Two new stainless steel mixers for lower dough-out temperatures, plus better temperature and mix control. Each with a wide range of dough mixing capacities.

1816 & 2420 Dough Mixers
AMF's new stainless steel mixers give lower dough-out temperatures plus better temperature and mix control through a wide range of dough mixing capacities.

Controls

Dough Temperature is indicated next to the Temperature Set Point. Turn the Set Point to 72° and the internal controls automatically adjust the refrigeration to keep the dough temperature within ±2 degrees of the Temperature Set Point.

Timing of the mix and mixing speeds is accomplished with waterproof automatic timers. Properly set up, the mixer will operate in three distinct manners. 1) Setting only the SLOW TIMER results in slow speed operation throughout the pre-set period of time. 2) Setting only the FAST TIMER starts the mixer on slow, but then quickly switches it to the higher mixing speed for completion of the mixing cycle. 3) Setting both the SLOW TIMER and HIGH TIMER starts and runs the mixer at the slow speed for the pre-set time, switching to the high speed for the balance of mixing time desired.

By properly setting the refrigeration delay, the maximum cooling can be delayed to prevent dough freezing before "pick-up."

Operation of the mixer is easily handled at the operator's Control Panel. Open the FLOUR GATE, add the liquid ingredients, push TIMER RESET, turn on the REFRIGERATION, push CYCLE START, and the mixer begins its pre-set cycle of mixing and cooling. Once the cycle is completed, mixer cut-off is automatic. Pushing the DOWN button automatically tilts the bowl to a position 7" above its full down position. To lower the bowl the last 7", the DOWN button must be depressed manually. (A similar safety stops the bowl on its UP or closing cycle.)

A two-position JOG SPEED switch is centrally located on the panel. Two hands are required to activate the agitator in the Jog Mode.

Depressing the STOP button halts the agitator during any part of the operating cycle.

Conveniently located to the left side of the mixer bowl, the Control Panel contains all of the monitors, indicators, timers and switches necessary to insure the desired mix sequence and dough-out temperature.
Design Features

MIXING AREA

1. Bowl and Agitator—The bowl end and shell are welded to form the mixing bowl. The inner surface is stainless steel. Removable rubber seals on the bowl and canopy seal the bowl when closed for mixing. Each free-rolling bar is 4" in diameter; two are angled, one is straight. The agitator shaft, bars and spiders are stainless steel. Bars and spiders are removable from the mixer without removal of the agitator shaft.

2. Direct Expansion Cooling—Channels for the coolant run in serpentine paths within the bowl ends and the bowl sheet. The bowl sheet is solid stainless steel or mill clad stainless steel depending upon dough-out temperature requirements. It is covered with a protective coating and then insulated with foam. Special thermistors are installed in the jacket to measure dough temperature and to control refrigeration.

3. The Outer Bowl Wrapper is sealed to prevent moisture from entering the jacket. Temperature control thermistors are easily reached through an access port (A). Wiring between the mixer frame and bowl (B) is easy-to-replace standard flexible wiring.

4. Agitator Shaft Seals (A) of an ultra-high molecular weight polymer are properly positioned by a self-adjusting stainless steel retaining ring. Minimum cleaning is required to maintain them in a sanitary condition. Removal is easy. External lubrication nipples (B) make shaft lubrication possible during mixing. A bowl-drain (C) makes wash down and clean-up easy.

5. A Stainless Steel Canopy covers the mixing bowl. The 12" flour opening is equipped with a new sliding polyethylene gate which is sealed in both the open and closed positions. Two 2" threaded sanitary connections (not shown) are also supplied for liquid ingredients.
DRIVE AREA

6. **Journal Type Bearings** for the solid stainless steel agitator shaft give longer bearing life than often-used ball-bearings.

7. **Power** is provided by a two-speed 900/1800 rpm high torque sanitary motor which drives a heavy-duty differential to distribute power equally to each end of the agitator shaft. A thermal and motor overload device protects the motor from damage.

8. **Drive Chains** connect the differential to the ends of the agitator shaft. Both are lubricated individually by an electrically controlled lubrication system (A). Limit control switches (B) stop the bowl 7" before the full UP and full DOWN positions and at both extreme positions. Stop (C) transfers the load from the bowl to the frame during mixing.

9. **Bowl Tilt** is hydraulically powered and controlled from the operator's control panel. The bowl can be locked in any intermediate tilt position. Manual operation of the hydraulic system is possible in emergency power situations. (Inset)
Operational Features

Cooler Doughs
Lower dough-out temperatures mean better product control during mixing and make-up, so that's where design efforts were concentrated.

The refrigerant expansion jacket covers the entire bowl—front, bottom, back, and ends—to increase coverage by 48% so that more refrigeration cools the dough.

Direct expansion coolant channels have a unique design. Generous radius turns provide a minimum pressure drop throughout the system to insure lower, more uniform jacket temperatures.

For increased heat transfer, the thickness of the bowl sheet has been reduced. The vertical "truss" construction* of the newly-designed coolant channels more than compensate for the strength loss due to thickness reduction.

Combining these innovative bowl cooling features with the exclusive shape of the AMF agitator results in a mixer that assures contact between the continually moving dough mass and all cooling surfaces. The AMF agitator does not mix like straight bar agitators (A) that rotate on an axis central to the bowl. During mixing (B) the one-parallel-two-opposed-angle agitator bars move the dough from one end of the bowl to the other. Further, because the agitator rotates on an axis that is not central to the bowl's curvature, the dough is worked from a large to a small mass (arrow) as the agitator turns. Development is quicker and cooling is more efficient as greater areas of the dough surface are exposed to the bowl for cooling.

Two electronic thermistor probes, one in the dough mix area and one in contact with the bowl jacket, monitor dough and jacket temperatures to eliminate dough freezing on the bowl during mixing and control the dough-out temperature.

Dough mixing capacities can be increased to 2400 lbs. on the AMF 2420 Mixer and 1800 lbs. on the AMF 1816 Mixer while final dough-out temperature is maintained. Dough-out temperatures were lowered by as much as 5° when 2000 pounds of dough were mixed in the new AMF Mixer and compared to an equivalent mix in a conventional mixer.

Sanitary Design
Product zone plus all exposed surfaces of the new AMF Dough Mixer are stainless steel. Bowl end seals are easy to reach and remove for cleaning as are the rubber seals between the bowl and canopy.

The mixer is BISSC certified.

Rugged Construction
A three-inch solid steel plate forms the mixer base. To this, all of the frame's tubing, channels and angles are welded to provide an integral supporting structure. Box-framed end supports assure stability during mixing and efficiently transfer the total load of the bowl and dough to the floor. All interior structural members are heavily primed before assembly and finish-painted to provide a durable surface after assembly.

* Patent Pending
OPTIONAL FEATURES
- Refrigeration direct expansion unit.
- Safety ingredient door in canopy.
- Electricals other than 460 volt, 60 Hz.
- Rear located auxiliary agitator start-stop control.
- Rearrangement of canopy inlets and/or additional inlets.
- Stainless steel agitator breaker bar.
- Other electrical voltages, motor sizes and agitators are available.

SPECIFICATIONS

<table>
<thead>
<tr>
<th></th>
<th>1816</th>
<th>2420</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixer Capacity*</td>
<td>800 lbs</td>
<td>1000 lbs</td>
</tr>
<tr>
<td></td>
<td>1800 lbs</td>
<td>2400 lbs</td>
</tr>
<tr>
<td></td>
<td>365 kg</td>
<td>455 kg</td>
</tr>
<tr>
<td></td>
<td>815 kg</td>
<td>1090 kg</td>
</tr>
<tr>
<td>Bowl Volume (ASBE)</td>
<td>51 cu. ft</td>
<td>62 cu. ft</td>
</tr>
<tr>
<td>Main Drive Motor - 460 V, 60 Hz, 1800/900 rpm sanitary motor</td>
<td>same</td>
<td>same</td>
</tr>
<tr>
<td>Hydraulic Tilt Drive - 460 V, 60 Hz, 1200 rpm sanitary motor</td>
<td>100/50 hp</td>
<td>125/62.5 hp</td>
</tr>
<tr>
<td>Air for Flour Gate</td>
<td>60 psi</td>
<td>60 psi</td>
</tr>
<tr>
<td>Weight (approximate)</td>
<td>24,500 lbs</td>
<td>25,500 lbs</td>
</tr>
<tr>
<td>Shipping</td>
<td>23,500 lbs</td>
<td>24,500 lbs</td>
</tr>
</tbody>
</table>

*Note: Capacities are for standard white bread doughs. When mixing special doughs or doughs with lower absorption, the maximum capacity will decrease.

AMF's continuing engineering is constantly improving product performance. Machinery specifications are subject to change without notice.