipment
- Easily scales to accommodate increased demands
- Especially suited for expanding plants and mills
- Dramatically extends the system's useful life
- Requires no routine maintenance
- Cost effective and time saving

The backlit LCD interface panel offers concise graphics and helpful information on the operation and setup of the Powdercat System

Extended wetting capabilities make processing a broad range of polymer particle sizes (20 to 400 mesh) in the Powdercat System – a practical alternative

Powdercat™ NP 4000 Series



Dry/Liquid Polymer Capability

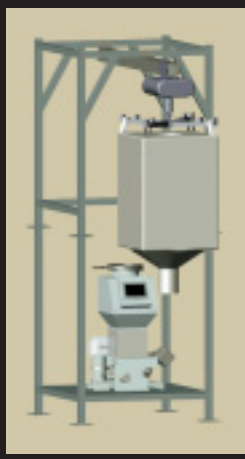
The versatile Powdercat System allows the operator the choice of feeding either liquid or dry polymer with the touch of a button. The *patented* NORCHEM polymer processing hydraulic circuit rapidly mixes and/or activates a broad spectrum of liquid emulsions, dispersions, and Mannich solution polymers in concentration ranges from 0.1 to 5.0 %.

The liquid polymer is injected directly into the Powdercat processing circuit and then delivered to the mix tank for aging. No additional agitation or mixing is required. Concentration adjustments are easily accessed from the LCD interface panel, and the *exclusive* NORCHEM optical low polymer flow alarm alerts the operator to an out-of-spec batch condition. Three choices of polymer pumps are available: Diaphragm, Rotary Gear, and Progressive Cavity.

Powdercat™ Dry Polymer

Single Bag Loading Hopper

Powdercat Single Bag Loading Hoppers provide a safe and convenient way to handle one cubic foot polymer shipping bags. The loading door opens to a horizontal position for bag attachment. The optional bag splitter allows the operator to empty polymer contents when loading door is securely closed, eliminating dusting. Available in 1–7 cubic feet storage configurations.



Powdercat™ Processing Module

Aqueous Dispersion Process

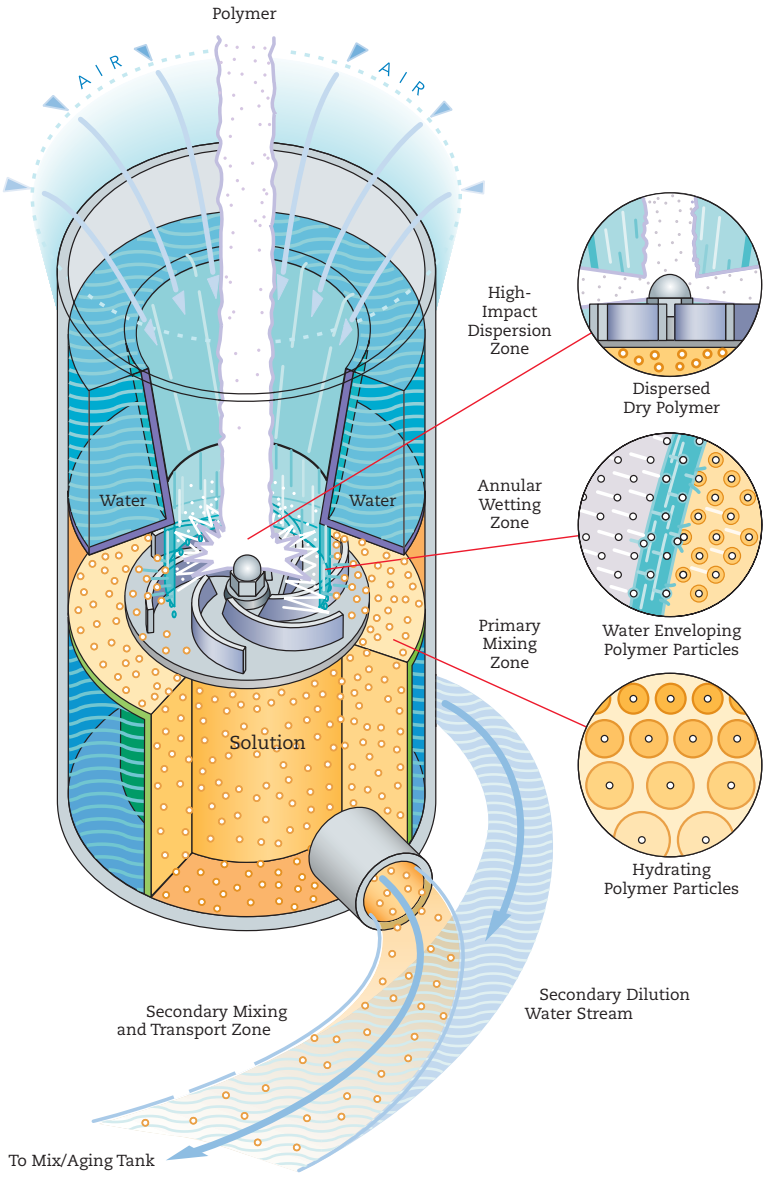
The Powdercat features a modular design which includes the Powdercat (Polymer) Processing Module, control panel, volumetric feeder, and hermetically sealed bladed rotor assembly. All are maintenance free and built for easy access and serviceability.

- A continuous stream of water forms an annular wetting zone around the dry/liquid interface.
- A powerful "burst" rapidly accelerates dry polymer particles, at maximum separation, through the annular wetting zone interface.
- Each particle is instantaneously surrounded and penetrated by water, upon impact, resulting in the most complete dispersion achievable.
- High-impact dispersion creates an induced air flow that eliminates the need for blowers, pumps, transport devices, and additional dust suppression or collection systems.
- The induced air flow scrubber traps polymer dust particles in the Powdercat Processing Module, achieving 100% capture and wetting of even the finest dry polymer products.
- The Processing Module motor is an all-stainless, hermetically sealed design, ensuring reliable, maintenance-free service, and unparalleled longevity.

High Impact Polymer Dispersion

It takes a powerful force to reliably produce the highest quality polymer solution for water, process, and waste water treatment. With Norchem's Powdercat you'll immediately see the difference.

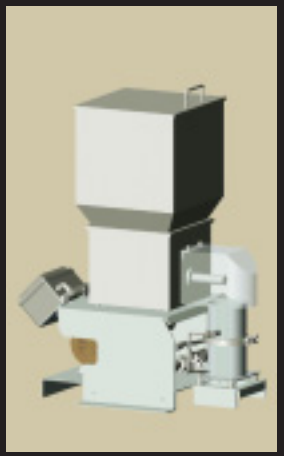
- Greater Process Efficacy
- Reduced Operating Costs
- Efficient Polymer Usage
- No Maintenance Burdens
- Scales to Growing Process Demands



Powdercat™ Dry Polymer Handling

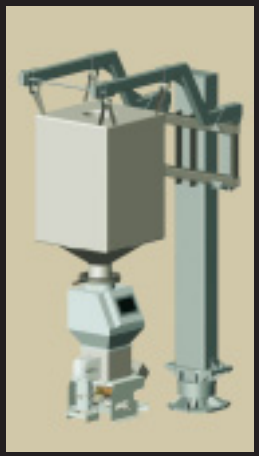
Supersack Frame and Hoist

Powdercat bulk bag frames are an easier, faster and more cost effective way of handling polymers in flexible semi-bulk containers. The easy loading bag frame is height adjustable to accommodate almost any size FBIC bags and can be provided with or without a power hoist. You can choose tall or short frames, each with adjustable legs, to match your application.



Extension Hopper

Powdercat Extension Hoppers add additional polymer storage capacity without external frames or supports. The hoppers are available in stainless steel or powder coated steel construction. Each hopper comes with a latching cover, which is gasketed to seal out the environment. Hopper capacities from 1 to 4.5 cubic feet are available.



Supersack Power Lift

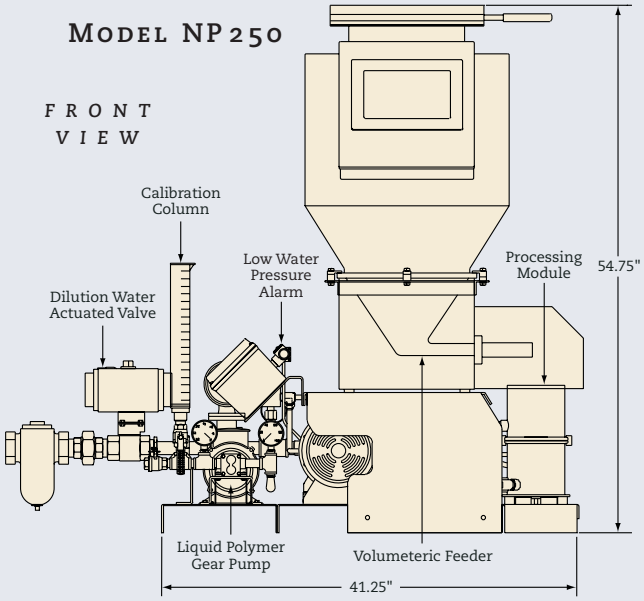
Powdercat production is increased by minimizing handling time. This design requires less overhead clearance than conventional bag frames and eliminates the need for fork trucks and power hoists. The electrohydraulic operated system lifts, rotates and locks the FBIC bags over the polymer receiving hopper. The compact design uses a minimum of floor space compared to 4-post handling systems.

High speed photos depicting the bladed rotor at the moment of impact with cascading dry polymer stream. The increasing particle angular velocity imparted by the rotor, is rapidly intensified to over 3600 feet per minute – prompting frequent collisions and uniform polymer separation prior to wetting.

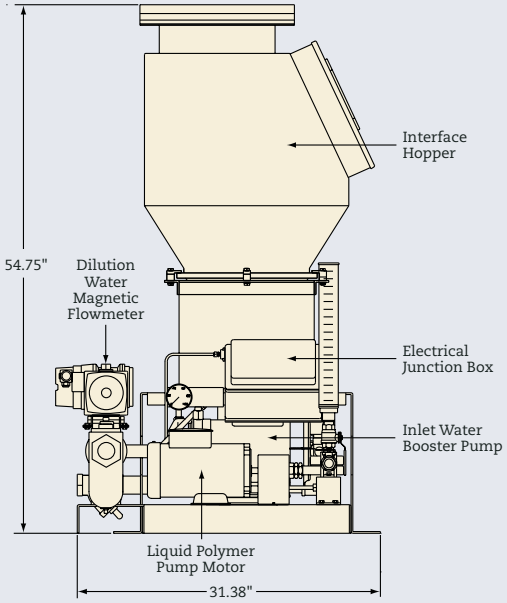
NP 200 Series
(With Liquid Polymer Option)

Model NP250

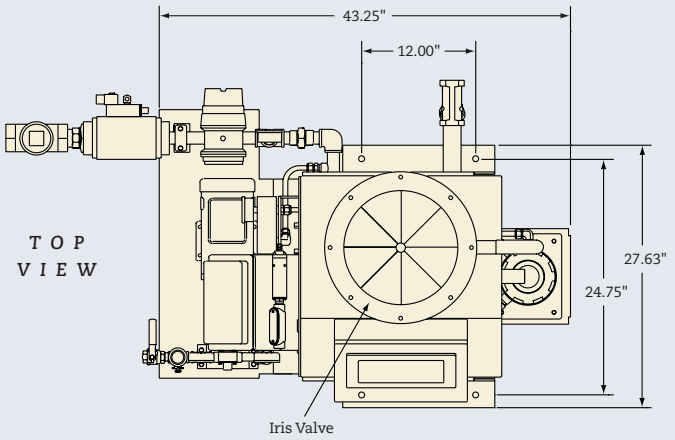
FRONT VIEW



SIDE VIEW

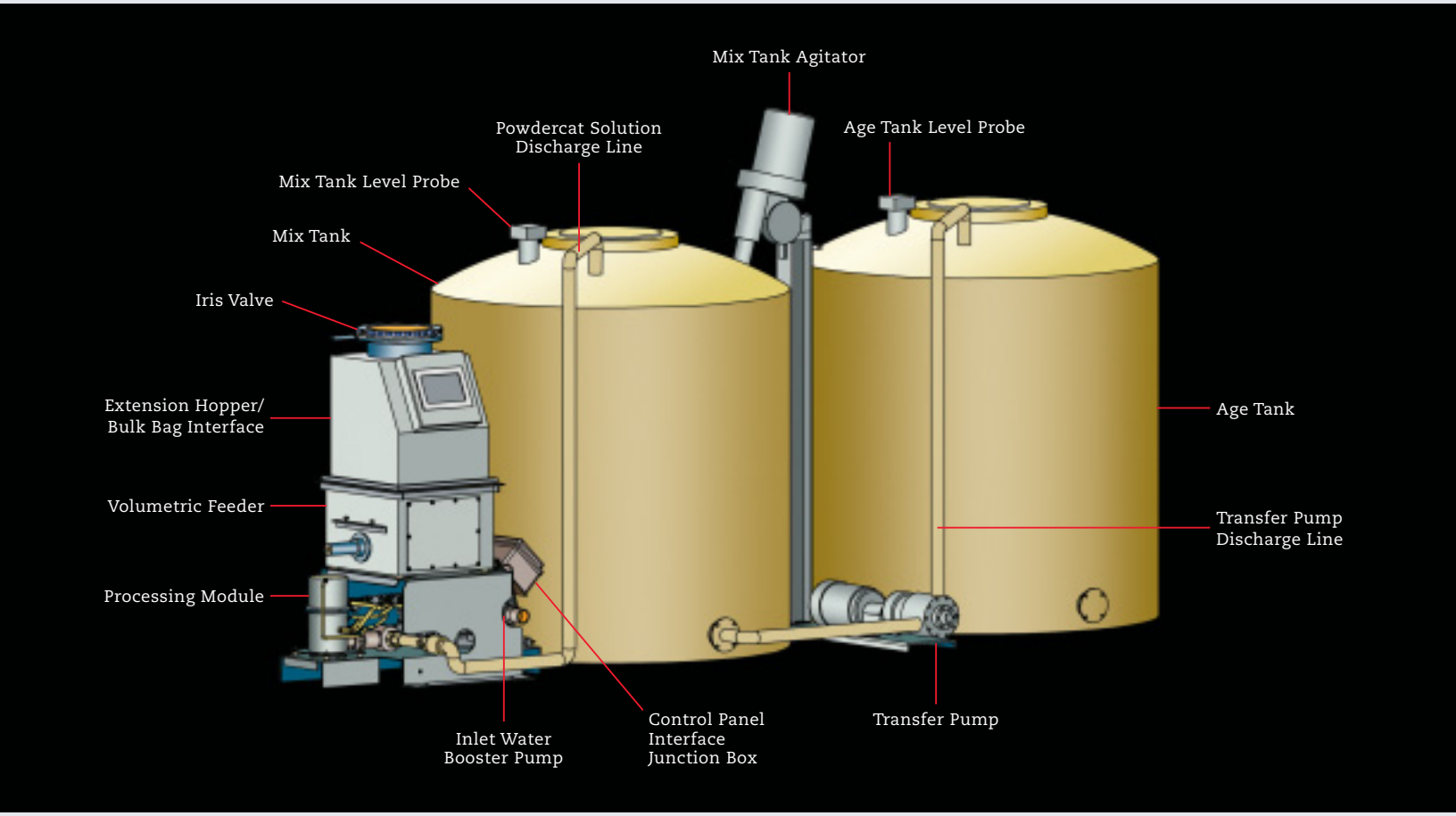


TOP VIEW



Dimensions are approximate and may vary slightly with optional arrangements.

Powdercat™ System Capacities



Model	Capacity Dry Polymer at Specified Concentration				Tank Capacity U.S. Gallons (Cubic Meters)		Water Usage U.S. Gal/Min at 50 PSI (L/Min)	Installation Dimensions with Service Allowance in Feet (Meters)		
	Lbs/Day (Hours)		Kgs/Day (Hours)							
	.25%	.35%	.25%	.35%	Mix	Age		Height	Width	Depth
NP 230	300 (12)	420 (17)	136 (1.6)	190 (8)	660 (2.5)	750 (2.8)	30 (114)	5 (1.5)	17 (5.2)	6.3 (1.9)
NP 250	480 (20)	720 (30)	218 (9)	327 (14)	1100 (4.2)	1500 (5.6)	50 (190)	6.3 (1.9)	19.3 (5.9)	9 (2.7)
NP 4100	960 (40)	1440 (60)	435 (18)	653 (60)	2200 (8.3)	3000 (11.4)	100 (379)	9.5 (2.9)	23 (7.0)	10 (3.0)
NP 4150	1488 (62)	2088 (87)	675 (28)	947 (40)	3300 (12.5)	3300 (12.5)	150 (568)	11.3 (3.4)	23 (7.0)	10 (3.0)
NP 4250	2496 (104)	3480 (145)	1132 (47)	1579 (66)	5500 (21)	4100 (15.5)	250 (946)	12 (3.66)	28 (8.5)	12 (3.66)

Dimensions are approximate and may vary slightly with optional arrangements.

NORCHEM

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