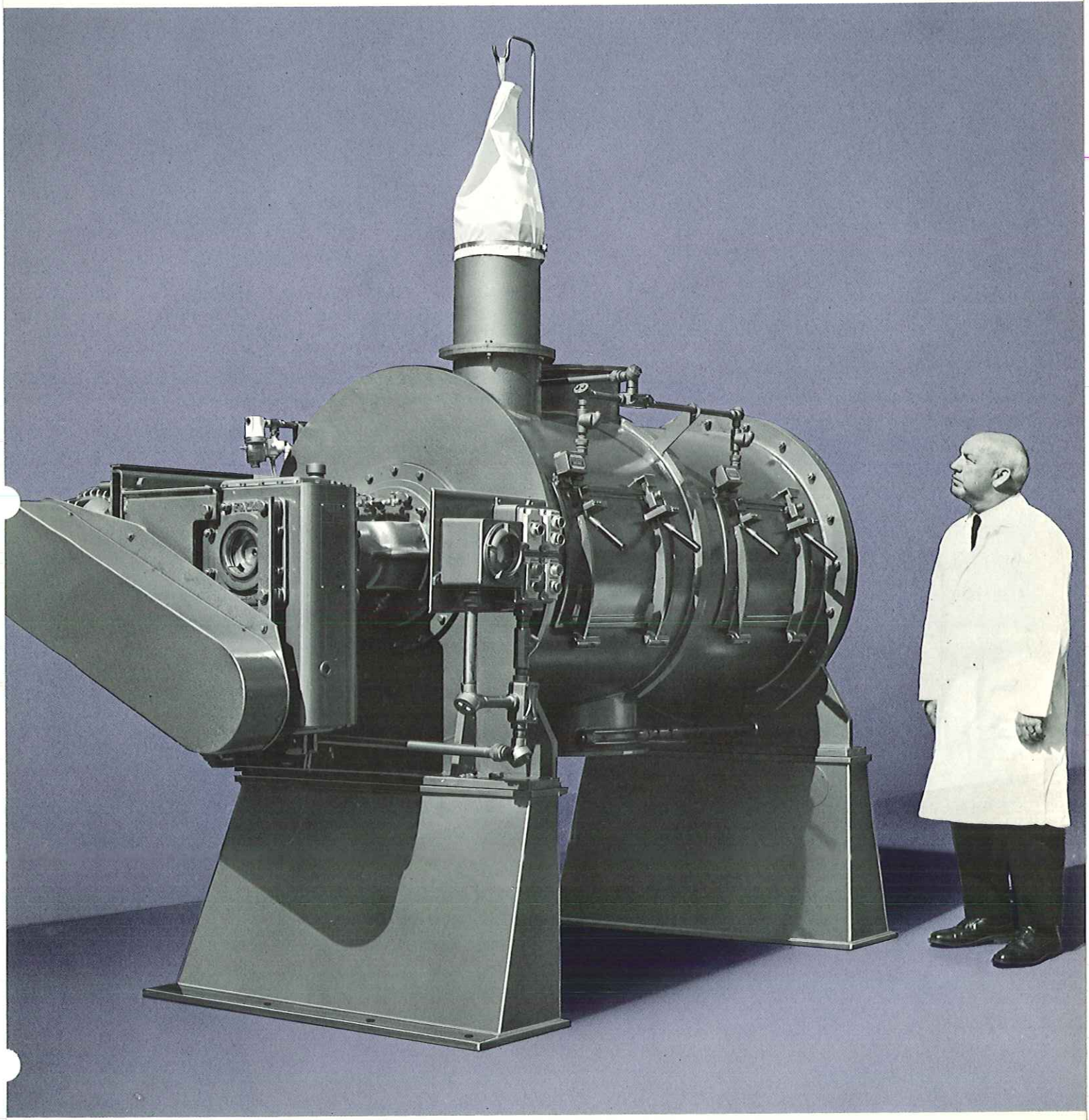
LITTLEFORD MIXERS



LITTLEFORD

MIXING

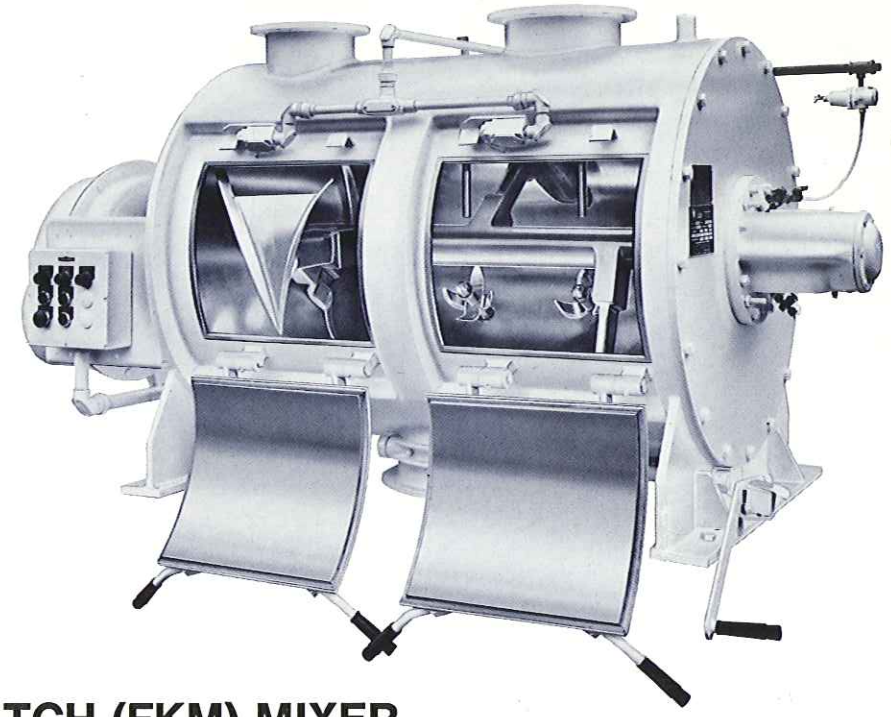
Advanced Littleford design achieves a combination of speed, precision, efficiency and versatility not previously obtainable in a single mixing unit. You get complete control over the mixing process, eliminating guesswork in preparing your products and formulations. Littleford's unique hurling and whirling action, developed by patented plow-shaped mixing tools, produces intense but gentle intermingling of the elements of the mix in free space. Optional high-speed chopper blades break up agglomerates without the need for additional process steps and equipment. Mixing to exacting specifications is accomplished in a mere fraction of the time required by other mixers and mixer combinations, and at much lower cost.

- **Batch or continuous operations**
- **Complete and total mixing**
- **No dead zone area**
- **Fastest of all mixing cycles**
- **Easiest to clean**
- **Eliminates multiple equipment and operations**
- **Controls particle size**

HEAT TRANSFER

Unique "hurling and whirling" action creates a fluid bed of particles in constant motion. This action exposes tremendous surface area and achieves direct contact of each particle with the heat transfer surface. Resulting heat transfer rates are the highest possible to attain.

- **Heating and cooling jackets**
- **High vacuum construction**
- **Air purge drying**
- **Close temperature control**
- **Moisture control and removal**
- **High speed reactions**
- **Low level drying (under 1%)**



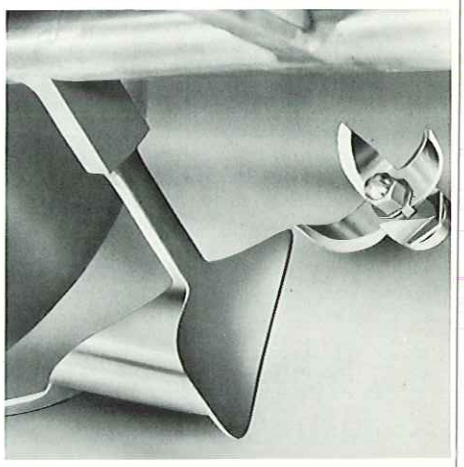
BATCH (FKM) MIXER

Shown is Model FKM-600D, equipped with two high speed blending choppers (total capacity of mixer is 21.9 cu. ft., working capacity 13 cu. ft.).

Charging is through filler-opening at the top of mixer . . . working level is normally 30-70% of total capacity. Discharge is through contour door at bottom of mixer. Cleaning is easily accomplished through the two wide access doors at the front side.

MIXING PLOWS

Patented plow-shaped mixing tools are precision engineered for perfect balance and concentrically arranged on the shaft which rotates at relatively high velocity (80-160 R.P.M.). Plows project mixing materials away from container surface, rapidly hurling them into free space at a high rate of turbulence. The projected directions of the mixing materials cross each other in free space . . . intermingle . . . resulting in an absolutely homogeneous mix.



HIGH SPEED CHOPPER

(Optional)

Chopper rotates at 3600 R.P.M. to break up agglomerates and lumps. Assures rapid incorporation of liquids and fats, etc. Powered by independent motor. Eliminates need fo many other pieces of equipment.

Liquid injector enables fluids to be introduced into center of mixer above choppers. Assures accurate, thorough dispersion through the mix.

MIXING...

HEATING...

COOLING...

DRYING...

REACTING...

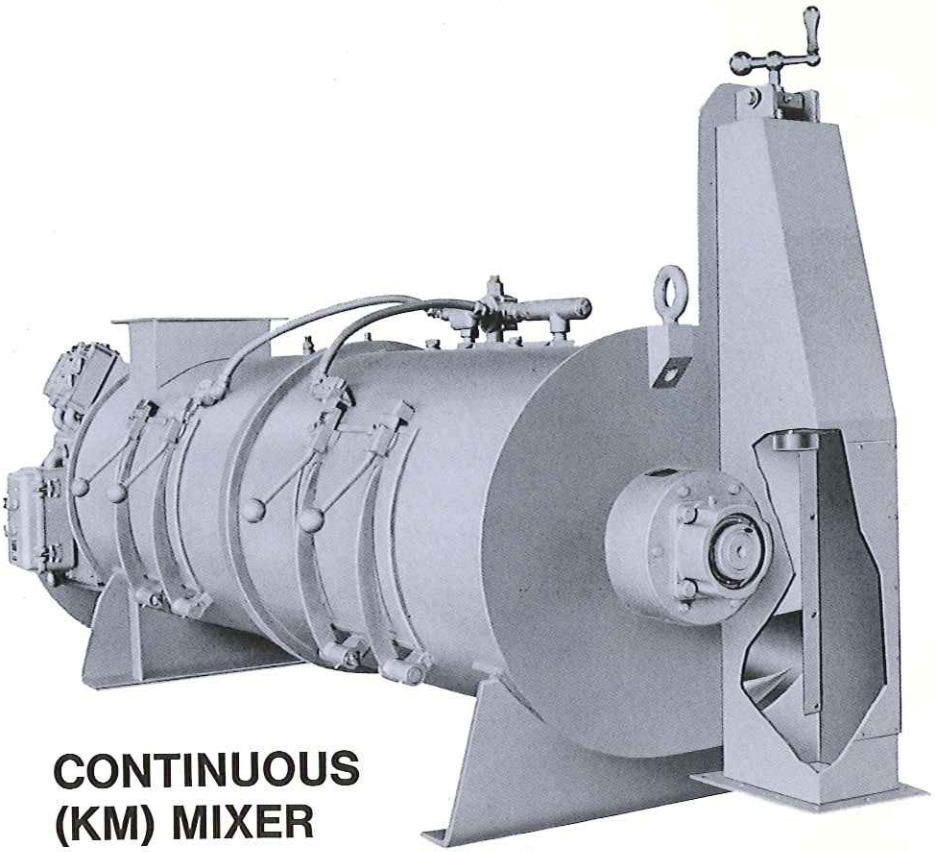
...GRANULES

...POWDERS

...PELLETS

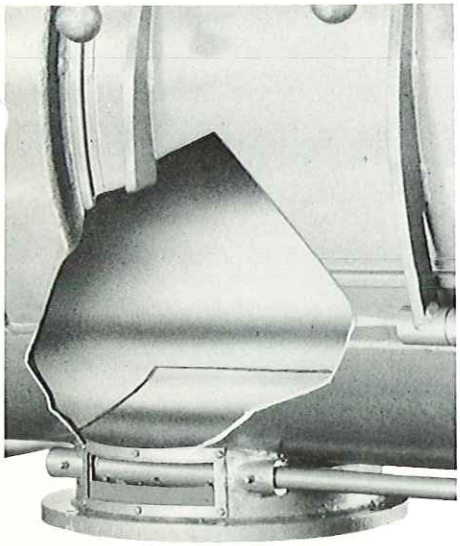
...FIBERS

...LIQUIDS



CONTINUOUS (KM) MIXER

Shown is Model KM-600 (total volume, 21.2 cu. ft., typical capacity 18,000 lb. per hr.) Charging is through filler-opening at top end of mixer . . . working level is normally 50% of total capacity. Discharge is through slide valve at opposite lower end (see cut). Easy cleaning is accomplished through the two wide access doors at front side.



CONTOUR DOORS

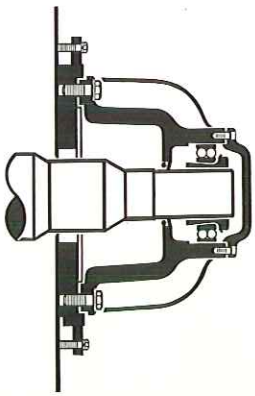
Cleaning and discharging doors are contour shaped to exactly conform to mixer vessel interior to eliminate any dead-space-zone in vessel mixing area. No possibility of material not being mixed. Pneumatically controlled charging and discharge systems are available.

SHAFT SEAL AND BEARING ASSEMBLY

The main drive shaft is supported by outboard mounted, self-aligning, anti-friction bearings. One end is a fixed type, the other is designed to compensate for possible linear expansion. The bearing housings are designed to allow easy access to the shaft seals.

The shaft seals are designed for the application utilizing an interchangeable combination of conventional stuffing boxes, air purge seals, and mechanical face seals.

Selection is made for mixing, reaction, and drying applications involving pressure or vacuum service.

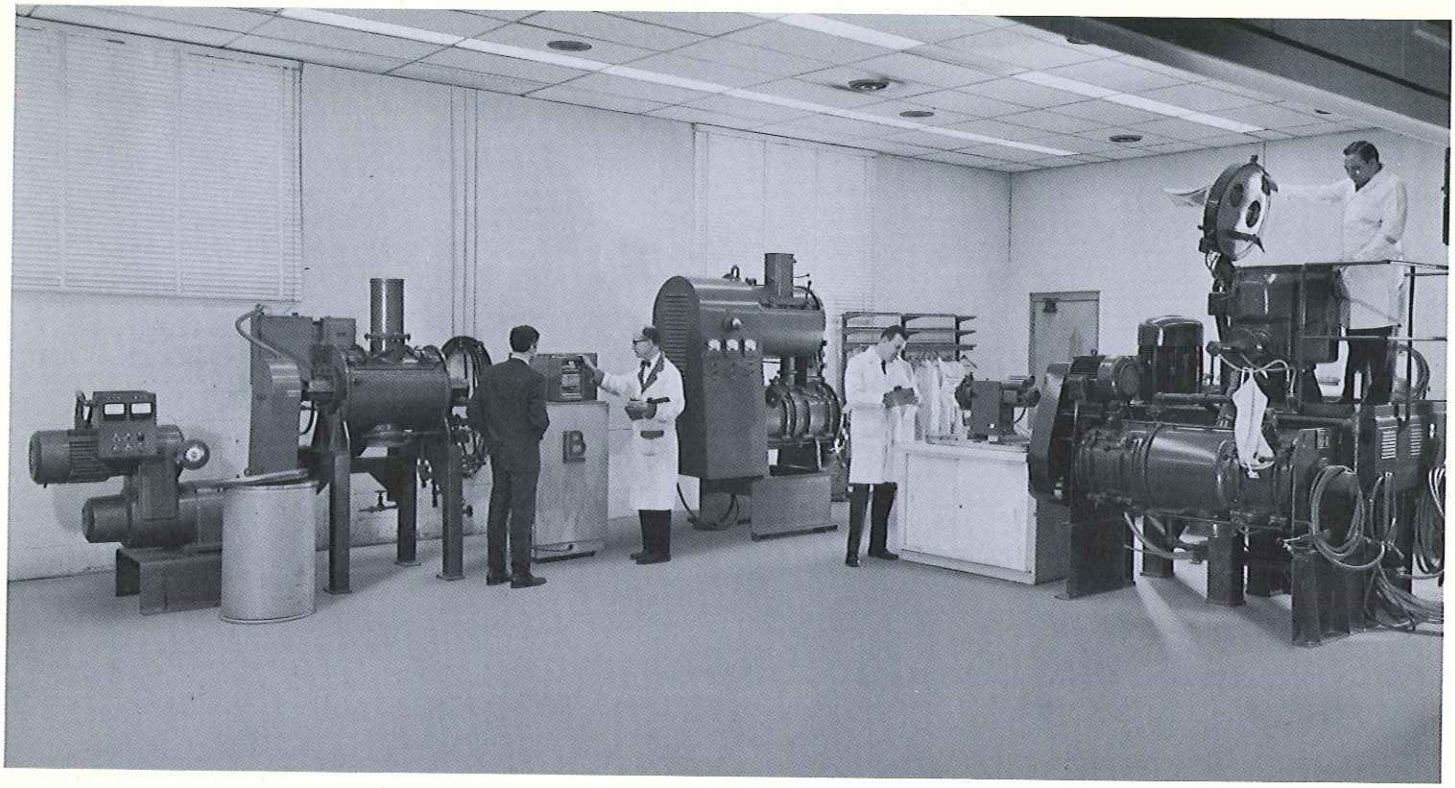


LITTLEFORD MIXERS

Standard Sizes*

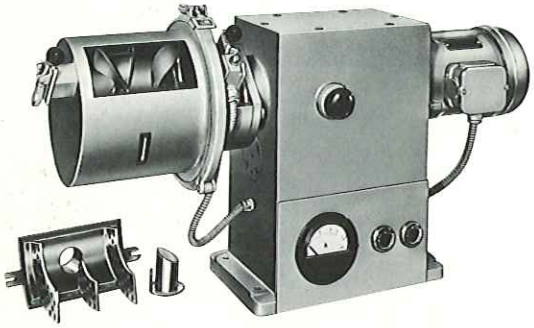
MODEL	Working Capacity Cubic Feet	Total Volume Cubic Feet
Batch		
M 5 G	0.11	.18
M 20 G	0.42	.71
FM 130 D	3	4.6
FM 300 D	6	9.9
FKM 300 D	6	9.9
FKM 600 D	13	21.9
FKM 1200 D	26	43.4
FKM 2000 D	43	73.5
FKM 3000 D	65	105.9
FKM 4200 D	87	148.2
FKM 8000 D	170	282.4
Continuous		
KM 300 D	5	10.3
KM 600 D	11	21.2
KM 1200 D	22	42.4
KM 2000 D	35	70.6
KM 3000 D	53	106.0
KM 4200 D	75	148.4
KM 8000 D	140	282.6

*Larger sizes built to specification



THE LITTLEFORD TEST CENTER

These mixing laboratory facilities are available to customers for demonstrations, feasibility studies, process familiarization, and development of specifications and other useful data. Put us to the test. We'd like to analyze your mixing applications. Chances are, we can save you valuable process time and increase the quality of your product. Your Littleford representative can arrange for you to observe tests on your mixes in our Cincinnati Test Center, or he can arrange for a rental trial demonstration mixer for testing in your own plant.



LITTLEFORD LABORATORY MIXERS

These bench-mounted mixers with working capacities from about ¾ to 4 gallons are designed for laboratory, test station, and research work. They are arranged for dust-free filling, and may be equipped with rubbing-extrusion covers for the addition of liquids and other materials while mixing is in process. The smallest size can be equipped with a transparent vessel for observing mixing action.

LITTLEFORD FM SERIES

Available in total capacities of 3 cu. ft. and 6 cu. ft. One large opening for charging and cleaning. Excellent for smaller batch runs and pilot work. Available with all accessories.

Bulletin LM-201B

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LITTLEFORD

Printed in U.S.A.

YK715M