

# MUNSON

MACHINERY COMPANY, INC.

## ROTARY BATCH MIXER

Industry  
Leader  
Since  
1823

[www.munsonmachinery.com](http://www.munsonmachinery.com)

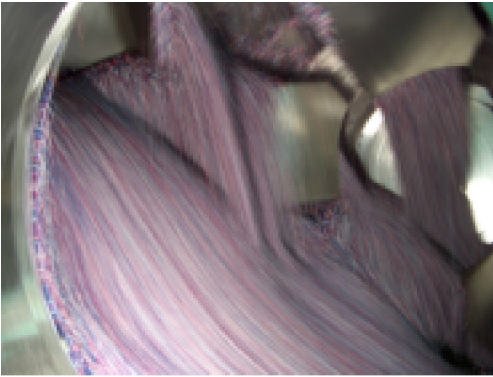


### ROTARY TECHNOLOGY

MIXING / BLENDING • COATING • HOMOGENIZING



## Industrial Rotary Mixer:



Internal Mixing Action ▲

The MUNSON ROTARY is renowned as the most robust mixer available, providing decades of unrelenting service. Whether blending plastics, industrial chemicals, glass batch, cements & aggregates or powder metals, Munson is equipped for the job. With a heavy-duty drive, plate steel construction and available abrasion resistant liners, trouble free service is assured.

Proprietary internal mixing flights create the unique Munson blending action. This gravity driven process produces a rapid, thorough blend while imparting minimal energy and intensity to the product. This maximizes equipment life without sacrificing blend quality. The same blending action provides an ideal fluid bed for coating, impregnating and agglomerating. Continuous rotation throughout the entire blending cycle assures that all materials remain in motion and prevents segregation in batches of varying material densities.

- Homogenous blends are typically achieved in under 2 minutes. In some industries, complete cycle times as short as 1 ½ minutes are regularly achieved.
- Unlike other style machines, the Munson discharges completely leaving no material 'heel' behind.

### Optional Pin Intensifier:

Although the MUNSON ROTARY is an extremely gentle blender that will not degrade a particles size or shape, oftentimes it is necessary to add shear to a product in an effort to break apart agglomerates and homogenize particularly difficult materials. A typical example is dispersing pigments throughout a batch of cement to make uniform mortar or grout mixture. The Pin Intensifier is like having two machines in one! A Pin Mill for size reduction and an efficient blender for mixing accuracy.

As the drum is rotating, batch materials are continuously directed toward the discharge. With an optional Pin Intensifier mounted at the discharge, all materials pass through this 'high energy' zone several times throughout the mix cycle, assuring the ultimate quality on difficult blends.



### Free Lab Testing:

Customers are encouraged to witness testing and are always welcome at our facility. Please contact your Munson representative if you would like to join us to discuss your application. Generally, testing is performed free of charge with the exception of material freight costs.



SCC ROTARY CUTTER



PIN MILL



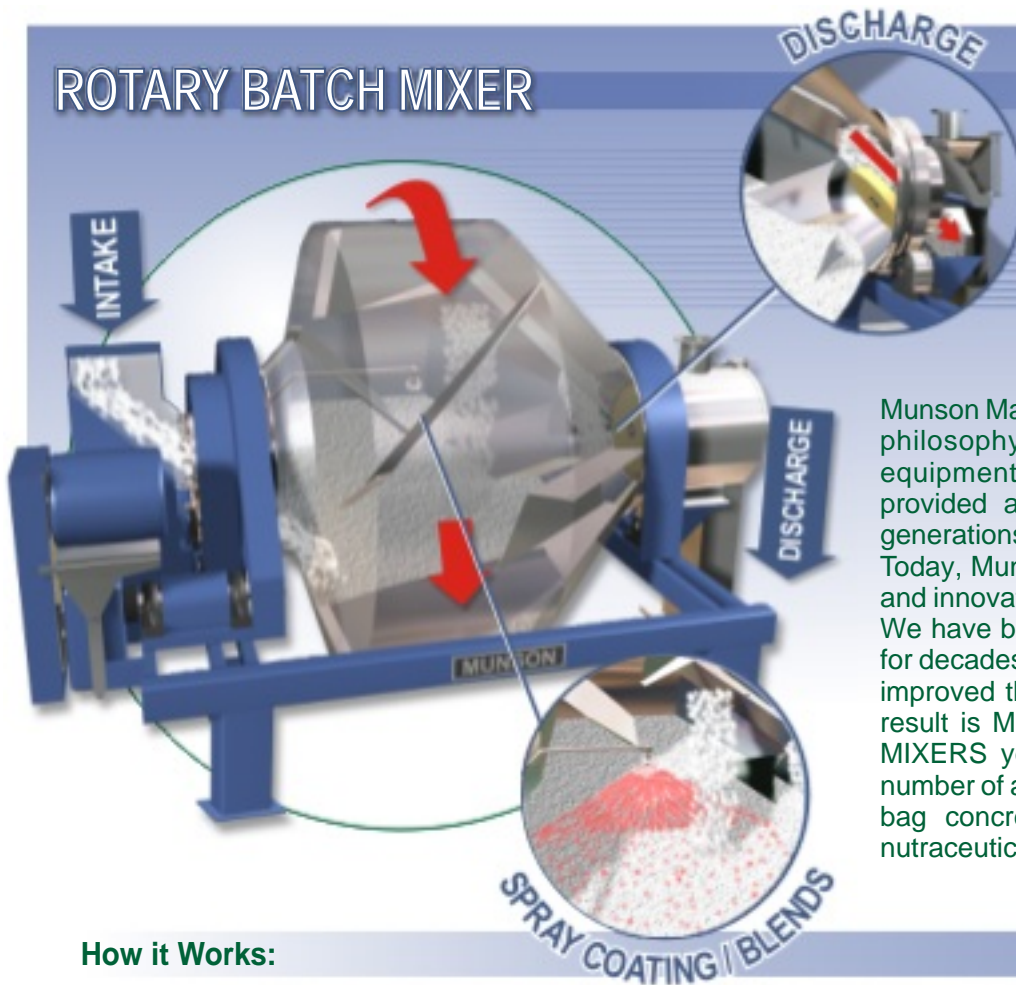
RIBBON BLENDER



ROTARY CONTINUOUS MIXER



# ROTARY BATCH MIXER



Munson Machinery Co was founded in 1823 on the philosophy that customers demand quality equipment engineered to specification and provided at a competitive price. Through the generations, this principle has never wavered. Today, Munson is respected as an industry leader and innovator for its precision blending equipment. We have been solving customers' process issues for decades and, with their help, have continuously improved the capabilities of our equipment. The result is Munson's best line of ROTARY BATCH MIXERS yet. These mixers excel at a diverse number of applications from extreme duty abrasive bag concrete and glass to sanitary food and nutraceuticals.

## How it Works:

The MUNSON ROTARY MIXER is a low profile, streamlined machine with a stationary inlet, an opposing stationary discharge, and a rotating drum in-between. Material is charged via the inlet chute while the drum is rotating. Internal mixing flights gently tumble and fold the batch materials in an multi-directional mixing action, while directing it toward the discharge gate. This produces a 'Fluidized Zone' with random dynamics resulting in uniform mixing without segregation. When the blend is complete, typically no more than 2 minutes, the discharge gate pivots into the machine and directs the material flow down the discharge spout. The tumbling flow of material from the lifters & baffles creates ideal conditions for spray addition, coloring, coating, agglomerating and encapsulating.

The mixer's total vessel volume is at least twice the rated batch capacity. This ensures Munson's unique tumbling, turning & folding action, which uniformly blends the batch materials regardless of size, shape, density or micro additions.

Batch volumes as low as 5% of the machine's rated capacity are blended equally well. No longer are multiple machines necessary for smaller batches!

## Drive & Support:

Munson Mixers are the most energy efficient mixers on the market based on pounds mixed per horsepower - hour. The mixing vessel is supported by two oversized trunnion rings which ride on heavy-duty alloy roller assemblies. This combination provides superior load capacity for exceptional life.

A high efficiency helical gear reducer combined with a chain and sprocket drive is Munson's standard. We offer drives for three general material categories:

- **'TS'** materials up to 65 pounds per cubic foot
- **'TH'** materials up to 100 pounds per cubic foot
- **'THX'** extreme applications over 100 pounds per cubic foot

## Power Consumption Chart (6240 hrs / year 3 - shifts)

HP	kW/hr charge					
	\$0.05	\$0.06	\$0.07	\$0.08	\$0.09	\$0.10
3	\$698	\$838	\$977	\$1,117	\$1,256	\$1,396
5	\$1,163	\$1,396	\$1,629	\$1,861	\$2,094	\$2,327
7.5	\$1,745	\$2,094	\$2,443	\$2,792	\$3,141	\$3,490
10	\$2,327	\$2,792	\$3,257	\$3,723	\$4,188	\$4,653
15	\$3,490	\$4,188	\$4,886	\$5,584	\$6,282	\$6,980
20	\$4,653	\$5,584	\$6,514	\$7,445	\$8,376	\$9,306
25	\$5,816	\$6,980	\$8,143	\$9,306	\$10,470	\$11,633
30	\$6,980	\$8,376	\$9,772	\$11,168	\$12,564	\$13,960
40	\$9,306	\$11,168	\$13,029	\$14,890	\$16,751	\$18,613
50	\$11,633	\$13,960	\$16,286	\$18,613	\$20,939	\$23,266
60	\$13,960	\$16,751	\$19,543	\$22,335	\$25,127	\$27,919
75	\$17,449	\$20,939	\$24,429	\$27,919	\$31,409	\$34,899
100	\$23,266	\$27,919	\$32,572	\$37,225	\$41,879	\$46,532

Munson's Food Grade & Sanitary ROTARY MIXERS fill a distinct need in the marketplace; an easy to clean machine that blends well! No other blender combines these features; to provide critical homogenous blends capable of parts per million minor additions with 100% product clean-out.

Since batch material is always directed toward the discharge gate, when the gate is activated 100% of the batch is discharged, leaving no remanent material behind. Couple this with multiple drum clean-out doors for unrestricted access to all internal surfaces, batch changeover takes only minutes with no cross-contamination!

### Medicated Product Batch Size: 20,000 lbs

Lab Analysis:Nutrient	Units	Expected Level	
Macro-Nutrient	Ca	%	19.26
Micro-Nutrient	Zn	ppm	2500

	Ca		Zn	
Sample	Value	A/E %	Value	A/E %
1	18.92	98.24	2396	95.84
2	18.39	95.49	2626	105.04
3	18.60	96.58	2389	95.56
4	18.25	94.76	2436	97.44
5	18.67	96.94	2432	97.28
6	18.99	98.60	2489	99.56
7	18.79	97.56	2469	98.76
8	18.68	96.99	2337	93.48
9	18.58	96.47	2493	99.72
10	18.60	96.58	2341	93.64
Std. Dev.=	0.22		85.42	
Average =	18.65	96.82	2440.8	97.63

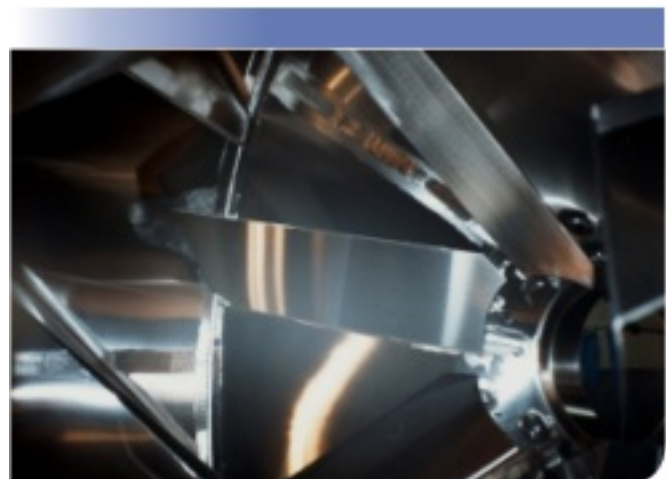
C.V.,% = 1.19 C.V.,% = 3.50

Although not specified by cGMP, blend analysis is valuable in determining the mixing accuracy of a blender. The chart is an actual analysis performed by a multi-national company blending a medicated supplement. Typically, any C.V.'s less than 10% represent a good quality blend and C.V.'s less than 5% represent a blend of exceptional quality.



- Internal mixing flights are spaced for easy access and continuously welded to the drum wall for 100% product discharge.
- All internal welds have a minimum ¼" radius to eliminate any corners, cracks & crevices for material entrapment and are polished to 80 grit as standard, available with polishes up to 240 grit.
- Solid stainless steel discharge gate is disassembled in minutes with no tools.
- External seal resides out of mixing drum and is easily removed.
- Support structure and guards are epoxy painted and available in #304 stainless steel construction as an option.
- All product contacting surfaces constructed of stainless steel, #2B Mill Finish standard with options available for #4 or #7 polish, 304SS & 316SS grades available.
- USDA & 3ADairy suitable upon request.

Internal Sanitary Option ►



## Pilot Size / MINI MIXER

(recommended for smaller batch sizes)

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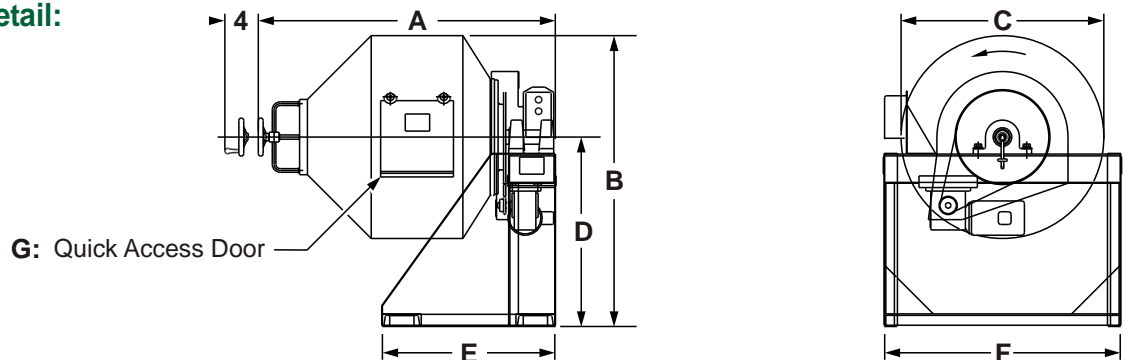
Mini Mixer: MX10-SS ▲

For those processes and production runs that may require a smaller mixer, we offer the Munson MINI MIXER. This 'pilot' or 'laboratory sized' version of the ROTARY BATCH MIXER, with batch sizes ranging from ¼ cubic foot to 15 cubic foot capacity, is ideal for small production environments, pre-mixes or experimental laboratory work.

The MINI MIXER's geometry is nearly identical to its big brother the ROTARY BATCH MIXER, providing the same high quality blending, liquid addition and cleanout characteristics. To minimize the footprint, ingredients are loaded through the large access door and 100% of the material is discharged through the plug gate. Blend quality and mix times scale identically with our line of larger ROTARY BATCH MIXER's.

Model	Drum Volume (CU. Ft.)	Batch Capacity (CU. Ft.)	HP	Max Batch Weight	A	B	C	D	E	F	G	Shipping Weight
MX-¼	½	¼	½	25#	26"	26"	21"	19"	22"	23"	-	150#
MX-1	2	1	1	100#	43"	52"	20"	38"	35"	36"	6"x8"	800#
MX-3	6	3	1	350#	47"	53"	30"	38"	35"	36"	10"x10"	860#
MX-5	10	5	1	500#	53"	56"	36"	38"	35"	42"	10"x10"	1000#
MX-10	20	10	1 ½	750#	60"	60"	42"	39"	35"	48"	12"x12"	1150#
MX-15	30	15	2	1000#	64"	64"	48"	39"	35"	54"	12"x12"	1500#

### Dimensional Detail:



### Available Mixer Options:

Munson takes pride in its ability to meet special application requirements. Our knowledge and extensive experience have equipped us to engineer your mixer to suit any process needs.

- Internal spray manifolds for the introduction of liquids for coating, coloring or agglomeration.
- Special ports for trace ingredient addition, or sampling.
- Polished construction and sanitary finishes to meet USDA, FDA and Pharmaceutical requirements.
- Legs or structurals as required per application.
- Heating and cooling jackets
- UHMW or Teflon liners or internal coating for process needs
- Abrasion or chemical resisting liners or polymer coatings for special applications.
- Pneumatic drum tilting for vertical discharge (MINI only).
- Iris or breach-lock gates available (MINI only).
- Locking casters for mixer mobility.

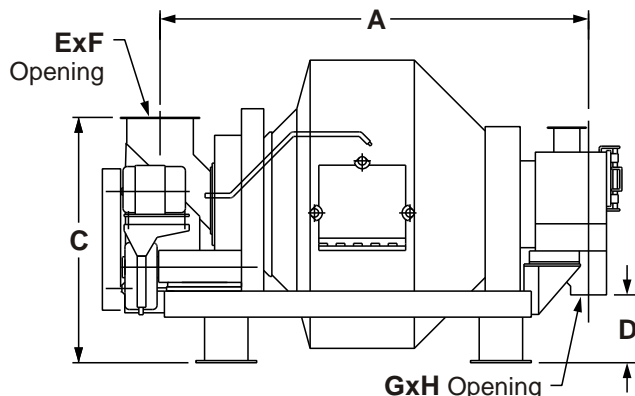
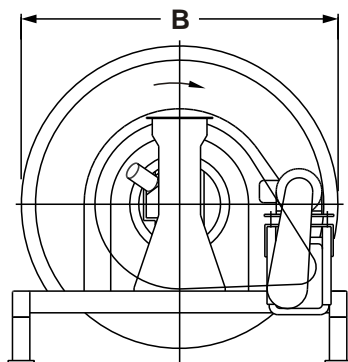
# Dimensions & Specifications

**WARNING:** In order to clearly show details of machines, some covers, shields, doors and guards have either been removed or shown in the open position. Be sure that all protective devices are properly installed before operating equipment. Failure to follow this instruction may result in personal injury and or damage to the machine components .

## Rotary Batch Mixer

Model	Batch Volume	Total Volume	A	B	C	D	E	F	G	H
700-10	10	20	77"	45"	53"	12"	12"	15"	13"	8"
700-15	15	29	84"	55"	46"	5"	12"	15"	13"	8"
700-20	20	48	86"	65"	53"	12"	12"	15"	13"	8"
700-40	40	76	102"	73"	63"	21"	12"	15"	13"	8"
700-50	50	105	111"	79"	63"	21"	12"	15"	13"	8"
700-75	75	152	118"	91"	67"	25"	12"	15"	13"	8"
700-90	90	174	123"	98"	75"	21"	12"	15"	18"	16.5"
700-110	110	218	135"	98"	75"	21"	12"	15"	18"	16.5"
700-140	140	271	137"	116"	85"	30"	12"	15"	18"	16.5"
700-180	180	357	153"	116"	88"	35"	12"	12"	18"	16.5"
700-300	300	581	174"	130"	90"	37"	12"	12"	18"	16.5"
700-450	450	900	208"	130"	86"	45"	12"	12"	18"	16.5"
700-600	600	1200	282"	142"	99"	45"	12"	12"	18"	16.5"

## Dimensional Detail:



## Applications:

### Applications: Sanitary

Vitamins & Minerals  
Herbal supplements  
Nutritional supplements  
Mixed fruits  
Drink mixes  
Dried soups  
Spices  
Soy & additives  
Coffee flavoring  
Tea leaf blending  
Stuffing mix  
Medicated feeds  
Silicon dioxide w/ flavoring  
Meats & vegetable soup mix  
Food powders & ingredients  
Sugar replacements  
Cereals  
Milk powders  
Cheese

### Applications: Industrial

Lawn & garden fertilizers  
Time released fertilizer  
Agricultural chemicals  
Industrial chemicals  
Plastic pellet homogenizing  
Pre-mixed bag concrete  
Mortar & grout mixes  
Metal powder  
Glass batch  
Refractory  
Flux  
Detergent  
Paint chips  
Floor tile  
SBS rubber  
Animal nutrition  
Alumina powder  
Toner & developer  
Spray dried iron oxides w/additives

Blending & spray coating carbon  
Pet foods & Fish food



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