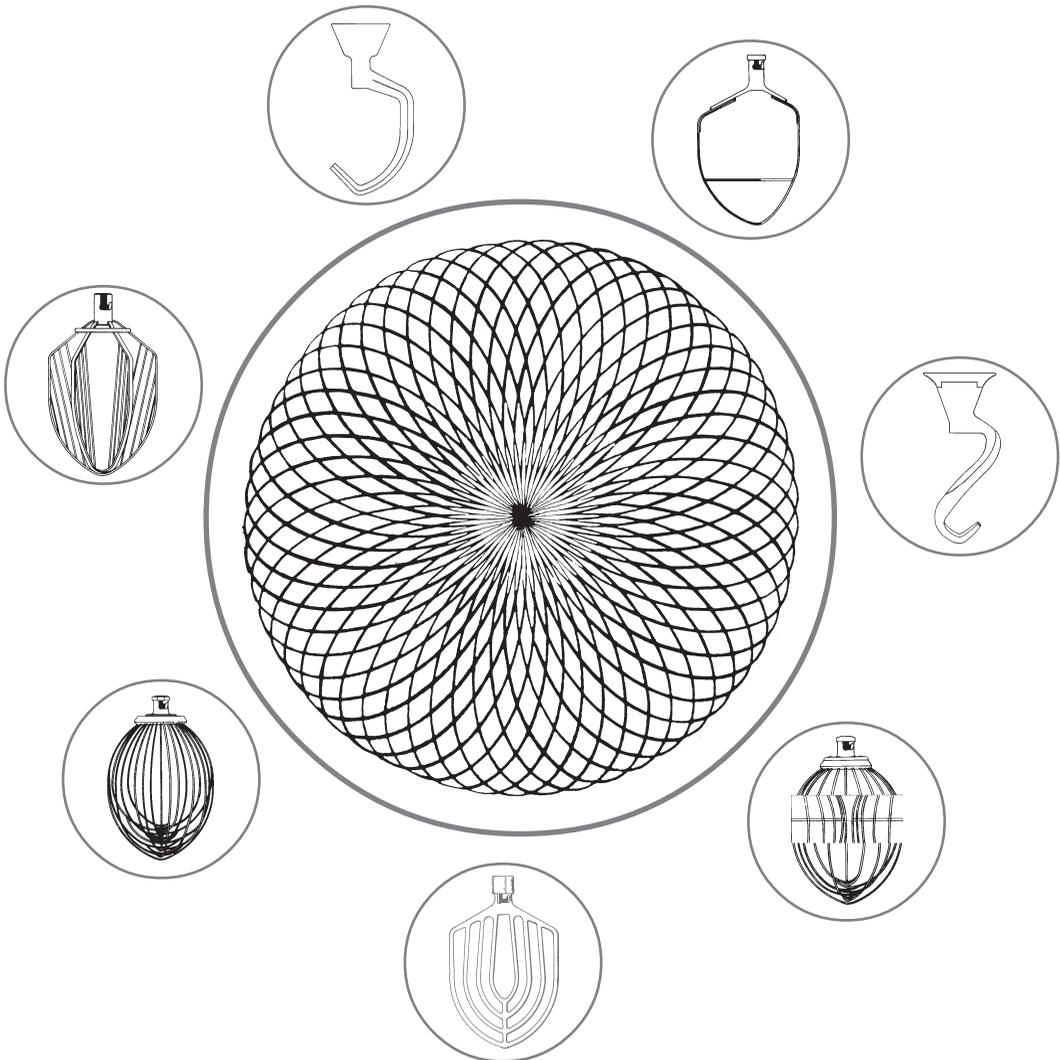


USE AND APPLICATIONS HANDBOOK

For **HOBART** Mixer

Agitators, Attachments and Accessories



Economical, Dependable, Adaptable . . . Your Hobart Mixer

A Hobart Mixer brings profit to your operation every time you use it. Uniform mixing reduces waste and improves process control. Smooth surfaces and durable materials make cleanup fast and easy. This all means economical operation for you.

Because of its reliability, your Hobart Mixer will give years of dependable, low cost service.

The Hobart Mixer's planetary action assures uniform mixing. The mix arm reaches every part of the batch. It rotates on its axis opposite to the direction that it moves around the bowl. Thorough mixing, blending and aerating of ingredients yields consistent, predictable results every time. You can depend on it.

Hobart Mixers are flexible in the kitchen. They quickly accept attachments to do many different jobs. Most models allow use of bowls of more than one size, and several agitator styles are available to handle specific mixing tasks. Your Hobart Mixer is adaptable to your needs.

We build them that way for you. Our reputation depends on it.



Hobart Mixers . . . Choice of the Foodservice and Baking Industry for Over a Half Century

MODEL N50

The model N50 (5 quart) mixer is used for either laboratory or test use, or for small kitchen requirements. It has the same planetary mixing used on larger Hobart commercial mixers. This model has a $\frac{1}{6}$ horsepower motor, a three speed transmission and No. 10 attachment hub. And the 5 quart size is just right for those small jobs.

MODEL A120

The model A120 (12 quart) mixer is a multi-purpose mixer for use in kitchen, bake shop, or lunchroom. This model has a $\frac{1}{3}$ horsepower motor, a three speed transmission, planetary mixing and No. 12 attachment hub. Model A120 accommodates only 12 quart bowls. A 0 - 15 minute timer provides mixing control.

MODEL A200

The model A200 (20 quart) mixer has a $\frac{1}{2}$ horsepower motor, three speed transmission, planetary mixing, bowl guard and No. 12 attachment hub. It may be ordered as a bench model or as a floor model with an extended pedestal. This popular 20 quart mixer meets both kitchen and bake shop requirements. Most A200 mixers are equipped with the optional 0 - 15 minute timer. The A200 mixer can accommodate a standard 20 quart bowl or an optional 12 quart bowl with no bowl adapter required. A deluxe finish is available at extra cost. This unit is a valued addition to any preparation room and is even handier with an assortment of attachments.

MODEL D300

The D300 mixer (30 quart) has a dependable $\frac{3}{4}$ horsepower motor, three speed transmission, timer, planetary mixing, bowl guard and No. 12 attachment hub. The 0 - 15 minute timer is standard. The D300 stands on the floor and features a totally enclosed, sanitary design with air circulation within the pedestal for cooling the motor. The mixer's legs permit thorough floor cleanup. This mixer can accommodate a standard 30 quart bowl, or an optional 20 quart bowl when used with an optional bowl adapter.



N50



A120



A200



D300

MODEL D340

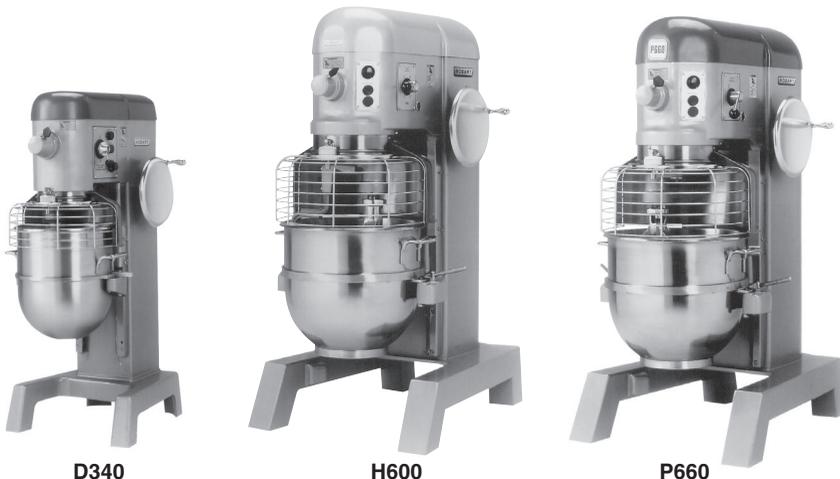
The D340 (40 quart) mixer has a 1½ horsepower motor, three speed transmission, timer, planetary mixing, bowl guard and No. 12 attachment hub. The single-phase machine is equipped with an air vent at the rear of the pedestal for cooling the motor. The three-phase machine is totally enclosed with air circulation within the pedestal. The 0 - 15 minute timer is standard. The mixer's legs permit thorough floor cleanup. The 40 quart bowl uses the same agitators as the optional 30 quart bowl. An optional 20 quart bowl and agitators are available.

MODEL H600

The popular H600 (60 quart) mixer has a dependable 2 horsepower motor, four speed transmission, timer, planetary mixing, bowl guard and No. 12 attachment hub. This versatile model works well in a kitchen, pizza operation or full service retail bake shop. The H600 is internally ventilated to provide cooling for the motor. The 0 - 15 minute timer is standard; for improved accuracy, an electronic timer is optional. The mixer's legs permit thorough floor cleanup. This mixer accommodates a standard 60 quart bowl, or an optional 40 or 30 quart bowl when used with optional bowl adapters. An optional power bowl lift is available to raise and lower the mixer bowl by turning a lever. A deluxe stainless steel finish is available at extra cost.

MODEL P660

The P660 (60 quart) pizza mixer is specifically designed to handle all phases of pizza preparation. The 2½ horsepower motor and lower gear ratios combine to give this mixer 50% more torque than other 60 quart mixers. Other features include: thermal overload protection, two speed transmission (standard), one speed transmission (special), hand operated bowl lift, timer, bowl guard, planetary mixing and No. 12 attachment hub. The P660 is internally ventilated within the mixer enclosure to provide cooling for the motor. The 0 - 15 minute timer is standard. The mixer's legs permit thorough floor cleanup. This mixer can accommodate a standard 60 quart bowl, or an optional 40 or 30 quart bowl when used with optional bowl adapters.



MODEL L800

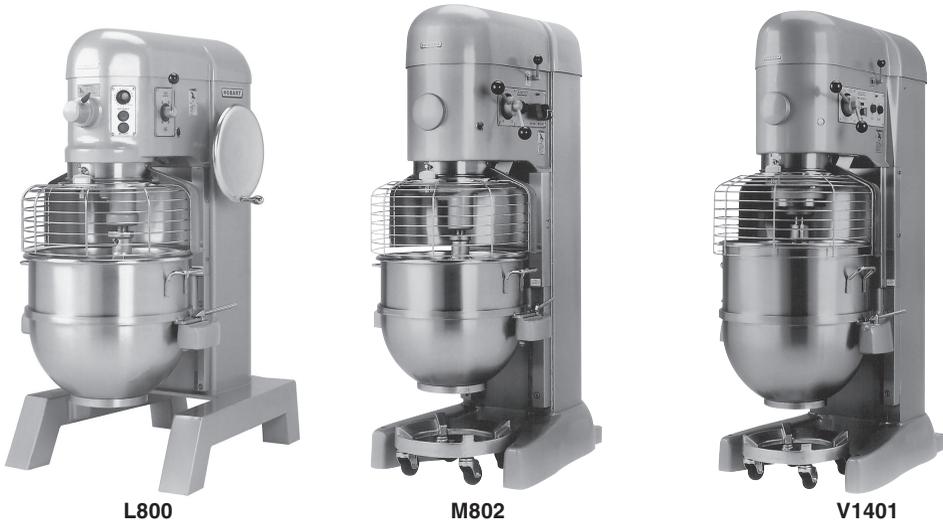
The model L800 (80 quart) mixer has a dependable 2 horsepower motor, four speed transmission, timer, planetary mixing, bowl guard and No. 12 attachment hub. This versatile model works well in a general foodservice kitchen. The L800 is internally ventilated to provide cooling for the motor. The 0 - 15 minute timer is standard. The mixer's legs permit thorough floor cleanup. This mixer can accommodate a standard 80 quart bowl, or an optional 30, 40 or 60 quart bowl when used with optional bowl adapters.

MODEL M802

The model M802 (80 quart) mixer has a powerful 3 horsepower motor, heavy duty four speed transmission and clutch, timer, planetary mixing, power bowl lift and bowl guard. This model is designed for heavy duty applications such as bakeries. The M802 is internally ventilated to provide cooling for the motor. The 0 - 15 minute timer is standard; for improved accuracy, an electronic timer is available. This mixer can accommodate a standard 80 quart bowl, or an optional 30, 40 or 60 quart bowl when used with optional bowl adapters. A No. 12 attachment hub is optional. The M802 may be ordered, at extra cost, with a 14" higher than standard column to allow removal of the bowl without removing the agitator.

MODEL V1401

The model V1401 (140 quart) mixer has a powerful 5 horsepower motor, heavy duty four speed transmission and clutch, timer, planetary mixing, power bowl lift and bowl guard. This model is designed for heavy duty applications. The V1401 is internally ventilated within the mixer enclosure to provide cooling for the motor. The 0 - 15 minute timer is standard; for improved accuracy, an electronic timer is available. This mixer can accommodate a standard 140 quart bowl, or an optional 30, 40, 60 or 80 quart bowl when used with optional bowl adapters. A No. 12 attachment hub is optional. The V1401 may be ordered, at extra cost, with a 17" higher than standard column to allow removal of the bowl without removing the agitator.



L800

M802

V1401

Beaters, Whips, Dough Arms, Pastry Knives . . . and How to Use Them

This section illustrates and names the various mixer agitators and discusses their applications. General information on how to get the best results from your Hobart mixer is also provided. As is always the case with the art of cooking, your best creations are achieved by carefully proving your methods and formulas and evaluating the results.

The discussions on mixer performance and agitator uses are similar for planetary action mixers regardless of size. That is not to say that the same mix times will apply. This handbook offers suggestions and guidelines only. The cooking is up to you.

Attachments and accessories and their uses are discussed in the last section of the handbook.

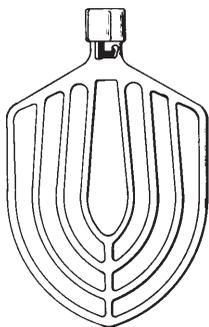
CLEANING NEW MIXER BOWLS AND AGITATORS

Before using the first time, thoroughly wash new mixer bowls and agitators (beaters, whips, dough arms and pastry knives). Wash in hot water and a mild detergent solution, rinse with either a mild soda or vinegar solution, and thoroughly rinse with clear water. Also follow this cleaning procedure for bowls and agitators before whipping egg whites or whole eggs.

AGITATORS AND THEIR USES

Agitators are available for the different mixers and bowl sizes and for the type of product that is being mixed.

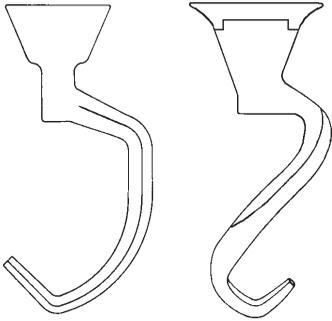
The B Flat Beater is a multi-purpose agitator used for mashing potatoes or other vegetables, and mixing cakes, batters or icings. It is also used in industrial applications for any product requiring a creaming or rubbing action and uniform dispersion of ingredients. Use first speed for starting most operations; medium speed for finishing.



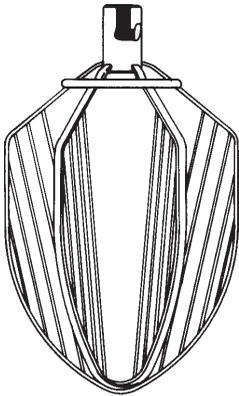
The D Wire Whip is designed for maximum blending of air into light products. Uses include: whipping cream, beating egg whites, mixing very light icings, meringues and all similar applications. The D Wire Whip is most commonly used in second and third speed on three speed mixers and third and fourth speed on four speed mixers.



The E and ED Dough Arms are used for mixing most bread, roll and pizza doughs which require folding and stretching action for best development. These agitators are suitable for use on all yeast raised doughs and should be operated in first or second speed on two speed and three speed mixers or the first, second or third speed on four speed mixers. The E Dough Arm is used with 5 to 40 quart mixer bowls; and the ED Dough Arm is used with 20 to 140 quart mixer bowls. The ED Dough Arm has an extra contour which optimizes working of the dough in the larger sized bowls.



The C Wing Whip is used for whipping material that is too heavy for the D Wire Whip. The heavy frame permits its use for light creaming and beating. It is often used for whipping or blending potatoes, butter, mayonnaise or light icings. It is generally used in first and second speed for whipping heavy products like potatoes or in third or fourth speed for light products like mayonnaise or icings. The C Wing Whip has four wings in 12, 20 and 30 quart sizes and six wings in 40, 60, 80 and 140 quart sizes. The four wing whip is best for the smaller capacity bowls while the six wing whip optimizes mixing efficiency in the larger bowl sizes.



The P Pastry Knife combines shortening with flour, and is ideal for light pastry shells (patty shells), flaky pie doughs and similar mixes. The cutting action of the knife practically eliminates rubbing and allows delicate ingredients to be combined without overdevelopment. The P Pastry Knife is suitable for stirring operations in low speeds and for fast cutting operations in medium speeds. You should not use the P Pastry Knife at high speed if you want the pastry to have a flaky texture.



The I Wire Whip makes sponge cakes and mixes light marshmallow for heavy whipping. It is available in 30, 40, 60, 80 or 140 quart sizes.



FORMULAS AND METHODS

Use your own formula for any products you wish to make in your Hobart mixer. Then evaluate the finished product for texture, conformity, lightness, flakiness, etc. You will find that any method of blending ingredients can be duplicated or improved with your machine. Be careful and do not overmix. Overmixing can adversely affect the texture of your product. You will also discover there is often a saving in time for each mixing operation. Even delicate products usually mixed by hand can be mixed in your Hobart mixer.

Your Hobart mixer mixes your products in the most efficient and quickest way possible. There is no need for you to sacrifice individual characteristics when using your Hobart mixer. When results are exactly to your liking, note carefully the time of operation and the speed setting. Under the same conditions, your Hobart mixer will perform exactly the same, day after day, providing uniformity in your products.

MIXER CAPACITY

The Mixer Capacity Chart on page 10 is a guide for controlling the batch sizes in your formulations. The capacities listed take into account the amount of product which can be contained in the various sized bowls. The listed capacities are the maximum recommended batch sizes. Whenever batch size exceeds 50 pounds, use a bowl truck to load and unload the bowl from the mixer. Recipes for doughs used to establish the batch sizes in the Mixer Capacity Chart are listed below:

INGREDIENT	HEAVY BREAD DOUGH	MEDIUM PIZZA DOUGH	RAISED DONUT DOUGH
Flour	100.0%	100.0%	100.0%
Water	55.0	50.0	65.0
Yeast	2.0	1.0	5.0
Salt	2.5	1.5	2.5
Sugar	5.0	- 0 -	15.0
Shortening	5.0	- 0 -	15.0
Oil	- 0 -	2.0	- 0 -
Non-Fat Dry Milk	6.0	- 0 -	8.0
Total	175.5%	154.5%	210.5%

The ingredient percentages are based on a flour content of 100 percent to simplify using the recipes to make various sized batches and compute the moisture absorption ratio. The heavy bread dough recipe above is a criterion listed in Section 4.4.2 of Federal Specification 00-M-0038K, Standard for Electric Food Mixing Machines.

The flour used in the recipes is hard wheat flour, enriched and bleached. It contains 11 to 12 percent protein content and a 12 percent moisture content. Flour which has a lower moisture content will decrease the moisture absorption, cause difficulty in proper gluten hydration, and make a heavier load on your mixer. Flours containing high quality protein, such as high gluten flour, result in a dough which can be very difficult to mix. If high gluten flour is used, reduce the batch quantity noted on the Mixer Capacity Chart by 10 percent to prevent overloading of the mixer.

The temperature of the water used in the recipes is 65 – 75°F. Colder water temperature will cause the dough to be harder to mix. If you plan to mix doughs using cold water, the batch size may need to be reduced by 15 – 20%.

Also considered and noted on the Mixer Capacity Chart is the moisture absorption ratio (AR). This is the ratio of the weight of water to the weight of flour expressed as a percentage.

$$AR = \text{weight of water} \div \text{weight of flour} \times 100\%$$

The absorption ratio gives an indication of the relative "heaviness" or "wetness" of a batch. In fact, the capacities listed on the Mixer Capacity Chart for the products listed below are based on the following absorption ratios:

PRODUCT	ABSORPTION RATIO
Heavy Bread Dough	55%
Medium Bread Dough	60%
Light Bread Dough	65%
Thin Pizza Dough	40%
Medium Pizza Dough	50%
Thick Pizza Dough	60%
Raised Donut Dough	65%
Whole Wheat Dough	70%

When mixing any of the above products with an absorption ratio lower than listed, decrease the batch size proportionately to assure efficient mixing of the product and thus eliminate the possibility of overloading your mixer. For example: An H600 mixer has a thin pizza dough capacity of 40 pounds at first speed based on an AR of 40% according to the Mixer Capacity Chart on page 14. If the batch has an AR of 30%, reduce the batch size to compensate for the difference. Compute the size of the reduction as follows:

1. Divide the AR of the batch to be mixed by the AR listed on the Mixer Capacity Chart.

$\frac{30\% \text{ Actual AR}}{40\% \text{ Rated AR}}$	=	75%
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2. Multiply the rated batch size by the percentage obtained in step 1. The result is the maximum batch size of the H600 mixer for pizza dough with 30% AR.

40 lbs. Rated Batch Size	×	75%
30 lbs. Maximum Capacity for 30% AR Dough		

Another factor often overlooked is the ability of your mixer to operate at a different speed. To prevent overloading, use the recommended mix speed from the Mixer Capacity Chart. Because of the toughness of a 40% AR thin pizza dough, a maximum mix time of 5 minutes on first speed is recommended. Second speed should never be used on 50% AR or lower products except on models P660, M802 or V1401. To mix 50% AR or lower doughs on second speed on models M802 or V1401, reduce batch size by 50 percent.

The speed of the mixer, length of mix time, room temperature and ingredient temperatures all affect dough temperature. To achieve the desired final dough temperature, you may need to adjust the water temperature.

For batch size capacities on other bread doughs not mentioned on the Mixer Capacity Chart, follow the batch size recommendation for a listed bread dough with a similar absorption ratio.

Mixer Capacity Chart — All Models

Recommended Maximum Capacities — dough capacities based on 70°F water and 12% flour moisture.

PRODUCT	AGITATORS SUITABLE FOR OPERATION	N50	A120	A200	D300	D340	H600	P660	L800	M802	V1401
CAPACITY OF BOWL (QTS. LIQUID)		5	12	20	30	30	60	60	80	80	140
CAPACITIES — SINGLE BATCHES											
Egg Whites	D	1/2 pt.	1 1/4 pt.	1 qt.	1 1/2 qts.	1 3/4 qts.	2 qts.	—	2 qts.	2 qts.	4 qts.
Mashed Potatoes	B & C	3 lbs.	10 lbs.	15 lbs.	23 lbs.	30 lbs.	40 lbs.	—	50 lbs.	60 lbs.	100 lbs.
Mayonnaise (Qts. of Oil)	B or C or D	1 1/2 qts.	4 1/2 qts.	8 qts.	12 qts.	13 qts.	18 qts.	—	22 qts.	30 qts.	50 qts.
Meringue (Qty. of Water)	D	1/4 pt.	3/4 pt.	1 1/2 pts.	1 qt.	1 1/2 qts.	1 1/2 qts.	—	3 qts.	3 qts.	5 qts.
Waffle or Hot Cake Batter	B	2 qts.	5 qts.	8 qts.	12 qts.	16 qts.	24 qts.	—	30 qts.	32 qts.	—
Whipped Cream	D or C	3 pts.	2 1/2 qts.	4 qts.	6 qts.	9 qts.	12 qts.	—	16 qts.	16 qts.	30 qts.
CAPACITIES — SINGLE BATCHES											
Cake, Angel Food (8-10 oz. cake)	C or I	2	7	15	22	30	45	—	60	60	120
Cake, Box or Slab	B or C	4 lbs.	12 lbs.	20 lbs.	30 lbs.	40 lbs.	50 lbs.	75 lbs.	80 lbs.	100 lbs.	185 lbs.
Cake, Cup	B or C	3 lbs.	12 lbs.	20 lbs.	30 lbs.	45 lbs.	60 lbs.	70 lbs.	80 lbs.	90 lbs.	165 lbs.
Cake, Layer	B or C	3 lbs.	12 lbs.	20 lbs.	30 lbs.	45 lbs.	60 lbs.	70 lbs.	80 lbs.	90 lbs.	165 lbs.
Cake, Pound	B	3 lbs.	12 lbs.	21 lbs.	30 lbs.	40 lbs.	55 lbs.	75 lbs.	80 lbs.	100 lbs.	185 lbs.
Cake, Short (Sponge)	C or I	3 lbs.	8 lbs.	15 lbs.	23 lbs.	25 lbs.	45 lbs.	—	70 lbs.	80 lbs.	150 lbs.
Cake, Sponge	C or I	2 lbs.	6 1/2 lbs.	12 lbs.	18 lbs.	40 lbs.	36 lbs.	—	54 lbs.	65 lbs.	140 lbs.
Cookies, Sugar	B	3 lbs.	10 lbs.	15 lbs.	23 lbs.	30 lbs.	40 lbs.	50 lbs.	50 lbs.	60 lbs.	100 lbs.
Dough, Bread or Roll (Lt.-Med.) 60% AR §	ED	4 lbs.	13 lbs.	25 lbs.□	45 lbs.□	45 lbs.□	80 lbs.*	90 lbs.*	80 lbs.*	170 lbs.*	210 lbs.*
Dough, Heavy Bread 55% AR §	ED	—	—	15 lbs.□	30 lbs.□	35 lbs.□	60 lbs.*	85 lbs.*	60 lbs.*	140 lbs.*	175 lbs.*
Dough, Pie	B & P	3 lbs.	11 lbs.	18 lbs.	27 lbs.	35 lbs.	50 lbs.	60 lbs.	60 lbs.	75 lbs.	125 lbs.
Dough, Thin Pizza 40% AR (max. mix time 5 min.) §†	ED	—	—	9 lbs.□	14 lbs.□	25 lbs.□	40 lbs.□	60□/40* lbs.	40 lbs.□	85 lbs.□	135 lbs.□
Dough, Med. Pizza 50% AR §†	ED	—	—	10 lbs.□	20 lbs.□	32 lbs.□	70 lbs.□	90□/70* lbs.	70 lbs.□	155 lbs.□	190 lbs.□
Dough, Thick Pizza 60% AR §†	ED	—	—	20 lbs.□	40 lbs.□	45 lbs.□	70 lbs.*	90 lbs.*	70 lbs.*	155 lbs.*	190 lbs.*
Dough, Raised Donut 65% AR	ED	—	—	9 lbs.*	15 lbs.*	25 lbs.*	30 lbs.†	75 lbs.*	40 lbs.†	60 lbs.†	100 lbs.†
Dough, Whole Wheat 70% AR	ED	—	—	20 lbs.	40 lbs.	45 lbs.□	70 lbs.	90 lbs.*	70 lbs.	150 lbs.*	185 lbs.
Eggs & Sugar for Sponge Cake	B & C or I	2 lbs.	5 lbs.	8 lbs.	12 lbs.	18 lbs.	24 lbs.	—	36 lbs.	40 lbs.	75 lbs.
Icing, Fondant	B	2 lbs.	7 lbs.	12 lbs.	18 lbs.	25 lbs.	36 lbs.	—	45 lbs.	65 lbs.	100 lbs.
Icing, Marshmallow	C or I	1/2 lb.	1 1/4 lbs.	2 lbs.	3 lbs.	4 1/2 lbs.	5 lbs.	—	6 1/2 lbs.	10 lbs.	20 lbs.
Shortening & Sugar Creamed	B	3 lbs.	9 1/2 lbs.	16 lbs.	24 lbs.	35 lbs.	48 lbs.	50 lbs.	55 lbs.	65 lbs.	120 lbs.
Pasta, Basic Egg Noodle (max. mix time 5 min.)	ED	—	—	5 lbs.	8 lbs.	15 lbs.□	30 lbs.	40 lbs.□	30 lbs.	65 lbs.★	100 lbs.★

□ 1st SPEED

* 2nd SPEED

† 3rd SPEED

§ If high gluten flour is used reduce above dough batch size by 10%.

† 2nd speed should never be used on 50% AR or lower products with the exception of the P660, M802 & V1401. The M802 & V1401 require a 50% reduction in batch size to mix in speed 2 with 50% or less AR doughs.

★ This application may require an extended column.

NOTE: % AR (% Absorption Ratio) = Water weight divided by flour weight. Capacity depends on moisture content of dough. Above capacities are based on 12% flour moisture at 70°F water temperature. Colder water temperatures require reduction in loads by 15 – 20%. Use of ice requires a reduction in batch size by 15 – 20%.

One gallon of water weighs 8.33 lbs.

NOTE: Attachment hub should not be used while mixing.

ABBREVIATIONS – AGITATORS SUITABLE FOR OPERATION

B – Flat Beater

C – Wing Whip (4-Wing: 12 thru 30 qt., 6-Wing: 40 thru 140 qt.)

D – Wire Whip

ED – Dough Arm (20 thru 140 qt.)

I – Heavy Duty Wire Whip (30 qt. thru 140 qt.)

P – Pastry Knife

CREAMING OR RUBBING WITH THE B FLAT BEATER

When making cakes or similar products, the first step is normally rubbing or creaming the shortening. Start this work on first speed and complete it on second speed. If a very light consistency is desired, it may be beaten on third speed before adding more ingredients.

In most formulas, the second step is adding sugar. Most operators prefer to add sugar slowly while the mixer is operating in second speed on a three speed mixer or second or third speed on a four speed mixer. If you wish to add the sugar all at one time, complete the creaming of the shortening and then stop the machine. When adding the sugar, place it toward the center of the bowl. Start the machine in first speed for the first few turns around the bowl, then increase the speed to complete the operation. After all the sugar has been added, you may want to scrape down the bowl. To scrape the bowl, first stop the mixer. After the beater has stopped, scrape down the sides of the bowl with a bowl scraper or spatula. This returns to the mixture any material which may have accumulated on the bowl sides above the beater shoulder. After scraping down the material, restart the mixer. Beat until smooth using second speed on a three speed mixer or third speed on a four speed mixer. Be careful and do not overmix.

CAKES WITH A HIGH SUGAR CONTENT

To help avoid darkening of light cake batters with a high sugar content when using a tinned bowl, add whole eggs gradually to the batch before beating is complete. Do not add the total amount of whole eggs to the batch at one time.

Darkening of the butter and sugar mix can also result if:

- You add the sugar before the shortening is creamed,
- You add the sugar too quickly to the creamed shortening, or
- You add more sugar than the creamed base can absorb.

When mixing whole eggs, it is unnecessary to separate the whites from the yolks. Add the eggs slowly and allow them to become thoroughly incorporated into the shortening base.

Flour and any leavening agent, such as baking powder, soda or special combinations of dry ingredients, may be sifted together. When incorporating dry ingredients, stop the mixer (wait for the beater to stop), scrape down the bowl if necessary, and then add about $\frac{1}{3}$ of the flour and a portion of the milk or added moisture in any form. Resume mixing in first speed. When the flour is incorporated, add half of the remaining liquid and flour. When this is blended, add the remaining liquid and flour. Use only first speed on either a three or four speed mixer while adding flour. If necessary, start and stop the mixer by using the switch or clutch lever during incorporation of the flour. This prevents raw flour from being thrown out of the mixer and avoids toughening of the mix by overmixing.

Exercise caution not to overmix the batch during or after the addition of the flour. Usually, by the time the flour is thoroughly incorporated, the mix is completed. Further beating is of no benefit and may cause toughening of the product. The time for beating and creaming is before adding the flour. After the flour and final moisture is added, do as little mixing as possible.



WHIPPING

Use either the D Wire Whip or the C Wing Whip for whipping operations. Although some special operations require other adaptations of the same general type of agitator, our discussion centers on the D Wire Whip and the C Wing Whip.

The D Wire Whip (sometimes called balloon or cage whip) is recommended for whipping cream. With today's marketing conditions, most raw or fresh cream whips well. All cream should be at least 36 to 48 hours old, and should be sufficiently high in butterfat to allow the air to be introduced by whipping. Cream should be cold, but not so cold that ice crystals are formed. When cream is too warm, it turns to butter when whipped. Start the mixer in first speed and gradually increase the speed finishing on third or fourth. The amount of total whipping will depend on the condition, temperature and butterfat content of the cream and the type of product being prepared. An experienced operator will recognize the point of greatest firmness or stiffness in the whipped product. Use care, the small diameter wires that produce good whipping can break if used to mix heavy product or if the whip is rapped on the side of the bowl to remove excess product.

The C Wing Whip may be used for cream whipping, but it is somewhat slower in operation. One of its principal uses in the kitchen is for whipping potatoes. Of course, whipped potatoes are cooked and then whipped while hot. The potatoes must be soft enough to break up easily by the action of the C Wing Whip in low speed. They may then be finished in second or third speed on a three speed mixer. It is not advisable to whip potatoes in fourth speed on a four speed mixer without using a splash cover. If other ingredients (hot milk, butter or other enriching material) are added, use low speed. The C Wing Whip is excellent for whipping butter.

The C Wing Whip may also be used for mixing salad dressing and light mayonnaise. Since it is an aerating type whip, it reaches its greatest efficiency at the higher speeds.

The D Wire Whip is generally used for eggs. When you whip only egg whites, begin in first speed. When the material begins to expand, progress to second speed. Due to the expansion of the product from the incorporation of air, bowl capacity is limited by the volume of the final product, not by the amount of liquid ingredients at the beginning.

When egg whites are whipped, they are generally finished in high speed on either a three or four speed mixer. When adding sugar to make a meringue, add the sugar at slow speed and then whip briefly in second speed on a three speed mixer or third speed on a four speed mixer.

Over-whipping will result in a refining action which liberates air. Stop the mixer as soon as a dry-appearing peak is reached.

When whipping eggs, either whites or whole eggs, it is important to have the bowl and the agitator completely free of any trace of shortening or other oily material. The slightest amount of fat will prevent proper incorporation of air. See 'CLEANING NEW MIXER BOWLS AND AGITATORS' on page 6. In some kitchens and bakeries, it has become general practice to keep certain bowls only for this purpose.

You may also use the C Wing Whip for whipping eggs or egg whites. However, the results are somewhat slower than produced by the D Wire Whip.



MAYONNAISE

The C Wing Whip, because of its strength, high efficiency, and durability when used on larger mixers, is most commonly used for making mayonnaise. However, the D Wire Whip may be preferred when making very light batches or when using smaller bowls (5 to 30 quart).

When you do not need a high emulsion, you may use the B Flat Beater. The B Flat Beater may be used for French or other thin types of salad dressings. The C Wing Whip can also provide satisfactory results by operating the machine at a slow speed.

Because of the great variation in types of mayonnaise and a still wider range of salad dressings known under other names, we will not supply a specific mayonnaise formula. All formulas, however, require the introduction of liquid ingredients, the most important of which is vegetable oil. This may be corn oil, peanut oil, soybean oil, palm oil, safflower oil or several others. You must add the oil slowly, and the operator must pay close attention.

When making mayonnaise, eggs are first thoroughly whipped, then spices, flavoring or other ingredients are added at slow speed. These may have been previously mixed together, perhaps with a portion of vinegar or other mild acid. After blending these ingredients, the mixer may be operated in third speed (or fourth). Add the oil very slowly over an interval of 10 to 20 minutes. Add vinegar or vinegar and water toward the end of the interval when oil can be added. You may wish to stop the mixer (wait for the beater to stop), then scrape the sides of the bowl to return any splashed materials to the batch. Start the mixer on slow speed, then advance to medium for a short period of mixing.

The times given are approximate and not based on any particular formula. However, do not continue beating or mixing after adding the last of the vinegar.



Attachments and Accessories

Several valuable time and labor saving attachments and accessories are available for use with Hobart mixers. These tools will extend your usage of the mixer and enhance your operation by efficiently producing additional consistent, uniform products. Thoroughly clean all parts which come in contact with food both before and after use.

9" VEGETABLE SLICER

The 9" Vegetable Slicer attachment allows you to prepare many additional foods with your Hobart mixer. The standard knife and shaft is adjustable to provide variation in slice thickness from a maximum of about $\frac{5}{8}$ " to wafer thin. Thicker settings are used for slicing vegetables for salads or cole slaw, slicing potatoes for German (cottage fries) or American fried potatoes, slicing cucumbers, bananas, nuts, apples, etc.

The 9"VS is easily adapted for grating or shredding processes by removing the knife and shaft and using the shaft with the wheel, called a plate holder. One grater plate and four shredder plates (with hole sizes of $\frac{3}{32}$, $\frac{3}{16}$, $\frac{5}{16}$ and $\frac{1}{2}$ ") are used for fine grating or fine to coarse shredding. The most coarse shredder plate ($\frac{1}{2}$ ") is used for slaw, cutting soup stock, salad blends or hash brown potatoes. Experience with the unit will suggest many other products to the operator. The medium and fine shredder plates are for finer cuts on carrots, mushrooms or cabbage hearts for salad or quick cooking uses. Medium shredder plates are also used for shredding processed cheese for a topping when desired. The grater plate is used for natural hard cheeses for pizza, grating hard vegetables, spices, and crumbing dried bread.

In addition to the standard hopper front, we make a tubular front for slicing softer materials or for making straight cuts. Chilled pepperoni is uniformly sliced with the tubular front.

Many different products can be prepared with the 9" Vegetable Slicer — in kitchens, bakeries or delicatessen operations. As a mixer attachment, the vegetable slicer should operate at second or third speed on Hobart planetary mixers. Operation in fourth speed is not recommended.

The 9"VS easily disassembles for cleaning.



SHREDDER AND GRATER PLATES 9"VS



9" VEGETABLE SLICER

MEAT CHOPPER ATTACHMENT

The Meat Chopper Attachment allows you to prepare many additional foods with your Hobart mixer. A plate having $\frac{1}{8}$ " holes comes with the Meat Chopper Attachment when shipped from the factory. Other plates are available with hole sizes $\frac{5}{64}$, $\frac{3}{16}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$ and $\frac{11}{16}$ " for fine to coarse chopping. The results are the same as produced by Hobart commercial meat choppers. Operate Meat Chopper Attachments in first or second speeds on N50 mixers. Operate Meat Chopper Attachments in second or third speeds on A120, A200, D300, D340, H600 and L800 mixers. Operate Meat Chopper Attachments in only second speed with M802 and V1401 mixers and in only first speed with P660 mixers.

The feed pan should be kept in place in the cylinder for ease of feeding. Cut meat into strips and feed it into the chopper using the feed stomper only as needed. If the strips are cut to proper size, they will feed without using the feed stomper, freeing both of the operator's hands. Substances that could become packed tight in the chopper like **bread crumbs are not recommended**. If material in the cylinder stalls the mixer, push the STOP button at once. DO NOT attempt to restart at a slower speed. Remove the adjusting ring, knife, plate and worm and clear the obstruction.

Always keep the drain hole on both the Attachment Hub and Meat Chopper clean, clear and free of obstruction.



MEAT CHOPPER ATTACHMENT

SPLASH COVER AND BOWL EXTENSION RING

Splash Covers and Bowl Extension Rings provide a means for reducing splashing for certain mixes at higher speeds. Splash covers fit under the Bowl Guard on 12 quart and larger mixer bowls. The stainless steel Extension Ring is available in only 60 and 80 quart sizes.

Splash Covers and Bowl Extensions, while convenient accessories, should not be used to increase the mixing capacity beyond the recommended maximum. The best functioning of Hobart mixers requires room at the top of the bowl for aeration and manipulation. The true capacity of a mixer is not the amount of material that can be put in the bowl. Nor is it the batch size that may be mixed by the power of the motor. The true capacity and the most efficient operation is the ideal load which permits a mixer to operate at peak efficiency.

Splash Covers on larger mixers have a smaller diameter opening at the top due to their inverted cone shape. Overloading the mixer while a splash cover is in use reduces aeration because of restriction in the area where air enters the batch. Capacity charts are an excellent guide for maximum efficient use of the mixer. However, your own experience will dictate the proper capacities and the need for splash covers and bowl extensions.



SPLASH COVER



BOWL EXTENSION RING

INGREDIENT CHUTE

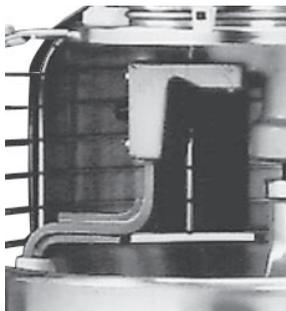
The Ingredient Chute, available for each mixer (20 quart or larger), can be attached to the Wire Cage on the Bowl Guard. The Ingredient Chute allows ingredients to be added to the bowl while the mixer is mixing.

BOWL SCRAPER ATTACHMENT

The mixer Bowl Scraper Attachment is available for individual model mixers, A200 to V1401, and for secondary bowl sizes on 60, 80 and 140 quart mixers. This attachment scrapes the sides of the bowl as the agitator rotates to re-introduce material into the mixture.



INGREDIENT CHUTE



BOWL SCRAPER ATTACHMENT

BOWL TRUCK

Bowl Trucks or dollies provide convenience, save time, and reduce effort in handling large batches. Use a Bowl Truck for any batches over 50 pounds. Bowl Trucks are available for all floor model Hobart planetary mixers. Any 60, 80 or 140 quart bowl may use the same truck. However, you need to use a Bowl Truck Adapter when using 30 or 40 quart bowls on the larger mixers. This extends the usefulness of Bowl Trucks in an operation using several sizes of floor model Hobart planetary mixers. Remove heavy batches of dough or batter from the mixer by opening the bowl clamps and lowering the bowl to the Bowl Truck. Then, carefully roll the truck away to make room for the next batch. Move the material to another location where it is to be used, or refrigerate between mixing and further processing. Bowl Trucks save time, reduce handling, and improve work flow. They are valuable tools in a work place.

BOWL ADAPTERS

As discussed previously in this booklet, optional bowl adapters allow the use of different capacity bowls on Hobart planetary mixers.



BOWL TRUCK



BOWL ADAPTER



BOWL TRUCK ADAPTER

Backing Up Your Purchase Dependable Hobart Service

Should your Hobart mixer, attachments or accessories ever require service, it's good to know that more than 1600 factory trained technicians in more than 200 Hobart service facilities nationwide, can keep your mixer working like new.

For ready reference, write down your mixer model and serial numbers here. Should a question or problem arise that this booklet or the instructions you received with the machine cannot answer, expert Hobart assistance is as close as your telephone.

Or, contact Hobart on the internet . . .

www.hobartcorp.com



Model No. _____
Serial No. _____

Hobart Service Location _____
Telephone Number: _____