

# Goodness, From Tank to Table



FOOD AND DAIRY PROCESSING EQUIPMENT

**MUELLER**

# Processing and Storage Tanks for the Food & Dairy Industries

## Dedication to Pure Ingredients

It is your name on the label. That is why we back the quality of your process with our name. At Paul Mueller Company, we bring no-frills quick thinking and a focused effort to every dairy silo and food processing tank we build.

We stand by our equipment and our customers with a collective vision to have a lasting impact on the food and dairy industry.

Whether our equipment preserves raw milk or helps process the foods that go into your customers' homes, together we are making an impact from the tank to the table.

## Honest Dedication

We understand how our one part can fit into your whole system. That is why our focus is on customer service, industry knowledge, and a willingness to always serve up the solution rather than serve up a product for sale. Our dedication to each project starts with innovative thinking around the most efficient equipment for your business.

During production we update you on progress and refine every last detail for maximum return on your investment. From the manufacturing of tanks to the shipping and on-site installation, your equipment stays in the hands of Paul Mueller Company, so the quality is protected and startup is smooth.







## Standard Equipment, Custom Specifications

We take the time to understand your goals, requirements, and challenges—giving you a processing solution that gets it right the first time so you can focus on the rest of your operation. Your specific product will guide our designers and engineers as they configure the best standard or custom equipment applications to meet your objectives. Product viscosity, agitation, heat transfer requirements, material finishes, and fittings will all be considered in your project.

The range of products we offer is vast. Our tanks and vessels can be shop built up to 100,000 gallons and 17 feet in diameter and field constructed up to 2,000,000 gallons. We offer materials of construction from 300 series stainless steel to special alloys; material finishes from mill or HRAP to electropolish; and material thicknesses ranging from gauge to one inch. The smallest to the largest of vessels are built, transported, and installed in your facility by Paul Mueller Company.





# Silo Storage Tanks

When it comes to storing and processing the ingredients that make up your end product, you deserve a manufacturer who doesn't just build you a silo, but asks exactly the right questions about your specific needs before starting.

Our model "SV" silos are optimized to provide the best product protection. The silo's vertical design allows for maximum product storage in minimal space.

## STANDARD FEATURES

- 5,000- to 70,000-gallon capacities.
- Flat-pitched bottom, cross braced, stud welded, and circumferentially banded for extra strength under capacity loads and to prevent inner bottom movement.
- Type 304 stainless steel inner liner with large radius corners; No. 4 (3-A) finish for sanitation and ease of cleaning.
- CIP system with vented door, separate vent line with screens, and a removable manifold assembly.
- Horizontally mounted, USDA-accepted, mechanical agitator system built to 3-A Sanitary Standard 22.
- 3" rigid insulation on sides, 3" fiberglass on top, and 3" foam insulated outer bottom.
- Stainless steel 2B finish exterior or carbon steel, prime painted white.
- Liquid level gauge connection for constant monitoring of fluid volume.
- Insulated manway door with product sampling valve.
- Dial thermometer and recording thermometer wells.
- Designed for pad mounting on a flat concrete base.
- Heat tape and insulation on CIP and vent lines.
- Stainless steel alcove, 60"x60"x20".
- Seismic design.



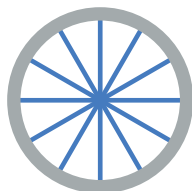
## ADDITIONAL OPTIONS

- Engineered-to-order for your specific needs.
- Vertical agitation systems available for silos up to 40,000 gallons.
- Type 316L stainless steel inner liner for added durability.
- Mueller® Temp-Plate® heat transfer surface for precise, consistent temperature control.
- ASME Code stamp offered on "SVW" models.
- Refrigeration controls can be included.
- Ladders, catwalks, and/or circumferential guard rails for additional personnel safety.
- CIP line vacuum breaker loop for added vacuum protection.
- Calculations performed by registered professional engineers.
- Stainless steel base ring.



### BULLSEYE BOTTOM

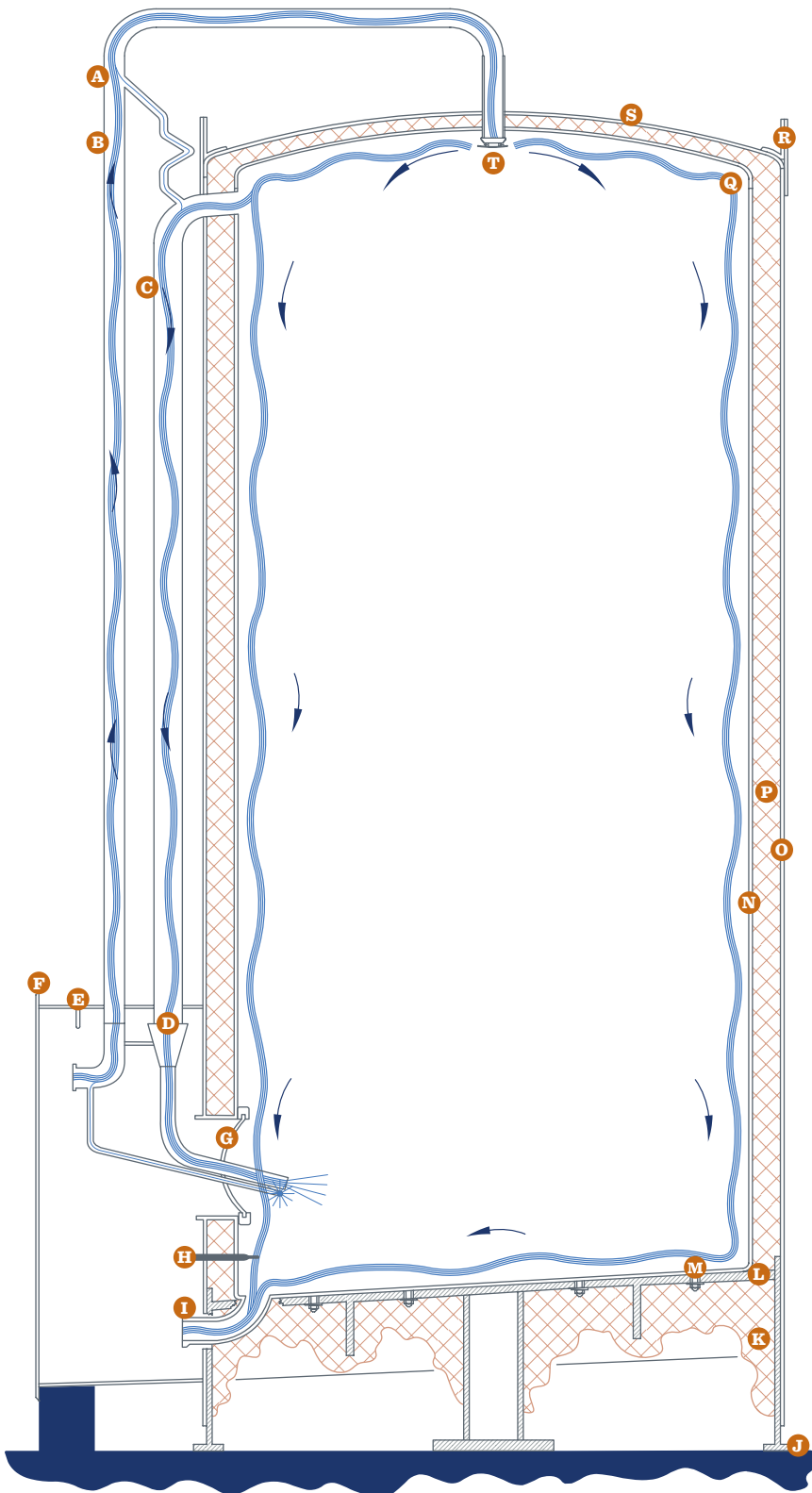
All-stainless steel bottom means no rusting or re-painting.



### "SPIDER WEB" BOTTOM

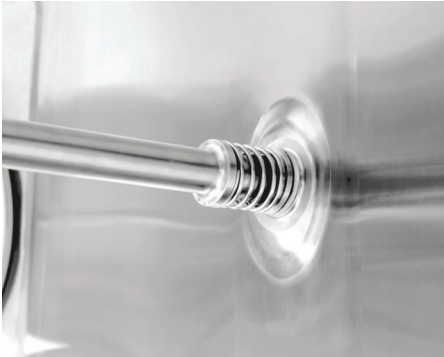
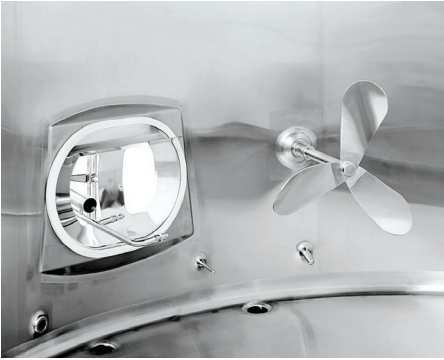
Designed with carbon and available with a painted carbon base.

# Silo Construction and Design



- A** Standard heat trace and insulation on external lines.
- B** 2" CIP.
- C** 3" vent line.
- D** CIP supply manifold and CIP return keeps door open during CIP.
- E** Heavy-duty, 12" wide, ½" handhold.
- F** 60"x60"x20" deep, factory-installed stainless steel alcove with No. 4 (3-A) interior finish eliminates field welding.
- G** 16"x21" CIP door and insulated manway with choice of sample ports. Not shown is Mueller's patented, USDA-accepted, fully CIP-able horizontal agitator.
- H** 5" dial thermometer (25°F–125°F/0°C–50°C) with projectile well for increased accuracy. Also includes a separate recorder well and optional level sleeve.
- I** 3" elbow-style outlet and 3" inlet provides complete, thorough emptying and superior cleaning.
- J** Prime painted base ring for securing to pad.
- K** Foam urethane insulation for moisture barrier and undercoating.
- L** ¾"-per-foot slope for drainage.
- M** Stainless steel studs are used to secure the inner and outer bottoms together on Mueller silo storage tanks. In addition, we use a heavy-duty stainless steel band welded circumferentially above the knuckle radius to the outer bottom. In effect, we have restrained the bottom across and around to eliminate any movement and fatigue near the alcove connections.
- N** Stainless steel No. 4 (3-A) finish interior surface. (Type 304 standard /Type 316L optional.)
- O** Painted or stainless exterior surfaces.
- P** 3" solid insulation throughout without spacers that can attract heat and cause sweating on outer jacket.
- Q** Large knuckle radius for enhanced cleanability.
- R** Four lifting lugs welded to top head and shell for added safety.
- S** 3" fiberglass insulation on top head for expansion.
- T** All-welded CIP spray dish with ⅜" space to flush debris.





# Horizontal Agitation

Paul Mueller Company’s patented, USDA-accepted, horizontal agitator saves you time and labor with its clean-in-place system (CIP). Our agitator and seal assembly can stay in the tank while cleaning, which saves you the hassle of removal and re-installation.

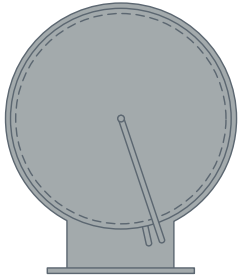
For cleaning, simply open the manway door, install the CIP door and attachment assembly, turn on the agitator, and start your CIP cycle. There’s no need to loosen or remove the shaft, thus eliminating the confined space entry procedure. This design is also capable of fully separating all sealed surfaces for periodic inspection without the need to remove the agitator shaft.

In addition to CIP, the agitator complies with 3-A Sanitary Standard 22 when installed in our silo-type storage tanks for milk and milk products. Our horizontal agitator is also accepted for use in plants that are part of the USDA Dairy Grading Branch Survey Program.

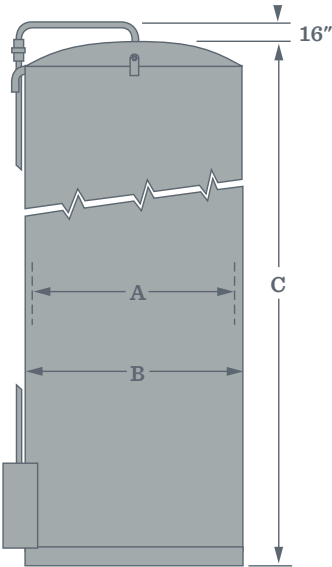
## Silo Specifications

Capacity (U.S. Gallons/Liters)	Dimensions (in)			Agitator		Empty Weight (lbs)
	A	B	C	HP	RPM	
5,000/18,925	98	104½	199⅞	1	107	7,600
6,000/22,710	98	104½	230⅝	1	107	8,200
7,000/26,495	120	126½	192¼	1	107	9,000
8,000/30,280	120	126½	212¼	1	107	9,600
10,000/37,280	120	126½	254⅛	2	108	10,700
15,000/56,775	120	126½	356⅝	2	108	13,300
20,000/75,700	120	126½	459¼	3	161	17,500
25,000/94,625	140	146½	424½	3	161	18,900
30,000/113,550	140	146½	502¾	3	161	22,000
40,000/151,400	140	146½	653¾	3	161	27,900
50,000/189,250	140	146½	803¾	3	161	32,800
60,000/227,100	147	153¾	871⅝	3	161	44,926
70,000/264,950	147	153	942	3	161	48,000

TOP  
HEAD  
VIEW



SIDE  
VIEW





# Custom Processors

Whether it is yogurt, ice cream, chicken stock, or pet food, our job is to ask about flow rates and agitation requirements, where the product is going next, and how it will be transferred; understanding the demands of your entire process means we get your equipment right from the start.

Mueller processors come in standard models for optimal turnaround time and cost savings, or they can be designed to meet your exact specifications for maximum operating efficiency in heating, cooling, and processing. We have two model options for you to choose from: a PCP model for thinner products like glazes and sauces, and a PCPC model designed for more viscous liquids, such as gravies, sour creams, and yogurt.

## STANDARD FEATURES

- Stainless steel outer jacket and interior sidewall with No. 4 (3-A) finish for sanitation and ease of cleaning.
- Full sidewall and bottom Temp-Plate assures optimum performance.
- 2" low-chloride sidewall and bottom head insulation for minimum heat transfer loss.
- Agitator assembly with bottom guide and single-speed, 460-volt, 60-hertz, 3-phase gear motor, and fixed baffle. (International: 80-volt, 50-hertz, 3-phase.)
- Adjustable stainless steel legs with ball feet.
- Stainless steel pipe connections for external zone control valves allows for the processing of partial batches.
- D10F outlet valve flange connection only.
- Projectile wells for indicating and recording thermometer probes.
- "No-foam" inlet assembly.
- Stainless steel ladder.
- CIP spray balls.
- 3" air vent.

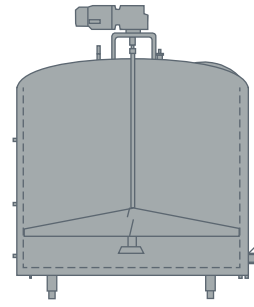


## ADDITIONAL OPTIONS

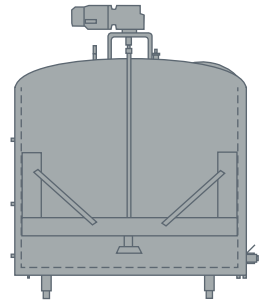
- Engineered-to-order for your specific needs.
- D10FL leak detector outlet valve, air space heater, and thermometer connection add pasteurization capabilities to all standard processor units.
- Steam controls and water controls for heating and cooling systems, and manifold assembly with zone control valves.
- Custom-designed agitation and baffle systems to meet specific mixing or processing requirements. Various models range from the agitation required for heavy-bodied, viscous products to the gentle stirring action needed to handle delicate products.
- Indicating and recording thermometer.
- Sight- and light-glass assemblies are available for all models and sizes.
- Construction from different alloys to meet product compatibility.

# Flat-Bottom Processors

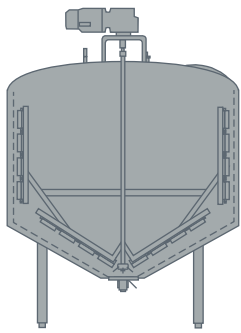
The flat-bottom processor has a standard bottom-sweep agitator for rapid, heavy-duty mixing, and moves product over the heat transfer surface for fast, efficient heating or cooling. There is also an optional side-sweep agitator. This unit is designed for use with viscous products up to 1,500 centipoise. The blades do not contact the sidewall. Horsepower (HP) and revolutions per minute (RPM) are product and application specific.



**BOTTOM-SWEEP**



**OPTIONAL SIDE-SWEEP**



**SIDEWALL AND  
BOTTOM-SCRAPING**

## Cone-Bottom Processors

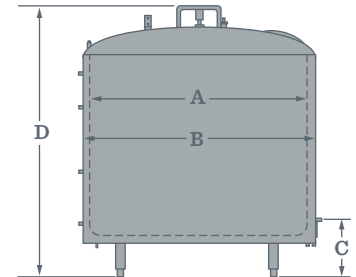
The cone-bottom processor has a standard sidewall and bottom-scraping agitator. This agitator is designed for viscous products up to 1,500 centipoise. In addition to scraping the sidewall and bottom, this agitator gives gentle agitation and rapidly moves the product across the heat transfer surface for more efficient heating or cooling.





## Flat-Bottom Specifications

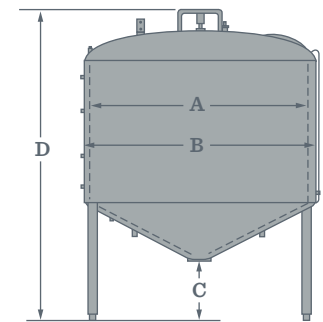
Rated Capacity (U.S. Gallons/Liters)	Standard Dimensions (in)				Outlet Size	Heat Transfer	
	I.D. A	O.D. B	Outlet to Floor C	Approx. O.A. D		Temp-Plate Zone 1	Temp-Plate Zone 2
						Entire Bottom and Sidewall to Rated Capacity	None
500/1,893	70	74 <sup>7</sup> / <sub>8</sub>	18	80 <sup>3</sup> / <sub>4</sub>	2"	Entire Bottom and Sidewall to <sup>1</sup> / <sub>2</sub> Rated Capacity	Sidewall from <sup>1</sup> / <sub>2</sub> to Rated Capacity
1,000/3,785	78	82 <sup>7</sup> / <sub>8</sub>	18	96 <sup>1</sup> / <sub>2</sub>	2"		
1,500/5,678	96	100 <sup>7</sup> / <sub>8</sub>	16	100 <sup>5</sup> / <sub>8</sub>	3"		
2,000/7,570	96	100 <sup>7</sup> / <sub>8</sub>	16	115 <sup>1</sup> / <sub>8</sub>	3"		
3,000/11,355	96	100 <sup>7</sup> / <sub>8</sub>	16	147 <sup>1</sup> / <sub>8</sub>	3"		



FLAT-BOTTOM SIDE VIEW

## Cone-Bottom Specifications

Rated Capacity (U.S. Gallons/Liters)	Standard Dimensions (in)				Outlet Size	Heat Transfer	
	I.D. A	O.D. B	Outlet to Floor C	Approx. O.A. D		Temp-Plate Zone 1	Temp-Plate Zone 2
500/1,893	70	74 <sup>7</sup> / <sub>8</sub>	20	91 <sup>3</sup> / <sub>8</sub>	3"	Bottom Cone	Sidewall to Rated Capacity
1,000/3,785	78	82 <sup>7</sup> / <sub>8</sub>	20	111 <sup>21</sup> / <sub>32</sub>	3"		
1,500/5,678	96	100 <sup>7</sup> / <sub>8</sub>	20	116 <sup>3</sup> / <sub>4</sub>	3"		
2,000/7,570	96	100 <sup>7</sup> / <sub>8</sub>	20	131 <sup>7</sup> / <sub>8</sub>	3"		
3,000/11,355	96	100 <sup>7</sup> / <sub>8</sub>	20	163 <sup>7</sup> / <sub>8</sub>	3"		



CONE-BOTTOM SIDE VIEW

## Agitation Specifications

Rated Capacity (U.S. Gallons/Liters)	Agitator Motor Size and Speed	Bottom-Sweep		Side and Bottom- Scrape Agitator	
		High	Low	High	Low
500/1,893	HP	1	.5	1.5	.75
	RPM	35	17.5	22	11
1,000/3,785	HP	2.4	1.2	2.4	1.2
	RPM	37	18.5	23	11.5
1,500/5,678	HP	3	1.6	4.5	2.5
	RPM	30	15	20	10
2,000/7,570	HP	3	1.6	4.5	2.5
	RPM	30	15	20	10
3,000/11,355	HP	3	1.6	3.5	N/A
	RPM	30	15	20	10



Sidewall and bottom-scraping displayed.

# Horizontal Storage Tanks



When inside storage space is limited in height, Paul Mueller Company horizontal tanks might work best for your operation. We apply the same quality and efficiency standards to our Model “SH” tanks as we do our vertical variety. These cylindrical, horizontal storage containers are well-suited for bulkhead installation, as all product connections are located on the front head. Mueller horizontal tanks are built to 3-A Sanitary Standard 01 and can be equipped to meet your exact specifications for liquid product storage needs.

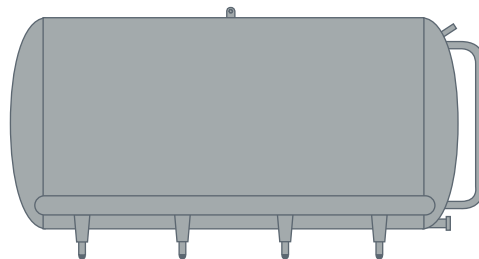
## STANDARD FEATURES

- Durable Type 304 stainless steel inner liner polished to a No. 4 (3-A) finish for sanitation and ease of cleaning.
- Prime painted carbon steel outer jacket.
- Removable, 2” stainless steel inlet with special “no-foam” design.
- Removable, 3” perforated air vent protects tank structure from vacuum.
- 16”x20” insulated, stainless steel manway door with sampling valve.
- Ladder with a platform for access to inlet and vent.
- Adjustable carbon steel legs with concealed threads.
- Horizontal, mechanical agitation system.
- 3” clamp-type outlet ferrule.
- Dial thermometer with well.
- 2” rigid insulation.
- Lifting lugs.

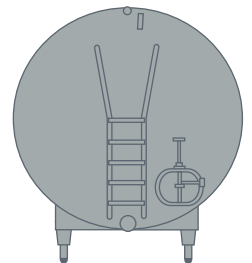


## ADDITIONAL OPTIONS

- Mueller Temp-Plate for precise temperature control (Model “SHW”).
- Stainless steel front head with 10” cylinder band (recommended for bulkheading) or stainless steel jacket and legs.
- Painted exterior finish for protection and enhanced appearance.
- Liquid level gauge connection for constant monitoring of fluid volume.
- Recording thermometer well for temperature tracking.
- Refrigeration controls for chilled water, R-507/404a, or ammonia refrigerant systems.
- CIP door and spray devices for automated cleaning.
- Vertical agitation.
- Combination sight- and light-glass with handy light fixture.



SIDE VIEW



FRONT VIEW

# Whey Crystallizer Tanks



Cheesemaking does not always stop with the cheese. Whey is a cheesemaking by-product that is super rich in protein, vitamins, and minerals, and many manufacturers are putting whey to good use instead of pouring it down the drain.

Paul Mueller Company whey crystallizer tanks help transform whey into useful products and profits. Our crystallizers are designed to offer the maximum efficiency in cooling and continuous agitation—the two requirements for effective crystallization. Our Temp-Plate heat transfer surface cools whey to 40°F while solids are maintained in suspension and continuously agitated. This allows the useful crystals to form. Three inches of insulation on the sides and bottom of the crystallizer optimize the cooling process.

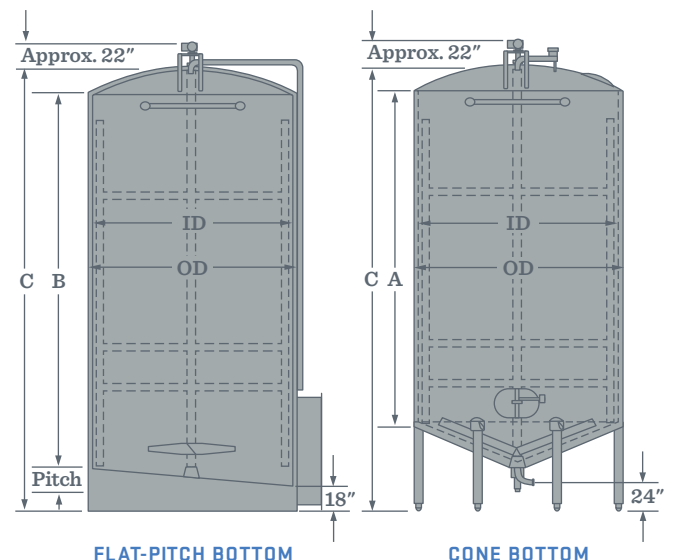
## STANDARD FEATURES

- Capacities range from 3,000 to 20,000 gallons.
- Type 304 stainless steel inner liner, polished to No. 4 finish (3-A) for sanitation and ease of cleaning. (32 Ra)
- In-plant model: No. 4 polished, Type 304 stainless steel outer jacket and cone bottom.
- Outside models have a painted carbon steel outer jacket and a stainless steel alcove that opens into the processing area.
- Outside models: cone or flat-pitched bottom.
- Heavy-duty, vertical, side- and bottom-sweep agitator.
- Mueller Temp-Plate provides optimum cooling efficiency for proper crystallization.
- 16"x20" self-centering insulated manway door with sampling valve.
- Dial thermometer and recording thermometer well.
- CIP spray device and separate overflow vent lines provide thorough cleaning and vacuum protection. A vent door and fail-safe assembly are also provided.



## ADDITIONAL OPTIONS

- Stainless steel exterior and legs available.
- Extended alcove and additional insulation.
- Ladder, safety cage, and guard rail.
- Recording thermometer.
- Liquid level gauge connection for constant monitoring of fluid volume.
- Custom agitation available.





# Multi-Compartment Storage Tanks



Our highly customizable multi-compartment tanks are designed with ice cream mix and other similar products in mind. This line of tanks has models with either a hinged cover or a solid top with a manway.

What makes our multi-compartment tanks special is that adjacent compartments can be used with extreme temperature variations without affecting the other compartments. One-and-a-half inch rigid insulation on each side of each compartment allows multiple tanks in a minimum amount of space.

## STANDARD FEATURES

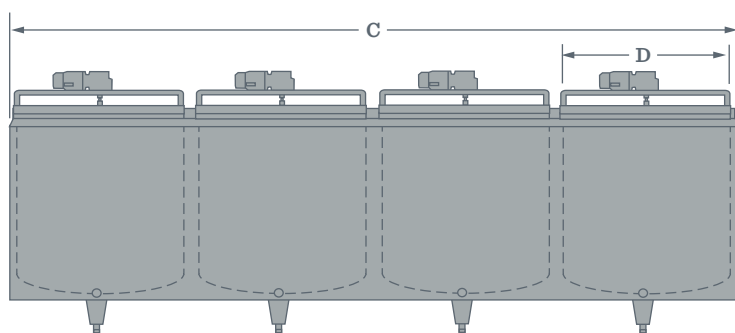
- Type 304 stainless steel construction with both interior and exterior surfaces polished to a No. 4 (3-A) finish for sanitation and ease of cleaning.
- Units with up to four compartments available.
- Insulated adjacent compartments can be used with extreme temperature variations without appreciable heat transfer.
- Stainless steel agitator shield to prevent contaminants from entering the tank.
- Bottoms are pitched to an industry standard. 2" clamp-type outlet ferrule for easy, complete drainage and connection compatibility.
- 1½" rigid insulation on each side of each compartment.
- CIP technology for quick, easy cleaning.



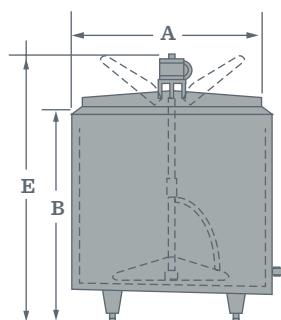
## ADDITIONAL OPTIONS

- Mueller Temp-Plate heat transfer surface designed for use with a variety of cooling and heating media, available on any or all compartments of each tank.
- Calibration rod available to measure contents of each compartment.
- 2" stainless steel outlet.

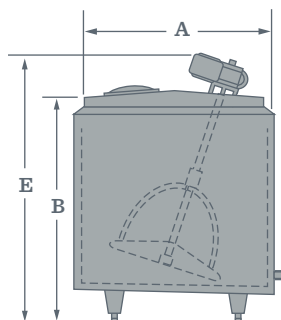




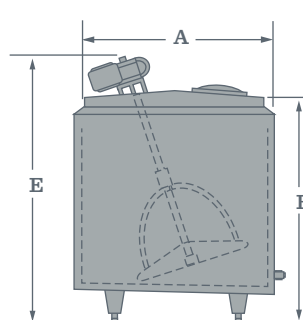
4-COMPARTMENT MODEL



MODEL HM



MODEL SOM



MODEL SRM

## Multi-Compartment Specifications

Capacity Per Unit (U.S. Gallons/Liters)	Dimensions (in)						D	Approx. E
	A	B	Number of Compartments C					
			1	2	3	4		
100/379	41¼	35¼	30¼	60⅜	90½	120⅝	27	49½
200/757	41¼	46½	39¼	78⅜	117½	156⅝	36	60¾
300/1,136	48¼	51½	43	85⅞	128⅜	171⅝	39¾	65¼
400/1,514	53¼	52	50¼	100⅜	150½	200	47	66½
500/1,893	65¾	52	50¼	100⅜	150½	200	47	66½
600/2,271	78¼	52	50¼	100⅜	150½	200	47	66½
800/3,028	73⅜	52½	66⅛	132	197⅞	263¾	62¾	69¾
1,000/3,785	82⅜	60	66⅛	132	197⅞	263¾	62¾	74½

\*For model "HM," deduct 1" between compartments. These dimensions are not to be used for construction purposes.

# Custom Tanks

When your process can't use a "one-size-fits-all" kind of solution, Paul Mueller Company offers an array of custom tanks to meet your unique processing needs. From safe storage of your ingredients to perfect mixing of your final product, we have customizable equipment for various applications. Our tanks can be insulated, single-wall, outer-jacketed, aseptic, starter tanks, mix tanks, and a variety of other configurations. Our dedicated and specialized team will help you identify the best equipment and installation solution for your final product.



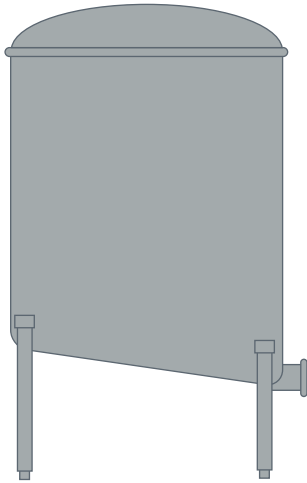
## CUSTOM AGITATION We have the solution!

We understand that the mixing needs of your product will determine the agitation requirements for your tank. Fortunately, you can depend on us to select the right agitator that will be the best fit for your processing needs. Paul Mueller Company offers a variety of custom agitation solutions for robust churning to a milder blending. Our team can also custom design an agitator according to your specific application. Contact us to discuss which agitation option is best for your business.

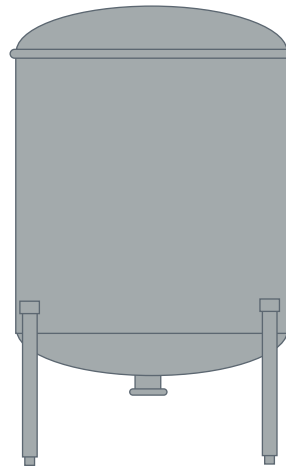


# Round- or Cone-Bottom Tanks

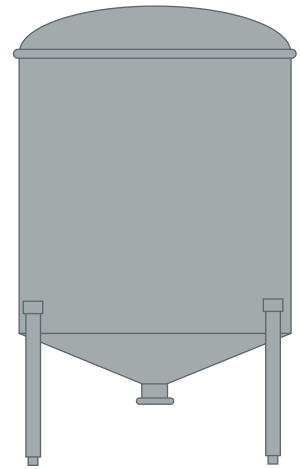
These tanks are designed to give you optimum product retention with a dished bottom and a center drain. This tank is designed for use with more viscous fluids, such as ice cream mixes, heavy syrups, or other applications where rapid, complete drainage is critical.



SLOPED-BOTTOM TANK



ROUND-BOTTOM TANK



CONE-BOTTOM TANK

## Sloped-Bottom Tanks

Our sloped-bottom tanks are pitched to one side to guide all product to the side outlet for easy access and release. Ideal for low-viscosity fluids such as milk, broths, or other light-bodied products.



# A Careful Plan for Your Expanded Needs

Safety and experience can't be an afterthought when it comes to delivery and installation of your valuable equipment. Paul Mueller Company manages the entire process including logistics, execution, and everything in between.







## Installation and Field Fabrication

Whether we construct the tank in our shop or deliver it on-site at your location, our field fabrication group is ready to support you with the right quality and service for your needs.

With some of the highest safety ratings in the business, Mueller has a wide-range of capabilities from assembling your largest tank to building new infrastructure. We begin every field project by surveying the facility before creating a plan to meet your timeline, scope, and equipment needs. We then manage the entire process from start to finish. With a custom plan in hand and safety as the top priority, we can build any piece of equipment or the entire plant right where it is needed. Our safety and experience mean we can get the job done quickly, so your production is back on track.



## Repair

If a tank repair or upgrade threatens to halt your production, our Paul Mueller Company repair team can quickly dispatch to your location and solve the issue. We have a dedicated group of skilled engineers and technicians ready with a solution for upgrades, repairs, and maintenance, so downtime is minimized.





## Shipping

A food and dairy processing solution from Paul Mueller Company goes beyond tanks. Once our shop fabrication is complete, we take the responsibility of safely transporting your equipment from our production floor to your door. Our tank transportation group provides the loading crews, drivers, and logistical organization to keep your tanks in Mueller hands the whole way. Whether it is standard size or oversize freight, our specialists are committed to steadfast delivery so your project arrives without a scratch.



**LOOKING FOR MORE ANSWERS?**

**Contact our Food & Dairy experts!**



**Jim Hall**

**Regional Sales Manager**

Western Region and Mexico

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# PAUL MUELLER COMPANY



**PAUL MUELLER, OUR FOUNDER**

At Paul Mueller Company, we are united by a belief that the only quality that matters is quality that works for life. With every piece of processing equipment we build, our goal is to have lasting impact. This collective vision has led us from a small sheet metal shop to a global supplier of heating, cooling, processing, and storage solutions. Our equipment allows farmers, food producers, and engineers to keep their products fresh and their inventory strong. Whether our equipment preserves milk in rural areas or helps make foods that sustain health, we are making an impact across the globe.



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