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Exacting Standards, Just Like Yours, Since 1948



Guide to Selecting a Planetary Mixer

What single piece of kitchen equipment can perform the following tasks at high volume and high speed: whip potatoes, mix dough, make batter, slice vegetables, shred cabbage, grate cheese, grind meat, and make sausage? With a few common accessories, a commercial planetary mixer can handle all these tasks and more. The planetary mixer is the kitchen's most versatile piece of equipment when it comes to high volume preparation.

Types of Mixers

The majority of food mixers for commercial kitchens are **planetary mixers** (also called vertical mixers). They use a variety of mixing attachments, which turn on an offset shaft while the shaft rotates around the bowl. This motion is similar to the planets rotating around the sun, hence the name planetary. The broad range of attachments makes this a very versatile piece of equipment. Operations that mix a lot of dough maybe interested in a **spiral mixer**. Spiral mixers are used only for dough mixing, using a rotating bowl and a fixed position dough hook. Many people believe the spiral mixer makes the best dough; in fact they are the preferred dough-mixing machines in bakeries. **Vertical cutter-mixers (VCM)** are basically an industrial-sized version of a food processor. They can be used for mixing, kneading, chopping, blending, and emulsifying. Although the VCM is very versatile it has some disadvantages; it's very noisy, it can be somewhat difficult to clean, and some users feel it doesn't produce as good a dough as a planetary or spiral mixer. **Reciprocating arm mixers** and **horizontal mixers** are also used in food service and large bakery operations, but their application in most kitchen operations is limited.

Sizes

Planetary mixers are sized according to the volume of the mixing bowl. The Univex line ranges from 12 to 80 quarts. Our 12 and 20-quart mixers sit on a table (although there is an option for a 20 quart floor version). The most common sizes for general kitchen use are 20 and 30-quarts. Pizzerias generally need a larger mixer such as a 60-quart model.

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Mixer Capacity

If you've never owned a commercial mixer it may be confusing determining what size mixer you really need. A very useful tool is the Univex mixer capacity chart. To understand how to use the capacity chart, please note that the size of the mixer's bowl does not automatically mean it can be filled to the brim before mixing. Many products expand upon mixing, so take care not to overfill bowl or you'll be cleaning up whipped cream off the floor. Mixer capacities for dough mixes use the combined weight of the flour and water as well as the ratio of water to flour to determine the mixer's capacity. The ratio of the weight of water divided by the weight of flour is called the absorption ratio (AR) of the mix. A dough mix using 20 lbs. of water and a 50lb. Bag of flour has an absorption ratio of 40% (20 lbs. water divided by 50 lbs of flour = 0.4). The lower the absorption ratio the more difficult the dough is to mix. Care must be taken when mixing dry dough, to avoid overloading the mixer. In addition, the stiffness of the dough and speed of mixing affect the amount of dough a mixer can handle. Generally, the stiffer the dough and higher the speed, the smaller the batch size must be. At least three factors affect dough stiffness: flour protein content, dough temperature, and percent of water or oil in the dough. This translates into the following rules:

1. Generally speaking, the higher the protein content of the flour, the smaller the batch size must be.
2. The lower the water temperature, the smaller the batch size must be. For example, if using 60 degree F water (instead of 70 degrees F), reduce the optimum batch size by at least 10 percent.
3. The less water contained in the dough, the smaller the batch size must be. For example, to mix stiff dough with 40 percent water relative to flour weight, reduce the optimum batch size by 33 percent or more.
4. The higher the oil or shortening content, the softer the dough will be and, so, the more can be mixed per batch.
5. The higher the mixing speed, the smaller the batch size must be. For example, to mix a medium-soft dough at second speed (or over 100 rpm of the agitator), reduce the optimum batch size by 33 percent or more.

In conclusion, in regards to mixer capacity, never exceed the stated capacity for your type of dough found on the capacity chart, reduce the batch size if using stiffer dough or higher mix speeds and, in general, consider mixing in smaller amounts than the maximum amounts found on our capacity chart. Also, older mixers might not accept the dough quantities listed above. When in doubt, call Univex and ask for a batch size recommendation. Be sure to let us know the age of the machine and the size (horsepower) of the mixer's motor, as older models sometimes have smaller motors than current mixers.

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Types of Agitators

A key feature of the planetary mixer is its versatility, which comes from the various agitators and attachments that can be used with it. The agitators—that is, the implements that do the mixing—allow the machine to be used for all types of bakery applications.

Spiral Dough Hook. The spiral, so named because of its spiral shape, is used for making dough—namely, yeast dough. It performs two functions in mixing. First, it combines the ingredients together; second, it kneads the dough and, thereby, develops the gluten. Use it on low to medium speeds.

Sweet Dough Beater. The sweet dough beater is ideal for all types of sweet doughs. The unique shape on the agitator allows for mixing without over development of product. Use it on low to medium speeds.

Batter Beater. Also called the flat beater and sometimes “the paddle,” it is used for mixing cakes, batters or icings. It is also used to mash potatoes or other vegetables. It is the agitator of choice for any product that needs a creaming action and uniform dispersion of ingredients. Use it on low to medium speeds for most products.

Wire Whip. Sometimes called just a whip, the wire whip is used mainly for incorporating air into a liquid, as when making foam-type products such as meringue, whipped cream, and light frostings. Use it on medium to high speeds.

Four-Wing Whip. The four-wing whip is used for product that is too heavy for our regular wire whip. It is used for whipping of potatoes, butter and mayonnaise. Use it on lower speeds for heavier product such as potatoes and medium to high speeds for light product such as mayonnaise.

Pastry Knife. The pastry knife is used for combining shortening with flour. It is most commonly used to make flaky pie dough, light pastry shells and similar products. It eliminates rubbing of product and allows delicate ingredients to be combine without over development. Use it at low to medium speeds.

Common Attachments

Most Univex mixers have an attachment drive hub located on the front or side of the motor housing. The hub allows a person to operate a food processing attachment off the mixer motor. A number of specialty attachments can be purchased but the three main ones are the VS9 vegetable slicer, the VS9H shredder, and the ALMFC12 meat & food chopper.

VS9 Vegetable Slicer. This attachment has a 9” adjustable knife. It is used to slice a wide variety of product. Many operators use it to slice vegetable products such as onions or green peppers. Some operators use it to slice pepperoni or ham, however, a conventional meat slicer does a better job for that

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type of product. An optional plate holder is available that accepts shredding discs which allows the operator to shred and grate product.

VS9H Vegetable Grater/Shredder. This attachment has a plate holder, which holds shredding discs. Available sizes include: 3/32", 3/16", 5/16", 1/2", Grating plate, and a Julienne cutter plate. An optional knife assembly is available that allows the VS9H to function like a VS9.

ALMFC12 Meat Grinder. Also called a *chopper* this grinder attachment is used for grinding (mincing, mashing) meat and other foods. It contains a large screw-shaped shaft which, when turned, chops the food into pieces and forces it through small holes in a metal disc. A operator can use this tool for grinding meat into sausage and is also used for producing ground hamburger and cheese. A variety of plate sizes allow the operator to choose the coarseness of the grind and sausage stuffing tubes are available.

Standard & Optional Features

Planetary mixers come with a number of standard and optional features. The features vary from model to model. For specifics talk to you authorized Univex equipment dealer or call the Univex customer support team at (800) 258-6358.

Drive System. Unlike the classical all gear drive system, the Univex hybrid drive system allows an operator to change speeds while the mixer is running. This drive system also allows the operator to select the four standard speeds or *any speed in between!* This allows you to choose the exact speed that is perfect for your recipes. Oversized hardened alloy gears are used in the gearbox.

Mixing Speed Control. By "mixing speed" we mean revolutions per minute (rpm) of the *agitator*. Mixers come with two types of speed controls: discrete and variable. Discrete speed controls—which are the most common—offer 3 or 4 set speeds, with 1st speed being the lowest/slowest and 3rd or 4th being the highest/fastest. You must stop the mixer in order to change the speed. Mixers with variable speed control allow the operator to set the speed at any point within a range. Variable speed control offers more choice of mixing speed.

Timer. Our 30-quart and larger mixers come standard with a timer. It is an option with our 12 and 20-quart models. By setting the timer the mixer will shut off after a pre-determined mixing time.

Power Take-Off (PTO). All Univex mixers come standard with a #12 attachment hub, or power take-off, for operating food-processing attachments. Our 12 and 20-quart mixers can be purchased without the hub.

Stainless Steel Bowl. All Univex mixers come standard with a stainless steel bowl; some manufacturers offer a choice of either stainless or tinned finish. Stainless steel is more expensive but holds up better to

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heavy use and acidic foods such as tomato sauce. After a number of years the finish on tin bowls wears off in spots and the bowl must be re-tinned. Also, after a few years tin bowls have a tendency to rust at the bottom if not completely dried after each washing. Although either bowl will work for a most applications, generally speaking a stainless steel bowl is preferred.

Safety Guard. Univex uses a two-piece safety guard that swings wide open for full access to the bowl. Interlock switches do not allow the mixer to run when safety guard is open or bowl is in a lowered position. The two-piece guard removes easily for cleaning and it fits in a dishwasher.

Down Sized Bowls & Attachments. For mixing small batches, optional smaller bowls with attachments can be purchased with most mixers. For example, 30-qt bowls can be used with a 60-qt mixer. Smaller bowls are used for mixing small batches of batters, meringues, and so forth that can't be done in a large bowl.

Splash Cover/Bowl Extensions. To eliminate splashing, which tends to occur at higher speeds and with maximum size loads, a cover or an extension that fits around the rim of the bowl can be purchased. It can greatly reduce splatter and wall washing in a kitchen that blends sauce in the mixer.

Automatic Bowl Scrapers. A factory installed option; the bowl scraper must be ordered when purchasing the mixer. When mixing batters or liquids such as pizza sauce, the ingredients sometimes cling to the side of the bowl, resulting in incomplete mixing. To counteract that, the operator must shut off the mixer once or twice and scrape the sides of the bowl with a rubber scraper—a mild inconvenience. To avoid this, Univex offers an optional bowl scraper that can be attached to the agitator. It automatically scrapes down the sides of the bowl during mixing. Available on the 20qt, 30qt, 60qt and 80qt mixers.

Bowl Trucks. In some kitchens it's necessary to transport the loaded mixer bowl from the mixer to another spot. Large bowls loaded with over 50 lbs of ingredient can be difficult to handle. To assist in moving such loads, we offer optional bowl dollies or trucks.

Power Bowl Lift. Mixers come with a mechanism for raising the bowl into place for mixing. On most mixers it's manually operated. With loaded bowls (60-qt or larger) this takes time and effort. So for our 60 and 80 quart mixers an optional power bowl lifter is available. It can be very handy for an operation that mixes dough all day.

Ingredient Chute. This item comes standard with every Univex mixer. It allows the operator to add product to the bowl while the mixer is running. Perfect for adding sugar and flour to achieve superior mixing results.

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Voltage Overload Protection. If overloaded, such as with an overly large batch of very stiff dough, a mixer can break an agitator or internal component. So as a safety precaution, all Univex mixers come with overload protection that automatically shuts the mixer off when it's strained.

Warranty. Univex offers a full one-year on site parts & labor warranty on all our planetary mixers.

Pros and Cons of a Planetary Mixer

The main advantage of a planetary mixer is its versatility. Properly equipped, no other kitchen machine can do so many things.

Another advantage of a planetary mixer is its durability. Properly used and maintained a mixer can last for years.

The main drawback of a planetary mixer is that while it can do many jobs, there is often a specialty piece of equipment that can do the job quicker. A spiral mixer will mix more dough faster, large-scale slicers and shredders will out do the volume a mixer equipped with a VS9 or VS9H can handle. In short, a planetary mixer is a very economical choice for all but large-scale dough working operations.

Installation and Maintenance

For good operation and long life the machine must be properly installed and maintained. *Always follow the recommendations found in the mixer operation manual.* Here's a checklist of things that should be done.

- **Position the mixer for easy cleaning.** If possible, allow enough space (at least eight inches) between the machine and walls or tables so it can be easily cleaned.
- **Position the mixer for minimal dough moving and lifting.** If possible, position the machine next to or across the aisle from a table so the product can be lifted directly from the mixing bowl to the table.
- **Hook it up properly, with correct voltage and amperage.** Too little power will cause a machine to under-perform. Too much power could damage it. Get the electrical specifications from the manufacturer or from the spec plate on the back of the machine. Also, use proper wiring that meets code; never use an extension cord.
- **Lubricate the mixer regularly and properly.** Use the proper type of lubricant and also the proper amount—too much can be as damaging as too little. Failure to lubricate a machine properly can result in serious damage. Follow the maintenance guidelines in the operating manual.
- **Clean the machine properly after each usage.** Avoid abrasive materials such as steel wool and nylon pads. Use a detergent and soft cloth or brush. Periodically oil the bowl yoke slide and attachment hub with a light coating of food grade mineral oil.

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- **Never overload the machine.** It can break the dough arm and, possibly, an internal component. (See the Dough Capacity chart for details on bowl capacities.) It also shortens the machine's operating life.
- **Obtain service when needed.** Use only factory-trained service personnel. Do not attempt to repair internal components yourself.

Cleaning

It is important to clean the mixer as soon as possible after mixing, as dried dough pieces become harder to remove.

As soon as you can after mixing, bring the mixing bowl and attachments to the sink. Scrub them completely, taking extra care to clean the whole where the attachment fits over the shaft. **Do Not** put the attachments in the dishwasher, as the aluminum portion will discolor! Let the items air dry. If you need to use the attachments before they are completely dry, make sure to dry out the hole in the attachment with a towel or cloth. Water in the attachment reacts with the aluminum of the attachment and the stainless steel of the beater shaft to create a gray paste like substance; something you don't want dripping in your mix!

To clean your mixer, fill two buckets or pans with cool water. Add a little detergent to one of the containers. Using a pot brush and the soapy water scrub the mixer. Pay extra attention to the beater shaft, the area around the beater shaft and the bowl saddle. Use a towel or cloth and the clean water to finish cleaning the mixer and wipe off the suds.

Conclusion

As you can see there are many factors involved with selecting the mixer that is right for you. Once you decide on a type of mixer and the size you need, it is important to consider the reputation of the manufacturer you are considering purchasing from and the availability of spare parts. Univex Corporation has been in business since 1948 and all our planetary mixers are made right here in the United States of America, so getting the part you need is never a problem. Ask your preferred equipment dealer about Univex... **Exacting Standards, Just Like Yours, Since 1948.**

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