

Operating Instructions

SpeedMixer™ DAC 800.2 VAC-LR



Machine Identification:

SpeedMixer™

Machine Type:

DAC 800.2 VAC-LR

Software Version:

V25

Machine Number:

100000020

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1. Safety instructions

1.1 Instructions for use

The SpeedMixer™ can be used for mixing paste with paste, paste with powder, powder with powder etc. Typical applications are the mixing of sealing compounds and coating agents (as e.g. silicone, polyurethane and acrylate), enamels, print colors and pigments, as well as the mixing of one, two or multi-compound products in liquid or paste-like form. **Also, please note that prior to mixing under vacuum, it is important to drill a hole at least 2mm in diameter lid of the mixing cup. This will prevent any possible issues with gasses escaping from the cup.**

1.2 Precautionary measures / Emergency Unlocking Mechanism:

The SpeedMixer™ can be operated without any risks whatsoever when it is used properly. Nevertheless, dangerous situations can occur with incorrect operation, e.g. by manually unlocking the electromagnetic locks (figure 2b) during the mixing process. The emergency unlocking mechanism may only be used if the mixer has been unplugged or turned off with the emergency stop switch.

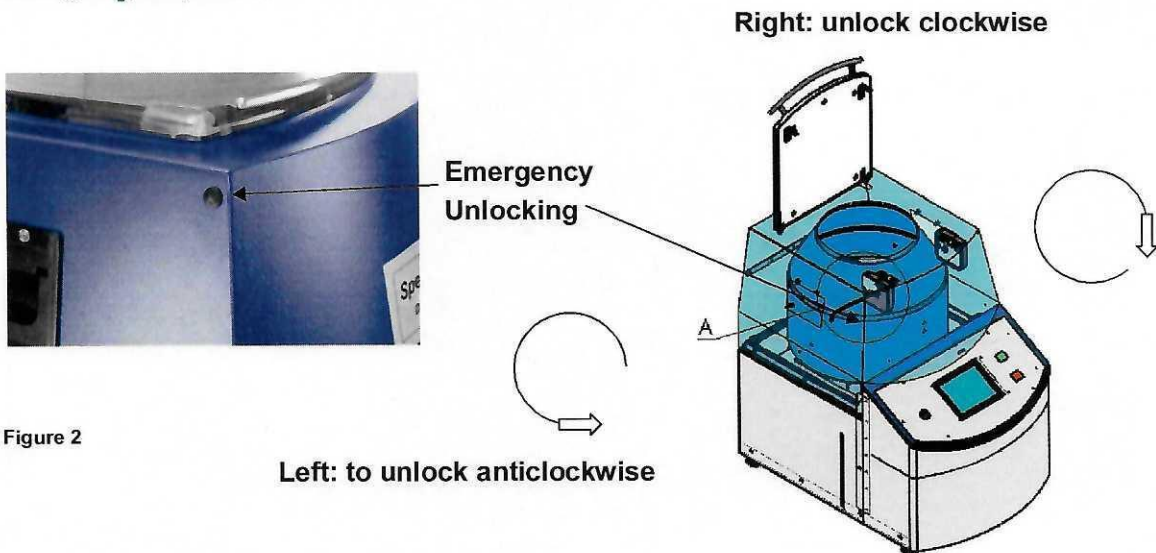


Figure 2

Figure 2a

The emergency unlocking mechanism is used to open the lid manually in the case of a power failure while mixing etc.

A tool for using the emergency unlocking mechanism will be included with the machine or can be ordered from FlackTek Inc., 1708 Highway 11 Bldg. G, Landrum, SC 29356.

For maintenance and repair work, the mixer must be disconnected from the mains before opening the enclosure.

WARNING: Always wait for at least 3 minutes until live components are discharged before manually unlocking the lid.

To manually unlock the lid, first remove the two black covers (Figure 2). Then insert the tool into the lid lock and turn (Figure 2b) and (Figure 2c).

Emergency Unlocking:

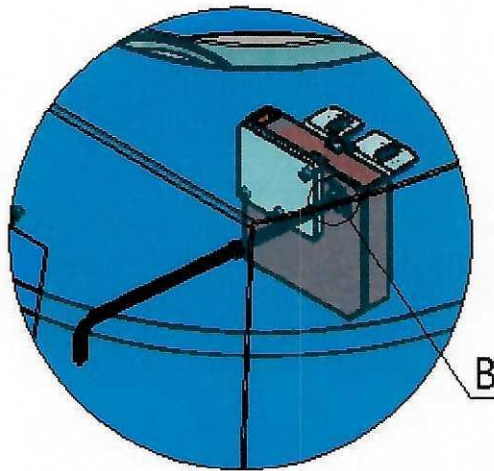


Figure 2b: Section A in Figure 2a

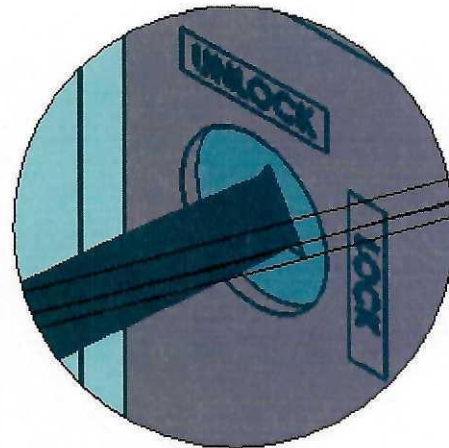


Figure 2c: Section B in Figure 2b

When the operator faces in front of the machine, the left lock can be opened by turning anticlockwise and the right lock can be opened by turning clockwise.

When operating under vacuum, the following points should be noted:

- The maximum negative pressure (vacuum) for the device must not be less than 3mbar. Therefore, It is not recommended to use a vacuum system which might exceed a vacuum of 3mbar.
- The maximum pressure during venting shall not exceed 1450mbar (absolute pressure). When venting with compressed air or nitrogen it is critical that the vent gas is regulated so that this pressure is not exceeded.
- Always vent to ambient pressure before removing the vacuum drum. This negates the danger of explosion / implosion. Before removing the vacuum drum, the vacuum chamber must be purged!

Manufacturer guidelines limit the use of the SpeedMixer to non-explosive, non-flammable materials. If high energy / explosive, or flammable materials are utilized, users must implement adequate safety procedures based upon their own experience and expertise with such materials, in accordance with all published industry-standard safety practices.

Hauschild & Co. KG and FlackTek, Inc. can accept no liability, nor can we suggest alternate safety guidelines, for the use of a SpeedMixer outside of published parameters.

The SpeedMixer™ should never be operated underweight (<500g) or overweight (>800g). mixing weights outside this range could damage the machine or cause excessive vibration. This can put the entire machine into motion, damaging in the surrounding area and in the worst case, cause personal injury!

The mixing cups as well as the basket may become hot if excessive time and/or RPM are used. Use appropriate gloves and protective equipment to remove the cup if mixing for extended times or at high RPM.

IMPORTANT: Cups can melt if temperatures over 100°C are reached!



For reasons of safety, we advise that unauthorized opening of the enclosure, any technical modification of the SpeedMixer™, including the available software and/or the parameters, will result in the termination of the manufacturer's warranty.

The SpeedMixer™ contains a frequency converter for the motor drive.

Leakage currents from frequency converters impede personal safety in electricity networks, where frequency converters are used. Personal protection according to the concept of the German VDE regulation EN 61008-2-1 (09/2007) [VDE 0664 part 100 (RCD type B)] and EN 50178 can be achieved with an all-mains sensitive ground fault circuit interrupter, with its frequency response characteristic adjusted to the typical leakage currents of frequency converters.

Technical causes:

In the case of an insulation fault in the frequency converter, a direct current error may occur. This could drive the core of a customary ground fault circuit interrupter to saturation. Therefore the function of this circuit breaker is considerably impaired.

Furthermore, the line filters installed to the SpeedMixer™ create leakage current in the protective conductor.

The line filters are necessary to meet the statutory EMV safety measures (electromagnetic compatibility, radio shielding). Such leakage currents can combine with line filters during operation with other devices and thus activate the residual-current-operated protective device (RCD).

Remedy:

We recommend back fitting of the mains by an electrician with an all-current sensitive ground fault circuit interrupter.

Further information is provided by the vendors of all-current sensitive ground fault circuit interrupters, e.g. at <http://www.doepke.co.uk/>

Please direct all inquiries to FlackTek:

FlackTek service: Phone: (864)895-7441, Fax: (864)895-7442
E-mail: SpeedMixer@FlackTek.net
1708 Highway 11, Bldg. G, Landrum, SC 29356

1.3 Operator

Prior to the use of the SpeedMixer™, each operator should have read the operating instructions and received proper training. In order to prevent improper operation, the primary SpeedMixer™ operator should make sure that every other user has been trained, and understands the proper operating practices before allowing them to use the equipment.

2. Set-up instructions

2.1 Unpacking the SpeedMixer™

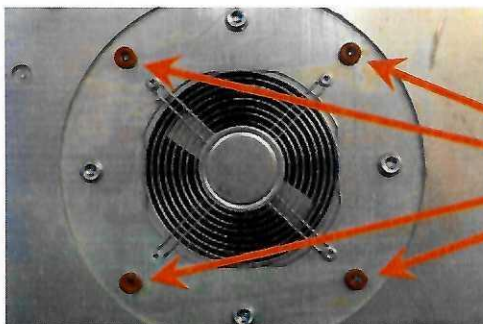
The SpeedMixer™ is carefully packed in a wooden crate and shipped to you with a transport protection installed. When you receive your SpeedMixer™, please check the packaging for any damage during shipping. In the event of damage, please report the damages to FlackTek immediately and do not open the box/crate.

The machine has a weight of approximately 98 kg and should be moved at by at least two people.

1. Place the crate on sound, level surface
2. Open the wooden crate by removing the painted screws.
3. Remove the cover as well as the sides of the wooden crate.
4. Remove packaging material and accessories.
5. You can remove all sides or only the front and rear side. When all sides are removed, you can easily lift the machine from the base of the crate onto the stand.
6. Slightly tilt the machine back onto its wheels by lifting the front (with 2 persons). Roll the machine far enough out of the crate that you can reach the folding handles on the sides of the machine.
7. Lift the machine onto the stand with at least 2 people. Make sure that the floor is sound and level.
8. Make sure that the machine is level. The feet of the machine (13mm wrench) and the stand are adjustable to help level it.

2.2 Transport lock

It is important to remove the transport lock before commissioning the machine!



The transport lock consists of four red screws, which are attached to the bottom of the machine.

Figure 3

2.2.1 Removing the transport lock

Place the machine on the floor or a solid table able to carry the load. Leave approx. 1 m space adjacent to the machine to allow for putting the machine on the side. Place a soft support pad (e.g. polystyrene from the packaging material) to the right of the machine. Please do not lay the machine on its power switch. Lift the machine at the left handle (with two people, if possible) so that you can tilt it to the right side. Remove the red screws with the supplied tool.

2.2.2 Transport lock – storage

The transport lock bolts should be kept for another transport. Please ship the machine only with the transport lock installed.

2.3 Setup

Do not expose the machine to excessive moisture. The machine should be installed in a location where it will not be exposed to water and/or water vapor.

Do not insert anything into the machine through the ventilation slots.

The SpeedMixer™ should be placed to a sound and level surface which will support the weight of the machine as well as the forces exerted during the start and stop phase. There will be slight vibrations/shaking during operation of the machine. Make sure that surface where the machine is installed provides enough stability.

2.4 Electrical connection

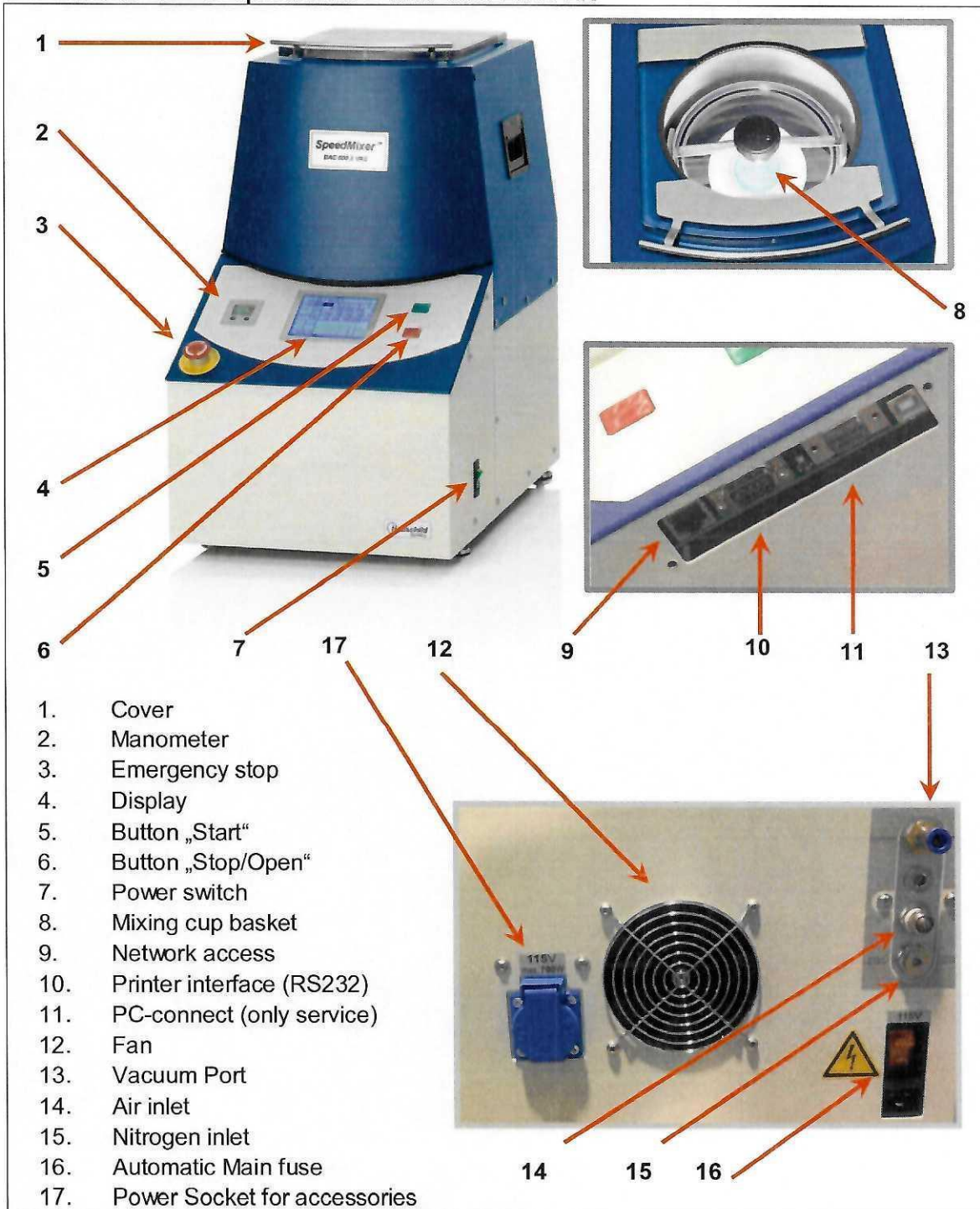
The SpeedMixer should only be connected to an approved CEE shockproof socket is available (electrical connection: 115V/50Hz/1200W). When the machine is started, increased load is temporarily drawn (up to 2500W). Please make sure that the circuit for the SpeedMixer™ is not overloaded by other electric devices. The machine is equipped with an automatic 16 A main fuse. It is located on the back of the machine. If the fuse has tripped, the light on the fuse will go out. Wait at least for 2 minutes until reactivating the fuse. If the fuse trips repeatedly, contact FlackTek at SpeedMixer@FlackTek.net.

FlackTek-Service: Tel.: (864)895-7441, Fax.: (864)895-7442, Email: SpeedMixer@FlackTek.net

3. Machine description

The SpeedMixer™ has a robust metal enclosure, which contains the motor and the electronics. A powerful motor rotates the basket and the mixing cup. The rotary forces produce homogeneous mixtures which are free from bubbles.

3.1. General view of SpeedMixer™ DAC 800.2 VAC-LR



3.2 Machine description

Connection vacuum pump

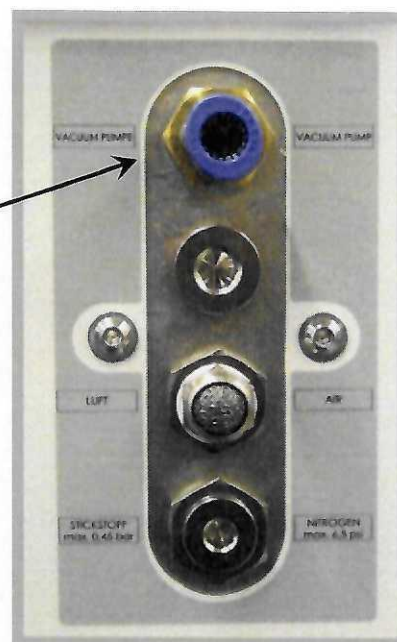


Figure 5

The devices' vacuum drum can be evacuated by any vacuum source. The vacuum source connection can be found on the back of the machine.

3.2.1 General instructions for operation

- The maximum (vacuum) for the device must not be less than 3mbar. Therefore, only use a vacuum source which will not exceed a maximum low pressure of 3mbar.
- The maximum positive pressure must not exceed 1450 mbar (21 psi). When venting with compressed gas such as nitrogen, use a regulator to ensure that the pressure is not exceeded.
- Before you disassembling the vacuum drum, the vacuum chamber must be purged!
- The current pressure inside the SpeedMixer™ is displayed on the manometer. To balance pressure inside the machine with ambient pressure, power the machine on and remove the vacuum lid. **When mixing under vacuum, make sure that the mixing cup you are using has an opening, so the air can escape/enter safely.**

3.3 Digital Manometer

The SpeedMixer™ features a high-precision digital manometer, indicating the current pressure in the mixing drum.

The accuracy is $\leq 0.5\%$ for pressures ≥ 6 mbar ($\leq 1\%$ for pressures < 6 mbar).

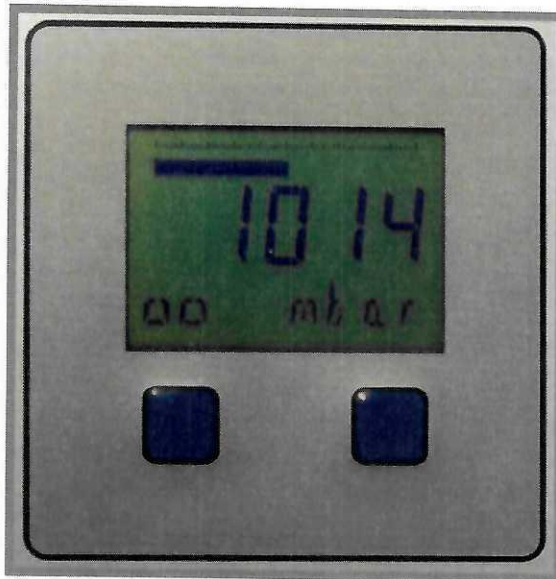


Figure 6

3.3.1 Operating the Manometer

The digital pressure gauge is equipped with two buttons and a display. At the top of the display it shows a bar graph. If the bar is displayed to the middle, the measured value is about 1000 mbar, at low pressures, the bar display is reduced to the left, at higher pressures it is enlarged to the right. The display is factory set to mbar.

3.3.2 Menu options (Units)

The manometer allows indicating the pressure in various units.

Customizable units: [mbar], [bar], [Pa], [hPa], [kPa], [psi], [atm] [torr], [mmHg] or [user].

Provided units are mbar, Torr, inHG, PSI for the SpeedMixer™.

The units displayed on the display and the manometer are set individually. If changing from the default (mbar), both the display and the manometer unit must be changed in order to get them to match.

To change the unit, repeatedly press the right button on the gauge until the display changes to [UNIT]. Then press the left button, the [UNIT] flashes.

Use the right button to select the unit. Press the left button to confirm the selection. With the right button the display can be switched to the standby mode (in mbar, for example).

3.4 Additional power socket for accessories

On the back of the Speedmixer™ is a NEMA-socket for the use of accessories, such as a vacuum pump.

The vacuum pump can be connected and controlled via the touchscreen. Operation of the socket is explained in Section 4.6 Setup> 4.6.6. Socket. The power of the connected device must not exceed 700W, otherwise the fuse inside the Speedmixer™ will trigger and need to be replaced. The fuse is an 8A time delay fuse (5x20).



Power socket



Fuse



4. Operating instructions

4.1 Commissioning

Please ensure that the transport lock was removed prior to initial commissioning (see 2.2).

Before commissioning the machine, the window should be closed and locked. Please disengage the emergency stop if it has been accidentally pressed. Unlock it by turning it in the direction of the arrow, if applicable.

Now power on the machine with the power switch at the right side. The SpeedMixer™ logo and the firmware version (e.g. V 25) will appear on the screen as it loads.



Figure 7

Then the display will show the programs. The machine is ready for operation.

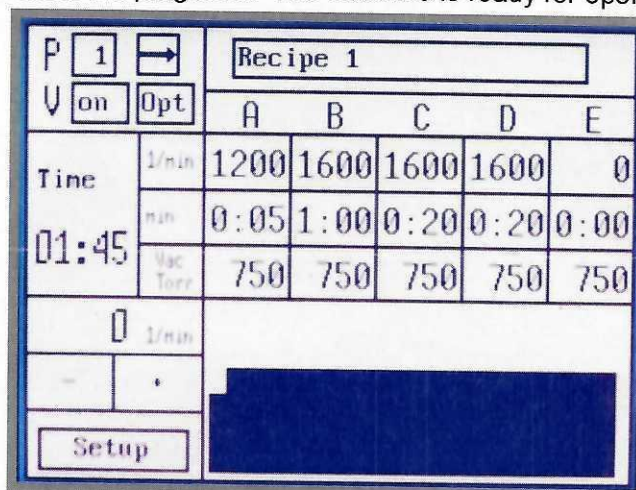


Figure 8

The display has a touch-sensitive screen, all settings are made via the display.

4.2 Program descriptions

The SpeedMixer™ provides a total of 20 mixing programs. The programs are shown on the display with P1-P20 (2). The speeds and mixing times in each phase A, B, C, D and E (10/11) are fully programmable. The adjustment of the speed ranges from 800 to 1600 rpm. 0 rpm can be selected for a break between the individual phases. The time of each mixing phase can be set from 0 sec to 9:59 min. The total possible mixing time (all phases AE) is 10 minutes.

The desired final pressure can be set in the vacuum fields (12). The set vacuum level is displayed in mbar (other Sec. 3.2.2.). The minimum selectable pressure is 3 mbar, the maximum selectable pressure is 1000 mbar. Any value in this range can be selected.

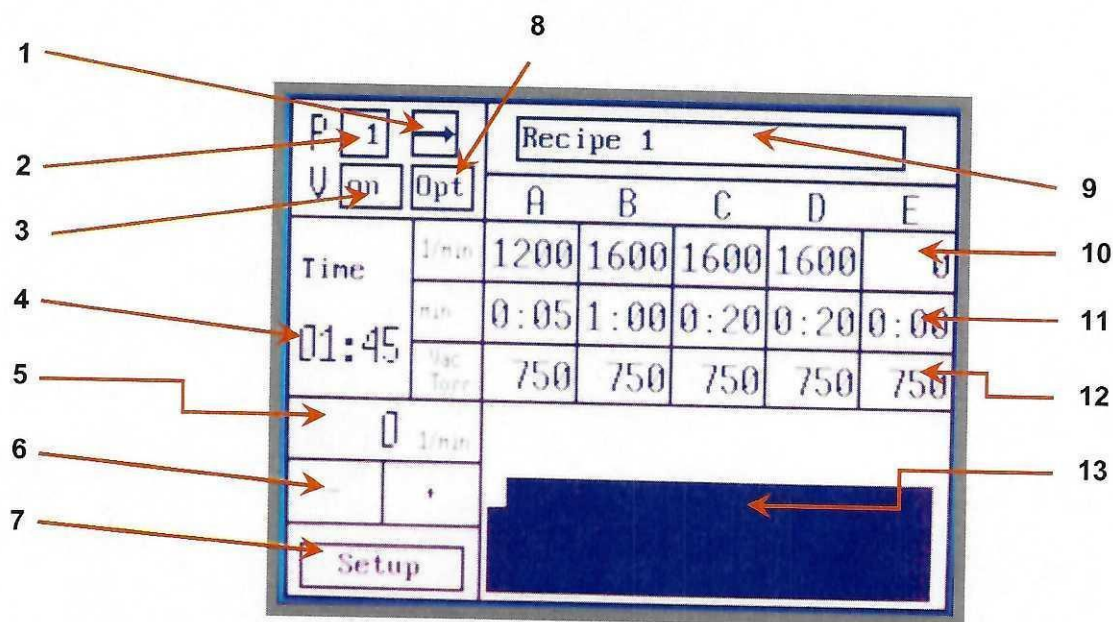


Figure 9

1	Single-/Multiphase	8	Option menu (VAC-settings)
2	Program selection	9	Program name
3	Vacuum active / deactivate	10	Fields for speed presetting (A-E)
4	Remaining time	11	Fields for time presetting (A-E)
5	Current speed	12	Presetting vacuum
6	+ / - buttons speed change during mixing operation	13	Flow bar graph
7	Setup menu		

4.2.1 Setting a mixing program

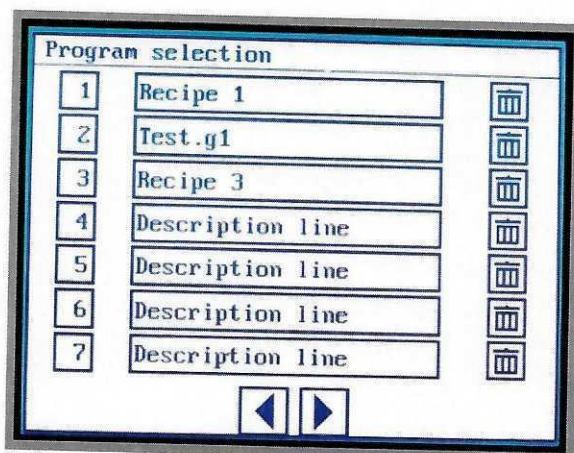
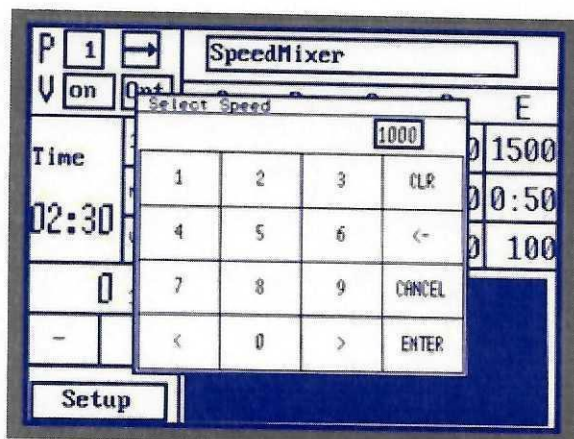


Figure 10

First, navigate to the program selection screen by pressing the box beside the letter "P" (Figure 9/2). This opens a new window (Figure 10), in which you can select the desired program by pressing the number. In the middle of the screen, each program name is displayed. The keys on the right side with the trash icon will delete the parameters stored in the program beside it. Use the arrows in the bottom row to navigate to the other programs (8-20) or change to the previous screen.

The RPM, time, and vacuum level can be adjusted for each individual mixing zone (A-E).

The preselected speeds and mixing times are shown below the individual mixing zones A-E. To change the speed, touch the value which you would like to edit. An input box will open (Figure 11), where you can enter the desired speed. The possible settings range 800 to 1600 min^{-1} . The speed selection is shown in the input box on the top right side; confirm the selection with "Enter". The input box will now disappear.



Select Speed

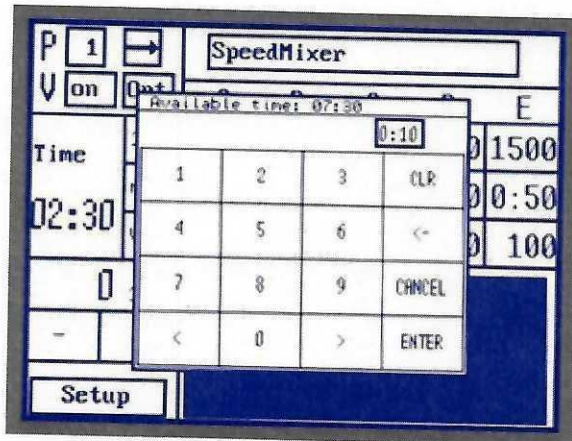
Use the button "CLR" to clear the selection, the button "<-" to clear one digit of the selection and "CANCEL" to cancel any changes.

Figure 11

To change the **mixing time**, touch the value which you would like to edit. An input box will open (Figure 12), where you can enter the desired time. The settings for time in a single zone range from 0sec to 9:59min.

The selection of the time is shown at the top right side of the input box; confirm the selection with "Enter". The input box will now disappear.

The maximum total mixing time (all phases A-E) is 10 min. The mixing time of one zone is 0sec to 9:59min. If the sum of the mixing times exceeds 10 minutes, the remaining time will be automatically adjusted, when entered.



Mixing time

Use the button "CLR" to clear the selection, the button "<-" to clear one digit of the selection and "CANCEL" to cancel the changes.

Figure 12

If you want to operate the device without a vacuum, Press V: on/off. To activate, press this field again (Figure 9 / Field 3).

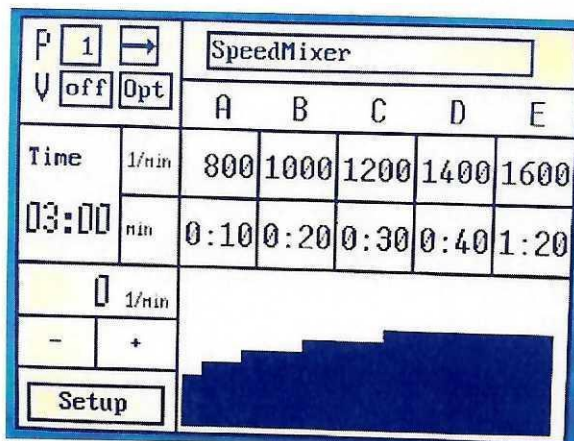
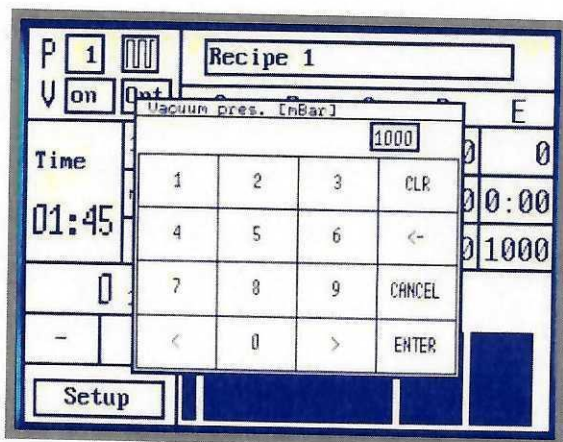


Figure 13

4.2.2 Setting a vacuum program

If the vacuum option is active, a vacuum pressure can be set for each zone. The smallest possible value is 3 mbar, the largest adjustable value is 1000 mbar.

The performance of the evacuation depends on the vacuum source used. To adjust the vacuum, touch the corresponding (Figure 9 / Field12) button.

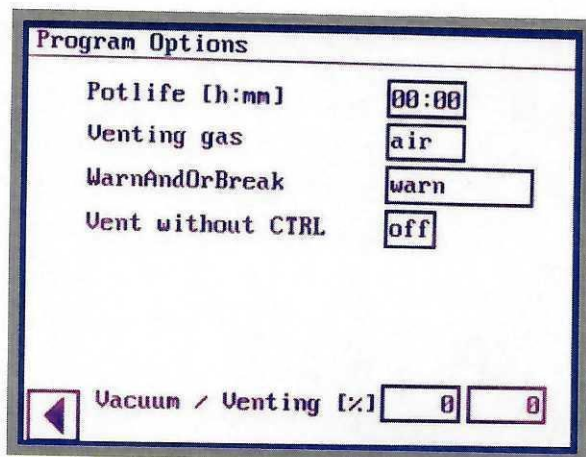


It opens a pop-up menu (Figure 14), in which you can enter the desired value. The information is given in mbar (choose 3 mbar to 1000 mbar). After a vacuum program is finished, the mixing drum is automatically ventilated. The regulation of ventilation can be set via the automatic ventilation control valve. (Figure 15)

Figure 14

By pressing the "CLR" the selection is cleared by pressing the "<-" is a body clears the selection, by pressing the "CANCEL" cancels the changes.

4.2.3 Option menu



The "Opt" button (Figure 9/8) navigates to the "Program Options" menu. Here you can set additional functions.

Figure 15

4.2.4 Pot life

The pot life is the time in which the product can still be used after mixing. This time is set by the user and can be printed by connecting a printer to the interface (4.3) on the SpeedMixer.

4.2.5 Venting gas

In the "Venting gas" field, the user can choose between two options either air or nitro. These settings are used to select one of the two inputs on the back of the machine. An inert gas, such as nitrogen, can be piped into the "nitro" input for mixing under a nitrogen blanket.

4.2.6 Warn and / or break

The field "WarnAndOrBreak" allows the user to adjust how the Speedmixer™ behaves when the desired set point within the mixing stage (A-E) is not reached (about tolerance + / - 5mbar).

If the value is set to "warn", a warning code (40) is given, if it fails to reach the target vacuum level within the given time. The warning can be acknowledged (Figure 16), in which case the mixing process is continued.

If the value is set to "warn&break" and the set point is not reached, a warning will be generated (warning code 42). However, when this setting is selected, the mixing process is aborted if the set pressure is not reached.

If the value is "off" and the set point is not reached, no warning code is given and the mixing process is continued.

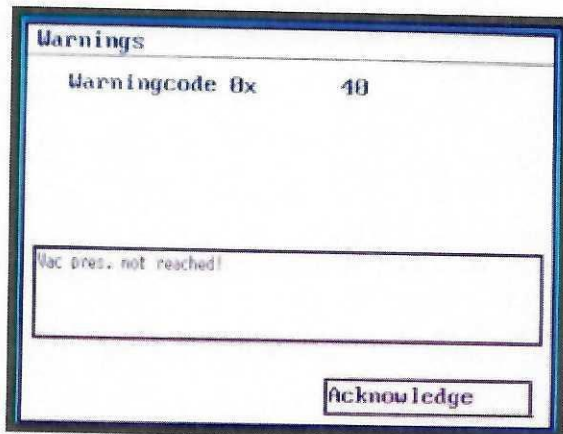


Figure 16

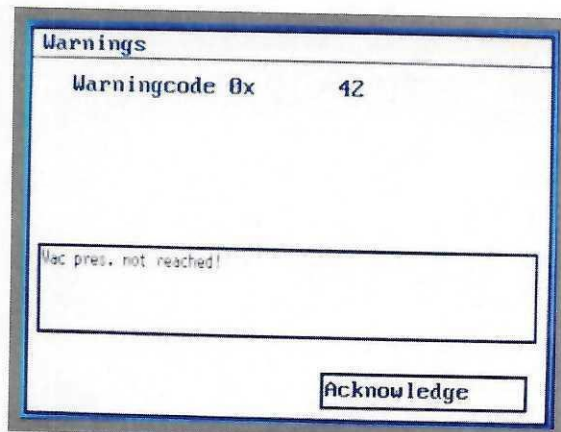


Figure 16a

4.2.7 Vent without control

The "Vent without CTRL control" setting specifies how the Speedmixer™ behaves after the mixing process or program termination. If the value is "off" is flooded after a predefined curve (slow). If the value is "on", the valve is opened to its maximum and the chamber is flooded as quickly as possible. (Figure 15)

4.2.8 Vacuum / floods

The "vacuum / venting" function allows use the vacuum function without when the machine is at a standstill.

Values of 0% to 100% can be set to control the vacuum and vent valves. 0% means closed and 100% means completely open.

Figure 17



When you leave the setup menu, the "Vacuum / Venting" settings will be deleted.

4.2.9 Continuous & Start/stop modes

Two modes are available for any mixing program:
Continuous and Start/stop modes (Figure 9/1)

Start/stop:



Symbol 1

Continuous:



Symbol 2

The bar chart will give a visual indication of the current setting:

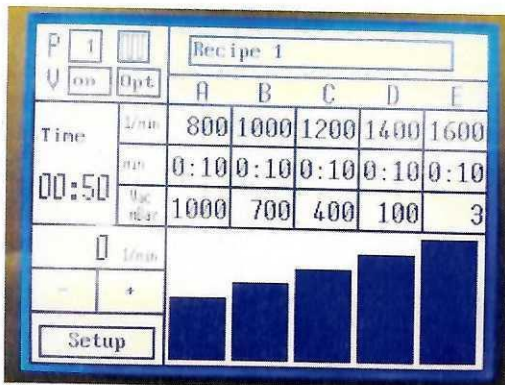


Figure 18

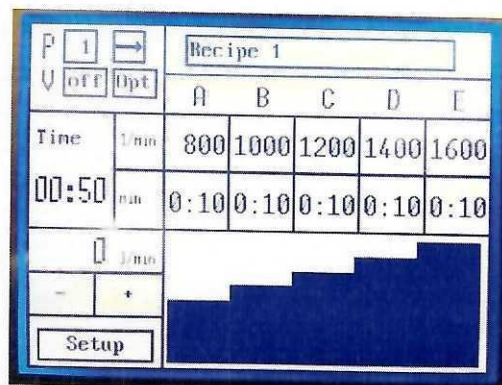


Figure 19

In continuous mode, all of the zones (A-E) will run consecutively.

In Start/stop mode, each zone of the program will run individually. The SpeedMixer will stop the program, unlock the lid, and vent in between zones. This serves for the preparation of formulations that require multiple additions etc.

If a vacuum program is selected, the mixer drum is re-evacuated at each restart.

4.2.10 Naming a program

In the upper right panel of the display, a freely selectable name of the program is displayed. To change the program name, press the button (Figure 9/2 or Figure 9/9). This opens a pop-up menu (Figure 20) in which you can enter the desired program name.

Description			
SpeedMixer_<			
.,:/ 1	abc 2	def 3	CLR
ghi 4	jkl 5	mno 6	<-
pqrs 7	tuv 8	wxyz 9	->
SHIFT	_=-+ 0	CANCEL	ENTER

Key Functions:

CLR Delete the input
 <- Point is deleted
 -> Cursor jumps to the right
 Enter input is saved and pop- up closes
 Cancel the pop-up closes without any change
 Shift of uppercase letters
 All other letters / numbers / symbols by repeatedly pressing the appropriate button called.

Figure 20

The new name of the program is displayed in the upper right, you confirm with "Enter" after typing.

4.3 Printer interface



The Speed Mixer™ provides users the ability to document the mixing processes with the printer interface. Values for speed, time, vacuum, date, pot life and number of mixing cycles are reported.

Printer port RS-232
Figure 21

For more information, please contact the FlackTek:

Tel: (864)895-7441, Fax: (864)895-7442, Email: SpeedMixer@FlackTek.net

4.4 Program start

When all program settings (Section 4.2.2) have been entered, place the sample (and holder, if applicable) into the basket. Observe the weight limitations outlined in the "Appendix A" of the manual. The lid of the machine can be unlocked by pressing the "STOP/OPEN" button.

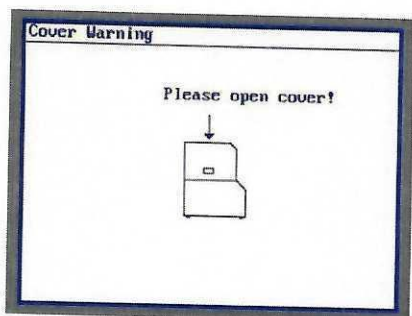


Figure 22

Please note that the window of the SpeedMixer™ cannot be opened if the machine is not powered on.

Warning: The lid of the SpeedMixer™ is locked during the mixing process and cannot be opened. If you like to stop the mixing process, please push the Stop/Open button. The lid will unlock after the machine stops spinning. You will then hear a beep and the message in Figure 22 will be displayed.

Filling the machine

After the lid has been opened as described above, and the sample has been placed in the basket, the vacuum lid can be screwed in place.

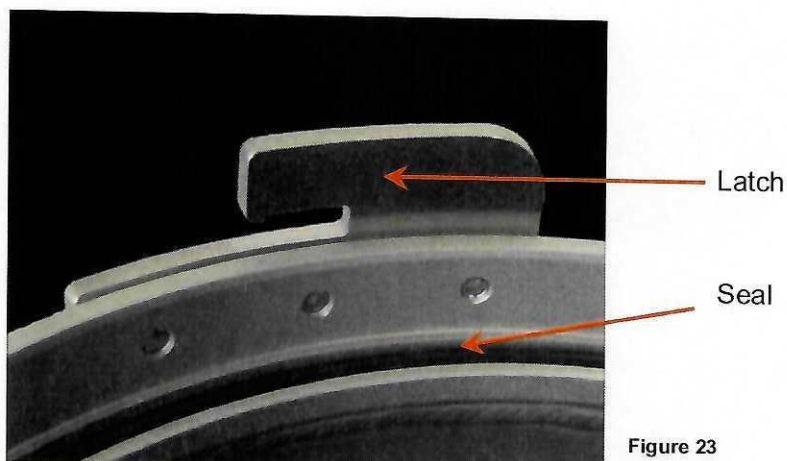


Figure 23

Close the drum with the vacuum lid (make sure that the surface of the vacuum lid is clean and undamaged; place the lid on a clean and soft base if it is not inside the machine).

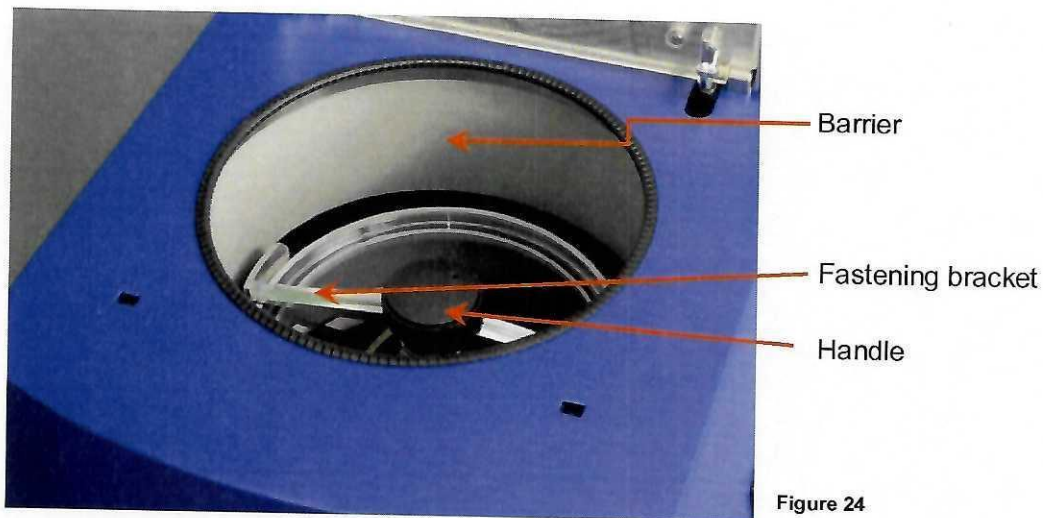


Figure 24

The fastening bracket needs to be engaged in the latches (Figure 23) on the mixer drum. Then turn the handle clockwise until resistance increases and the rotary handle cannot be turned any more. You will feel a definite stopping point.

Now close the lid of the machine. Press the "Start" button to begin mixing. It is recommended to operate the SpeedMixer™ with a **utilization ratio of max. 50%** (e.g. 10 minutes of mixing, 10 minutes of standstill) to avoid overheating.

4.4.1 Settings during the mixing process

The bottom left side of the display above the "Set-up" button is the + and - button:



Figure 25

The "+" and "-" can be used to adjust the RPM while the machine is running. They will change the RPM in increments of 50 rotations each time they are pressed. These buttons are deactivated in key lock mode (see section 4.10)

4.4.2 Option "Pause" / "Continue"

The current mixing program can be paused by pressing the "Pause" button and continued by pressing "continue" button. The vacuum level will be held if a vacuum cycle is in progress. This will give you the ability to examine mixing progress mid-cycle.

4.5 Imbalance errors

The SpeedMixer™ is designed for a total weight (cup + holder + material) of 500-800g. If such weight is not met, the counter weight inside the machine can no longer balance the occurring forces. This may result in damage to the machine. The SpeedMixer™ DAC 800.2 VAC-LR is therefore equipped with an imbalance sensor. If a mixing cycle should cause strong vibrations, the mixing cycle is immediately stopped. This may sometimes occur with lower mixing weights (500 to 800g) or with low-viscosity materials. In this case, "Vibration Error" will be displayed along with a direction and frequency range. Please make note of the direction/range, adjust the mixing weight as mentioned above, and acknowledge the error.

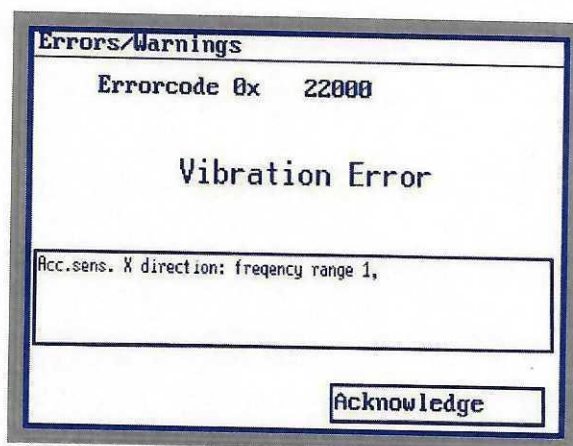


Figure 26

**The total weight is composed of three components:
CUP (with lid) + HOLDER + MATERIAL**

Please make sure that 800 g is not exceeded and a minimum of 500 g is used!

Ideally, a total weight between 550 and 750 g should be used. Such weights cause little vibration and reduce the load on the machine to a minimum.

When developing a formulation, normally only a few components are mixed in the beginning and other ingredients are added bit by bit. Please make sure that you use the appropriate cup and a total weight between 500 and 800g is achieved.

4.6 Setup menu

The **Setup** button is located at the bottom left field of the display. When pressed, the following window opens up on the display:

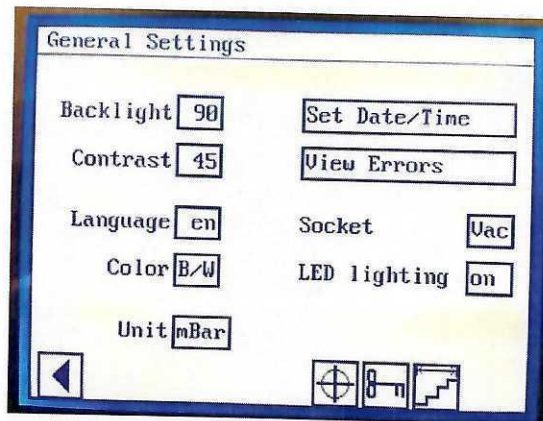


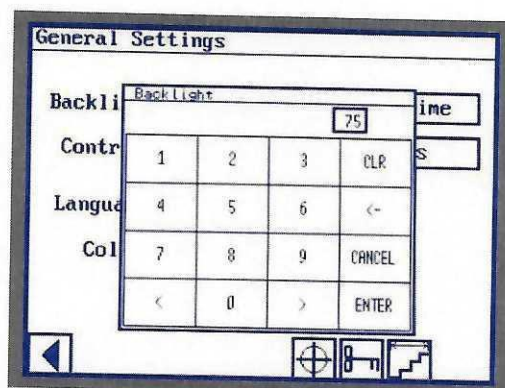
Figure 27

The setup area offers the following setting options:

Value:	Section:
Backlight /contrast	4.6.1
Language settings	4.6.2
Color settings	4.6.3
Time settings	4.6.4
Unit mbar/ Torr	4.6.5
Error messages	4.7
Display calibration	4.8
Ramp settings	4.9
Key lock	4.10
Service interval	4.11
User data service	4.12

4.6.1 Setting of backlight and contrast

After touching the Backlight button, an input box opens up.



Use the button "CLR" to clear the selection,
the button "<-" to clear one digit of the selection and
"CANCEL" to cancel the changes.

Figure 28

You can enter the values for the desired **brightness** here. The selection is shown in the top right input box; confirm the selection via "Enter". The input box will now disappear.
To set the **contrast**, proceed in the same way as used for setting the brightness.

4.6.2 Language settings

The SpeedMixer™ offers menu navigation in English and German. To select a language, in the menu set-up/system settings, touch the "Language". The language will now change from German "de" to English "en".

4.6.3 Color settings

The SpeedMixer™ offers two color schemes for the display. To toggle between them press the "Color" button. The color will now change from "B/W" with dark font on light background to "W/B" with light font on a dark background.

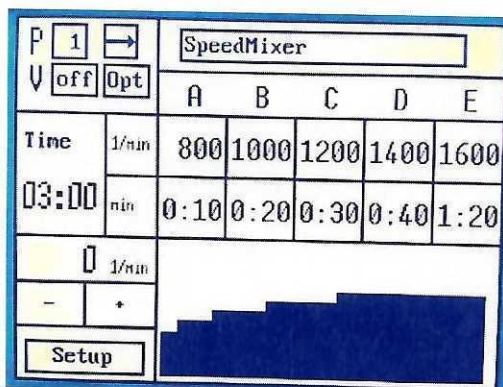


Figure 29

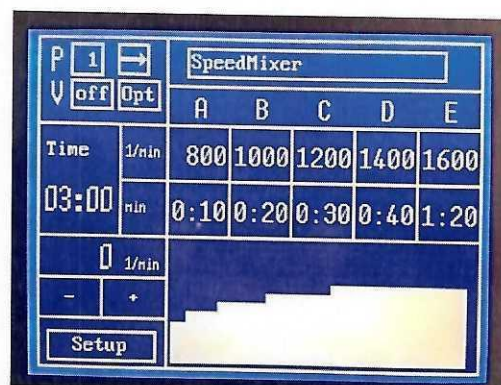


Figure 30

4.6.4 Time settings

The SpeedMixer™ offers the option to document the mixing cycles via interface with a printer or a computer. If this option is utilized, date and time will be reported.

To set date and time, press the "Set date/time" button. An input box appears

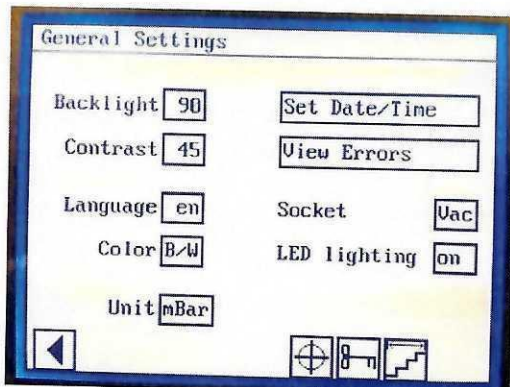


Figure 31

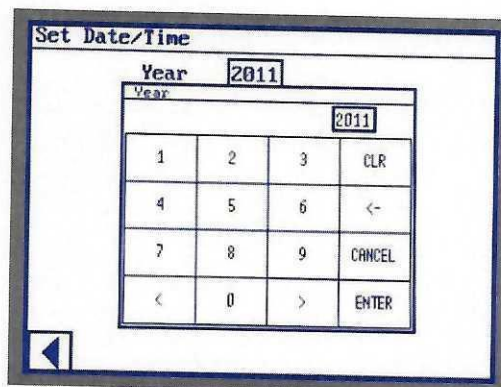


Figure 32

Here you can enter the date and time in the individual fields.

The selection is shown in the top right; confirm the selection with "Enter". The input box will now disappear.

Use the "CLR" button will clear the selection, the button "<-" clears one digit of the selection and "CANCEL" cancels any changes.

4.6.5 Unit mbar/Torr/inHG/PSI

Press this button to select the desired vacuum unit (mbar / Torr / inHG / PSI)

4.6.6 Power Socket

On the back of Speedmixer™ you can find a power socket for a vacuum pump.

This socket has three modes which can be selected in the setup screen:

1. OFF: the power socket is always switched off completely
2. ON: the power socket is always switched on when the device is switched on
3. VAC: the power socket is switched on when a vacuum program is started.
It is switched off at the end of the program.

4.6.7 LED lighting

The LED lighting in mixer drum can be switched on and off via the setup menu.

4.7 Error messages / faults

The SpeedMixer™ collects internal faults in an error list. These are allocated to the motor runtime and can be documented for service.

The following error messages are displayed with error codes:

(If several errors occur simultaneously, the error codes of the individual errors will be combined)

FlackTek Service: Phone: (864) 895-7441, Fax: (864) 895-7442
E-mail: SpeedMixer@FlackTek.net
1708 Highway 11, Bldg G, Landrum, SC 29356

Error list with error codes

24 different error codes are defined. Each error is allocated one bit. Therefore, any combination of errors can be displayed; please refer to the displayed text for the detailed error.

Text message	Error No.	Error code	Description
Status error	0	0x000001	Acknowledge error, inform FlackTek service in case of repeated error
Parameters deleted, change battery	1	0x000002	Inform FlackTek service
Change battery	2	0x000004	Inform FlackTek service
Motor temp. too high	3	0x000008	Acknowledge error, inform FlackTek service in case of repeated error
Lid monitoring error	4	0x000010	Acknowledge error, inform FlackTek service in case of repeated error
Error stop position	5	0x000020	Acknowledge error, inform FlackTek service in case of repeated error
Service interval expired ->	6	0x000040	Inform FlackTek service Make service appointment
-	7	0x000080	Not defined
Error rot. control	8	0x000100	Acknowledge error, inform FlackTek service in case of repeated error
Commun. error CAN1	9	0x000200	Acknowledge error, inform FlackTek service in case of repeated error
Ext. error code FU	10	0x000400	Acknowledge error, inform FlackTek service in case of repeated error
-	11	0x000800	Not defined
Commun. error CAN2	12	0x001000	Acknowledge error, inform FlackTek service in case of repeated error
Vibrat. sens. X-direction	13	0x002000	Acknowledge error, check mixing weight, see Appendix A, inform FlackTek service in case of repeated error
Vibrat. sens. Y-direction	14	0x004000	See error 13
-	15	0x008000	See error 13
Mean value exceeded	16	0x010000	See error 13
Exceedance in the 1 st frequency	17	0x020000	See error 13
Exceed. in 2 nd freq. range	18	0x040000	See error 13
Exceed. in 3 rd freq. range	19	0x080000	See error 13
Exceed. in 4 th freq. range	20	0x100000	See error 13
Exceed. in 5 th freq. range	21	0x200000	See error 13
Exceed. in 6 th freq. range	22	0x400000	See error 13
Exceed. in 7 th freq. range	23	0x800000	See error 13

4.8 Display calibration

If difficulty occurs when operating the touchscreen, such as displacement of buttons or other operating errors, you are able to calibrate the display via the setup screen.



Symbol 3

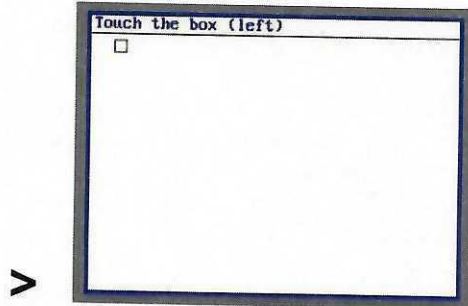


Figure 33

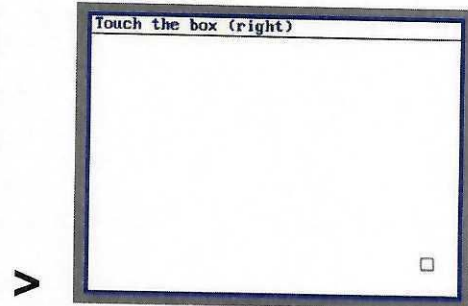


Figure 34

For the calibration of the display, touch the button with the symbol shown above. A menu will open where you will touch the displayed squares. Then the calibration is completed. If nothing is shown on the display, switch on the machine and remove the cover at the right side of the machine. There is a small black button to reset the display between the connections for printer and PC shown in Figure 5. Subsequently please calibrate the display as described before.



Micro switch

Figure 35

4.9 Ramp settings

The option of the ramp setting serves for the adjustment of the acceleration and deceleration of the SpeedMixer:



Symbol 4

Touch the adjacent symbol in the system settings of the set-up menu to set the ramps. In the ramp settings menu you can adjust the "acceleration ramp" and the "deceleration ramp". This could be necessary for mixtures with extremely high or low viscosity, also for mixing with pastes or powders. This may often lead to deactivation of the SpeedMixer™ by the imbalance sensor (see 4.5). An improvement of the result needs to be tested in this process.

It opens a new window where you can adjust the ramp:

The adjusted value is expressed in units of "seconds".

The acceleration rate is adjustable from 3s to 30s, and 3s means extremely fast acceleration. The braking ramp can be adjusted in the range from 3s to 30s, which means an extreme delay 3s.

Figure 36

If you touch the corresponding button, a pop-up window where you can make the selection (Figure 43).

Figure 37

4.10 Key lock

The SpeedMixer™ offers the operator the option to limit the scope of operation. The **key lock** is used to block different setting options on the display.

Touch the "Setup" button on the display to set the key lock. The menu "System settings" will appear. Three symbols are shown at the bottom right side of the display, touch the key symbol.



Symbol 5

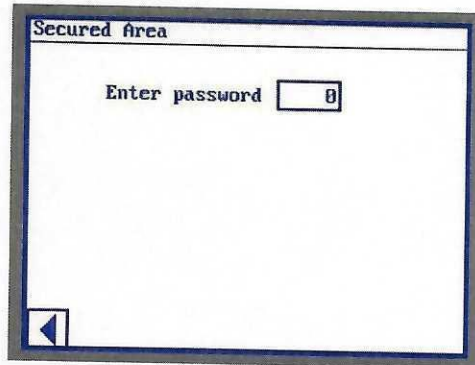


Figure 38

The "Secured Area" menu will appear. Touch the "Enter password" field and enter the password. (You can acquire the password from FlackTek Inc. phone number (864)895-7441 or SpeedMixer@FlackTek.net)

An input window appears where you can enter the value.

The selection is shown in the input box at the top right side; confirm the selection with "Enter". The input field will now be closed.

Use the button "CLR" to clear the selection, the button "<-" to clear one digit of the selection and "CANCEL" to abort the operation.

When you enter the password, the menu "Key lock mode" appears. Touch the field with the displayed value for the lock mode and change the value as follows:

- Lock mode 0: No key lock
- Lock mode 1: Any program can be run: editing locked
- Lock mode 2: Only the selected program can be run

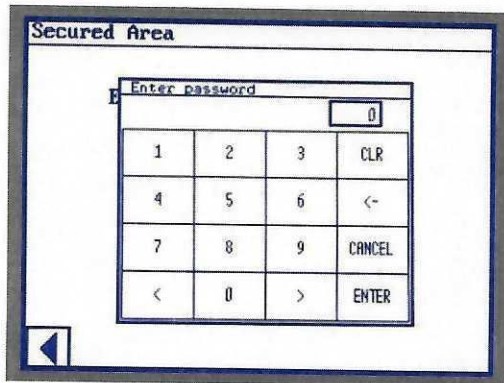


Figure 39

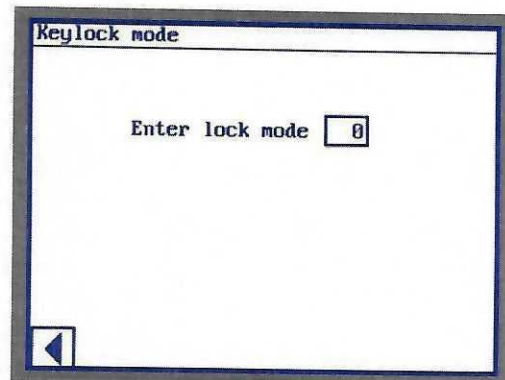


Figure 40

The selection is shown at the top right of the input box; confirm the selection with "Enter". The input box will disappear.

Use the "CLR" button to clear the selection, the "<-" button to clear one digit of the selection and

"CANCEL" to cancel any changes.

In lock mode 1, the operator can only switch between the programs. Any changes to the mixing/vacuuming parameters are no longer possible.

In lock mode 2, the last program selected before locking will remain active. It is no longer possible to select another program or to change the mixing/vacuuming parameters.

4.11 Service interval

The collection of the operational data also offers the option for maintenance of the SpeedMixer™ in regular intervals on the basis of the operating hours. For this purpose, a time requested by the customer can be specified for the "Service interval". If the operating hours counter reaches the specified time, the display will show a message. This needs to be acknowledged and then the "Service interval" needs to be reset with the "Reset" button in the menu "Operating data". The service should now be performed and the new service interval will start. *Please request an appointment for the maintenance of the machine at FlackTek Inc. phone (864)895-7441 or at www.SpeedMixer.com*

Alternatively, it is possible to have the machine serviced at regular intervals. See Chapter 6, maintenance and care.

4.12 User data service

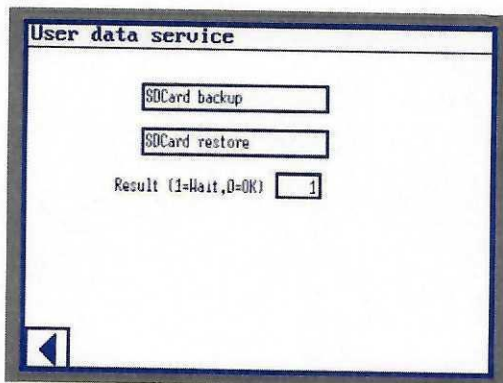


Figure 41

The user data service of the SpeedMixer™ offers the option to save all accruing data, to read them out and to transfer them to a PC.

This is done via an SD memory card.



Figure 42 >

The collection includes the mixing processes with speed, time, program number, date and time.

Further information will be provided on request by FlackTek Inc. at (864)895-7441 or at www.SpeedMixer.com

5. Basic mixing rules

Please observe the following basic SpeedMixer™ rules:

- Always observe the allowable mixing weights (see Appendix A)
- Wait approx. 2 sec. after closing the lid before starting the mixing process.
- Always make sure that the cup has been securely closed.
- Do not leave the machine unattended during operation.
- Between the mixes, always leave the lid open and the machine on.
- The SpeedMixer™ has a maximum duty cycle of 80%
(e.g. 10 minutes of mixing, 2 minutes of standstill). 50% duty cycle is recommended.
- Stop the mix cycle immediately if you notice unusual vibration or noise. Check the mixing weights and the cover of the mixing cup. If no error can be identified and symptoms persist, contact FlackTek.
- Do not leave the SpeedMixer™ switched on overnight or over the weekend when the machine is not in use. Turn off the machine using the green power switch.
If the machine is not used for a longer period of time, remove the mains plug or switch off the machine at the orange device fuse on the rear side.
- The SpeedMixer should be connected to a surge protector.
- If using a vacuum pump, an oil-free pump is recommended to prevent oil from being drawn into the vacuum line.

6. Maintenance and care

As with any electro-mechanical device, the SpeedMixer™ contains moving parts which become worn through repetitive use. It is recommended that Preventive Maintenance be performed on an annual basis to minimize stress on these moving parts and related load bearing components. Utilizing an annual Preventive Maintenance schedule will minimize unplanned repairs, extend the life of your SpeedMixer, and sustain repeatable processes. Contact FlackTek for further information regarding Preventive Maintenance.

The SpeedMixer™ does not require special care. Contamination should be removed immediately with a paper towel or possibly with a moist cloth. Do not use aggressive cleaning agents (such as, for example, acetone or nitro-cellulose combination thinner)!

Liquids or solid matter should be prevented in any case from getting below the rotary plate of the rotation arm.

7. Troubleshooting

The machine won't turn on....

- Is it plugged in?
- Is the emergency stop switch pressed?
- Is the power switch on?
- Is the automatic main fuse on?

When an unusual noise can be heard during mixing...

- Immediately stop the mix
- Is there any foreign matter in the mixer tank?
- Check the weight of the mixture

If the lids of the cup comes off....

- Call FlackTek
- Immediately switch off the machine (on/off switch or emergency stop)
- Are appropriate mixing cups used?
- Reduce the amount of mixture!

If the cover cannot be opened...

- Press "Stop/Open"
- Is the main power switch activated?

For the explanations of the **error codes** please refer to section 4.7.

8. Technical data

Manufacturer:	Hauschild & Co. KG Waterkamp 1 59075 Hamm Germany
Type identification:	DAC 800.2 VAC-LR
Machine designation:	SpeedMixer™
Dimensions:	Width: 440mm Depth: 660mm Height (1): 730mm Height (2): 1004mm
Height with open lid:	
Electrical connection:	115V/50/60Hz
Surge category:	II
Power input:	1200 watt
Electric fuse protection:	automatic main fuse 16 A
Weight:	approx. 98kg
Permitted speed:	1600 min ⁻¹
Permitted fill quantity:	Max. 800 g total
Rotor diameter:	270mm
Rotor material:	EW AW – 7075 AL Zn Mg Cu 1,5 DIN 3.4365
Kinetic energy of runner with max. speed in Nm:	for max. permitted load 1200
Type of brake:	Spring force brake
Locking of lid:	Safety switch with separate actuator and locking device
Sound pressure level:	61 dB (A) + / - 3 dB, while 1600min, 800g test weight device 80 cm above ground, a distance of 1m, 1,6 m measuring height, 0 ° to the front; meter Testo 815
Degree of protection:	IP31
Environmental Conditions:	Site: indoors only Height: up to 2000m above sea-zero Ambient temperature: 5 ° C to 35 ° C Humidity: Maximum relative humidity 80% For temperatures up to 31 ° C, decreasing linearly to 60% relative humidity at 35 ° C

9. Warranty terms

This machine has been manufactured with great care and complies with today's safety regulations. It was comprehensively examined before leaving FlackTek.

We grant 6 months of warranty and commit to carry out, free of charge, all repairs required due to material defect or defect in manufacture. The warranty shall be void if repairs are not carried out by us or by authorised personnel. The warranty period starts with the day of delivery.

The original warranty period shall not be extended by the supply of spare parts for reasons of warranty.

Normal wear and tear or damages due to improper operation are not covered by the warranty.

The warranty does not cover consumables and wearing parts as included in the SpeedMixer™ and listed below:

- Roller bearings
- Seal rings
- Brake
- Drive belt of the rotatable arm
- Window
- Mixing Cup Basket
- Rotatable arm
- Inspection glass for drum

Any possibly detected fault shall be notified to us immediately after occurrence, specifying the machine number.

If warranty work is requested, the purchaser is responsible for shipping the machine that has been complained about to FlackTek at his own expense and risk.

Any warranty obligation on our part shall exclude all further claims of the buyer, particularly the right of redhibitory action, modification or equalisation of all kinds of claims for damages.

10. EC Conformity Declaration



EC Conformity Declaration in terms of the EC Directives

We, **Hauschild & Co.KG**
Waterkamp 1
59075 Hamm
Germany

hereby certify in sole responsibility that the device

Machine : Laboratory mixing system
Type : DAC 400.1 – 1100.2
Model : DAC 800.2 VAC-LR
Year of construction : 2018

which is subject to this declaration, is exclusively used for mixing substances and complies with the requirements of the EC Directives

- **Machine Directive 2006/42/EC**
- **Low-Voltage Directive 2006/95/EC**
- **EMV Directive 2004/108/EC (15.12.2004)**

The following harmonized standards have been applied:

EN 349 :2008-09, **EN 953** :2009-07, **EN 1037** :2008-11, **EN 1088** :2008-10,
DIN EN ISO 12100 :2011-03, **EN 12547** :2014-12, **DIN EN ISO 13850** :2008-
09, **EN ISO 13857** :2008-06, **DIN EN ISO 14119** :2014-03, **EN 60204-1**
:2014-10, **EN 60529** :2014-09, **EN 61000-6-1** :2007-10, **EN 61010-1** :2011-07,
EN 61010-2-020 2007-03, **EN 61326-1** :2013-07 (Stand 12/14)

Complete technical documentation is available.

For the coordination of all technical documents is authorized:
Martin Moor, Hauschild & Co. KG, Waterkamp1, 59075 Hamm, Germany

The declaration is valid if the designated product is substantially changed.

Hamm,
Location, date

Manfred Wittke
Authorized Officer

APPENDIX A

DAC 800.2 VAC-LR Mixing Weights

Standard Holders

The mixer has been set up to mix a maximum of 800 grams total weight and a minimum of 500 grams. It has a counter weight to balance the mixing cup as it rotates.

It is very important that 800 grams is not exceeded and that at least 500 grams is used.
(Total weight)

When developing formulations you usually build up the formulation - starting with a few of the raw materials and add more as you go. For such operations always ensure that you use the correct cup so that the total mix weight is in the 500g to 800 g range.

Total mixing weight is comprised of 3 components : CUP + HOLDER (if used) + MATERIAL
REMEMBER : CUP/LID + HOLDER + MATERIAL = 500 to 800g (NEVER > 800 grams)

Cup + Holder Type	Wt of Empty Cup + Holder	Wt of Material Recommended	Actual Wt of Material Allowed
-	-	-	-
Max 300 Long	100g +/- 5	500 - 700g	400 - 700g
800 Max 200 Long	400g +/- 5	100 - 300g	100 - 400g
800 Max 200 Mid	400g +/- 5	100 - 250g	100 - 400g
800 Max 200	400g +/- 5	100 - 200g	100 - 400g
800 Max 100 Long	650g +/- 5	50 - 150g	0 - 150g
800 Max 100 Mid	650g +/- 5	50 - 125g	0 - 150g
800 Max 100	650g +/- 5	50 - 100g	0 - 150g

The DAC 800.2 VAC-LR is fitted with a vibration sensor – if the mix causes excessive vibrations then it will automatically switch off. (This can happen sometimes with relatively low viscosity material) This will be indicated by an error message – if this happens check weight and reset by pushing Acknowledge.

NOTE: Always confirm mixing weight.



APPENDIX A

DAC 800.2 VAC-P Mixing Weights

Small Cups

The mixer has been set up to mix a maximum of 800 grams total weight and a minimum of 500 grams. It has a counter weight to balance the mixing cup as it rotates.

It is very important that 800 grams is not exceeded and that at least 500 grams is used.
(Total weight)

When developing formulations you usually build up the formulation - starting with a few of the raw materials and add more as you go. For such operations always ensure that you use the correct cup so that the total mix weight is in the 500g to 800 g range.

Total mixing weight is comprised of 3 components : CUP + HOLDER (if used) + MATERIAL

REMEMBER : CUP/LID + HOLDER + MATERIAL = 500 to 800g (NEVER > 800 grams)

Cup + Holder Type	Wt of Empty Cup + Holder	Wt of Material Recommended	Actual Wt of Material Allowed
Max 300 Long	100g +/- 5	500 - 700g	400 - 700g
800 Max 200 Long	400g +/- 5	100 - 300g	100 - 400g
800 Max 200 Mid	400g +/- 5	100 - 250g	100 - 400g
800 Max 200	400g +/- 5	100 - 200g	100 - 400g
800 Max 100 Long	650g +/- 5	50 - 150g	0 - 150g
800 Max 100 Mid	650g +/- 5	50 - 125g	0 - 150g
800 Max 100	650g +/- 5	50 - 100g	0 - 150g
600 Max 60	500g +/- 5	20 - 60g	0 - 300g
600 Max 40	500g +/- 5	15 - 40g	0 - 300g

The DAC 800.2 VAC-P is fitted with a vibration sensor – if the mix causes excessive vibrations then it will automatically switch off. (This can happen sometimes with relatively low viscosity material). This will be indicated by an error message – if this happens check weight and reset by pushing Acknowledge.

NOTE: Always confirm mixing weights.

READ BEFORE STARTING MACHINE
DAC 400.2 - 800.2 VAC – P

1. AFTER REMOVING SIDE AND LID OF CRATE (MARKED BY RED SCREWS), CAREFULLY LIFT MACHINE UP FROM THE FRONT AND ROLL FORWARD HALF WAY OUT OF THE CRATE UNTIL THE HANDLES CAN BE REACHED ON THE SIDE. HAVE TWO PEOPLE TAKE THE HANDLES AND LIFT THE MACHINE OUT WITH THE FIRST PERSON STILL SUPPORTING THE LOWER FRONT OF MACHINE. (machine has 2 small wheels at back and rubber feet at the front)
2. REMOVE TRANSPORTATION PROTECTION. SEE INSTRUCTIONS IN SECTION 2.2 OF THE MANUAL. DO NOT TURN THE POWER ON UNTIL THE TRANSPORTATION PROTECTION HAS BEEN REMOVED.
3. Read Section 4 – Operation (in Manual)
4. Read Appendix A – Mixing Weights
5. Always check that the cup or holder fits correctly before using. Push firmly down and then remove cup or holder - if the cup or holder is hard to remove and particularly if it has not reached the bottom of the metal mixing basket then do not use. (It will be impossible to remove after mixing as the mix will push down with incredible force)
6. Always make sure lids are on securely.
7. Do not leave the lab while machine is operating.
8. Should any unusual vibration or sound occur during mixing – turn off machine immediately – check total weight and if lid is still in place. If no problem is evident → contact supplier.
9. Do not leave machine on overnight or weekends when it is not being used.
10. Only authorized and trained persons should use the machine.