Instructions

DL2

Plural component, variable ratio, gear pump proportioner for dispensing low viscosity materials.

Not approved for hazardous or explosive atmospheres. For professional use only.

Job Number(s):
SN8307

Important Safety Instructions
Read all warnings and instructions in this manual.
Save these instructions.
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General Information
This manual provides installation, operation, and maintenance instructions for Liquid Control Decker dispensing machinery. Use machinery only as directed.
READ THIS MANUAL BEFORE OPERATING MACHINERY.

Chemical Components:
Throughout this manual, reference to the A pump and B pump are used. The A and B pumps corresponds to the particular material originally specified for use in this machine and relate to the corresponding label on the machine supply and to hoses. Any change or resin supplier may cause a need to re-label the supply, pumps, and hoses accordingly.

Safety Labeling within this manual:
The following symbols can be found through this manual.

Read Carefully:
This symbol is used to specify important information pertaining to your specific machine.
*See note.

Caution:
This symbol is used when failure to observe the instruction could result in damage to the equipment, associated equipment, and/or process, or moderate to minor injury to people.

Warning:
This symbol is used when failure to observe the instruction could result in injury or death to people.

*Several different configurations are available for this machine. Depending on the material dispensed, feed systems, dispensing system, and other production requirements. The basic setup procedures are essentially the same for all configurations. The Read Carefully safety symbol will be shown any places in the manual that deals with unique differences.
Safety

- Always wear safety glasses when operating Decker equipment.
- Unless otherwise indicated Decker equipment is not rated explosion proof. Do not use flammable materials.
- Always aim the mixer barrel at the work; never point the mixer barrel at other people.
- Do not exceed 120-PSI inlet air pressure. Be sure to use a regulated dry air source.
- Read all material manufacture's product information. Always follow the manufacturers, chemical suppliers Material safety Data Sheet (MSDS) regarding dispensing even if they may differ from these general instructions.
- Adequate ventilation must be provided in any area where foaming operations are conducted and where material containers are opened.
- Minimizes user contact with materials, always read and abide by information provided in material manufacturer’s MSDS (Material Safety Data Sheet).
- Keep the MSDS accessible to the work area as it lists valuable emergency information.
- Consult local, state and federal laws before disposing of mixers and material. Do not operate the Decker equipment if any of the components are missing or damaged.

Safety Labeling for Decker Machinery:
All our machines carry the following safety labels wherever necessary.

**Danger Labels:**
Indicate an imminently hazardous situation, which, if not voided, could result in death or serious injury.

**Notice Labels:**
These label state a company policies, which if not followed may result in damage to your Decker equipment.

**Caution Label:**
Indicate potentially hazardous situations, which, if not avoided, could result in moderate to minor injury.
Machine Features

**Control Power:** Provides power to the high voltage, dispensing and rotating components in the console.

**Emergency Stop Button:** When the EMERGENCY STOP button is pressed, Control power is removed from the machine.

**Drum Feed System (Optional):** A transfer pump is installed into an upright material drum.

**NIP:** Fiber optic sensor for the auto start/stop of dispensing in auto mode.

**EnGarde Ratio Monitoring System (Optional):** The EnGarde (gear-type flow meter) Ratio Monitoring System guards against off-ratio or non-flow conditions, whether equipment or operator induced. A signal is generated when the set values are exceeded and a visual and audio alert is activated.

**Low Level Sensors:** The Low Level Sensors activate the low level protection system when component tank material is at a low level.

**Start Device:** A start device can be a foot switch, a trigger on the dispense valve or a dispense button in the RUN screen. When the start device is pressed, the machine will start the preset dispense cycle (continuous or shot).

**NOTE:** If the machine contains a NIP sensor; the NIP sensor is intended to be a start device when the NIP operation is enabled for the continuous operation mode (seen on the RUN1 screen) only.

**Remote Pressure Sensor Assembly:** The DL system is equipped with pressure switches at the outlet of each pump. These are factory set to limit pump outlet pressure to a maximum of 300 psi. Pressures in excess of this setting will fault the system.

The remote pressure sensor assembly is located at the inlet of the flow meter for each pump. This sensor can be used to establish a pressure limit for the process.

- If this limit is exceeded, the system will fault as it does for the pump pressure switches.
- This switch is factory set for 300 psi.
- See vendor literature provided with system documents to change the setpoint.

**Start/Stop Pendant:** The start/stop pendant is a hand held, dual pushbutton station used to start and stop machine functions.

- The **start button** will start dispensing.
  - In Run-1 or Cal-1 mode, dispensing will continue until the stop button is pressed.
  - In Run-2 or Cal-2 mode, the start signal will start a timed dispense that will continue until the timer expires or the stop button is pressed.
- The **stop button** stops dispensing initiated by the operator in Run-1, Run-2, Cal-1, or Cal-2 modes.

**NOTE:** If the pendant is replaced by a footswitch start device:

- The footswitch will operate as the start button as described above except:
  - The machine will stop dispensing in Run-1 and Cal-1 modes when the footswitch is not held.
  - The footswitch must be held in these modes for dispensing to occur.
### Operator Interface Layout

#### Basic Key Functions:

- **Status Lights:**
  - **Power Light:** The green light indicates that power is supplied to the machine.
  - **Run Light:** The green light indicates that “Control Power” may be turned on.

- **Display Panel:** Displays pre-programmed Screens used to operate machine.

- **Pre-programmed display:** Located in the display panel. Pre-programmed Screens used to run software.

- **Screen Navigation Display:** Displays commands used to navigate through programmed Screens in the display panel, or perform machine functions.

- **Data Input Navigation Keys:** Used to select a field in the display panel for data input. The highlighted field is active.

- **Data Entry Keys:** Used to enter data as required by individual Screens in the display panel.

- **Screen Navigation Keys:** Used to initiate commands found in the Display Panels Screen Navigation area.

- **Data Entry Box:** Used to select field in display panels for data input. Use the screen navigation keys to move.
Display Screen – Icons and Abbreviations

The following Icon and abbreviations are displayed in the display screens.

- : Go to Home Page.
- : Go to next Screen.
- : Go back to previous Screen.
- START: Initiate process associated with the Screen

RSET: Reset process associated with screen.
  : Go to Clock setting screen.
  - Set / reset time for printer function.
CAL: Go to Cal-1 screen. Authorized personal only.
  - Set A/B ratio.
  - Set Flow Rate
RUN: Go to Run-1 Screen.
  - View current A/B ratio.
  - Set Flow Rate.
  : Go to Machine Setup Password Screen in the Timer-1 Screen.
  - Only allows authorized personal to go beyond this point in the Setup Mode.
  : Go to EnGarde Display Screen.
  - Set Ratio Tolerance.
  : Starts the Dispense command in the Cal-2 and Run-2 screens.
  - Press 1 time to start dispensing.
  : This icon replaces icon when dispensing is in progress, in the Cal-2 and Run-2 screen.
  - Press and hold for 2 seconds to stop dispensing
  : Go to screen for maintained dispensing.
  - In Run-2 screen, go to Run-1 Screen for maintained dispense.
  - In Cal-2 Screen, go to Cal-1 Screen for maintained dispense.
  : Go to screen for shot dispensing in the Run-1 Screen.
  - In Run-1 screen, go to Run-2 Screen for shot dispense.
  - In Cal-1 Screen, go to Cal-2 Screen for shot dispense.
VERI: Go to the Verification Screen.
  - Compare the actual output and the calculated output.
  - Automatically adjusts the drive speed
ac: Starts the Auto-calibration process, in the Verification Screen.
AC: Replaces the ac icon when Auto-calibration process is in progress.
OFF: Turns Off audio alarm in fault screens.
Basic Flow Chart And Procedure Information

The Home Page Icon appears in the Display Screens thru out the Software program.
Pressing the F4 Screen Navigation Key will bring you to the Home Page in any display screen.

The Previous Screen Icon appears in the Display Screens thru out the software program.

To initiate the Previous Page Command in the General Display Screens press the F1 Screen Navigation Key
or in the Fault Screens the F2 Screen Navigation Key to initiate the previous page command.

The Next Screen Icon appears in the Display Screens Thru out the software program.

To initiate the Next Page Command in the Display Screens press the F4 Navigation Key.

Referenced Elsewhere : Terms that appear in Italic can be referenced elsewhere in this manual.

DATA ENTRY : Use the Data Entry Key Board when entering requested data in the display screens.
Press the ENT Key when data entry is complete.
Installation

Requirements for Startup, Receiving Machine

The DL dispensing machine is completely factory tested; however, it is necessary to install wiring between the control unit and the material handling unit to make the system functional on-site. A complete drawing manual is provided to aid with the installation. Refer to control wiring diagram U81693.

The items listed below are the items requiring field wiring. All wiring must be completed by a qualified electrician.

1. Install wiring between the motor drive labeled VFD-A and the motor for the A-pump located directly below the A-tank.
2. Install wiring between the motor drive labeled VFD-B and the motor for the B-pump located directly below the B-tank.
3. Install wiring between the low level sensors and the device on the control panel labeled SR-2.
   
   **NOTE:** Take care to ensure that the A-tank sensor, PX-AL, is connected to the terminals identified on the control schematic for "Low Level A"
   
   **NOTE:** Take care to ensure that the B-tank sensor, PX-BL, is connected to the terminals identified on the control schematic for "Low Level B"

4. Install wiring between the pressure sensors and the device on the control panel labeled SR-1.
   
   **NOTE:** Take care to ensure that the A-pump sensor, PS-A, is connected to the terminals identified on the control schematic for "A Pump Pressure"
   
   **NOTE:** Take care to ensure that the B-pump sensor, PS-B, is connected to the terminals identified on the control schematic for "B Pump Pressure"

5. Verify pumps are rotating in the proper direction.
   
   **NOTE:** There are directional arrows located on the motor and/or the pump to indicate the proper direction of rotation. Due to gear reduction, the motor and pump may rotate in opposite directions.
   
   **NOTE:** Rotational direction can be reversed by changing the "motor rotation" parameter listed on the wiring schematic. See Drive Manual provided with machine for instruction.

Electrical Power:
220 VAC, 60 Hz, 10 amps, single-phase electrical supply

Pneumatic Power:
80-100 psi clean and dry air supply
Requirements for Start-Up:

Tools:
- Snap ring pliers.
- Standard Allen wrench set.
- Medium straight head screw driver

To be supplied by customer:
- Ample supply of appropriate cups for calibration
- Appropriate scale to measure output from machine.
- Petroleum Jelly
- Chemical Supplies
- Appropriate Safety equipment.

Receiving Machine:
- Carefully uncrate machine removing the top and ends of the crate.
- Remove any shipping brackets and supports
- Inspect all components for damage; notify the carrier immediately if any damage is evident.
- Install wiring between material handling unit and control unit. See drawing manual.
- Determine required hose length between material handling unit ad control unit and install hoses.
- Apply provided labels to hose ends.
  - Apply Red “A” labels to “A” hoses.
  - Apply Blue “B” labels to “B” hoses.
- Set remote pressure assembly setpoints to limit system pressure if required for process. See “Remote Pressure Sensor Assembly: The DL system is equipped with pressure switches at the outlet of each pump. These are factory set to limit pump outlet pressure to a maximum of 300 psi. Pressures in excess of this setting will fault the system.” within Machine Features, page 6.
- Move machine to desired location.
- Hang mix head.
- Go to Initial Installation Procedure.
Initial Start Up

- Connect all hoses and tubing between the mix head and metering system as tagged. [A & B]
- Connect power supply cable to disconnect switch.
  - L1 and L2, connect GND to ground lug on back panel.
- Check material for sufficient quantities. [A & B]
- Allow approx. 1 gallon of component to run into waste container. [A & B]
- Clean fittings [A & B]
  - Double Check all connections.
  - Plug set in main enclosure should be accessible to operator.
  - If your machine is equipped with mild steel and stainless steel pump assemblies, make sure the hose fitting material matches the pump material.
  - Main disconnect does not remove all power from the machine.
- Turn main power switch into the On Position.
- Go to the Operator Interface Display Panel.
  - The Control On Display Screen is displayed.
  - Turn Control Power On.

Control On Display Screen

Press Start for "CONTROL ON"

START

- Go to HOME PAGE screen.

**WARNING: DO NOT RUN PUMPS DRY.**

**WARNING: DO NOT RUN PUMPS IN THE OPPOSITE DIRECTION.**

**THERE ARE DIRECTIONAL ARROWS LOCATED ON THE MOTOR AND/OR PUMP TO INDICATE THE PROPER DIRECTION OF ROTATION.**

**ROTATIONAL DIRECTION CAN BE REVERSED BY CHANGING THE "MOTOR ROTATION" DRIVE PARAMETER LISTED ON THE WIRING SCHEMATIC.**

**WARNING: DURING INITIAL START-UP AND WHEN CHANGING MATERIALS, START THE MOTORS VERY SLOWLY TO FULLY LUBRICATE THE PUMPS BEFORE INCREASING SPEED.**
Start Up Screen

When the power is applied to the machine the following display will appear. Graco screen will appear momentarily. Then, the machine serial number and software version will be displayed. Then the following screen will appear.

Note: To enter into this screen, power down the DL unit using the Emergency Stop button then reset the Emergency Stop button to restore power.

To continue to the HOME PAGE press the F1 button (under the START icon).

(See the HOME PAGE screen for more information.)

The Clock Screen option F2 button (under the icon) is seen below the CLOCK/CALENDAR SETUP screen.

To change the time and date:

1. There will be an outline box around the first four characters for the YY.MM. If the year to be entered is 2006 then the number that needs to be entered is 06. To enter the month, press the decimal point button and if the month was July, then 07 needs to be entered. It should look like 06.07 then the press ENT button. The year (YY) and the month (MM) are now saved.

2. Use the left and right scroll keys to move the outline box to DD.hh and enter the day (DD) and the hour (hh) as done in step 1.

3. Use the left and right scroll keys to move the outline box to mm.ss and enter the minutes (mm) and the seconds (ss) as done in step 1.
Home Page Screen

The HOME PAGE screen is the main screen where all the machine functions can be accessed.

Set Up screens F1 button.
This button is selected to make the Set Up screens to appear. These screens are used to change various timers and to enable or disable machine functions. **NOTE: This is a Password Protected screen.** *(See the Set Up screen section for more information.)*

 Calibration screens F2 button.
This button is selected to make the Calibration screens appear. These screens are used to recalibrate and verify the “A” component and the “B” component material pumps. **NOTE: This is a Password Protected screen.** *(See the Calibration screen section for more information.)*

 Run screens F3 button.
This button is selected to make the Run screens appear. These screens are used control the dispensing. *(See the Run screen section for more information.)*

 Remote Start Input screens F4 button.
This button is selected to make the Remote Start screen option appear. This screen is used to change the settings of the NIP sensor. The NIP sensor is a start device that will allow the machine to refill the laminating NIP reservoir at the preset time set by the TIMERS-2 screen in the setup function section.
Set Up Function Screens

The Set Up screens are used to change various timers and to enable or disable tank functions.

To enter the Set Up screens, do the following: From the HOME PAGE press the F1 button (under the icon). The following screen below will appear.

Using the numeric keypad, enter password “5810” and press the ENT button. If the password is correct, the TIMERS-1 screen (see below) will appear.

To escape press the F4 or the F1 button (under the or the icon) to return to the HOME PAGE screen.

The TIMERS-1 screen is used to change the Material Anti-gel Timer and the Material Anti-gel Duration.

The Anti-Gel Timer automatically dispenses material after an operator-programmed period of time to prevent material from curing inside the mixer. The recommended time entered in this function is ½ of the gel time of the material.

To change the Anti-Gel Timer, do the following: Touch the text box next to and enter the new time in 0.1 (th’s) of minutes. Then press ENT button, the new time will be displayed.
The Anti-Gel Duration Timer [A-GEL DUR] is the time that the machine needs to dispense material in order to clear or purge the mixer assembly of gelled material. When setting this time the rate of flow and the volumetric contents of the mixer needs to be considered.

To change the Anti-Gel Duration Timer, do the following: Touch the text box next to A-GEL DUR and enter the new time in 0.1 (th’s) of seconds. Then press ENT button, the new time will be displayed.

**EXAMPLE:**

- Gel time of material = 2 minutes
- Volumetric contents of mixer = 13.3 cc
- Rate of Flow = 20 g/sec = 20 cc/sec

Gel time of material / 2 = Anti-Gel Timer Setting

2 minute ÷ 2 = 1 minute
Enter 1 minute for The Anti-Gel Timer ANTI-GEL

Volumetric contents of mixer / Rate of Flow = Anti-Gel Duration Timer Setting

13.3 cc ÷ 20 cc/sec = 0.665
Enter 0.7 seconds for Anti-Gel Duration Timer A-GEL DUR

To continue to the next screen (ENABLE FUNCTIONS seen next page), select the F3 (under the icon). To escape press the F4 button (under the icon) to return to the HOME PAGE screen.

**NOTE:** To disable ANTI-GEL timer set the A-GEL DURATION time EQUAL to “0” seconds.

The Set Up screens are used to change various timers and to enable or disable tank functions.

![TIMERS-2](image)

The NIP START DELAY Timer [NIP ST DLY] is the duration of “ON” time required from the NIP sensor before beginning dispensing. Increase this time if the NIP sensor short cycles the machine during the beginning of dispensing.

The NIP Pressure STOP DELAY Timer [NIP SP DLY] is the duration of “OFF” time required from the NIP sensor before the dispense sequence is stopped.

To continue to the next screen (TIMERS 2), select the F3 (under the icon). To return to the previous screen (ENABLE FUNCTIONS), select the F1 (under the icon). To return to the HOME PAGE screen, select the F4 (under the icon).
REFILL DELAY function **REFILL DLY**
This is the tank filling delay time for the A and B material tanks. If the material is below the high level and the delay timer runs down to 0 minutes, the tank will automatically refill to the high level sensor *(if equipped).*

To continue to the next screen *(Enable Functions seen below)*, select the **F3** (under the icon).
To return to the previous screen *(TIMERS - 2)*, select the **F1** (under the icon).
To return to the HOME PAGE screen, select the **F4** (under the icon).

The ENABLE FUNCTIONS screen enables or disables the EnGarde, REFILL or L LEV (Low Level) functions.
**To enable or disable a function, do the following:** Touch the text box next to the function that requires change and enter a “1” to enable or a “0” to disable the function. Then press **ENT** button, the “1” or “0” will be displayed.

**EnGarde function EnGarde *(if equipped)*
When this function is enabled (1) the EnGarde will monitor the material dispense ratios. When this function is disabled (0) the EnGarde, this is used for maintenance only.

**Low Level function L LEV *(if equipped)*
When this function is enabled (1), the machine will shut down when the “A” or “B” low-level sensor senses a low level condition. When this function is disabled (0) machine shutdown feature is disabled, this is used for maintenance only.

**REFILL function REFILL**
When this function is enabled (1) the automatic tank refilling sequence (described in TIMERS-3) will be active or if a disabled (0) the automatic tank refilling sequence is disable (which is used for pumping down the tanks for maintenance). **NOTE: This will also disable the transfer pump and ball valve control system.**

To continue to the next screen *(TIMERS 2)*, select the **F2** (under the icon).
To return to the previous screen *(ENABLE FUNCTIONS)*, select the **F1** (under the icon).
To return to the HOME PAGE screen, select the **F4** (under the icon).
NOTE: If the EnGarde option was not purchased, the values in this screen will not change the operation of the machine.

Component Material Ratio Tolerance **RATIO TOL.** This changes the component ratio tolerance in the terms of percentage of the A/B component ratio.

To change the Component Material Ratio Tolerance, do the following: Touch the text box next to **RATIO TOL.** Type in the desired component ratio tolerance. Press the **ENT** key.

Component Material Ratio **B/A SG=** This allow the EnGarde™ to convert material output volume to material output weight.

To change the Component Material Ratio, do the following: Touch the text box next to **B/A SG=** Component Material Ratio, type in the new ratio. Press the **ENT** key.

To return to the previous screen select the **F1** (under the **<** icon). To return to the HOME PAGE screen, select the **F4** (under the **Home** icon).

To calculate the new Component Material Ratio **B/A SG=** use the following formula:

\[
\frac{B \text{ component Specific Gravity}}{A \text{ component Specific Gravity}}
\]

For Example: If the **B** component Specific Gravity is 1.18 and the **A** component Specific Gravity is 0.98 then do the following.

\[
\frac{1.18}{0.98} = 1.2
\]

Enter 1.2 for **B/A SG**

NOTE: For the best accuracy, it is recommended that the specific gravity of the material should be calculated by weighing a given volume (in milliliters or cubic centimeters) of material, then dividing the weight (in grams) by the volume (ml or cc’s).

For Example: If the **B** component Specific Gravity is 1.18 and the **A** component Specific Gravity is 0.98 then do the following.

\[
\frac{35 \text{ grams}}{30 \text{ ml}} = 1.167
\]

**Specific Gravity = 1.17 for Specific Gravity**

NOTE: Prior to taking material weight it is important to tare the weight of the container.
Run Mode

Enter RUN-1 and the RUN-2 screens

To enter the RUN MODE screens, do the following:
From the HOME PAGE press the F3 button (under the RUN icon).
The following screen below will appear.

RUN-1 MODE screen displays Component Ratio A/B and displays Flow Rate FLOW RATE.
The F2 button (under the printer icon) is used for the printer option, which is not installed in this machine. When the start device is pressed the machine will dispense a continuous flow of material from the dispense valve. When the NIP sensor is activated, the machine will dispense continuously within the timeline set in the TIMER-2 screen. The machine will also purge at the preset time set in the Timers-1 screen.
To continue to the next screen (RUN-2 CONTINUOUS DISPENSE seen below), select the F1 (under the "C" icon).
The EnGarde screen F3 button is disabled (under the icon).
To return to the HOME PAGE screen, select F4 (under the icon).

RUN-2 MODE screen displays Component Ratio Flow Rate FLOW RATE and the Time Remaining for Dispensing TIME REMAINING. This is used to take material ratio check shots. The machine will also purge at the preset time set in the TIMER-1 screen. The NIP sensor should be turned off or deactivated when running in this mode. When the F2 button (under the icon) or a Start Device is pressed, the machine will dispense a shot of material for the length of time shown in and at the flow rate shown in FLOW RATE display.
To continue to the previous screen (RUN-1 seen above), select the F1 (under the icon).
The EnGarde screen is the F3 button (under the icon).
To return to the HOME PAGE screen, select F4 (under the icon).
This screen displays the actual A to B ratio and the actual A to B ratio tolerance. The TOTALIZER screen is under the F2 button.

This screen displays the total amount of material used by the A and B pumps. This indicator can be reset by pressing the F3 button.
Calibration Mode

Enter Calibration and the CAL-1 screen

NOTE: Re-calibration is necessary whenever ratio, or flow rate is changed.

To enter in the CALIBRATION MODE screens, do the following:
From the HOME PAGE press the F2 button (under the CAL icon).
The following screen below will appear.

Using the numeric keypad, enter password “7777” and press the ENT button. If the password is correct, the CAL-1: MAINTENANCE screen (seen below) will appear.
To escape press the F4 button (under the icon) to return to the HOME PAGE screen.

The Cal-1 Screen allows authorized personal to set ratio and flow rate component materials during Calibration Mode.

NOTE:
While in the Cal-1 Screen dispensing is allowed for as long as the signal is maintained.
To dispense for a fixed period of time go to the Cal-2 Screen (see the Cal-2 screen for more information).

Component Material Ratio A/B = 0.00/0.00: This changes the A/B component ratio.
To change the Component Material Ratio, do the following: Touch the text box next to A/B = 0.00/0.00 Component Material Ratio, Type in the new ratio of the A to B component.
NOTE: When entering a ratio, the A component always equals 1. Example: If the A/B ratio 2:1 is required, then 1:0.5 must be entered (0.5 is the inverse of 2). Then press the ENT button, the new value will be displayed.

FLOW RATE: This changes the rate of flow for the total material dispensing output. (“A” and “B” components).
To change the FLOW RATE, do the following: Touch the text box next to [FLOW RATE] enter the new flow rate in grams per second. Then press [ENT] button, the new flow rate will be displayed.

To change which pumps that will operate in CAL MODE, press F2.

![Pump Control Diagram]

Selecting F1 button under the A icon will allow the “A” pump to run in calibration mode only.
Selecting F2 button under the B icon will allow the “B” pump to run in calibration mode only.
Selecting F3 button under the BOTH icon will allow both pumps to run in calibration mode.
Selecting F4 button under the NONE icon will turn both pumps off in calibration mode.

To continue to the next screen (Cal-2 Shot) select the F1 button
To return to the HOME PAGE screen, select the F4 button

The CAL-2 screen

CAL-2: SHOT t=  *** .* sec
FLOW RATE= **.** g/s
TIME REMAIN. = *** . * s

The Cal-2 Screen allows authorized personal to set shot size and flow rate of the shot during Calibration Mode.

**SHOT TIME** SHOT t= this is the length of time that the machine will cycle to dispense one shot.

**To change the SHOT time, do the following:** Touch the text box next to [SHOT t=] and enter the new shot time in seconds. **NOTE:** If the flow rate is 5 grams per second and a 20 gram shot is required, then a 4 second shot time is required to be entered. Then press [ENT] button, the new time will be displayed.

**CAUTION: DO NOT CHANGE SHOT TIME AFTER CALIBRATION IS COMPLETE.**

**FLOW RATE** FLOW RATE: This changes the rate of flow for the total material dispensing output. (“A” and “B” components).

**To change the FLOW RATE, do the following:** Touch the text box next to [FLOW RATE] and enter the new flow rate in grams per second. Then press [ENT] button, the new time will be displayed.

**TIME REMAINING indicator** TIME REMAINING: This indicates the time remaining on current shot in seconds.
To continue to the next screen VERIFICATION (VER), select the F3 (under the icon).
To return to the HOME PAGE screen, select the F4 (under the icon).
NOTE: To dispense 1 shot of material; press F2 (under the icon).

The VERIFICATION screen

Verification Screen: This screen compares the actual and calculated output and adjusts the drive speeds automatically. **CALC** Calculated A and B component weight. **Act**: Actual A and B component.
Calibration Mode Continued
Recalibrate Component Material Pumps

Prior to calibrating, it is important to purge this machine of all air in RUN-1 or RUN-2 mode. When purging, the hoses must be in constant upslope and the dispense nozzle must be at the highest point. The dispense valve can be removed and material can be dispensed from the non-drip check valves for easier priming. If the hoses are already primed, it is also recommended to take 1 or 2 dump shots in the RUN-2 screen prior to performing calibration.

The CAL-2 screen

1. Go to the VERIFICATION screen. (Select the F3 found on CAL-2 screen above).

2. Press F2 to Reset or clear old data. The ac will appear at the bottom of the screen.

3. Press the F1 button to return to the CAL-2 screen.

4. Weigh (2) small empty cups and label as A1 and B1. Record on Ratio Check form. **Always take a dump shot into a waste container before taking weights.**

5. Place empty cups under the nozzles.

6. Press the F2 button or start device.
7. Go to the **VERIFICATION** screen. (Select the F3).

8. Touch the text box ACT A(g); enter the net weight of the cup with "A" component and press **ENT** button.

9. Touch the text box ACT B(g); enter the net weight of the cup with “B” component and press **ENT** button.

10. Note the icon above the F3 button. Select the F3 button. The icon should change from **AC** to **AC** at this time the calibration is complete.

When calibration is complete, press the F4 button (under the **AC** icon) to return to the HOME PAGE screen. Then go to RUN-1 for maintained dispensing, and RUN-2 for timed dispensing.
Fault, Warning, and Notice Screens

**E-Stop Fault Screen**
This indicator will be present in the display screen when the EMERGENCY STOP button is pressed. (All power is removed from the machine. The pumps will immediately stop in place. The dispense valve will close.)
To reset ESTOP Fault twist and release button.

**Off Ratio Warning Screen**
This indicator will be present in the display screen when the actual A/B ratio does not fall within the set ratio tolerance zone. To silence the alarm, press the F1 button.

**Illegal Flow Rate Screen**
This indicator will be present in the display screen when the A/B ratio or flow rate does not fall within set parameters. To clear this screen, press the F3 button.

**Off Ratio Warning Flow Meter A Screen**
This indicator will be present in the display screen when the A flow meter failure is present. To silence the alarm, press the F1 button. To clear this screen, press the F3 button.
**Off Ratio Warning Flow Meter B Screen**
This indicator will be present in the display screen when the B flow meter failure is present. To silence the alarm, press the F1 button. To clear this screen, press the F3 button.

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**VFD-2 Fault Screen**
This indicator will be present in the display screen when the drive outputs signal a fault. To clear this screen, press the F3 button.

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**VFD-2 Fault Screen**
This indicator will be present in the display screen when the drive outputs signal a fault. To clear this screen, press the F3 button.

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**Exceeded Pressure – Side A**
This indicator will be present in the display screen when the A component line pressure at the pump outlet exceeds the set point on the pressure switch. To clear this screen, press the F3 button.
Exceeded Pressure – Side A Remote
This indicator will be present in the display screen when the A component line pressure at the flow meter exceeds the set point on the pressure switch. To clear this screen, press the F3 button.

Exceeded Pressure – Side B
This indicator will be present in the display screen when the B component line pressure at the pump outlet exceeds the set point on the pressure switch. To clear this screen, press the F3 button.

Exceeded Pressure – Side B Remote
This indicator will be present in the display screen when the B component line pressure at the flow meter exceeds the set point on the pressure switch. To clear this screen, press the F3 button.

Notice: Replace Upper Level – Side A
This indicator will be present in the display screen when component A material tank level goes below the Low Level Sensor. To silence the alarm, press the F1 button. To clear this screen, press the F2 button.
Notice: Replace Upper Level – Side B
This indicator will be present in the display screen when component B material tank level goes below the Low Level Sensor. To silence the alarm, press the F1 button. To clear this screen, press the F2 button.

Low Level - Side A
This indicator will be illuminated when the A component material is at the empty level sensor. When this indicator is illuminated, the machine will stop cycling. To silence the alarm, press the F1 button.

Low Level - Side B
This indicator will be illuminated when the B component material is at the Low Level Sensor. When this indicator is illuminated, the machine will stop cycling. To silence the alarm, press the F1 button.
Operation

Enter into the RUN-1 or RUN-2 screens

To enter in the RUN MODE screens, do the following:
From the HOME PAGE press the **F3** button (under the **RUN** icon).
The following screen below will appear.

For continuous operation do the following:

1. Verify the Component Ratio **A/B** and Flow Rate **FLOW RATE**
2. When the Start Device is pressed and held, the mixer will dispense material continuously.
3. To stop dispensing, release the Start Device.

To return to the HOME PAGE screen, select the **F4** (under the **HOME** icon).

For a timed shot operation do the following:

To enter in the RUN MODE screens, do the following:
From the HOME PAGE press the **F3** button (under the **RUN** icon).
The following screen below will appear.
1. Continue to the next screen (RUN-2 seen below), select the F1 (under the "C" icon).

2. Verify the Flow Rate FLOW RATE and shot time t= settings.
3. Press the F2 button or start device, the mixer will dispense one shot of material.

To abort the dispense cycle, press and hold F2.

To continue to the previous screen (RUN-1 seen above), select the F1 (under the A/B icon).

The Engarde screen F3 button (under the icon) is disabled.

To return to the HOME PAGE screen, select the F4 (under the icon).
Loading Materials

Gravity Feed Tank

A gravity feed tank uses the force of gravity to draw material into the pump. Test all machine features and controls before loading material for the first time. Do not operate the machine with material under vacuum.

1. Remove the lid from the material reservoir.
2. Slowly pour or ladle the material into the tank (down the side of the tank wall is preferred) to entrap as little air as possible.
3. Allow sufficient time for any air to vent from the pump.
4. Replace and secure the material tank lid, making sure that the vent valves are in the opened position.
Pressure Balancing

NOTE: Pressure balancing is only used on DL2 machines.

The fluid pressure of each component must be balanced in the re-circulation and dispense modes to insure that each component’s dispense pressure equals its recycle pressure.

- Pressure balancing must be done prior to calibration.

1. Set the machine to the desired flow rate.
2. Install the mixer element.
3. Adjust the A&B orifice screw / knob pressure adjustment screws so that the screw sticks out ¾”.

   Adjust the re-circulation adjustment screw to avoid over pressure situations as necessary.
   Adjust dispense pressure adjustment screws by turning the orifice screw on the dispense valve.

4. Begin dispensing into a waste container. Record the dispensing pressure, once it settles.
5. Adjust the re-circulation pressure screws until the re-circulation pressure equals the dispense pressure with the mixer elements installed. Record the A&B pressures.
6. Remove the mixing element.
7. Begin dispensing, and slowly close the A&B orifice screw / knob until the dispense pressure without the mixing element equals the dispensing pressure with the mixing element.
8. Pressure balancing is complete.

   Re-pressure balance when flow rate and / or ratio is changed, or when excessive pressure deviation occurs.
**Graco Standard Warranty**

Graco warrants all equipment referenced in this document which is manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco’s written recommendations.

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*Original instructions. This manual contains English. MM 3A2529*

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