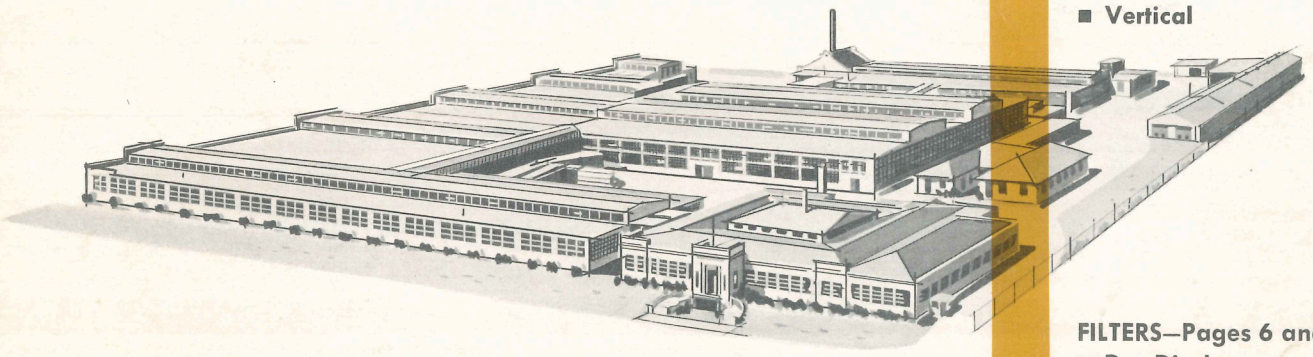
READCO

# processing equipment

**MIXERS—Pages 2, 3, 4, 5 and 8**

- Batch
- Continuous
- Double Arm
- Jacketed
- Laboratory
- Pilot Plant
- Spiral Ribbon
- Split Level
- Stationary Bowl
- Tilting Bowl
- Vacuum
- Vertical



**FILTERS—Pages 6 and 7**

- Dry Discharge
- Wet Discharge

## The Reliable Source for Chemical Processing Equipment

For over half a century the experience and facilities of Read Standard have gone into the manufacture of processing equipment for the chemical industry. Read offers machines built for consistent and dependable operation for long periods of sustained rugged service.

Dry or wet materials are dispatched with accuracy and efficiency, to a consistent homogeneous mix in a minimum of time. Readco machines are available for pressure or vacuum operation, with or without temperature controlling jackets. Versatility of mixing is yours, from creams and light plastics, to the more dense, dry solid or viscous materials. Increased production is accomplished with a Readco mixer, meaning a reduction in the cost of your operation.

Readco has developed and has introduced to the industry a unique system for filtering slurries on a short cycle principle, and through the use of this fully automatic operation, either wet cake or dry cake discharge can be effected.

**READ STANDARD**
York, Pennsylvania

A Division of
Capitol Products Corporation

# Get complete dispersion, shorter cycles at lower cost with Readco Double Arm Mixers

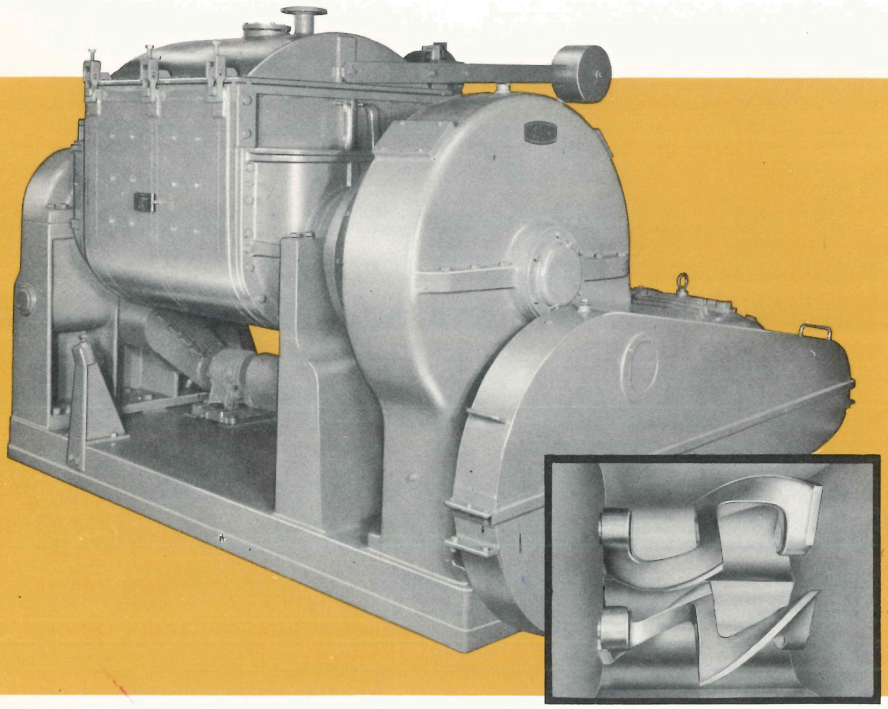
Rugged Readco Double Arm Mixers are designed for heavy duty mixing, kneading or blending of medium to high-density ingredients. They can be supplied for atmospheric, vacuum or pressure operation, with single or dual drive, single or variable speed, with or without temperature controlling jackets.

Overlapping action of mixing arms speeds dispersion, eliminates dead spots. While sigma arms suit most requirements, other designs are available. All are interchangeable.

Both bowl and arms are accurately machined and fitted to assure constant close clearance, prevent build-up, cut processing time. Built of carbon or stainless steel, or any commercial alloy, Readco Double Arm Mixers take the severest production service in stride.

Tilting bowl models have heavy base and columns, supporting large diameter trunnions which carry the load of the mixing bowl assembly.

Stationary bowl models are built with columns and bowls joined to form one rigid, rugged unit. In the dual-drive model for heavy loads, agitators are driven from both ends. Equipped with either hand or power-operated bottom discharge valve.



Double Arm Mixer blades

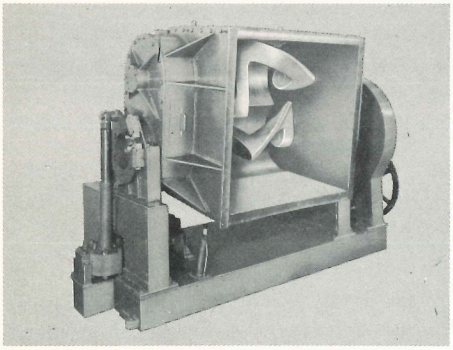
### Medium Duty Double Arm Mixers

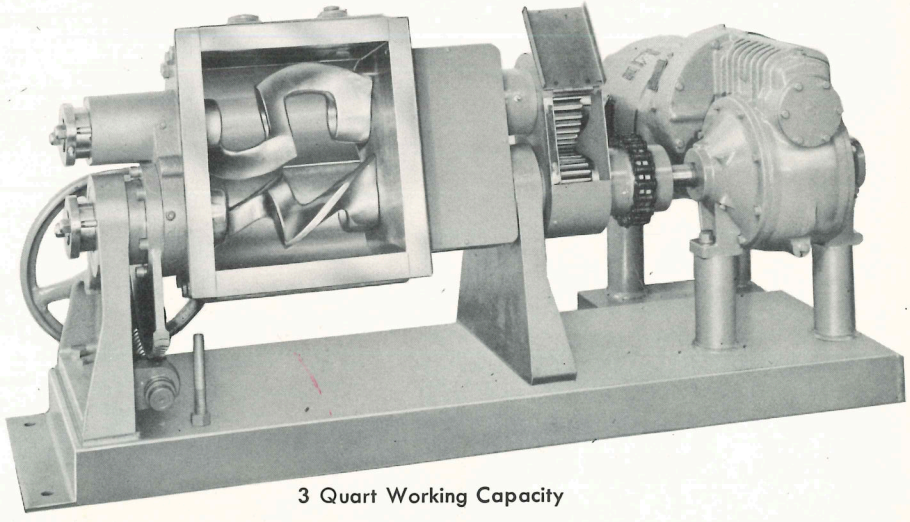
This fabricated unit is designed for mixing, kneading and blending of materials of medium density. Mixing action is the same as that of the heavy duty Double Arm Mixer. Working capacities range from 75 to 400 gallons. Made in Tilting Bowl Model only.

### Laboratory and Pilot Plant Mixers

Ruggedly built of Type 316 stainless steel or any commercial alloy. Easily interchangeable mixing arms adapt to various materials or processes. Will handle efficiently the heaviest viscous materials. Available from stock in 1, 3, 6, 20 and 40 quart mixing capacities with constant speed drives. Variable speed drives available on request. All mixers available for atmospheric, vacuum, or pressure operation, with or without temperature controlling jacket.

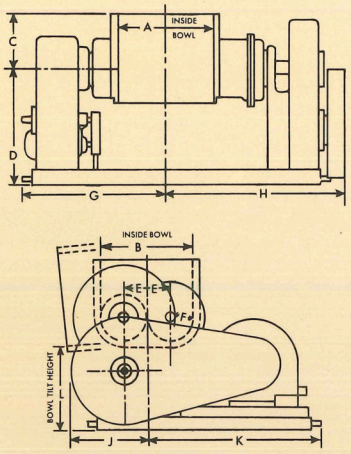
Tilting Bowl, Medium Duty, Double Arm Mixer





3 Quart Working Capacity

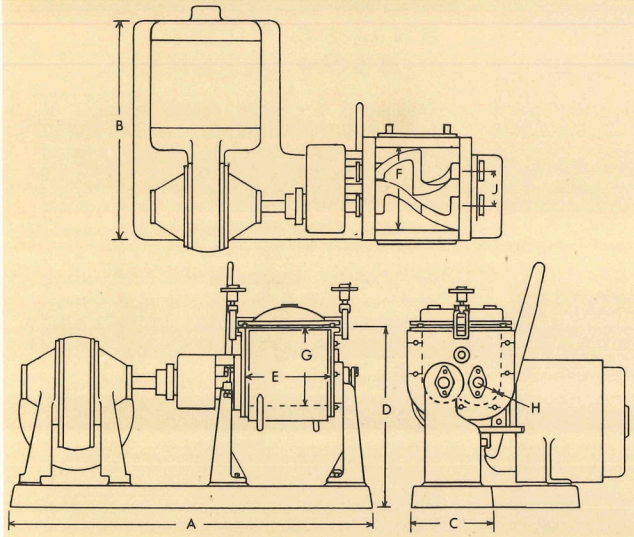
# Readco Double Arm Mixers



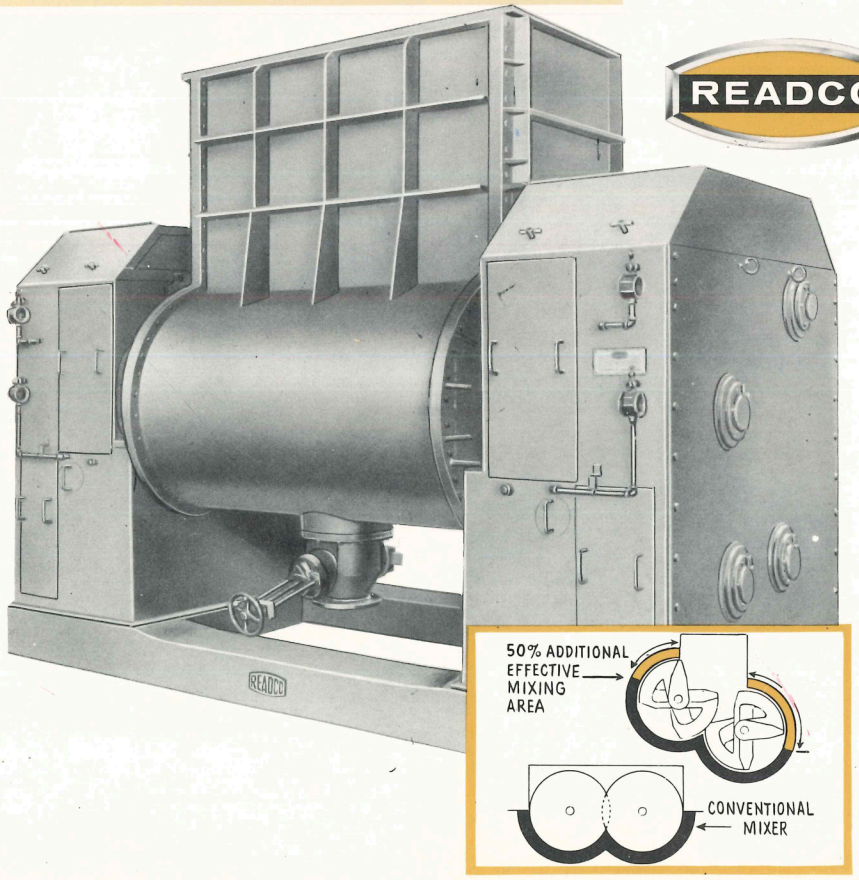

| Working Capacity Gallons | Total Capacity Gallons | *Nominal H.P. | | DIMENSIONS IN INCHES | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | R.P.M. | A | B | C | D | E | F | G | H | J | K | L |
| 10 | 15 | * 7½ | *45 | 15 | 16¾ | 12 | 34 | 3½ | 5 | 34 | 40 | 14 | 41 | 24 |
| 15 | 23 | * 10 | *40 | 18 | 19½ | 13 | 34 | 4 | 5¾ | 34 | 40 | 16 | 46 | 23 |
| 25 | 38 | * 15 | *35 | 20 | 24¾ | 13 | 31 | 5½ | 7 | 34½ | 58 | 19 | 55 | 19 |
| 50 | 75 | * 20 | *30 | 29 | 28 | 17¾ | 36 | 6 | 8 | 42 | 56 | 25 | 52 | 22 |
| 75 | 115 | * 30 | *28 | 30 | 33 | 20½ | 40 | 7½ | 9 3/16 | 42½ | 69 | 27 | 65 | 25 |
| 100 | 150 | * 50 | *25 | 36 | 36½ | 21½ | 40 | 8 | 10¼ | 46 | 75 | 28 | 65 | 22 |
| 150 | 225 | * 60 | *22 | 44 | 42 | 20 | 44½ | 9 | 12 | 49 | 82 | 30 | 74 | 25 |
| 225 | 340 | * 60 | *21 | 46 | 45 | 28½ | 43 | 10 | 12½ | 51 | 86 | 30 | 80 | 22 |
| 300 | 450 | * 75 | *18 | 55 | 52¼ | 32½ | 56 | 12 | 14¾ | 100 | 100 | 33 | 80 | 30 |
| 400 | 600 | *100 | *17 | 55 | 56 | 35 | 56 | 12½ | 15½ | 102 | 102 | 42 | 83 | 30 |

*NOTE: H.P. and R.P.M. are approximate—furnished to suit requirements.

# Pilot & Laboratory Models




| Capacity (Quarts) | | DIMENSIONS IN INCHES | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Working | Total | A | B | C | D | E | F | G | H | J | Motor H.P. | Arm R.P.M. |
| 1 | 1½ | 26 | 13⅞ | 9 | 10 3/16 | 4 | 5¾ | 4 13/16 | 1 9/16 | 2⅝ | ⅓ | 72 |
| 3 | 4½ | 35 | 15 | 10½ | 14⅝ | 6¾ | 8½ | 7¼ | 2¼ | 4 | ¾ | 58 |
| 6 | 9 | 38⅝ | 17¾ | 8¾ | 18⅜ | 9 | 8½ | 8⅛ | 2½ | 3½ | 1½ | 42 |
| 20 | 30 | 65 | 30 | 18 | 20½ | 12½ | 13½ | 12¼ | 3¾ | 6 | 5 | 50 |
| 40 | 60 | 67 | 22 | 22 | 36 | 15 | 17 | 17 | 5 | 7 | 7½ | 37 |




## UNIQUE SPLIT-LEVEL MIXER

The special design of the mixing bowl provides a 50% greater effective mixing area to speed the mixing process. This also permits maximum heat transfer from the jacket when used. Combined with overlapping sigma arm action, this design means you'll get complete dispersion of materials in substantially shorter cycles.

| Working Cap. Gallons | Total Cap. Gallons | Nominal H. P. | Overall Length | Overall Width | Overall Height | Net Weight |
|---|---|---|---|---|---|---|
| 150 | 225 | 50 | 9'2" | 4'0" | 6'3" | 11,000 |
| 350 | 425 | 100 | 12'0" | 5'6" | 8'0" | 21,000 |
| 550 | 775 | 150 | 14'0" | 6'0" | 9'0" | 33,000 |
| 750 | 1125 | 200 | 15'2" | 6'3" | 9'7" | 36,000 |
| 900 | 1340 | 200 | 16'8" | 6'3" | 9'7" | 38,000 |

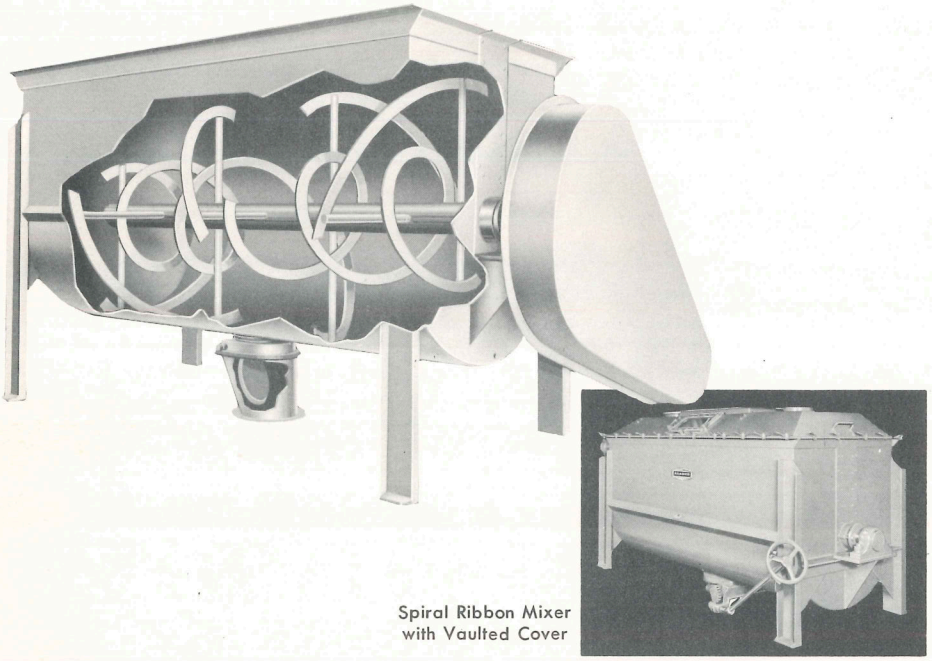
## *Counterflow is key to rapid, thorough mixing in*

# READCO SPIRAL RIBBON MIXERS

Designed for batch or continuous mixing or blending of pulverized, granular, dry or wet materials, Read Spiral Ribbon Mixers are available for operation under pressure or vacuum, with or without temperature controlling jackets.

Counterflow action of ribbon agitators produces thorough, high-speed mixing or blending of free-flowing materials.

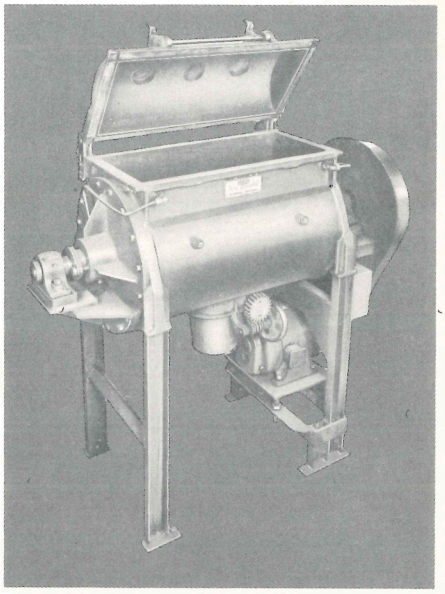
Heavy-duty construction of carbon or stainless steel means efficient service under long runs and rugged operating conditions. Discharge is provided through flush plug or slide gates. Working capacities range from 1 to 650 cu. ft.



Spiral Ribbon Mixer with Vaulted Cover

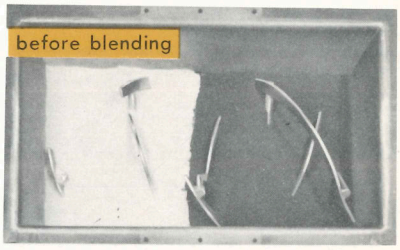
| Working Capacity Cu. Ft. | Working Capacity U.S. Gal. | DIMENSIONS IN INCHES | | | | | | | | | Flush Plug Gate Dia. | Agitator Speed in R.P.M. | Nominal Horse-Power |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G | H | J | | | |
| 1 | 7½ | 12 | 18 | 8 | 14 | 18 | 15 | 10 | 10 | 22 | 4 | 95 | 1 |
| 2 | 15 | 12 | 36 | 8 | 14 | 27 | 24 | 19 | 19 | 22 | 4 | 95 | 1½ |
| 3 | 22½ | 16½ | 30 | 11 | 16½ | 25 | 21 | 16½ | 16½ | 24 | 4 | 65 | 1½ |
| 5 | 37½ | 16 | 48 | 11 | 16½ | 36 | 31 | 26 | 26 | 24 | 4 | 65 | 2 |
| 7 | 52 | 18 | 48 | 12 | 20½ | 34 | 31 | 26 | 26 | 24 | 5 | 60 | 3 |
| 10 | 75 | 18 | 72 | 12 | 20½ | 48 | 45 | 38 | 38 | 24 | 5 | 60 | 5 |
| 15 | 112 | 24 | 60 | 15 | 23½ | 42 | 38 | 32 | 32 | 28 | 8 | 50 | 5 |
| 18 | 134 | 24 | 72 | 15 | 23½ | 48 | 44 | 38 | 38 | 28 | 8 | 50 | 5 |
| 25 | 186 | 24 | 96 | 15 | 23½ | 60 | 56 | 51 | 51 | 28 | 8 | 50 | 7½ |
| 30 | 223 | 30 | 72 | 20 | 31 | 56 | 47 | 39 | 39 | 36 | 10 | 40 | 7½ |
| 40 | 298 | 30 | 96 | 20 | 31 | 62 | 59 | 51 | 51 | 36 | 10 | 40 | 10 |
| 50 | 372 | 30 | 120 | 20 | 34½ | 76 | 72 | 63 | 63 | 36 | 10 | 40 | 10 |
| 56 | 416 | 36 | 96 | 24 | 37½ | 64 | 58 | 51 | 51 | 44 | 10 | 30 | 15 |
| 70 | 520 | 36 | 120 | 24 | 37½ | 75 | 70 | 63 | 63 | 44 | 10 | 30 | 15 |
| 87 | 647 | 42 | 108 | 26 | 42 | 71 | 65 | 57 | 57 | 48 | 12 | 25 | 20 |
| 96 | 715 | 42 | 120 | 26 | 42 | 79 | 72 | 64 | 64 | 48 | 12 | 25 | 20 |
| 125 | 930 | 48 | 120 | 32 | 45 | 77 | 72 | 63 | 63 | 54 | 12 | 25 | 25 |
| 150 | 1115 | 48 | 144 | 32 | 45 | 82 | 78 | 75 | 75 | 54 | 12 | 20 | 25 |
| 195 | 1450 | 60 | 120 | 36 | 50 | 79 | 72 | 64 | 64 | 64 | 12 | 20 | 30 |
| 260 | 1933 | 63 | 144 | 38 | 52 | 82 | 78 | 75 | 75 | 69 | 12 | 20 | 30 |
| 285 | 2120 | 66 | 144 | 42 | 55 | 82 | 78 | 75 | 75 | 76 | 12 | 18 | 30 |
| 395 | 2940 | 78 | 144 | 48 | 59 | 96 | 86 | 76 | 76 | 84 | 12 | 15 | 40 |
| 490 | 3640 | 87 | 144 | 55 | 64½ | 100 | 88 | 76 | 76 | 98 | 12 | 12 | 50 |

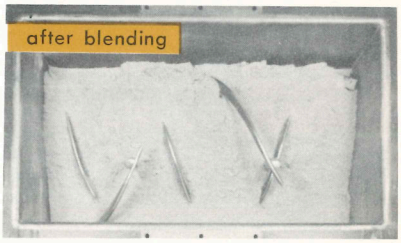
DRIVE ARRANGEMENT AND BLENDER MOUNTINGS TO SUIT REQUIREMENTS.

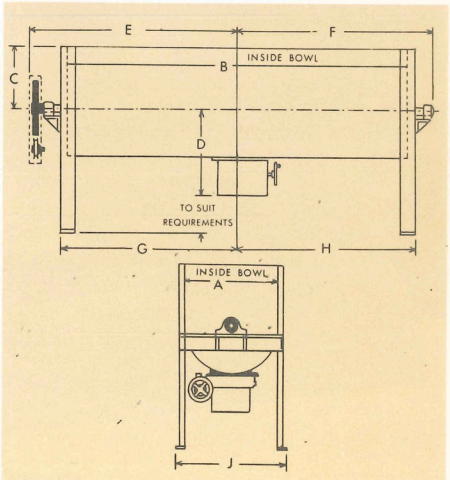


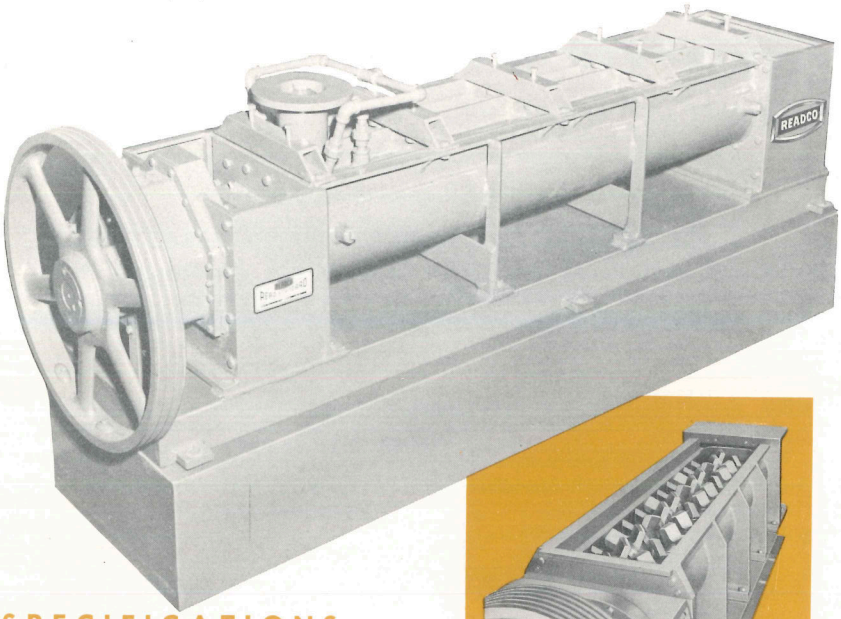
## READCO PILOT RIBBON MIXERS

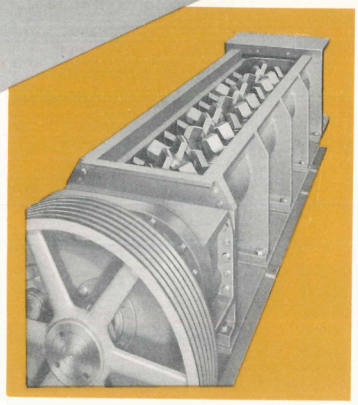
Designed for high speed mixing of pulverized, granular, dry or wet materials, Readco lab-size spiral ribbon mixers employ the same efficient counterflow action as production models. They are supplied for operation under pressure or vacuum, with or without temperature controlling jackets. Batch or continuous operation, 1, 2 and 3 cu. ft. working capacities.





## SPECIFICATIONS

Total Volume: 12½ gal. or 1.7 cu. ft.

Effective Heat Transfer Area: 9 sq. ft.

Feed and discharge are at atmospheric pressure. Solids are fed by standard commercial feeders, liquids by forced injection. Variable retention times.

(Larger sizes available)

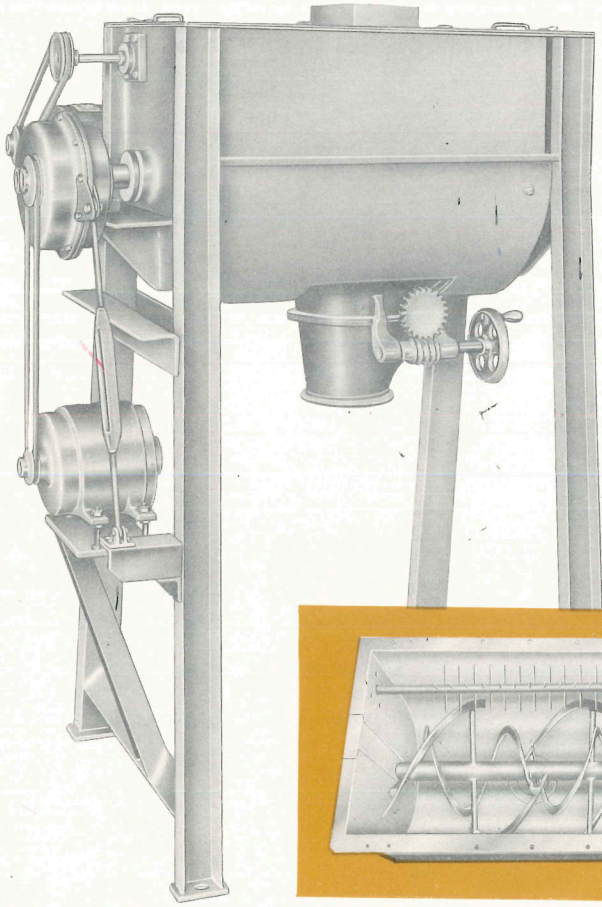
# READCO CONTINUOUS MIXERS

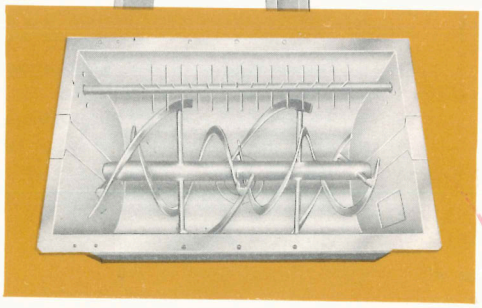
You can increase production and reduce costs of processing dense, dry solids or viscous materials with this high-capacity, heavy-duty Readco mixer. It will produce ½ to 3 cubic feet per minute, of a completely homogeneous mix.

Overlapping action of mixing paddles set at close tolerances to the bowl and cover fully disperses ingredients while moving them along to discharge. Temperature controlling jackets are standard equipment. All contact parts are made of carbon or stainless steel.

This mixer may also be used as a reaction vessel.

READCO





## *An Outstanding Development in the field of Critical Mixing*

# HURRICANE MIXERS

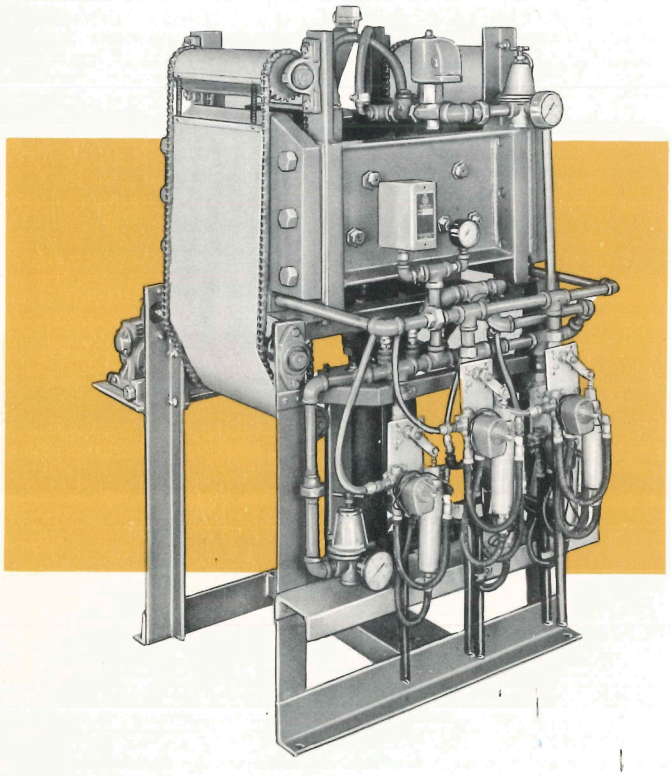
This newly developed blender assures finest uniformity of product . . . on materials that tend to agglomerate. Supplementing the standard ribbon or paddle type of agitator is the spiked beater mounted atop the unit, revolving at high speeds. Materials from the main agitator are thrown up into the Hurricane high-speed revolving agitator. The resultant impact breaks up the agglomeration, producing fine particles which then fall into the bottom of the blender and are readily mixed.

The Hurricane beater, showing the agitating spikes. This beater is particularly effective for mixing liquids with dry materials, for it transfers the liquid into a fine mist which is easily absorbed in the blending process.

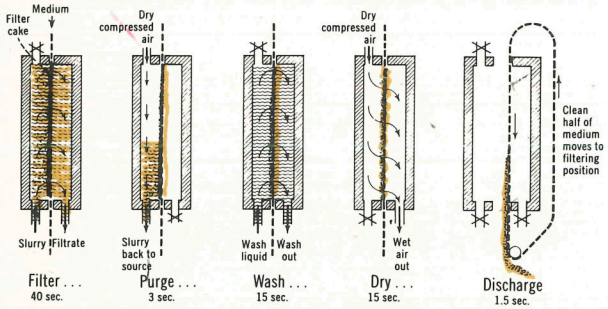
# CONTINUOUS WET OR DRY UNIQUE TWO-BELT AUTOMATIC SHORT-CYCLE FILTERS

## READCO DRY DISCHARGE CONTINUOUS BELT FILTERS

Highest filtration rate of any type filter is achieved with the new Readco unit . . . on all types of slurries, regardless of size or quantity of particles. Filtration is automatically discontinued when maximum filtration rate becomes impaired. Cakes of predetermined moisture content can be discharged after any combination of rinses, washes or extractions.



CROSS SECTION OF CHAMBER DURING CYCLE




**SHORT CYCLE FILTER OUTPERFORMS CONVENTIONAL UNIT**

Plate-and-frame flow rate drops drastically as cake builds up in press. Readco unit features rapid automatic cake discharge on extremely short cycle to retain maximum flow rate.

## WET DISCHARGE FILTER

Designed to concentrate the slurries where the solids content is low, this completely automatic, self-cleaning filter adjusts its own time cycles . . . can be used to concentrate slurries prior to processing through a cake discharge filtering operation. Highly compact, the unit produces an effluent of consistent high quality. It's ideally suited for handling a large liquor volume.

## Plate and Frame DRY CAKE FILTER

***Rapid Discharge of uniform dry cake and Multiplicity of Processes in one automatic unit***

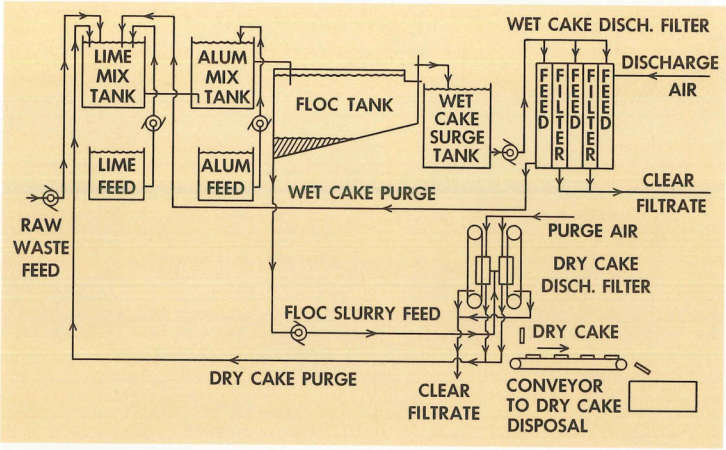
The Dry Cake Filter has performed successfully on slurries with up to 50% concentration, producing relatively dry cakes and clear filtrate. This filter can precoat, filter, wash, dry and discharge, and all of these processed, including multiple washing, can be programmed into an automatic operation. Media life is long and blinding is prevented due to the porous condition of the cake and because the cake is never compressed into the media. Since cakes are of uniform structure, porous and homogeneous, efficient washing is possible, and drying, with good reproducibility and very low moisture content, can be accomplished. The dry cake filter features very high yield per unit of filtering area, and installed occupies less than 8 sq. ft. of floor space.

### SPECIFICATIONS

**Weight:** 600 lbs. **Height:** 4.5 ft. **Width:** 2 ft. **Depth:** 3 ft.
**Utility requirements:** Electrical: 110 volt, 60 cycle, single phase
Compressed Air: 100 psi.
**Frame:** Fabricated steel, gray enamel finish
***Cycle time:** 30 sec. to 4 min.
***Solids discharge:** 100 lbs./hr. dry cake
**Filter cloth:** wide variety commercially available
**Contact parts:** any commercial alloy
**Filter area:** 1.6 sq. ft., standard unit

*Dependent upon solids content of slurry

# ADVANTAGES OFFERED IN COMPOSITE SHORT-CYCLE FILTERING STATION




A typical installation of a composite wet cake and dry cake discharge filtering station.

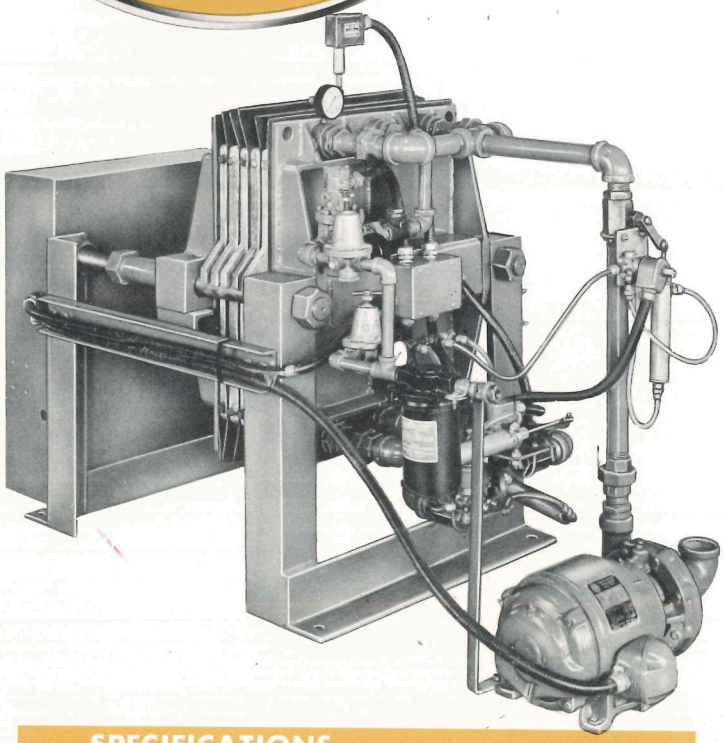
An outstanding advantage is offered in the employment of both the Wet Cake Filter and the Dry Cake Filter in a Composite Filtering Station. Large volumes of dilute slurries can be continuously upgraded on the inexpensive Wet Cake Filter. The upgraded material greatly reduces the quantity of slurry to be handled on the Dry Cake unit, which then renders the upgraded slurry to clear filtrate and dry solids. This has made possible many filtrations which were previously uneconomical.

Readco Short-Cycle Filters are available in a wide variety of materials. They can use almost any type of media. Units can be obtained for high or low pressure operation, and are provided with a completely integrated control system.

Performance data on a wide range of materials is available upon request from the files of the Readco Research and Development Laboratory.

READCO

## Plate and Frame WET CAKE FILTER



The Wet Cake Filter employs an upgrading technique offering real advantages in solids separations on very dilute slurries. It has operated successfully on slurries with 10% solids concentration to slurries with as little as 100 ppm. of solids. The cake is discharged as an upgraded or thickened slurry with from 50 to 75% reduction in volume. Wherein the remaining liquids contained in the raw slurry are discharged as filtrate.

The Wet Cake Filter is unique in its lack of moving parts. Here, in addition to the short cycle, a back purge of the media keeps it in good filtering condition. As a result, the filters do not have to be opened for weeks at a time. The operations of precoating, filtering and washing can also be programmed into this completely automated unit.

### SPECIFICATIONS

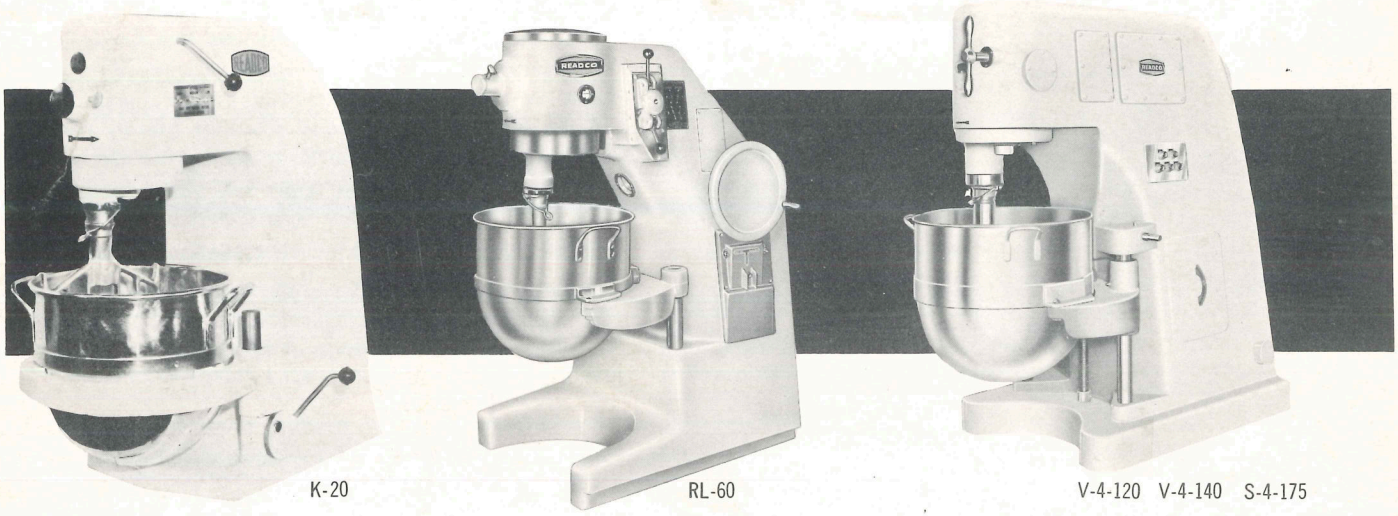
**Weight:** 600-800 lbs. **Height:** 3 ft. **Width:** 3 ft. **Depth:** 4-6 ft.
**Utility requirements:** Electrical: 110 volt, 60 cycle, single phase
Compressed Air: 50-100 psi.
**Frame:** Fabricated steel, gray enamel finish
***Cycle time:** 30 sec. to 4 min.
***Solids discharge:** upgraded slurry, 10-20% of thruput
**Filter cloth:** wide variety commercially available
**Contact parts:** any commercial alloy
**Filter area:** 30-40 sq. ft., larger sizes available upon request
*Dependent upon solids content of slurry

Here are some Laboratory Results with Short Cycle Filters

| Feed Slurry | Rate | Comments |
|---|---|---|
| Mineral slurry | 0.82 gal./sq. ft./min. | 1.375 lb./sq. ft./min.; reduced pH from 14 to 10.6 |
| Silica gel | 5 lb./sq. ft./hr. (6% soluble solids) | 83.9% moisture in cake |
| Iron blue pigment | 20 lb./sq. ft./hr. (dry basis) | 1 lb./gal. solids at pH 2. 26.5% moisture in cake; pH to 4.5 |
| Iron yellow Oxide | 39.5 lb./sq. ft./hr. (dry basis) | 3% iron oxide in feed (less than 2 microns) |
| Waste effluent[a] | 5 gal./sq. ft./min. (grain solids) | 60.5% moisture in cake B.O.D. reduced 70% |

[a]Wet Cake Filter only, all other Dry Cake Filter only.

# VERTICAL MIXERS



K-20 RL-60 V-4-120 V-4-140 S-4-175

You can handle a countless variety of mixing jobs—blending, stirring, mixing, beating of dry materials, creams, emulsions and light plastic masses—quickly and easily with Readco Vertical Mixers. Planetary action and variable beater speeds produce controlled mixing in batches ranging from 12 to 175 quarts.

Each mixer accommodates bowls of several sizes. An assortment of beaters and auxiliary attachments adds to their versatility. Jacketed or bottom discharge bowls are available, as well as scrapers, fume hoods, splash guards, and water baths to heat or cool material being mixed.

| Model | Total Capacity Quarts | Beater Speeds R.P.M. Obtained | Attachment Speeds | Motor H.P. | Net Wt. Lbs. |
|---|---|---|---|---|---|
| K-20 | 20-12 | 111-193-356 | 109-189-346 | ⅓ | 240 |
| RL-30 | 30-20-15 | 101-174-324 | 65-112-206 | ½ | 405 |
| RL-60 | 60-40-30 | 62-116-170-320 | 94-176-259-486 | 1 | 875 |
| D-80 | 80-30 | 86-171-291 | 113-226-382 | 2 | 1300 |
| K-4-80 | 80-40-30 | 65-126-166-320 | 63-120-158-306 | 2 | 1600 |
| V-4-120 | 120-80-40 | 63-120-158-306 | 63-120-158-306 | 3 | 2420 |
| V-4-140 | 140-80-40 | 63-120-158-306 | 63-120-158-306 | 5 | 2500 |
| S-4-175 | 175-120-80 | 60-99-149-244 | | 5 | 3150 |

For unusual equipment or design requirements, Readco offers valuable technical assistance. To its broad facilities for design and fabrication, research and testing, Readco adds over half a century of experience in working with the process industries.

May we assist in solving your processing equipment problems? Your inquiry to our Research and Development Laboratory will receive immediate attention.

## OTHER READCO PROCESSING EQUIPMENT

**MATERIALS HANDLING EQUIPMENT**
- Bins
- Conveyors
- Elevators
- Sifters
- Weigh Hoppers

**STRUCTURAL EQUIPMENT**
- Decks
- Grating
- Treads & Walkways

READCO

**READ STANDARD**
York, Pennsylvania

A Division of
Capitol Products Corporation