APV

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OPERATION & SERVICE MANUAL

APV GAULIN HOMOGENIZERS

MODELS: M3 - M6 - M12 -
MC18 - MC45 - MC75
MC100 - MC140

Model 7MC05-124-2PS
M/S 6611485

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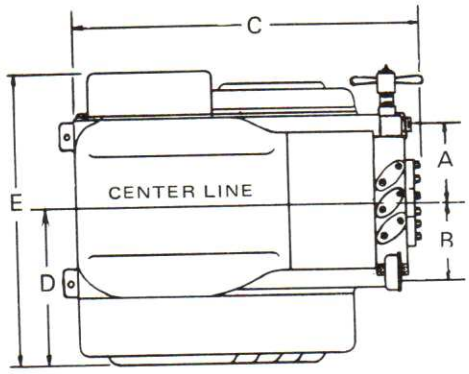
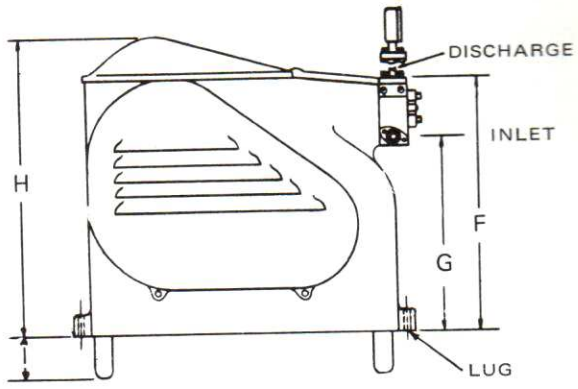
$25.00

MACHINE WEIGHT AND DIMENSIONS

MODEL M3 & M6 HOMOGENIZERS

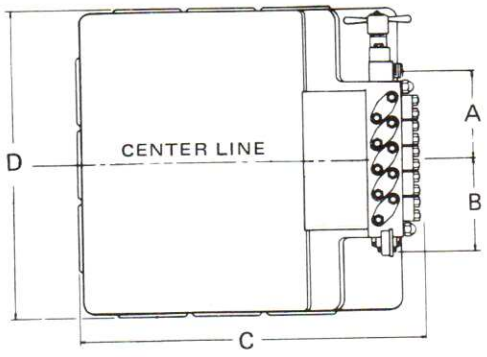


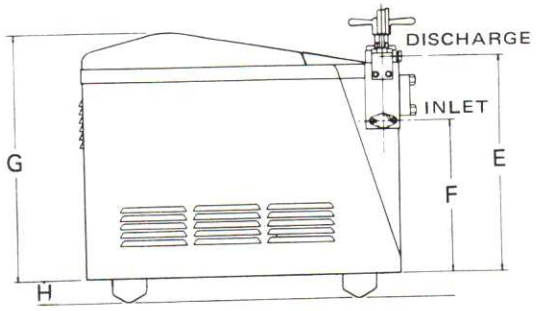


Frame Size	A	B	C	D	E	F	G	H	I	Gross Wt. (less motor)
M3	7″	8″	33″	15″	29″	34″	27½″	37¼″	5″	1500 lbs.
M6	10″	11½″	45″	21″	39″	34½″	28	41½″	6″	3400 lbs.

NOTE: Lug extends 2½″ beyond base. Cast lug base optional.

MODEL M12 & MC HOMOGENIZERS





NOTE: Models MC18 and 45 are three-plunger machines
Models MC75 and 100 are five-plunger machines
Model MC140 is a two-cylinder, six-plunger machine

Frame Size	A	B	C	D	E	F	G	H	Gross Wt. (less motor)
M12	10¾″	12½″	46 13/16″	40″	37 13/16″	29¼″	42¾″	7½″	3,600 lbs.
MC18	11⅛″	12¼″	65″	46½″	38½″	27″	43¾″	4¼″	5,400 lbs.
MC45	12¾″	14⅞″	83″	50″	50¼″	35¾″	56¾″	4¼″	9,000 lbs.
MC75	18¾″	20½″	83″	61″	51⅜″	35¾″	56¾″	4¼″	10,500 lbs.
MC100	18¾″	20½″	83″	61″	51⅜″	35¾″	56¾″	4¼″	13,000 lbs.
MC140	31 1/16″	34 31/32″	96″	101″	67″	44″	62½″	4¼″	21,000 lbs.

NOTE: Dimensions and weights are correct – exceptions are A and E dimensions (suction and discharge connections) which will vary depending on customer specifications. Dimension H is minimum adjustment to one inch.

Figure 1

HOMOGENIZER IN A BATCH SYSTEM

The same constant requirements as described above are in order. Because such systems are usually not designed for continuous operation, more care is required in operation. If system allows, it should be automated to re-cycle instead of running out of product. At the very least, a low-level alarm system should be installed to signal the operator when the time has come to remove pressure. Proceed as follows:

1. Turn on cooling water for plungers and oil cooler.
2. Check oil level gauge at back of machine. It should show a level in the center of the gauge glass.
3. Before starting the homogenizer every day, make a practice of opening the petcock at the back of the oil sump to drain off any condensation which has separated from the oil while machine was shut down.
4. Back off (counter-clockwise) handwheel(s) or HVA control knob(s) several full turns.
5. Open re-cycle valve (if one is in system) so product can flow back to homogenizer infeed line (while pressure is being applied.)
6. Open product valve, start feed pump and homogenizer.
7. When air is expelled and machine is pumping smoothly, turn clockwise, second-stage handwheel or control knob bringing pressure up to desired setting (see table of suggested pressures below.)

NOTE: The second-stage handwheel is the wheel located next to the discharge fitting.

8. Turn the first-stage handwheel or control knob down for required total gauge pressure.
9. For the first several days, additional tightening of the upper and front cylinder cap nuts is advised. This will help to seat the upper and front cap gaskets.

HOMOGENIZING PRESSURE

The pressure required will depend on: product temperature, nature of product, shelf life desired, amount of air in product, heat history of product, homogenizing valve condition & type and even the condition of pump valves & seats. Accordingly, the following table lists only the normal range. Actual pressures will be determined by trial and error for the optimum efficiency possible, with the product, the machine, and the system involved.

In order to shut down the homogenizer, back off handwheel(s) or turn off HVA switch. Usually, machine and piping system is flushed out before stopping the homogenizer.

MAXIMUM OPERATING PRESSURE FOR YOUR MACHINE

This point cannot be emphasized too strongly because of the serious consequences which will result if the warnings are not understood and observed. See name plate and sheet, "This is Your Machine", for your machine maximum pressure.

The controlling factors which limit the operating pressure of the machine are in either the cylinder end, the power drive end, or the motor. Plunger diameter (area) will determine the loading on the power drive end. Cylinder block design limits its loading to a specific value. The available motor horsepower in the machine will limit the pressure even if the power drive end and cylinder are capable of higher pressure. The coding on the name plate will give the maximum pressure allowed by the cylinder or the power drive end, whichever is lower. The red pointer setting on the product pressure gauge attached to the cylinder will give the maximum safe pressure.

SUGGESTED OPERATING PRESSURES FOR DAIRY PRODUCTS

PRODUCT	2ND STAGE	1ST STAGE/TOTAL GAUGE READING
Fluid Milk	300 to 500 psi	1500 to 2500 psi
Half and Half Milk	500	1800 to 3000 psi
Coffee Cream	(Use pressure on 1st stage only)	500 to 1000 psi
		none
Soured Cream	optional	1500 to 2500 psi
Evaporated Milk	300 to 500 psi	2000 to 3000 psi
Soft Serve Mix	300 to 500 psi	2000 to 3000 psi
10–12% I.C. Mix	300 to 500 psi	2000 to 3000 psi
16% I.C. Mix	300 to 500 psi	1500 to 2500 psi
Sterile Milk	300 to 500 psi	2500 to 5000 psi

Figure 14