

# Ink Dispensing System IDS 10

## User Manual



VALE-TECH LIMITED

Unit 12, Depot Road, Newmarket, Suffolk CB8 0AL, UK

Tel: +44 (0) 1638 668583/668593

Fax: +44 (0) 1638 676720

E-mail: [sales@vale-tech.co.uk](mailto:sales@vale-tech.co.uk)

## Introduction

This User Manual provides the user with a comprehensive guide to the machine.

The machine may be configured with 16, 20 or 24 ink containers, each with a maximum capacity of 10kg. This comprises 16 containers within the main machine frame, with an extension for each 4 additional containers.

The scale container range is up to 10kg, accommodating 1kg, 2.5kg and 5kg containers.

The User Manual identifies the requirements for the initial installation of the machine and continues to provide information for the effective operation of the machine on a day-to-day basis including maintenance, to ensure a high standard of ink dispensing can be consistently achieved.

The Service section of this manual enables the user to identify any spare parts that may need to be ordered for the machine. This product has been manufactured to the highest standards; however, should any difficulties arise, before requesting technical support, a speedier resolution can usually be reached by referring to the trouble-shooting guide within this section. A full set of drawings is also provided to assist in fault finding in the unlikely event of the product developing a fault.

Full Ink Manager Software training is provided within the Training Manual to ensure that the user can feel confident with the machine operation.

The Service Log at the back of this manual serves to provide contact information. Should additional assistance be required please refer to the contact details supplied within this section. Forms available in this section allow the service history of the machine to be recorded for future reference.

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# **Declaration of Conformity & Quality**

## **Vale-Tech Limited Hereby Declares That**

**Machine:**

**Project:**

Is in conformity with the provisions of the machinery directives as listed below: -

**The Machinery Directive, 98/37/EC** – “Machinery is described in the Directive as “an assembly of linked parts or components, at least one of which moves, with the appropriate actuators, control and power circuits, etc., joined together for a specific application, in particular for the processing, treatment, moving or packaging of a material”. The manufacturer is responsible for verifying whether a particular product falls within the scope of the Machinery Directive.”

**The Pressure Equipment Directive, 97/23/EC** – “ The directive provides control over equipment subject to pressure” Pressure equipment being vessels, piping, safety accessories and pressure accessories. A pressure assembly being several pieces of pressure equipment assembled to form an integrated functional whole.

**The EMC Directive, 89/336/EEC** – “The Directive applies to most electrical and electronic apparatus, that is, finished products and systems that include electrical and electronic equipment.”

**The Low Voltage Directive, 73/23/EEC** – “Broadly the Regulations apply to most consumer, commercial and industrial electrical equipment designed for use within the voltage ranges 50 V ac to 1,000 V ac and 75 V dc to 1,500 V dc.”

## **Remarks & restrictions for this declaration**

This declaration is no longer valid if any changes are made to the machine, which is not corresponding to the abovementioned standards.

Place and date:

Newmarket

G Adlem:

Mechanical Engineering

C Stapleton:

Electrical Engineering

M Hughes:

Director

N Scott:

Director

Representing:

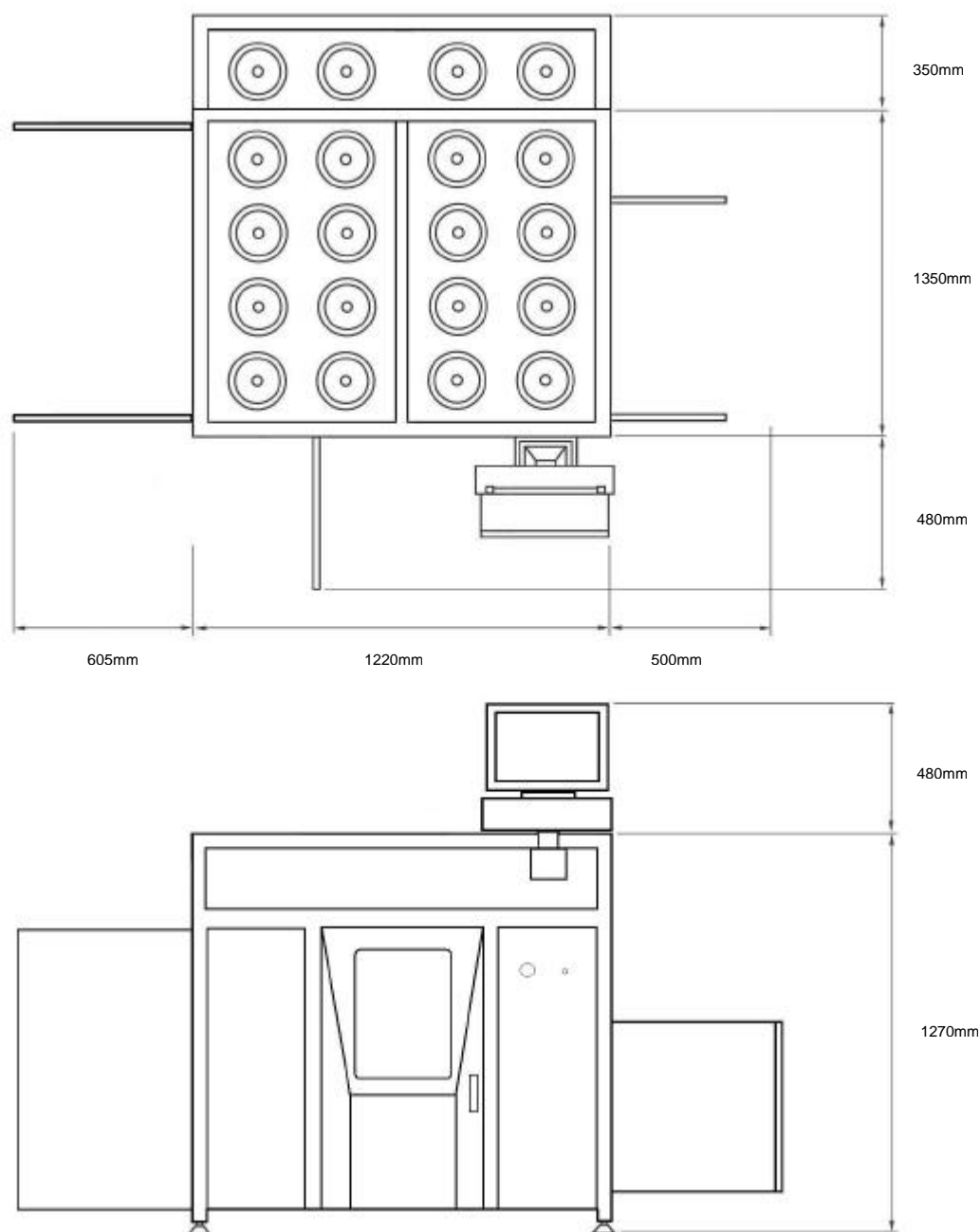
**Vale-Tech Ltd  
12 Depot Road  
Newmarket  
Suffolk CB8 0AL  
United Kingdom**

# 1 Installation

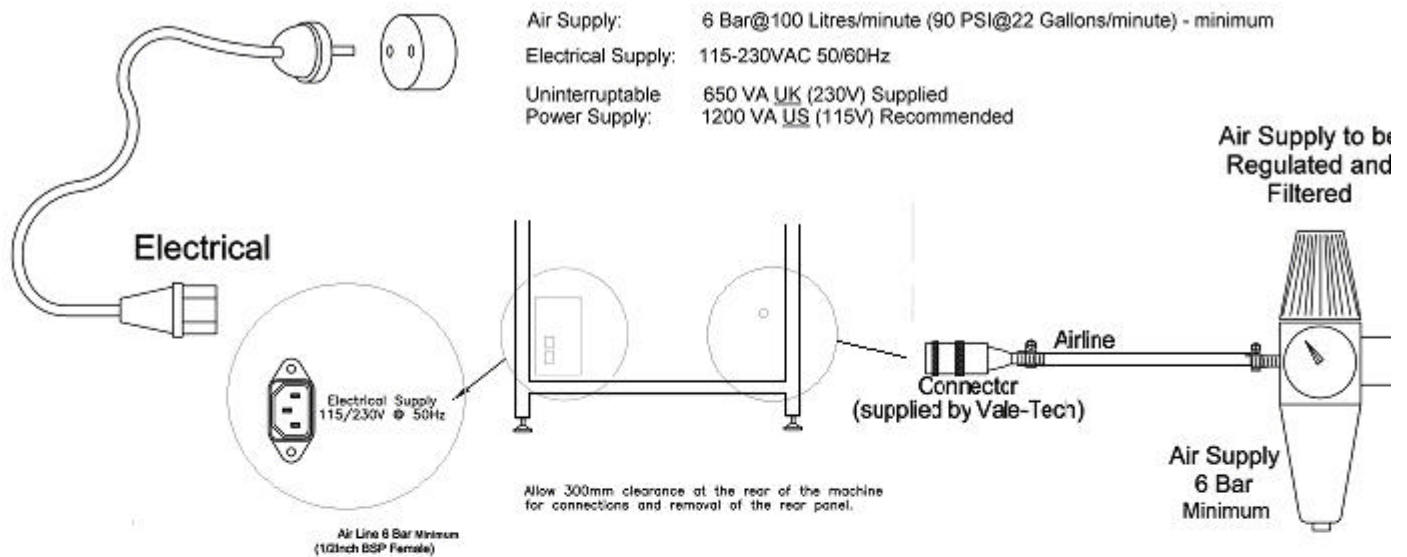
## 1.1 Pre-Install Information

### IDS10

16-24 colour, 10kg dispenser



### 1.1.1 Services Connection Requirements





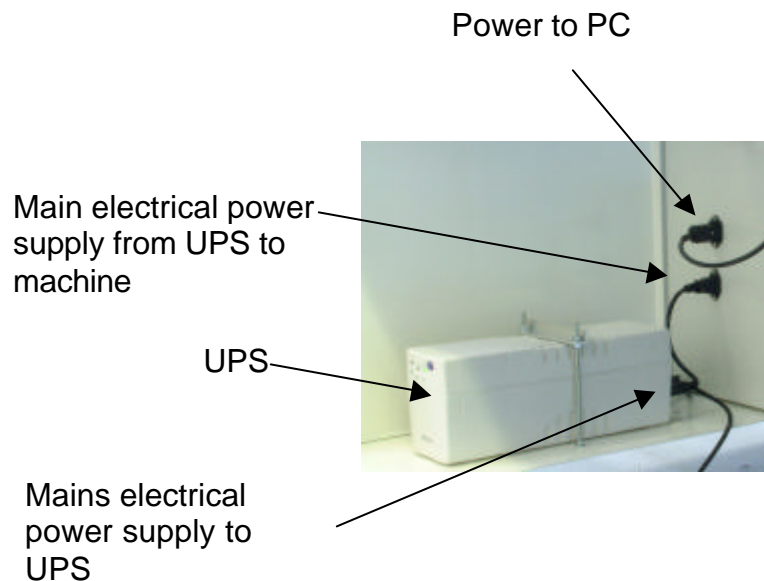
## 1.2 Positioning of Machine

The IDS10 comprises one primary module, measuring 1.62m (D) x 1.4m (W) x 1.6m (H). It should be sited in its desired location by moving with a forklift or pallet truck, remembering to ensure there is a requirement for a minimum of 300mm of clear space at the back of the machine for access to enable the connection of primary services, and clearance at either side to gain access to the electrical and pneumatic supply cabinets.

After positioning the IDS10, ensure that all the feet are placed flat on the floor before leveling. Correct leveling is achieved by placing a spirit level on all four corners and also across the frame. Adjustment to the height of the IDS10 is done by adjusting each of the corner feet up or down as necessary.

## 1.3 Connecting Electrical Supply

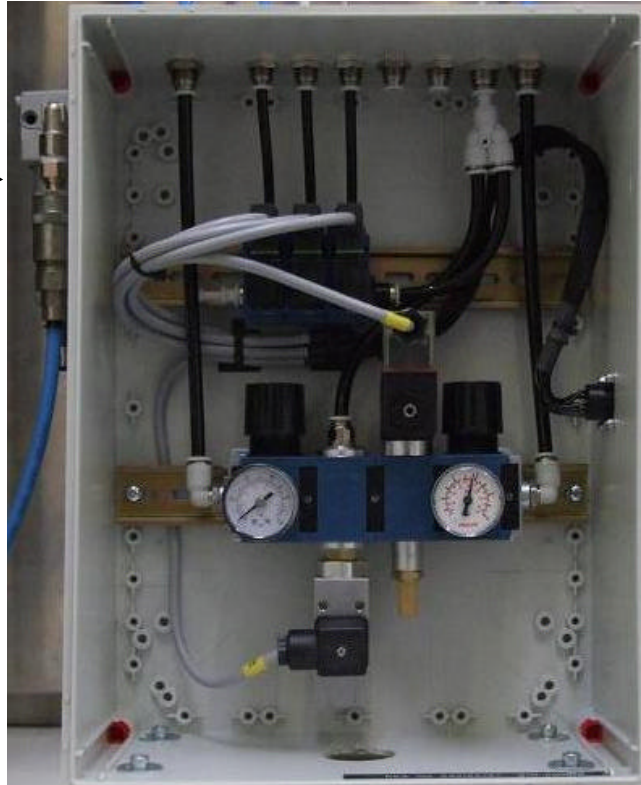
Connect mains electrical power rated at either 115V or 230V 50/60 Hz to the UPS (Uninterruptible Power Supply) as illustrated, or inlet power socket mains input if no UPS is fitted. This is located inside the machine on the right side and indicated as 'POWER'. Removal of side panel is required for access to these connections.



## 1.4 Connecting Air Supply

Connect an airline from an external filtered, clean, dry regulated air supply to the air input connector. This is located on the air manifold assembly within the left side of the IDS10. The air is connected via the quick-fit air coupling supplied by Vale-Tech and requires 8mm hard walled hose for the push fitting. Alternatively, the air supply can also be fitted using soft wall hose and a Jubilee Clip (Use Imp ½" bore or Met 12.70mm, Imp ¾" or Met 19/20mm o/d air hose).

Air input  
connection →



Quick-fit Air Coupling

## 1.5 Connecting the PC

Connect the Keyboard and Monitor cables to the appropriate ports on the back of the PC (refer to the configuration data in the service section). Now connect network, printer, scanner and telephone modem connections to the PC, if additionally required.

Note: Before powering on the PC Please ensure that its Power Supply Unit is set to the correct mains power voltage either 115V or 230V. Full range PSU's are auto switching, 115/230V.

## 2 IDS 10 Start-Up Procedure

### 2.1 Switching on the IDS 10

Before switching on the PC or IDS10 machine, make sure that the Ink containers initially have their air valves turned OFF at the lids.

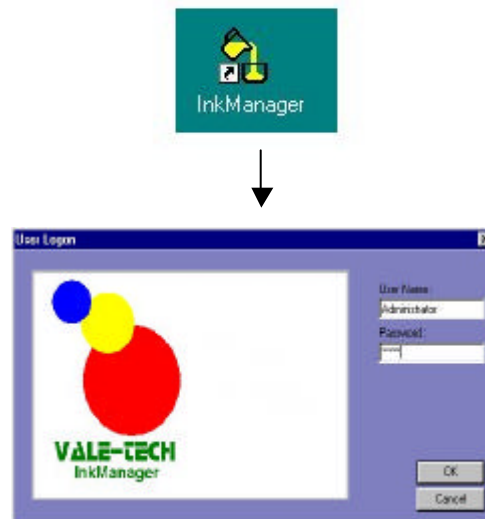
Now switch on the IDS10 by turning the mains ON/OFF isolator switch on the lower right side of the machine CLOCKWISE to the ON position.

Now turn on the PC and the monitor. The PC is located at the lower right side at the front of the machine, and the power button is accessible through the open panel. At this point, the red light on the beacon will be illuminated and the alarm will be sounding.

### 2.2 Log-on and Dispenser Initialisation

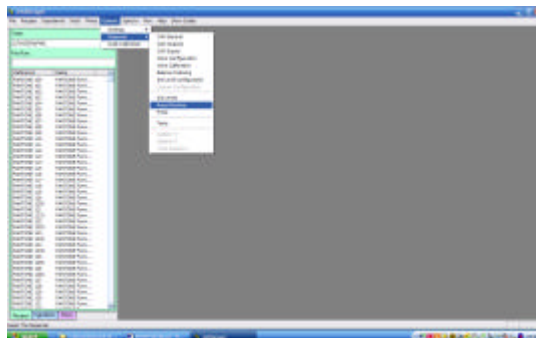
Once the PC has powered up, launch the Ink Manager Software program and logon.

If there are no user accounts, create these by logging on as 'administrator' (password supplied separately).



## 2.2 Log-on and Dispenser Initialisation (cont)

When Ink Manager opens, a formulation list will appear on screen. The machine requires a reset to be carried out as follows. Highlight 'Options', 'Dispenser', 'Reset'.



After completing the reset process the sounder should stop and the beacon will change from red to combined green and amber. The balance will move to the home position at the front of the machine and the secondary air supply regulator will switch on. If the dispenser does not reset, check that the emergency stop button is released.

Note: If the emergency-stop button is depressed, release it by turning the button clockwise and allowing it to spring out. Ensure that the button is not depressed further whilst turning it or the button will not release.

After the initial IDS10 pressurisation, turn the blue air valves located at the sides of the machine, and feed the ink containers, to the ON position one at a time. Ensure the lids are secure and check for any minor air leaks.

## 2.3 IDS Beacon Warning Indicator



**RED:** Indicates Emergency Stop Switch activated or machine in initial Power ON state.

**AMBER:** Indicates the balance dispenser is moving.

**GREEN AND AMBER:** Indicates machine in RESET condition or ready to dispense.

**GREEN:** Indicates machine is in the process of dispensing ink.

## 3 IDS10 Ink Set-Up

### 3.1 Setting Ink Names

**WARNING: DO NOT FILL THE INK SUPPLY CONTAINERS WITH INK UNTIL THIS STAGE HAS BEEN COMPLETED!**

The reference or description for each ink to be used must be allocated to each of the supply containers to be filled. The corresponding ink will be put into the container later when filling commences. Complete the Ink Reference names in the space provided below.

Some machines may have a pre-determined list setting out which ink should be placed in which supply container. In this case, this information will be supplied in conjunction with this manual or obtained from the distribution agent.

Container	Series/Reference/ /Colour
	1. _____
	2. _____
	3. _____
	4. _____
	5. _____
	6. _____
	7. _____
	8. _____
	9. _____
	10. _____
	11. _____
	12. _____
	13. _____
	14. _____
	15. _____
	16. _____
	17. _____
	18. _____
	19. _____
	20. _____
	21. _____
	22. _____
	23. _____
	24. _____

21

22

23

24

4 Pot  
Extension

17

18

19

20

4 Pot  
Extension

13

14

15

16

9

10

11

12

5

6

7

8

1

2

3

4

16 Pot  
Main Unit

Front

## 3.2 Loading Ink

**WARNING: NEVER TRY TO REMOVE A SUPPLY CONTAINER LID WHILST UNDER PRESSURE!**

Turn the blue air valve on the side of the machine relating to the container which is to be refilled to the OFF position. This allows the container to fully vent (de-pressurise). When the hissing sound of escaping air ceases fully, press the button on the side of the centre handle of the lid to release the side clamps, allowing the lid to be lifted clear of the top of the ink supply container.

Each IDS10 ink container is pressure tested using water prior to shipment and so any residual moisture should be fully removed before each container is filled with ink. Before loading ink it may be advisable to clean out the containers with an alcohol/isopropanol solution, taking care not to move or damage the level sensor probes attached to the side of the container.



Push button  
to open lid  
clamps

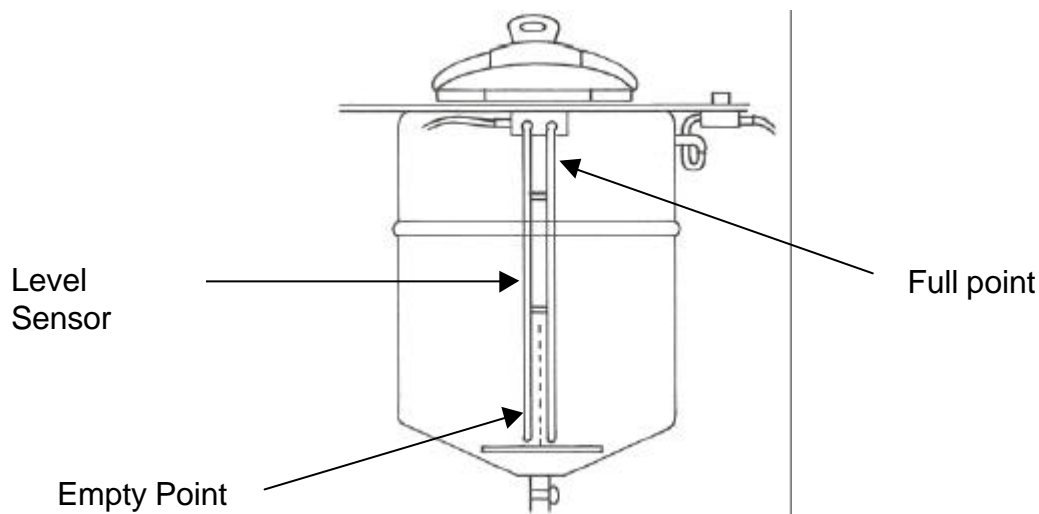


### 3.3 Setting Ink Levels

Ink level sensing is achieved by monitoring the levels in the individual containers using a probe mounted on the inside of each container. The probe comprises 2 insulated steel rods spaced 20mm apart. One side is electrically isolated from the container.

The probe is mounted vertically inside the container, with the end of the probe as close to the bottom of the container as possible. The way in which the low level value is set ensures that the 'container empty' point registers prior to the container actually becoming empty. This eliminates air being drawn through to the dispense valve, and ink spitting from the valve, which may happen if the container was to actually become completely empty. The high level value is set with the ink below the top of the level sensor probe; keeping the ink away from the lid and its sealing gasket, and well below the container air pressure inlet.

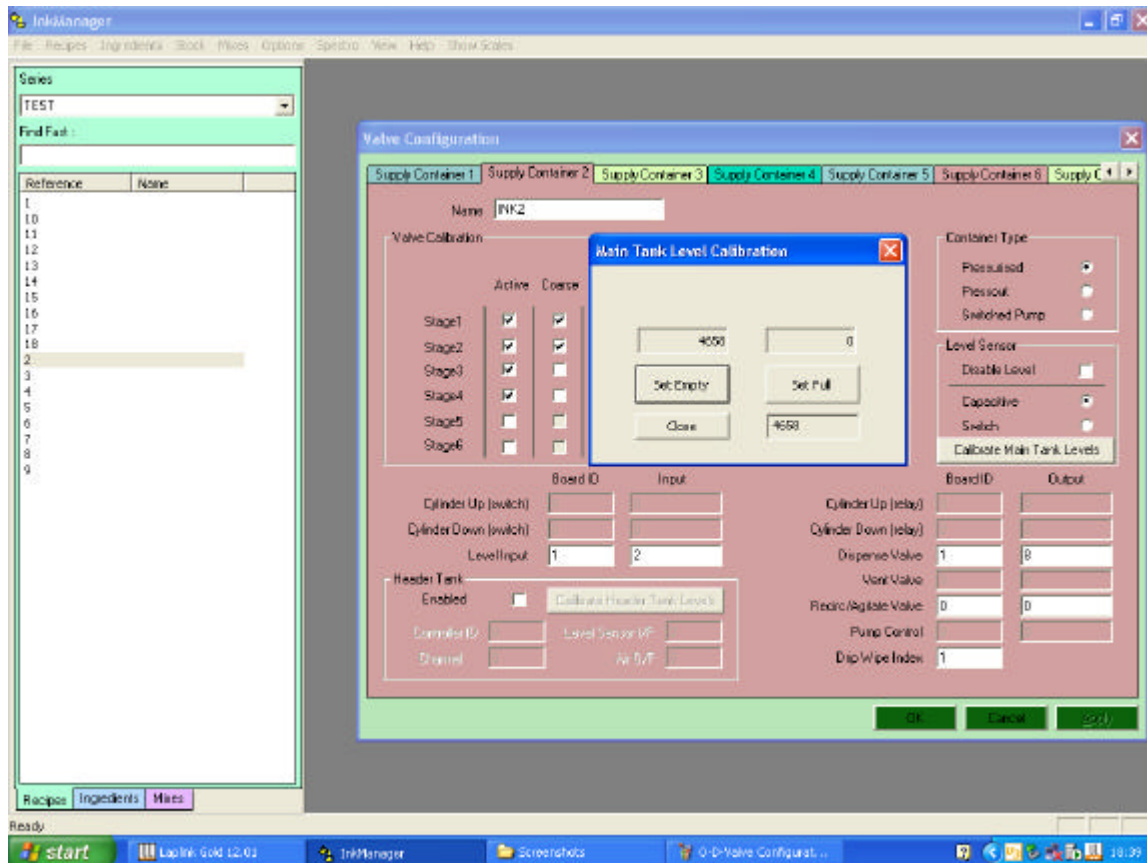
To set the ink levels, select 'Options' 'Dispenser' 'Valve Configuration' from the drop down menu in Ink Manager. Once this page opens, click on 'Calibrate Main Tank Levels' to open the setting up option. The diagram below shows the ink level probe and ink level indication within the ink container. To begin setting the ink levels, ensure the correct colour ink from the Setting Ink Names list in 3.1 is selected, and pour in enough ink to cover approx 1inch, (25mm) above the bottom of the level sensor probe in the container.





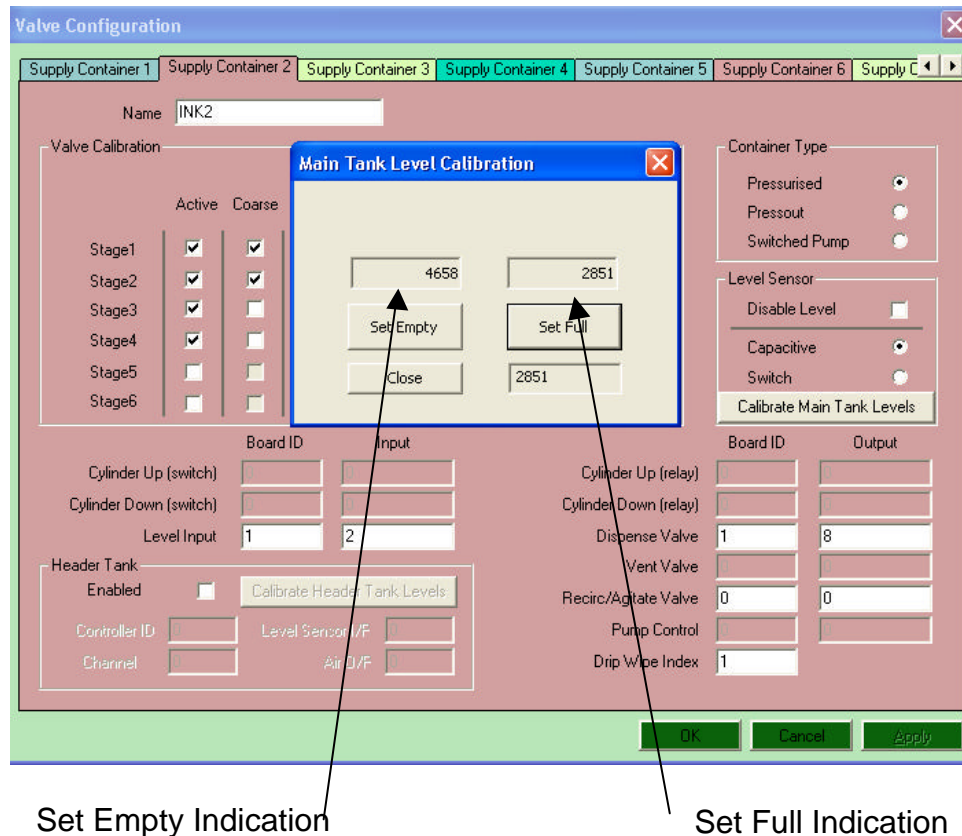
### 3.3 Setting Ink Levels (cont)

Select 'Set Empty' button to set the empty level for this colour. The numerical value for this will be recorded in the box above 'Set Empty' button. This ensures that the container will show the empty point **BEFORE** the ink reaches the bottom, as previously explained.



## Setting Ink Levels (cont)

Continue to fill the container to a maximum level of 1/2 Inch (12mm) below the bend at top of the probe. When this is done, click the 'Set Full' button. The numerical value for this will be recorded in the box above the 'Set Full' button. The value shown in the box for the full level should be smaller than the value of the empty point level.



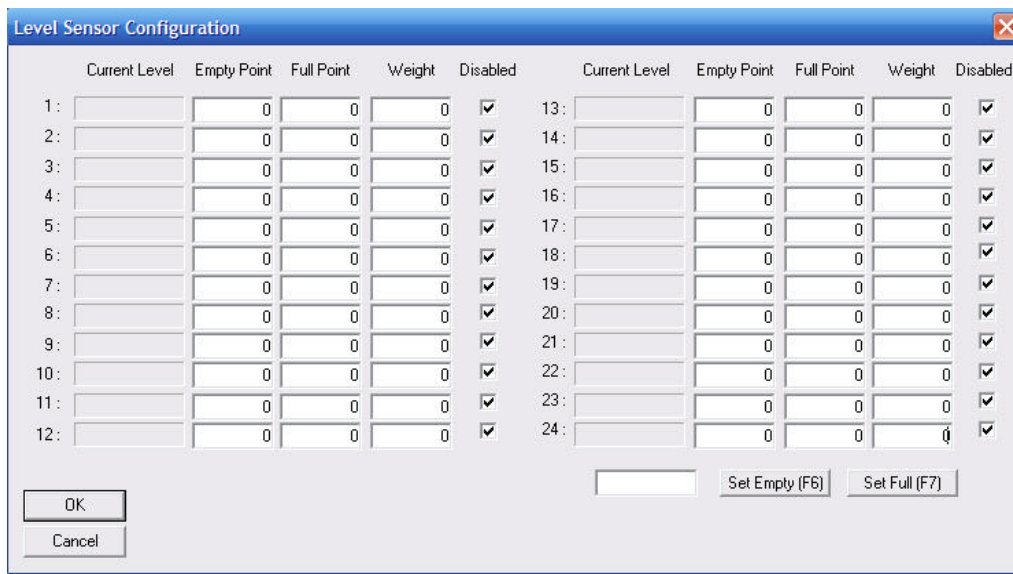
Set Empty Indication

Set Full Indication

Note: The live value in the boxes 'Set Empty Indication' and 'Set Full Indication' will be recorded into the selected container number (into either the full or empty points depending on which button is 'clicked'). Therefore, it is important to go through the filling of the ink containers and the setting of the low and high level procedure in the correct sequence. If the 'Set Full' button is clicked before the container is filled, the value indicated will be stored as the full value. If the 'Set Empty' button is clicked when the ink container is full, the machine will not dispense even though the container is full. This is due to the software interpreting the signal sent from the Level Sensor Probe indicating that the container requires re-filling.

## Setting Ink Levels (cont)

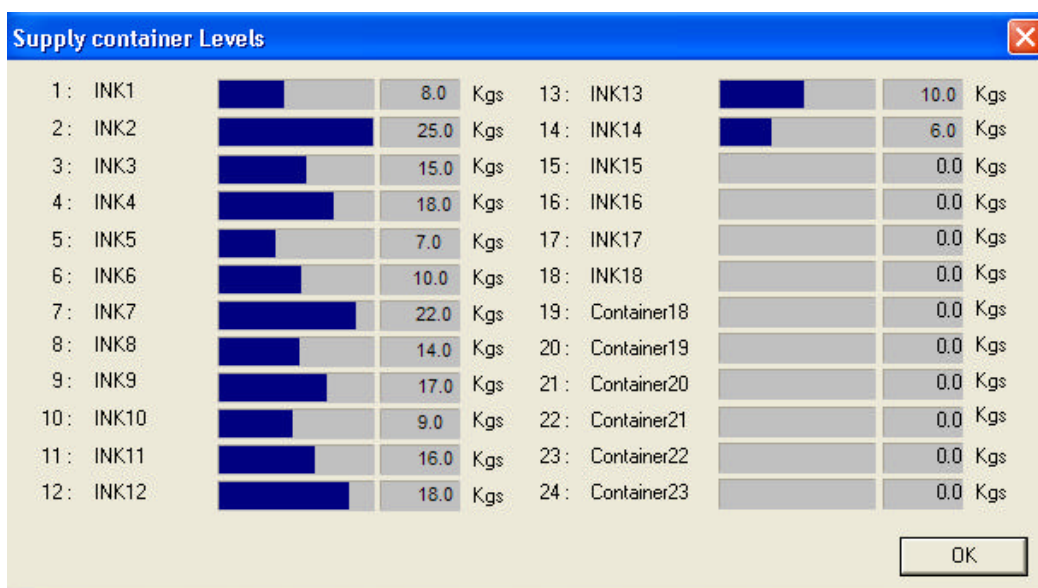
The 'Weight' field is optional. This will allow a check of approximately how much ink by weight is in a particular container at any time. To set this feature, select 'Options' 'Dispenser' 'Ink Level Configuration' and enter the quantity of ink by weight which was used to fill the container between the empty and full points into the weight box of the appropriate ink container.



The 'Level Sensor Configuration' dialog box is used to set up ink levels for 24 containers. It features two columns of input fields, each with a 'Current Level', 'Empty Point', 'Full Point', 'Weight', and 'Disabled' checkbox. The 'Disabled' column contains checkboxes for each of the 24 containers, all of which are currently checked. At the bottom, there are 'OK' and 'Cancel' buttons, and a 'Set Full (F7)' button next to a text input field.

	Current Level	Empty Point	Full Point	Weight	Disabled
1:		0	0	0	<input checked="" type="checkbox"/>
2:		0	0	0	<input checked="" type="checkbox"/>
3:		0	0	0	<input checked="" type="checkbox"/>
4:		0	0	0	<input checked="" type="checkbox"/>
5:		0	0	0	<input checked="" type="checkbox"/>
6:		0	0	0	<input checked="" type="checkbox"/>
7:		0	0	0	<input checked="" type="checkbox"/>
8:		0	0	0	<input checked="" type="checkbox"/>
9:		0	0	0	<input checked="" type="checkbox"/>
10:		0	0	0	<input checked="" type="checkbox"/>
11:		0	0	0	<input checked="" type="checkbox"/>
12:		0	0	0	<input checked="" type="checkbox"/>
13:		0	0	0	<input checked="" type="checkbox"/>
14:		0	0	0	<input checked="" type="checkbox"/>
15:		0	0	0	<input checked="" type="checkbox"/>
16:		0	0	0	<input checked="" type="checkbox"/>
17:		0	0	0	<input checked="" type="checkbox"/>
18:		0	0	0	<input checked="" type="checkbox"/>
19:		0	0	0	<input checked="" type="checkbox"/>
20:		0	0	0	<input checked="" type="checkbox"/>
21:		0	0	0	<input checked="" type="checkbox"/>
22:		0	0	0	<input checked="" type="checkbox"/>
23:		0	0	0	<input checked="" type="checkbox"/>
24:		0	0	0	<input checked="" type="checkbox"/>

To view the levels of each of the inks within the supply containers, select 'Options', 'Dispenser', 'Ink Levels'.



The 'Supply container Levels' dialog box displays the current ink levels for 24 containers. It shows the container number, the ink name (e.g., INK1, INK2, etc.), a visual bar chart representing the ink level, and the weight in Kgs. The first 12 containers are labeled INK1 through INK12, and the next 12 are labeled Container18 through Container23. The weight values range from 0.0 Kgs to 25.0 Kgs. An 'OK' button is located at the bottom right.

Container	Ink Name	Weight (Kgs)
1:	INK1	8.0
2:	INK2	25.0
3:	INK3	15.0
4:	INK4	18.0
5:	INK5	7.0
6:	INK6	10.0
7:	INK7	22.0
8:	INK8	14.0
9:	INK9	17.0
10:	INK10	9.0
11:	INK11	16.0
12:	INK12	18.0
13:	INK13	10.0
14:	INK14	6.0
15:	INK15	0.0
16:	INK16	0.0
17:	INK17	0.0
18:	INK18	0.0
19:	Container18	0.0
20:	Container19	0.0
21:	Container20	0.0
22:	Container21	0.0
23:	Container22	0.0
24:	Container23	0.0

### 3.4 Valve Configuration

To allocate settings to each ink container, open the Valve Configuration settings. Select 'Options' 'Dispenser' 'Valve Configuration' from the drop down menu in Ink Manager. Each container has its own 'Folder tab' and must be allocated the correct colour reference in the 'Name' field before the valves can be configured for their flow rates. For this information please refer to the list in Setting Ink Names, in 3.1.

Before starting to dispense ink, the flow rate for each ink valve needs to be set in order to provide swift but controlled dispensing. It is necessary to understand that the viscosity and flow attributes of the ink will affect its actual dispense rate. The ink container regulator has been set at 16psi, (1bar).

There is a facility to split the dispense process into stages, for ease of control. These are 'coarse' feed for the bulk of the dispense down to approximately 100g before completion, 'coarse pulsed' feed giving coarse feed control down to approximately 20g before completion, 'fine continuous' feed down to approximately 10g before completion and finally, 'fine pulsed' feed down to completion of the dispense. There can be up to 6 separate stages of dispense, although they do not all have to be used. For the purpose of this example, 200g of ink is to be dispensed, utilising only 4 of the stages.

Name field                      Folder tabs

	Active	Coarse	Pulsed	Target Flow	Initial 'On' Period	Completion
Stage1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>			100
Stage2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	5	100	20
Stage3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		80	10
Stage4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0.3	60	0.1
Stage5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Stage6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			

The required speed of dispense when the valve is pulsing, in gms/second.

The length of time (measured in milliseconds) that the valve is open when it begins to pulse.

The weight remaining to be dispensed at which this stage ends.

### 3.5 How does the Ink Valve function during a dispense?

The ink valve is controlled by the Ink Manager Software to open allowing the flow of ink through the large outlet (coarse feed) and small outlet (fine feed). Both coarse and fine feeds can be set to complete the end of their dispense operations by pulsing the flow to reach the desired quantity.

The feed profiles are activated by setting parameters in the Ink Manager software causing the valve to achieve it's pre-determined operation.

Coarse constant feed

Fine constant feed

The screenshot shows the 'Valve Configuration' window with the following sections:

- Supply Containers:** A row of tabs for Supply Container 1 through 6, with 'Supply Container 4' selected.
- Name:** A text field containing 'Ink 1'.
- Valve Calibration:** A table with columns for 'Active', 'Coarse', 'Pulsed', 'Target Flow', 'Initial 'On' Period', and 'Completion'.
 

	Active	Coarse	Pulsed	Target Flow	Initial 'On' Period	Completion
Stage1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0	0	100
Stage2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	5	100	20
Stage3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3	80	10
Stage4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0.3	60	0.1
Stage5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	0	0
Stage6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	0	0
- Container Type:** Radio buttons for 'Pressurised' (selected), 'Pressout', and 'Switched Pump'.
- Level Sensor:** A 'Disable Level' checkbox and radio buttons for 'Capacitive' (selected) and 'Switch'.
- Buttons:** 'Calibrate Main Tank Levels' and 'Calibrate Header Tank Levels'.
- Header Tank:** An 'Enabled' checkbox and fields for 'Controller ID', 'Channel', 'Level Sensor I/F', and 'Air O/P'.
- Board ID and Input/Output:** Two columns of fields for various components like 'Cylinder Up (switch)', 'Cylinder Down (switch)', 'Level Input', 'Cylinder Up (relay)', 'Cylinder Down (relay)', 'Dispense Valve', 'Vent Valve', 'Recirc/Agitate Valve', 'Pump Control', and 'Drip Wipe Index'.
- Buttons:** 'OK', 'Cancel', and 'Apply' at the bottom right.

Coarse pulsed feed

Fine pulsed feed

By ticking:

**'Active'** – this opens a dispense stage. If the 'Coarse' or 'Pulsed' options are not selected, the ink valve will only dispense from the fine feed outlet.

**'Active' 'Coarse'** – this opens the valve to dispense to the 'Completion' preset value of that stage from the coarse feed outlet.

**'Active' 'Coarse' 'Pulsed'** – this 'Pulses' the coarse feed to the 'Completion' preset value of that stage at the preset 'Target Flow' rate.

**'Active' and 'Pulsed'** – this 'Pulses' the fine feed to the 'Completion' preset value of that stage at the preset 'Target Flow' rate.



### 3.5 How does the Ink Valve function during a dispense? (cont)

The dispense example uses 4 stages to complete the process; the break down of each dispense stage is as follows and for the example, the dispense ink quantity is 200g:

#### Stage 1.

- ?? Is Active (or enabled)
- ?? Coarse feed valve continuous dispense
- ?? From 200g down to the Completion Weight of 100g  
(Total of 100g of ink dispensed into the supply container)

#### Stage 2.

- ?? Is Active (or enabled)
- ?? Coarse feed valve will pulse (open for 100 milliseconds before closing) and dispense at a target flow rate of 5grams/second The target flow rate should be adjusted in increments of 10 if the target rate is difficult to achieve; if the dispense time is taking too long for example.
- ?? Now down to the new Completion Weight of 20g  
(Total of 180g of Ink dispensed into the container)

#### Stage 3.

- ?? Is Active (or enabled)
- ?? Fine feed valve continuous dispense
- ?? Now down to the new Completion Weight of 10g  
(Total of 190g of Ink dispensed into the container)

#### Stage 4.

- ?? Is Active (or enabled)
- ?? Fine feed valve will pulse (open for 60 milliseconds before closing) and dispense at a target flow rate of 0.3grams/second
- ?? Now down to the new Completion Rate of 0.3g (This allows for the ink tail which may form at the outlet of the dispensing valve to be included. For thicker inks this can be increased and for thin inks this can be zero, 0g)
- ?? (Total of 200g of Ink dispensed into the container)

**WARNING: IF STAGE 1 IS DISABLED THEN THE IDS10 WILL NOT DISPENSE ANY OTHER STAGES!**

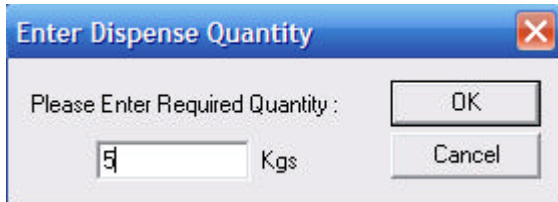
Note.

Container Type:	The IDS10 uses a pressurised container, with the air pressure set at 0.8 – 1.0 bar.
Level Sensor Type:	The IDS10 uses capacitive sensing.
Optional header Tank:	The header tank is used to contain ink when a bulk container system and pump is used in conjunction with the IDS10.



## Dispensing ink (cont)

Enter the dispense quantity and click 'OK'.

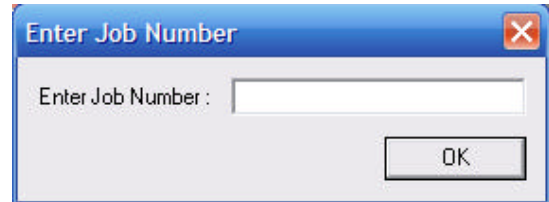


**Enter Dispense Quantity**

Please Enter Required Quantity :

Kgs

OK Cancel



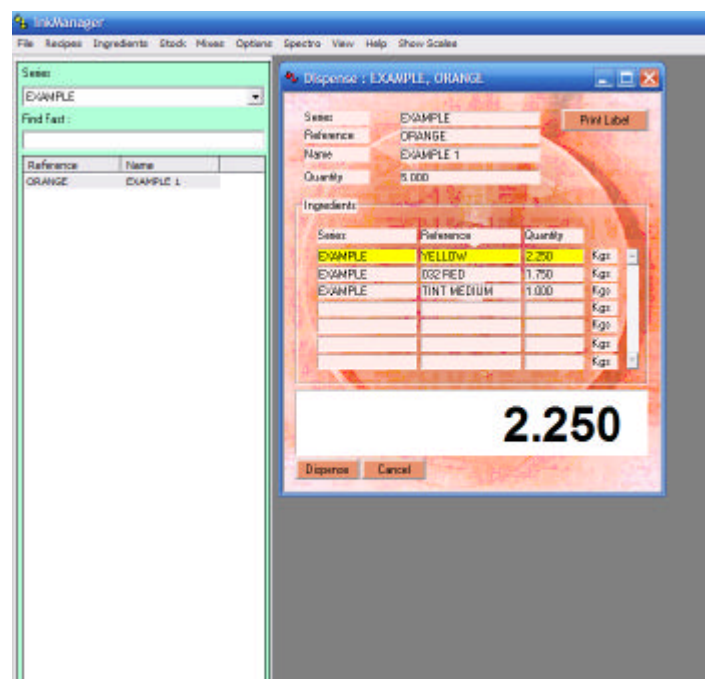
**Enter Job Number**

Enter Job Number :

OK

Enter the 'job number' if required and click 'OK'. If the ink is not to be allocated to a job, click 'ok'.

The dispense screen shows details of the ink formulation to be dispensed. Select 'dispense' and the machine operation will commence.



**InkManager**

File Recipes Ingredients Stock Mixes Options Spectro View Help Show Scales

Series: EXAMPLE  
Find Fast:

Reference	Name
ORANGE	EXAMPLE 1

**Dispense : EXAMPLE, ORANGE**

Series: EXAMPLE  
Reference: ORANGE  
Name: EXAMPLE 1  
Quantity: 5.000

Print Label

Ingredients:

Series	Reference	Quantity	
EXAMPLE	YELLOW	2.250	Kgs
EXAMPLE	032 RED	1.750	Kgs
EXAMPLE	TINT MEDIUM	1.000	Kgs
			Kgs
			Kgs
			Kgs

**2.250**

Dispense Cancel

As each component part of the formulation is dispensed, the software will control the ink valve as described in 3.6. When the dispense is complete, the dispense screen will clear\* and the container of blended ink can be removed from the scale unit.

\*If the software has been configured to allocate the ink to stock, a box will appear and the allocation can be confirmed.



## 4 Hardware Settings

Ink Manager requires setting up to work with a particular machine and its requirements. From the drop down menu select 'Options', 'Settings', General and the following screen will appear. To configure the various fields, refer to the Hardware Set Up in the Ink Manager Training Section.

The screenshot shows the 'Settings' dialog box with the 'Hardware' tab active. The dialog has a title bar with a close button. Below the title bar are tabs for 'Hardware', 'Database', 'Users', 'Weights and Measures', 'Defaults', 'Reports Config', and 'Visual Preferences'. The 'Hardware' section contains several groups of settings:

- System Hardware :** Dispenser Type : CAN
- Manual Blending Hardware :** Manual Balance Port : COM1, Manual Balance Type : Vale - MkII V1.11 and above
- Dispensing Hardware :** Balance Port : COM1, Balance Type : Vale - MkII V1.11 and above, Dispenser Port : COM2
- Queuer Hardware :** Queuer Port : COM3
- Bar-code Hardware :** Default Label Printer : Not installed, Second Label Printer : Not installed, Label Scanner Port : COM4

At the bottom right of the 'Bar-code Hardware' section is a button labeled 'Scan For Network Printers'. At the bottom of the dialog are three buttons: 'OK', 'Cancel', and 'Apply'.

To configure the ports which the various items of hardware are connected into and which type of balance is being used, please refer to the Hardware Configuration information in the Service section of this manual for settings.

Note: Hardware settings should only be changed by authorised personnel/ engineers.

## 5 Safety Features

The IDS10 dispensing machine incorporates safety features which work to prevent any potential injury or harm to the user or to the machine. The safety features must not be tampered with.

When handling ink and lacquer products for use in conjunction with the IDS10, suitable protective equipment must be used. Use latex (or similar) gloves, eye protection, suitable safety shoes and overalls to protect from splashes and spills.

### 5.1 Isolator Switch

The main power isolator switch is located on the right side of the machine.

When maintenance is being carried out, the power must be isolated and the switch locked with a padlock.



#### 5.1.2. Door Switch

The front door of the machine has a safety system which requires the door to be closed before a dispense operation can be started. If the door is opened as a dispense is about to start or while the machine is in operation, it will stop. The operation will resume once the door is closed.

Magnetic interlock to disable machine if front door opened



Warning notice

## Safety Features of the IDS10 (cont)

### 5.3 Emergency Stop Switch

Pressing the red button labeled 'Emergency Stop' at the front of the machine, will activate the emergency stop circuit within the electronics of the machine. The machine will require resetting as detailed in Section 2.2 before any operations can be carried out, and to stop the alarm sounding.



If the Emergency Stop button is depressed during a dispense operation, this will be aborted.

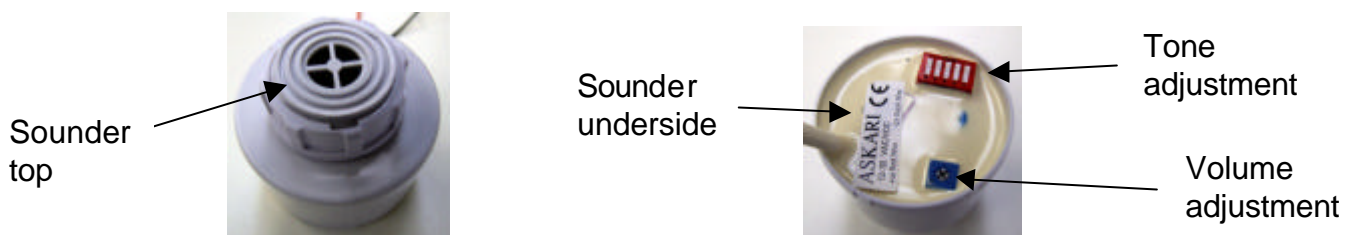
To release the Emergency Stop, the button must be turned anti-clockwise ensuring that it is not depressed further, preventing the button from releasing.

### 5.4. Alarm Sounder

The sounder is an alarm which alerts the user to any problems that occur with the machine. (It is located to the left of the Airbox assembly). The alarm volume and tone can be adjusted via settings within the sounder.

For volume adjustment, a screw can be found on the underside, and by turning this either way the volume can be decreased or increased accordingly. For tone adjustment, a series of switches which can be placed in various position combinations alter the tone.

Note: It is important that before any adjustment is made, the user is reminded that the sounder is a safety feature that must be audible above the ambient noise of the workplace.



## 6 Ink Supply Container

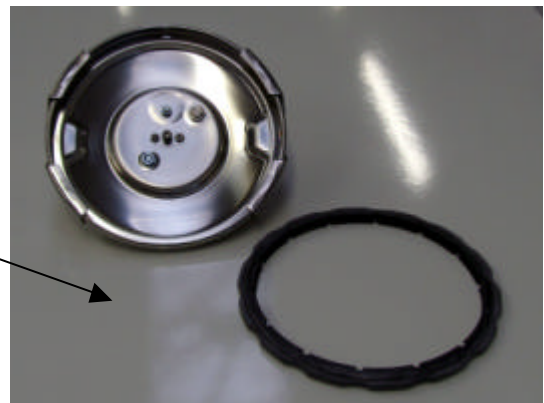
### 6.1 Ink Supply Container Lids

The supply container lid provides a pressure seal for the container via the gasket. To remove a lid, turn the blue air valve beside the container which is to be opened to the OFF position. This allows the container to fully vent (de-pressurise). When the hissing sound of escaping air ceases fully, press the button on the side of the centre handle of the lid to release the side clamps, allowing the lid to be lifted clear of the top of the ink supply container.



Ink Supply  
Container lid. Top

Ink Supply Container lid.  
Underside with gasket  
removed

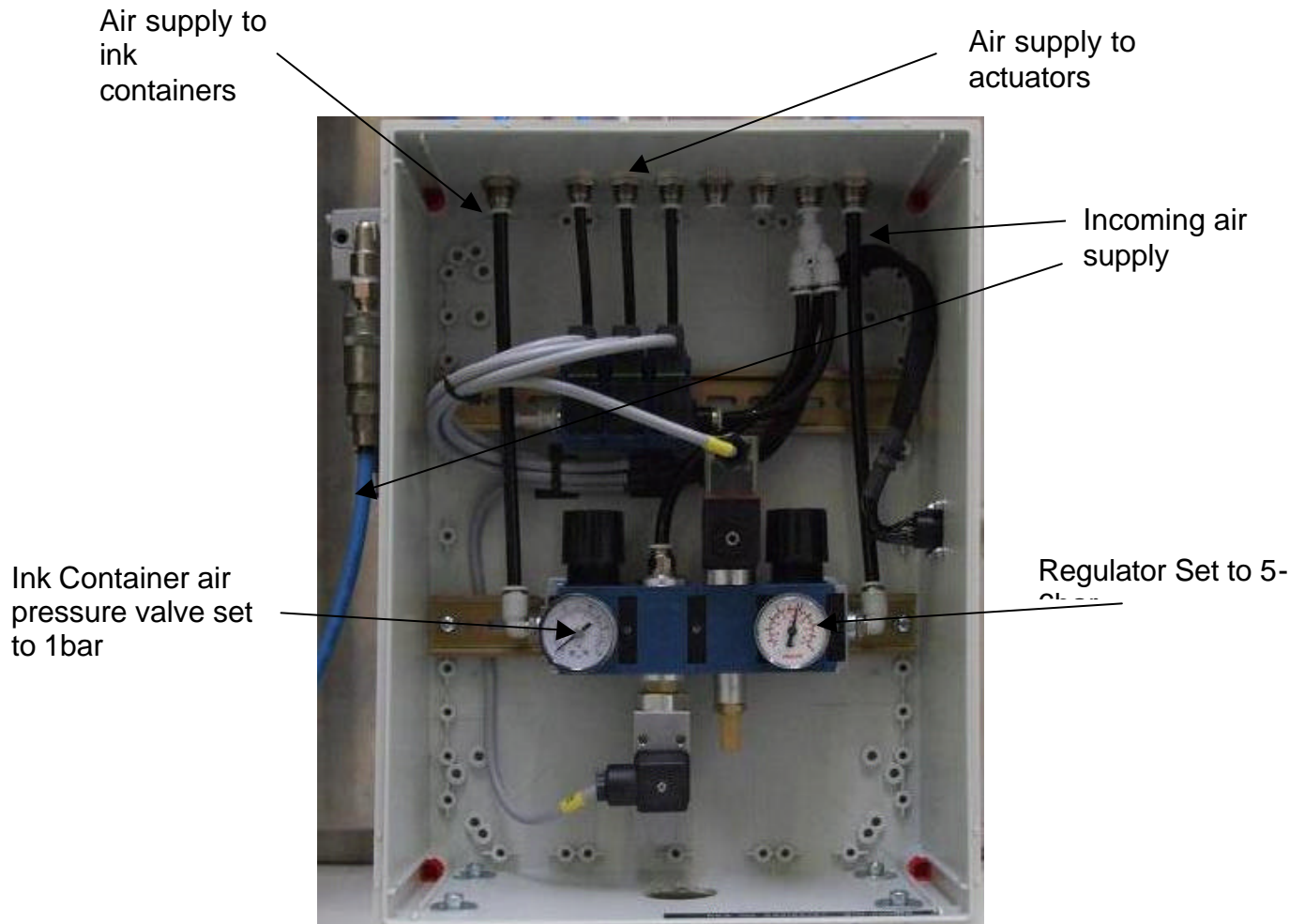


Ink Supply Container lid.  
Underside with gasket fitted

To replace the lid, ensure the gasket is clean and securely seated in position. Place the lid on top of the ink container and press down the centre button to close the clamps. Switch the air valve to the ON position and as it pressurises, check for air leakage.

## 6.2 Supply Container and Valve Air Regulator Adjustment

The air supply enters the left side cabinet of the IDS10 through a filter. The first air pressure regulator controls the air supply to the ink valve actuators with a pressure of 5 – 6 bar, and the second air pressure regulator controls the air supply to the ink containers with a pressure of 1 bar.





## 7 Balance assembly

### 7.1 The balance assembly.

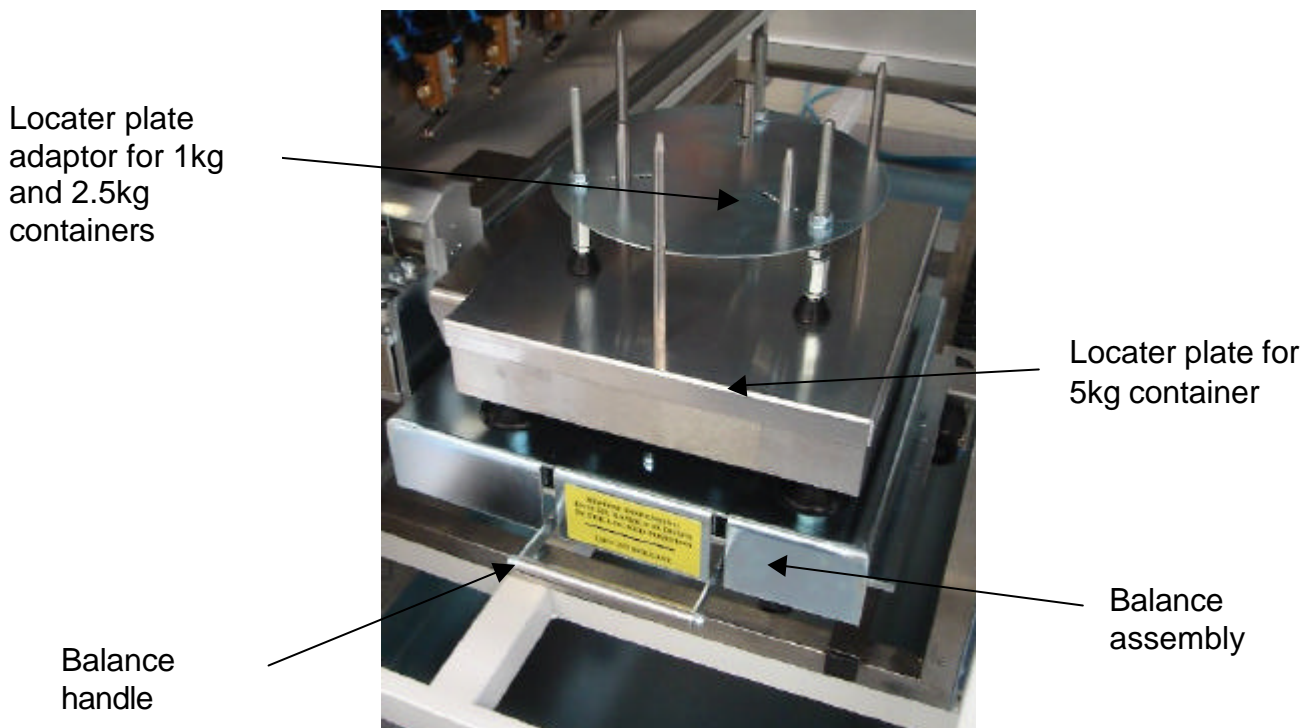
Open the front door of the IDS10 and lift **UP** the handle. Pull the balance out **SLOWLY**. Place the correct locator plate on the balance. The locator plate is required to ensure the container is positioned in the centre of the balance and secured firmly before the dispense process begins. The balance and the locator plates are manufactured to suit customer specific container dimensions and weight requirements. The locator assemblies are 'keyed' to only fit firmly in one position. Ensure the locator plate is the correct size for the blend container to be used. Adjustments can be made by re-positioning the pins in the drilled slots in the upper locator plate. All three must be positioned to keep the container central to the locator plate.

**WARNING: DO NOT USE THE DISPENSER WITHOUT THE CORRECT SIZE LOCATOR PLATE FOR THE CONTAINER**

Contact your supplier, or Vale-Tech Ltd direct, if you do not have the correct size locator plate for the IDS10.

Position the container to be used onto the locator plate and lift the handle. Push the balance back towards the machine until it comes to a stop and then lower the handle into the lock position. To ensure it is locked into the home position, with the handle down, gently try to pull it back out. If it is correctly locked into position it will remain in place.

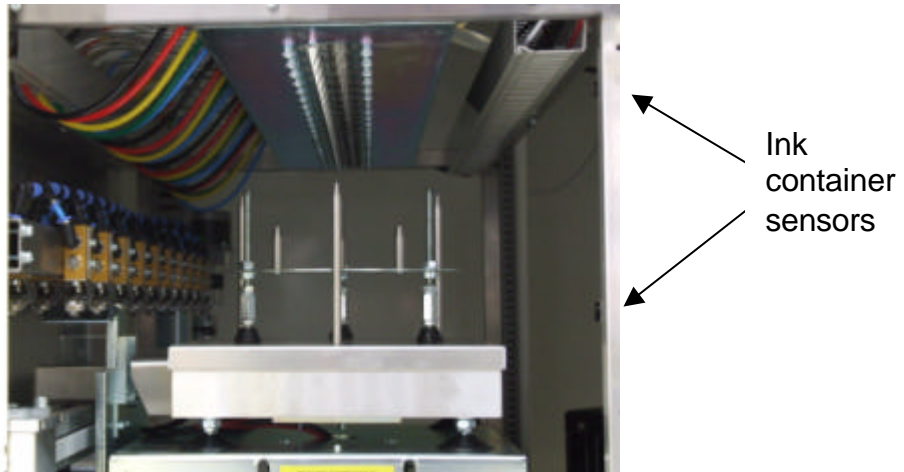
Note: If the handle is not in the locked position the IDS10 will not dispense.



## 7.2 Overweigh Protection

Two photoelectric sensors are mounted in a position to scan across and through the locator plate and detect the following:

1. That a container is present.
2. The size of the container.



Batch size limits can be programmed into Ink Manager. This ensures a batch cannot be dispensed if it is of greater size than the capacity of the container which has been detected on the balance.

Note. The IDS10 will not perform a dispense operation if no container is detected on the locator plate

If the IDS10 is required to dispense a quantity greater than the capacity of the container on the locator plate, a warning will be shown on the screen giving the operator the following choice:

- a) Please reduce the batch size.
- b) Please increase the container size.

## 7.3 Scale Calibration

For the purpose of this example of the procedure, a 10kg scale is to be calibrated using 9kg of test weights. All Vale-Tech scale systems calibrate at zero and then 90% of the full scale capacity. For larger capacities using this principle, a 30kg scale calibrates at zero and then 27kg, and an 80kg scale calibrates at zero and then 72Kg.

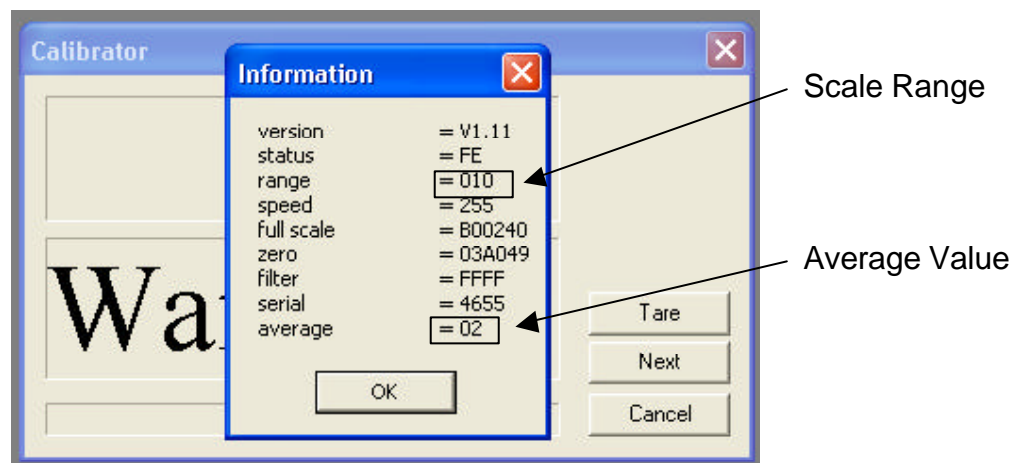
## Scale Calibration (cont)

Always check the scale accuracy by selecting 'Show Scales' from the drop down menu in Ink Manager, and checking accuracy with a known weight, before running the 'Scale Calibration' option. Always allow the scale to stabilise for 30mins before checking the calibration.

Select 'Show Scales' and allow the scale to tare. If a small amount of fluctuation is seen, this can be reset by clicking on 'Tare Scales'. If the scale value continues to climb or fall, check for touch down of the scale and start again. If there is no touch down and the scale will not stabilise, contact Vale Tech for further advice.

Place known weights on to the scale weigh pan, (conformance weights supplied with the machine), and verify the scale is within the allowed tolerance. If it is, calibration is not required. If it is not, follow the calibration procedure.

If it is determined that the scale requires re-calibration, log on to Ink Manger and ensure the scale calibration privileges are available by selecting 'Options' Scale Calibration from the drop down menu. If this option is not available, see your system manager log in details. The following screen will be displayed:

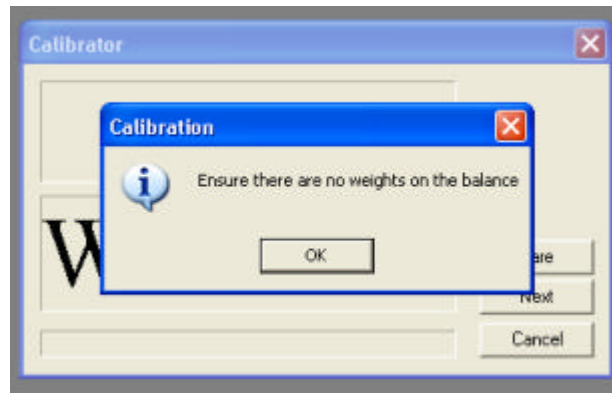


This is the basic scale programming information stored on the scale board that Vale-Tech Service may ask for if there are problems calibrating the scale. Check the scale 'range' is correct. The example above shows a 10Kg range Scale Board. The 'average' setting should be 02 on all scales.

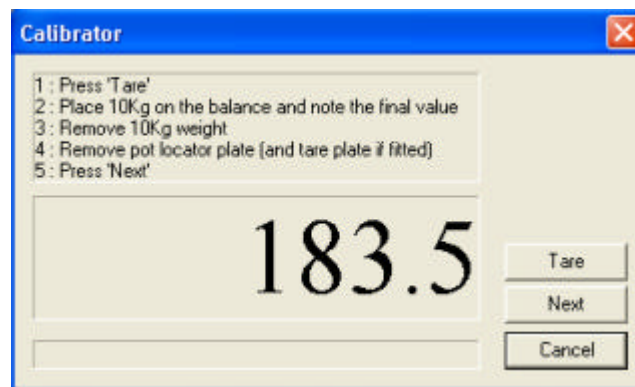


## Scale Calibration (cont)

Click OK and the following screen is displayed:



Click OK and the following screen is displayed:



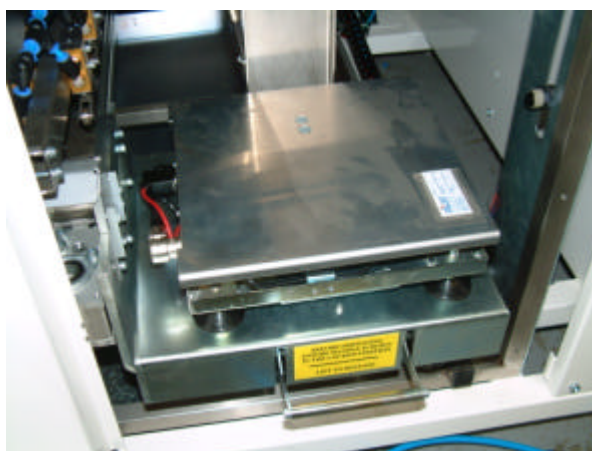
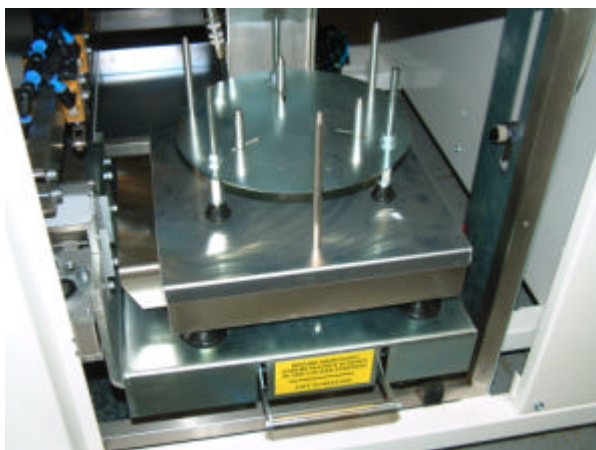
Above is the 'Calibrator' screen showing current weight and instructions on creating pre-calibration figures which will be required for the purpose of completing a calibration certificate. If it has been established that the scale is not out of calibration, then recalibration is not required, and cancellation of the procedure can be achieved at this point. If calibration is required, clicking on 'Next' will start the calibration procedure which is irreversible.

Ensure the required conformance or calibration weights are available, along with the 'Light Weigh Pan' as shown.

## Scale Calibration (cont)



If the calibration is to take place now, before clicking on 'Next', remove the Universal Container Locator, the 5kg Container Locator and the Weigh Pan as shown.

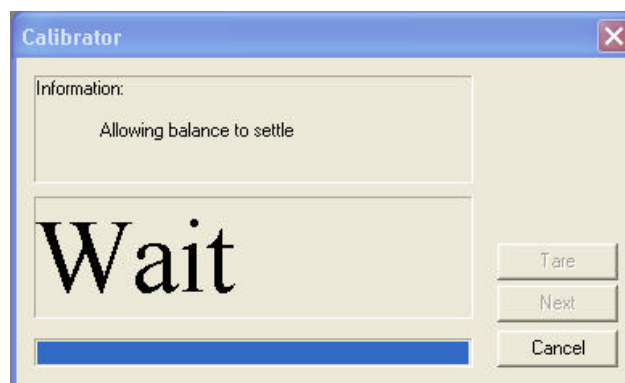


Place the Light Weigh Pan squarely on the Internal Weigh Pan with the balance locked in the home position as shown.

## Scale Calibration (cont)

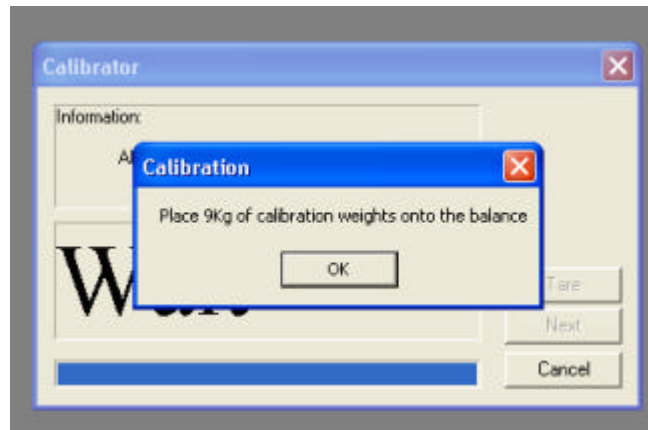


Click 'Next' and the calibration procedure begins. The procedure allows the scale to settle before the reading is taken. Avoid vibrations, draughts and touching the scale during this time. The blue progress bar indicates the stage of the procedure.

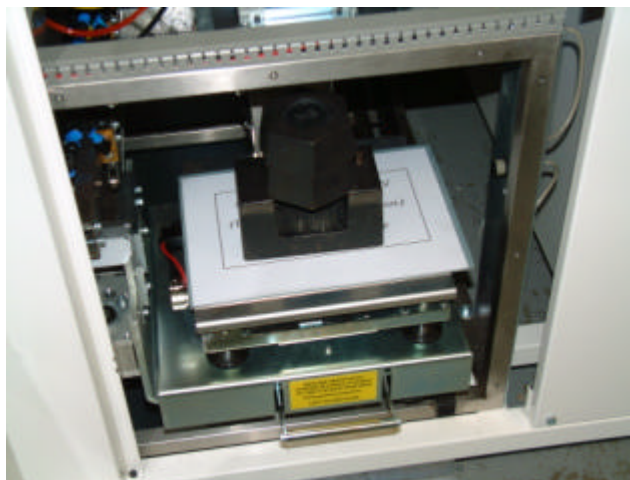


When the scale has finished recording the Zero value, the following screen is displayed:

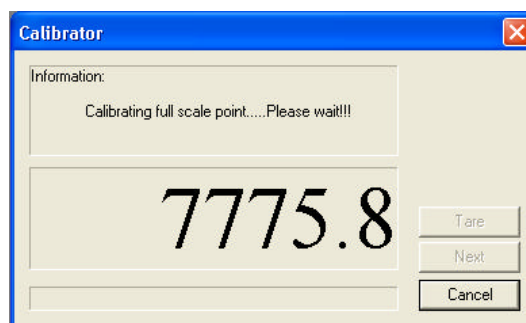
## Scale Calibration (cont)



Place 9kg of conformance or calibration weights centrally on the scale with the balance locked in the home position as shown.

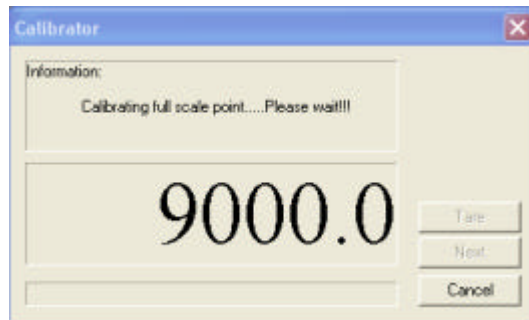


Click OK. The scale will then allow time for the readings to settle, before values are displayed, and counting up to the calibration weight value. This will overshoot up to three times reducing less each time as the calibration point is reached.

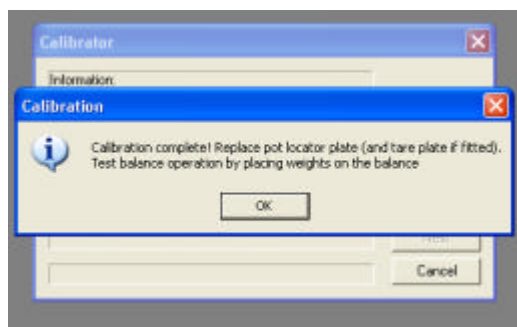


The final value, in this example 9kg, will be displayed as the value is stored. During this stage it is again important that the scale is not exposed to vibrations, draughts, or being touched.

## Scale Calibration (cont)



After the full scale point is stored, the following message will be displayed.

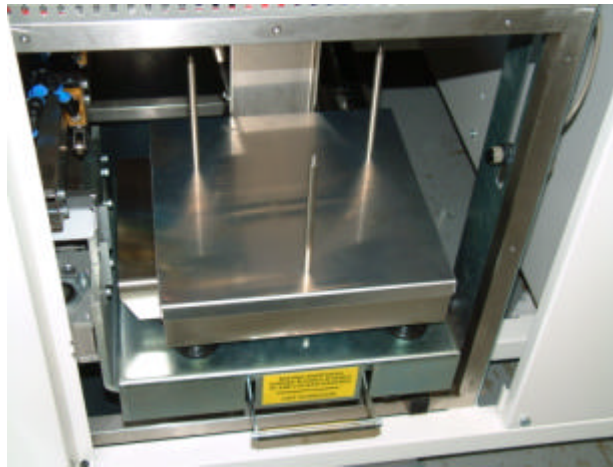


Click OK to return to the calibration window. The final weight will be displayed.

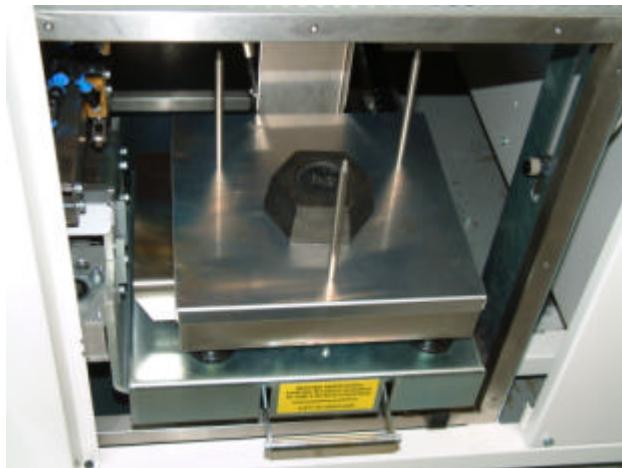


The scale calibration can be tested using this window. To do this remove all the weights from the scale, replace the weigh pan and 5kg Container Locator then click on Tare.

## Scale Calibration (cont)



Place the calibration weights on the scale in 1kg increments and record the value displayed at each point, again with the balance locked in the home position as shown:

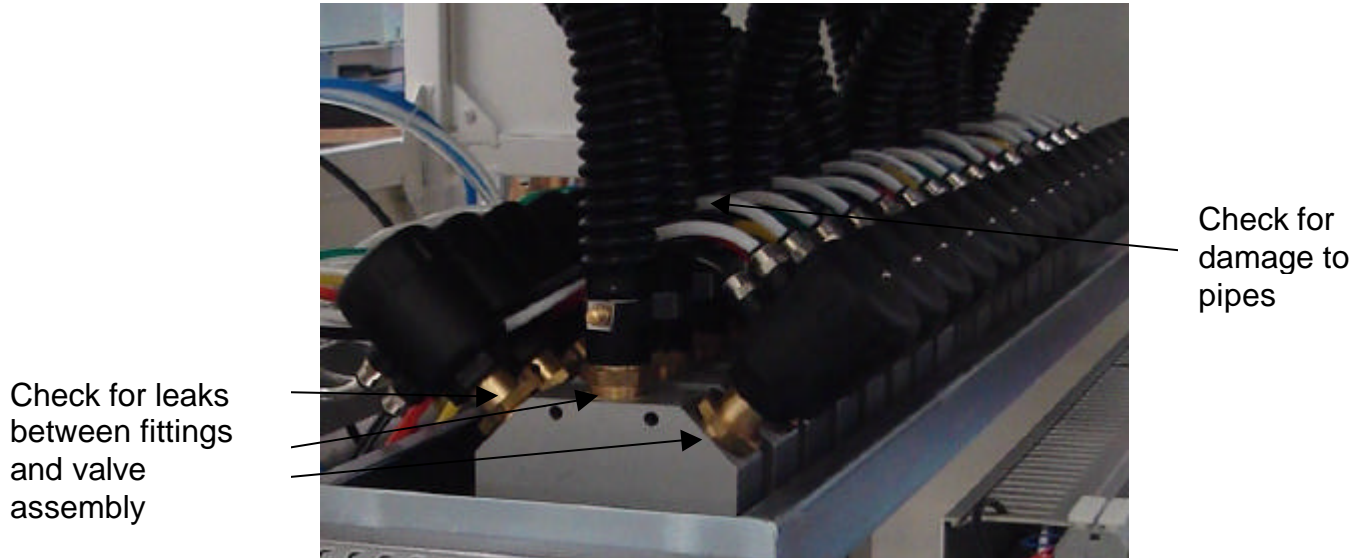


If the scale is within specification at each of the calibration points, click 'Done'. Calibration is complete.  
If calibrator screen indicates the weight incorrectly, click 'Done' to close the current window and repeat the calibration procedure.  
If repeating the procedure does not achieve the desired results, please contact Vale-Tech Technical Support.

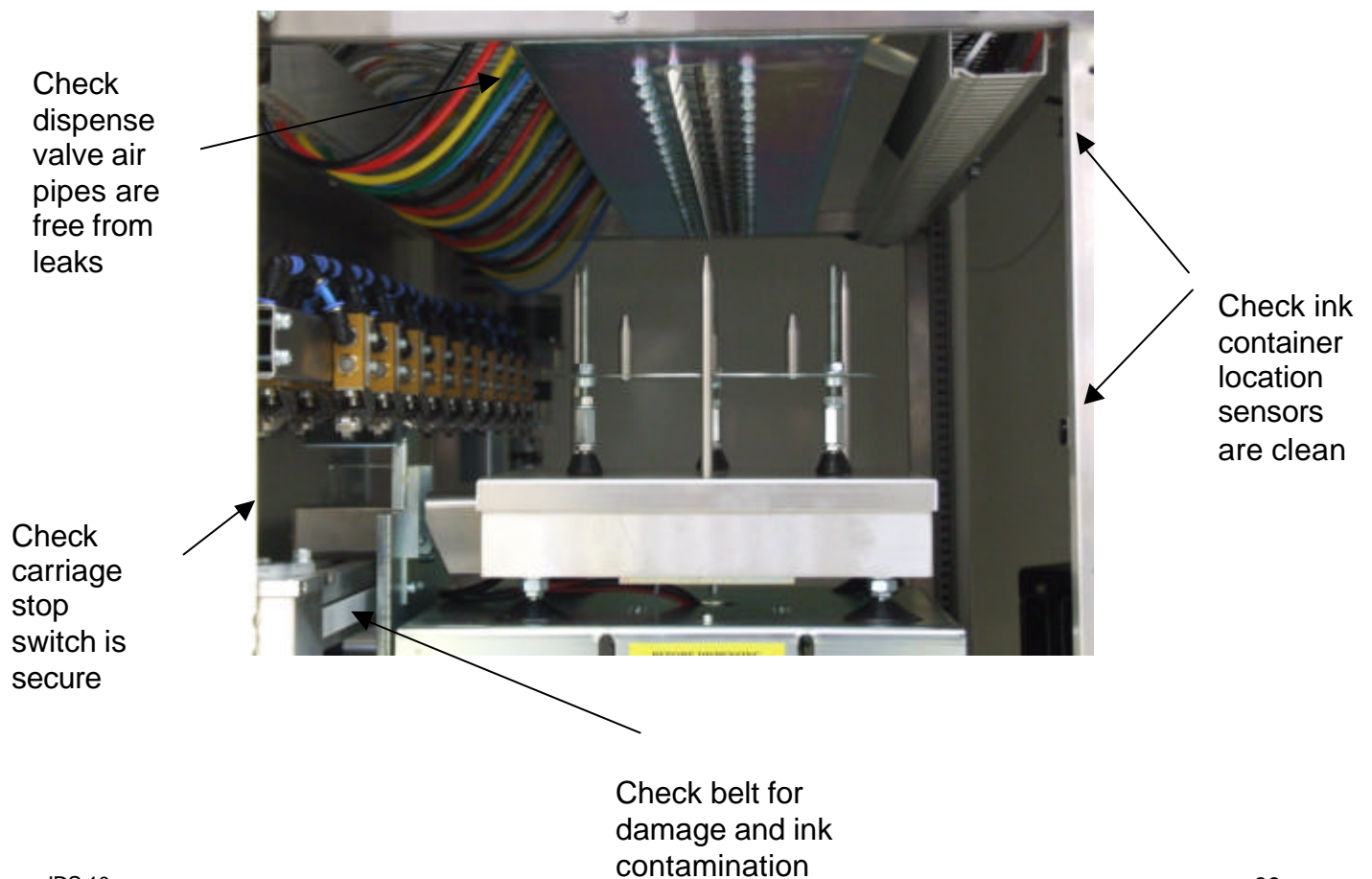


## 8 Cleaning & Maintenance

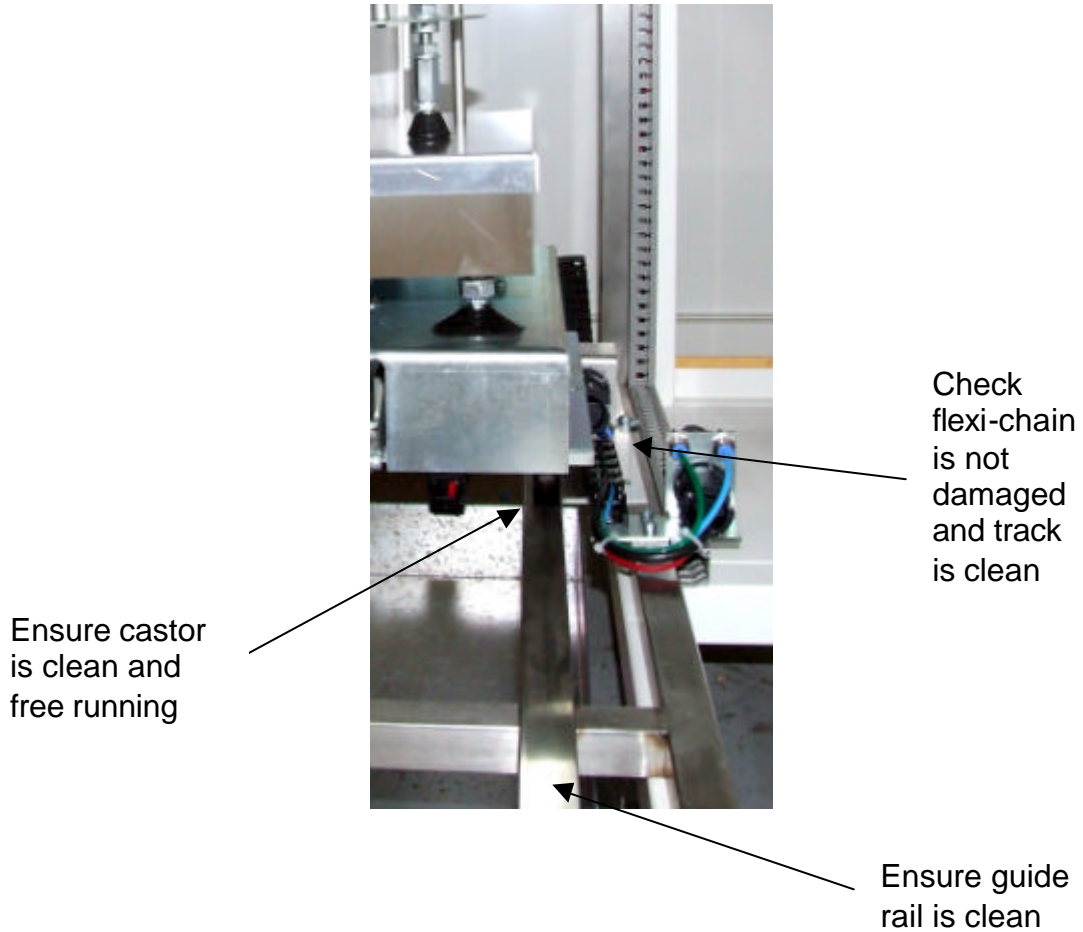
### 8.1 Dispense Valve Assembly



### 8.2 Carriage Assembly

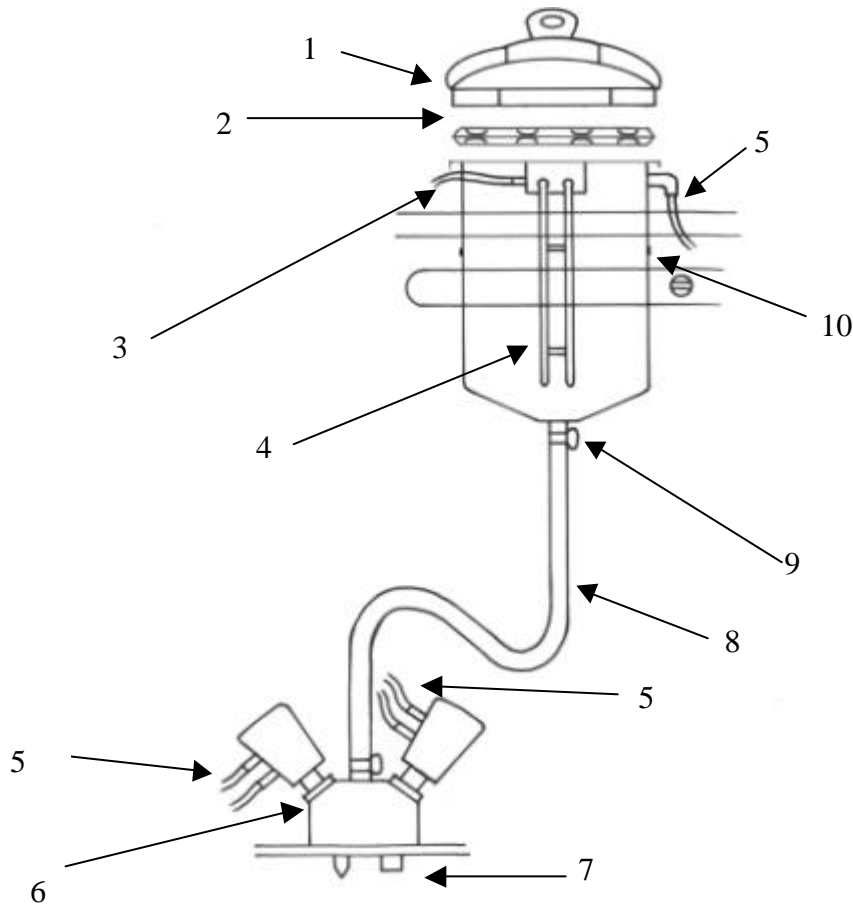


## Carriage Assembly (cont)





## 8.3 Ink Supply Container & Valve

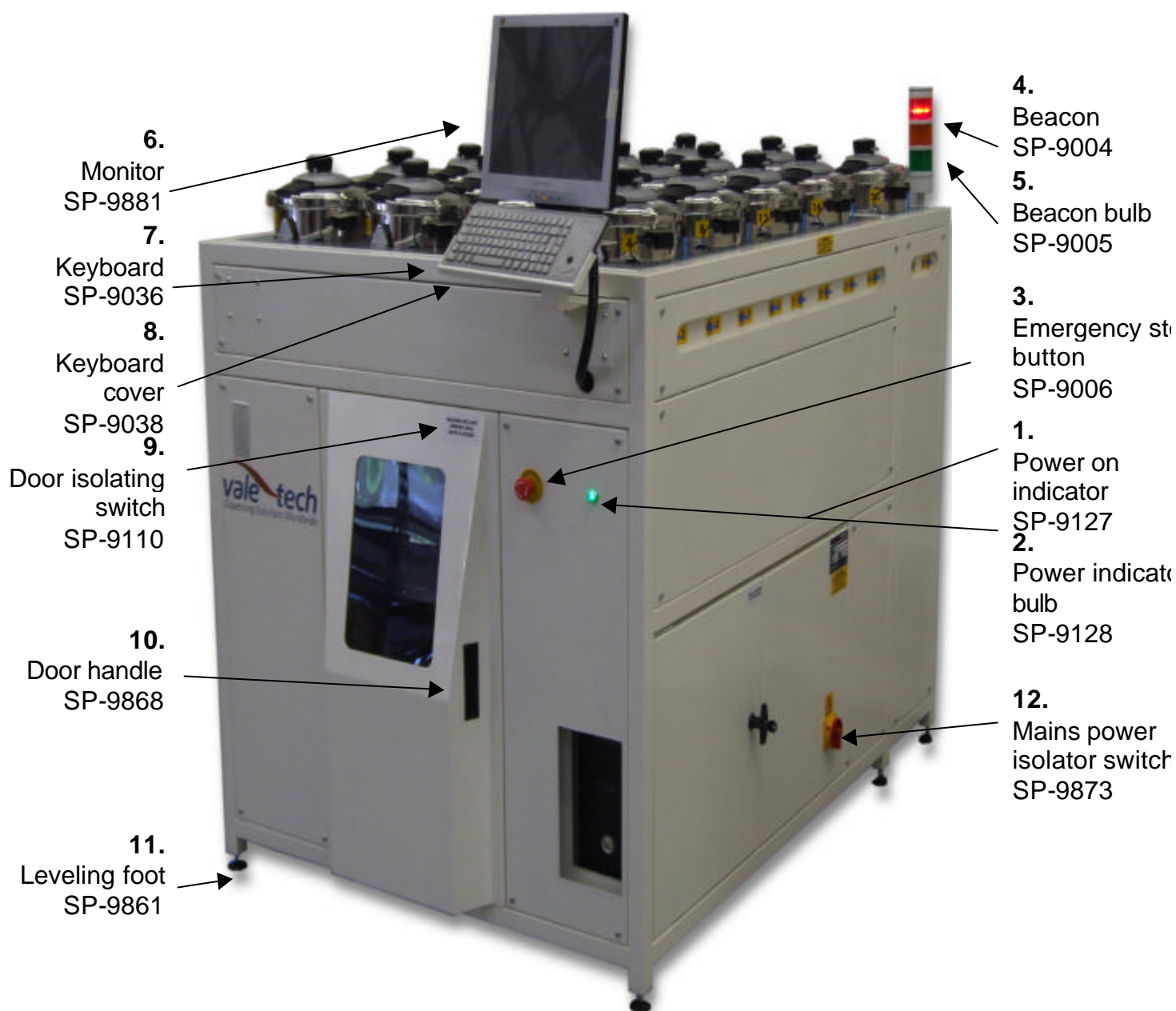


- 1 Ensure container lid inside rim, and gasket are clean and free from ink and contamination
- 2 Check for air leaks around lid
- 3 Check sensor connector cable
- 4 Check level probe is not damaged
- 5 Check air lines for leaks
- 6 Check dispense valve is clean and leak free
- 7 Check that coarse and fine dispense nozzles are clean
- 8 Check hose is clean and leak free
- 9 Ensure pipe clamp is secure
- 10 Check container seam is leak free

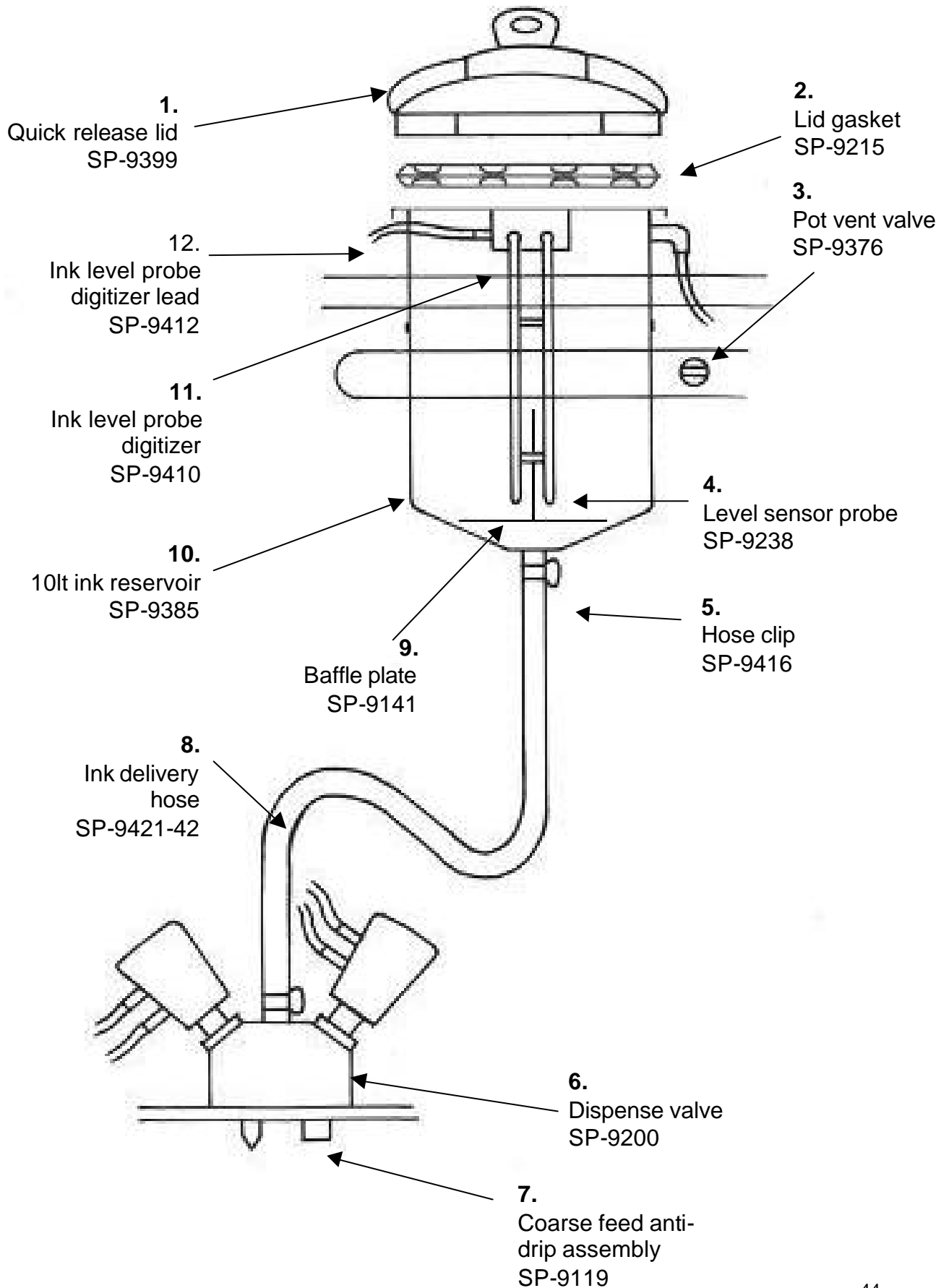
# SERVICE MANUAL

## 9 Spare Parts

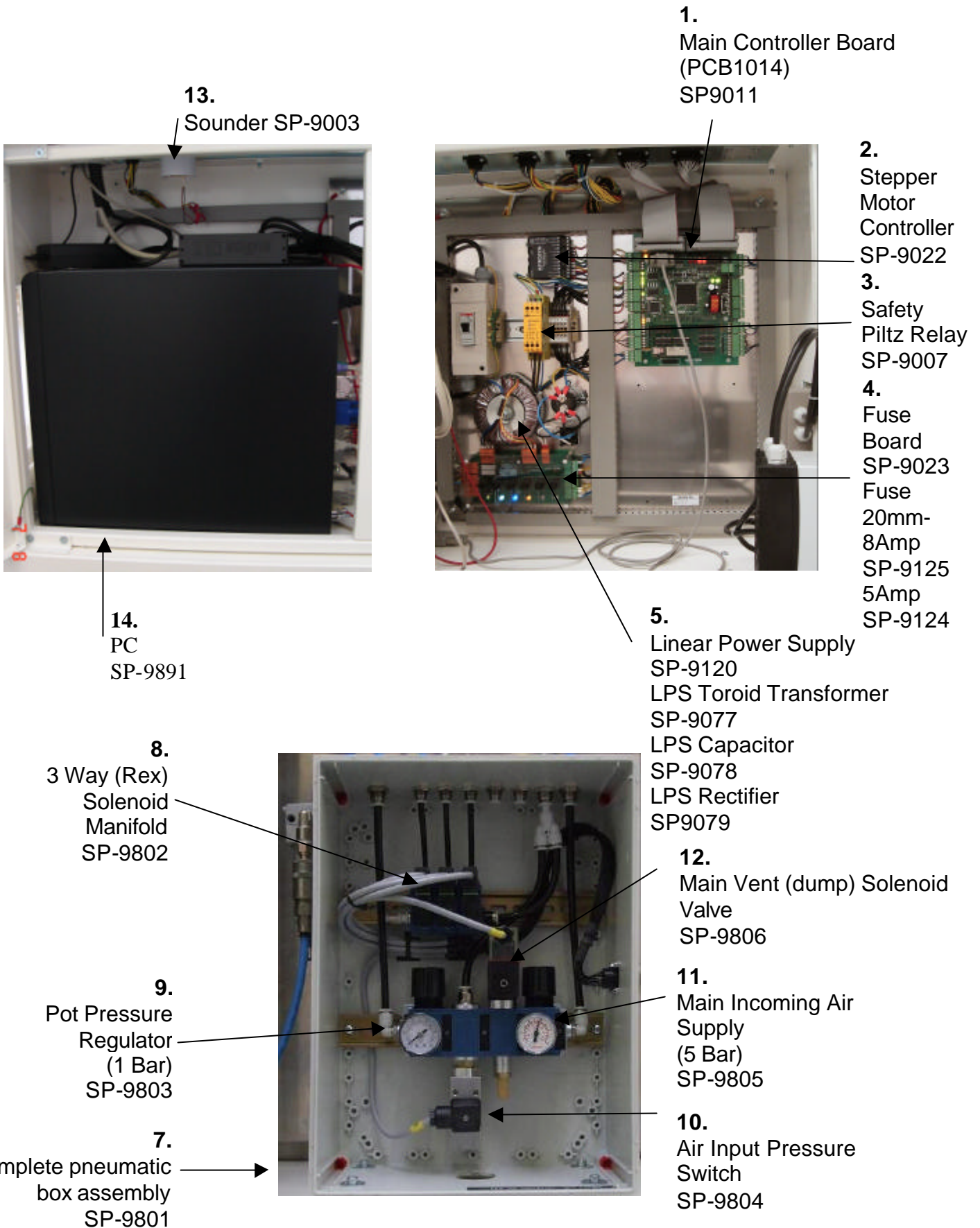
### 9.1 External Parts



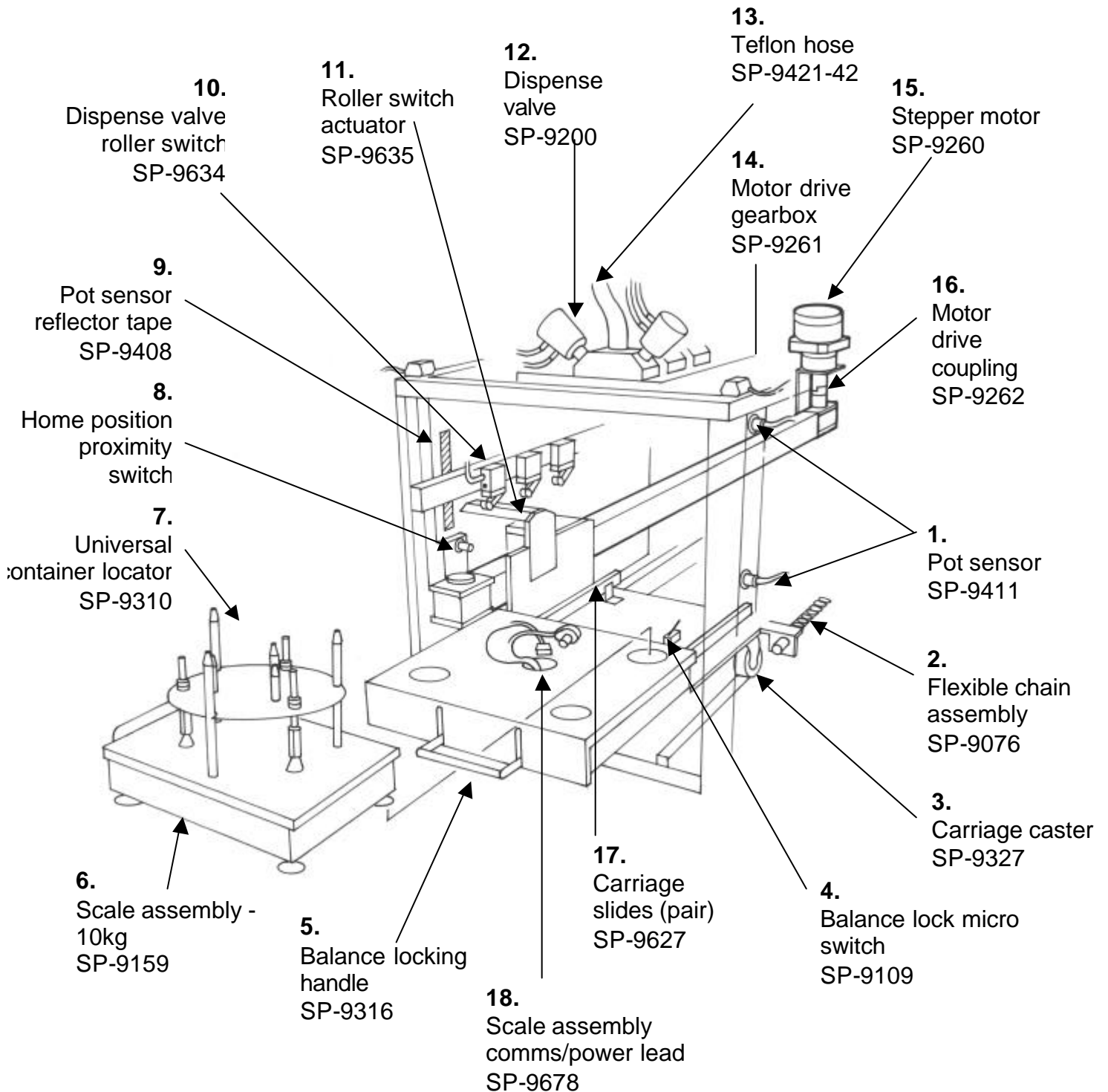
## 9.2 Ink Supply Container and Valve



## 9.3 Pneumatics and Electronics

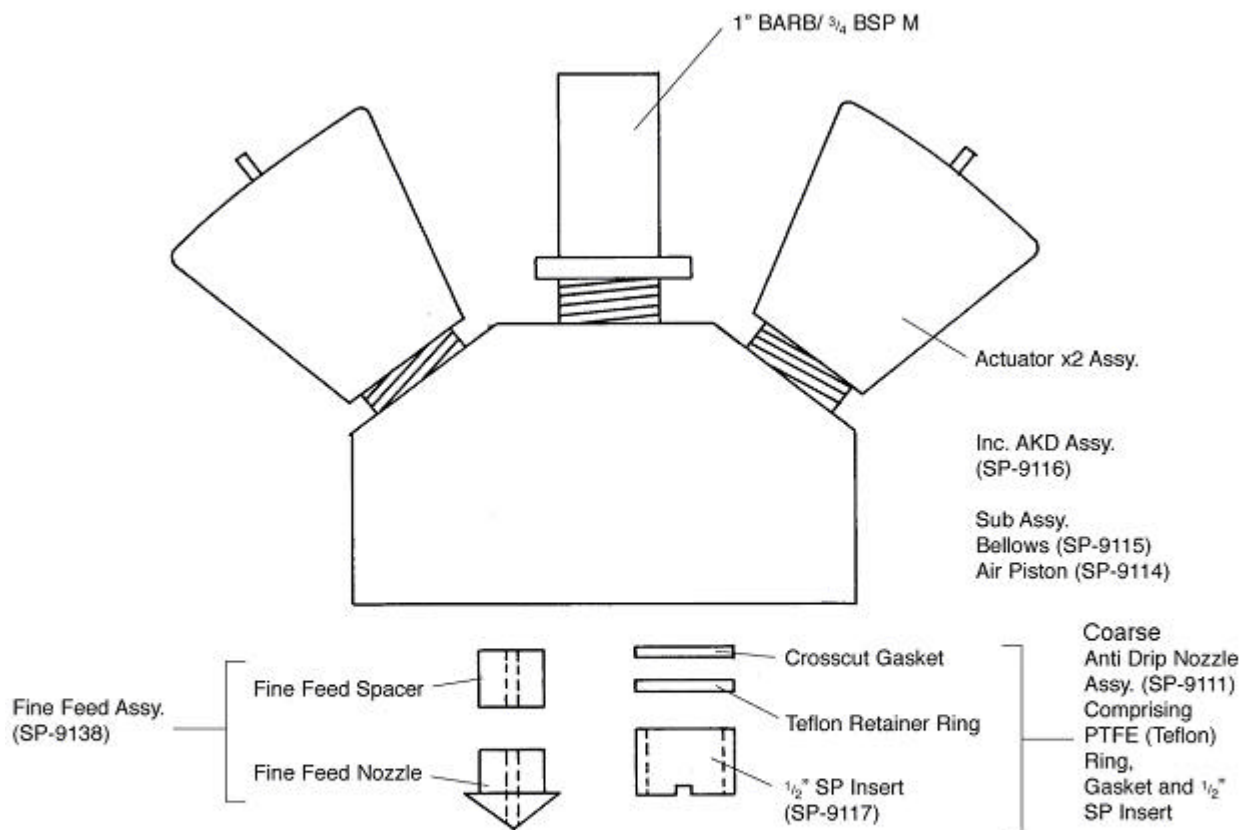


## 9.4 Carriage Assembly



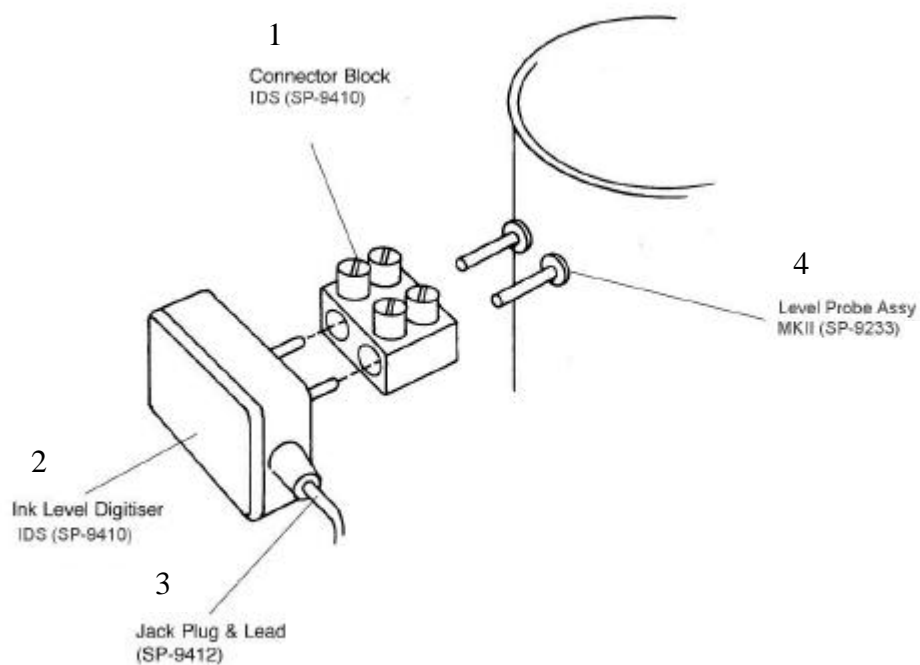


## 9.5 Dispense Valve





## 9.6 Level Sensor



## 9.7 Parts List

### IDS10 Series- Machine User Parts List

Page-	Item	Description	SP Code
1	1	Power on Indicator	SP-9127
1	2	Power Indicator Bulb	SP-9128
1	3	Emergency Stop Button	SP-9006
1	4	Red/Amber/Green Colour Beacon	SP-9004
1	5	Beacon Bulb	SP-9005
1	6	Monitor - 15" TFT	SP-9881
1	7	Keyboard with Tracker ball (PS2)	SP-9036
1	8	Keyboard Cover	SP-9038
1	9	Door Isolating Switch- Reed & Magnet	SP-9110
1	10	Front Door Handle	SP-9868
1	11	Levelling Foot	SP-9861
1	12	Mains power Isolator Switch	SP-9873
2	1	Quick Release Lid - 1 Bar	SP-9399
2	2	Lid Gasket	SP-9215
2	3	Pot Vent Valve - 8 mm	SP-9376
2	4	Level Sensor Probe	SP-9238
2	5	Hose Clip	SP-9416
2	6	Dispense Valve - 12-3DA-BKT-1B-1"Htail	SP-9200
2	7	Coarse Feed anti drip assembly	SP-9119
2	8	Ink Delivery Hose- (Specify Pot Number)	SP-9421-42
2	9	Baffle Plate	SP-9141
2	10	25 Litre Ink Reservoir- Ex Lid	SP-9385
2	11	Ink Level Probe Digitiser	SP-9410
2	12	Ink Level Probe Digitiser Lead	SP-9412
3	1	Main Controller Board - 1014	SP-9011
3	2	Stepper Motor Controller- Async	SP-9022
3	3	Safety Piltz Relay	SP-9007
3	4	Fuse Board 110/240 Switch - 1015	SP-9023
3	4	Fuse 20mm 8 Amp	SP-9125
3	4	Fuse 20mm 5 Amp	SP-9124
3	5	Linear Power Supply (LPS)	SP-9120
3	5	LPS Toroid Transformer	SP-9077
3	5	LPS Capacitor	SP-9078
3	5	LPS Rectifier	SP-9079
3	6	Switch Mode Power Supply	SP-9129
3	7	Air Control Box Complete (Rex)	SP-9801
3	8	3 Way Pilot Valve Manifold (Rex)	SP-9802
3	9	Pot Pressure Regulator & 1Bar Gauge (Rex)	SP-9803
3	10	Air Input Pressure Switch (Rex)	SP-9804
3	11	Incoming Air Regulator & 5 Bar Gauge (Rex)	SP-9805
3	12	Incoming Air Vent Valve Solenoid (Rex)	SP-9806
3	13	Sounder	SP-9003
		PC inc Windows XP. Exc Ink	
	14	Manager/Keyboard/Mouse	SP-9891

## Parts List – (cont)

### IDS10 Series- Machine User Parts List

Page-	Item	Description	SP Code
4	1	Pot Sensor	SP-9411
4	2	Flexible Chain Assembly	SP-9076
4	3	Carriage Caster	SP-9327
4	4	Balance Lock Micro Switch	SP-9109
4	5	Balance Locking Handle	SP-9316
4	6	Scale assembly 10kg 280mm	SP-9159
4	7	Universal Pot Locator	SP-9310
4	8	Home Position Proximity Switch	SP-9069
4	9	Pot Sensor Reflector Tape	SP-9408
4	10	Dispense Valve Roller Switch	SP-9634
4	11	Roller Switch Actuator	SP-9635
4	12	Dispense Valve	SP-9200
4	13	Teflon Hose (Specify Pot number)	SP-9421-42
4	14	Motor Drive Gearbox 4:1	SP-9261
4	15	Stepper Motor	SP-9260
4	16	Motor Drive Coupling	SP-9262
		Stepper/Gearbox Assembly Complete	SP-9681
4	17	Carriage Slides (Pair)	SP-9627
4	18	Scale Assembly Comms/Power Lead	SP-9678
5	1	Actuator	SP-9116
5	2	Bellows	SP-9115
5	3	Air Piston	SP-9114
5	4	Coarse Anti Drip Nozzle Assembly	SP-9111
5	5	Fine Anti Drip Nozzle Assembly	SP-9138
5	6	1/2" SP Insert	SP-9117
6	1	Connector Block	SP-9410
6	2	Ink Level Digitiser	SP-9410
6	3	Jack Plug and Lead	SP-9412
6	4	Level Probe Assembly	SP-9233

## 10 Preventative Maintenance Programme

Scale unit	<p>Check:</p> <p>Comms and power lead are securely connected</p> <p>Scale feet are located correctly and balance is level</p> <p>Balance calibration</p> <p><b>WEEKLY</b></p> <p>Locator plates are clean &amp; undamaged</p> <p>Excessive ink on scale and scale support</p> <p>Container sensor and reflector are clean and functioning</p> <p><b>AS NECESSARY</b></p>
Carriage	<p>Check:</p> <p>Drive belt, carriage follower rollers and scale unit support castors are free from ink and dust contamination</p> <p>Check linear drive belt for alignment for wear and tear</p> <p>Carriage runs smoothly to its full extent at even speed</p> <p>Linear slide and scale unit support rail are free from ink and dust contamination</p> <p>Roller switch actuator shows no sign of damage and activates all of the roller switches</p> <p><b>WEEKLY</b></p>
Dispense valves	<p>Check:</p> <p>Base of valves are clean</p> <p>Ink leakage from actuator fittings</p> <p>Check air lines to actuators are secure and not leaking</p> <p><b>EACH TIME CONTAINERS ARE CHANGED OR WEEKLY</b></p> <p>Flow rate configuration</p> <p><b>WEEKLY</b></p>
Air system	<p>Clean:</p> <p>Filter and ensure air pressure is set to minimum 82psi (6 bar)</p> <p><b>WEEKLY</b></p>
Ink containers	<p>Check:</p> <p>Air settings to ink containers and valve actuators, and adjust as required</p> <p>Ink supply container vent valves for damage or air leaks</p> <p><b>WEEKLY</b></p>
General	<p>Check machine for cleanliness and for mechanical integrity</p> <p><b>WEEKLY</b></p>
General	<p>Check main air pipes and fittings, and electrical cables and fittings for signs of wear</p> <p><b>WEEKLY</b></p>
General	<p>Check safety switch to door, and emergency stop buttons are functioning correctly</p> <p><b>DAILY</b></p>
General	<p>Check and report any mechanical damage or signs of misuse</p> <p><b>AS NECESSARY</b></p>

**IF IN ANY DOUBT, DO NOT USE THE MACHINE UNTIL A VALE-TECH OR AN AUTHORISED SERVICE AGENT HAS CLARED THE MACHINE FOR USE.**

# 11 Trouble-shooting Guide

## 11.1 Common Problems

PC not coming on/booting:		
IDS power is on but no light on at front of PC.	No Power.	<p>Press 'on' button at front of PC.</p> <p>If LED still not on, check that Power Supply Switch at back of PC is on, then press PC 'on button'.</p> <p>Check Power cable is secure, press PC 'on' button</p>
PC LED is on but no display.	<p>No Display LED.</p> <p>Display LED is on.</p> <p>Display LED is amber or red.</p>	<p>Check monitor is switched on, press button on front of display.</p> <p>Check Monitor cable at back of PC is secure/plugged in, turn monitor off then on again.</p> <p>Display is stuck in power save mode, turn monitor off then on again.</p>
PC not getting into windows.	<p>Reports Keyboard error.</p> <p>Error message: Hard Disk or Boot device.</p> <p>Registry device/files error message.</p> <p>Hangs loading Windows, no error message displayed.</p> <p>PC still not getting into Windows.</p>	<p>Ensure keyboard is secure/plugged in then re-boot.</p> <p>Hard disk fault; call Vale Tech Technical Support.</p> <p>Call Vale Tech Technical Support.</p> <p>Re-boot with 'Ctrl+Alt+Del' keys or switch PC off, then on again.</p> <p>Call Vale Tech Technical Support.</p>
Monitor screen has turned dark but PC is switched on.	Monitor appears to be broken or switched off	<p>Check monitor power is switched on.</p> <p>Check monitor is not in power-save mode by pressing a mouse button or keyboard space bar.</p>
Machine does not work at all.	No power to PC or machine. Machine appears to be dead.	<p>Check mains power to machine.</p> <p>Check Isolator switch is in 'ON' position.</p> <p>Check PC is switched ON.</p>

IDS Dispense Problems:		
Slow dispense.	<p>Low/no air pressure.</p> <p>Air pressure stays low after containers are turned on.</p> <p>Air leaks at supply container.</p> <p>Air leaks from lid fittings.</p> <p>No air pressure in container.</p> <p>Containers not pressurising fast enough because low pressure is used.</p> <p>No apparent air leaks.</p>	<p>Check air pressure regulators with containers turned off, Valve = 5+bar, Container = 1bar, if low check air supply is good first, then adjust gauges to specified pressures.</p> <p>Check for air leaks.</p> <p>Check and clean gaskets and lids, all sealing surfaces must be clear of ink or contaminants.</p> <p>Check lid is securely closed.</p> <p>Check 'air in' lines are secure, push firmly into container vent finger valves.</p> <p>Require engineer adjustment or replacement.</p> <p>Check lid is closed and air is turned on.</p> <p>Turn all containers off, and then turn each container on individually allowing each container to pressurise before next is turned on.</p> <p>Check flow rates set in dispenser Setup have not been set too low</p> <p>Call Vale Tech Technical Support.</p>
IDS will not reset.	<p>Beacon light flashes from green to red.</p> <p>Door switch active.</p> <p>Emergency Stop activated.</p> <p>All doors are closed.</p>	<p>Close any doors with sensor switches.</p> <p>Release Emergency Stop switch.</p> <p>Faulty switch, call Support.</p> <p>Call Vale Tech Technical Support.</p>

Ink Levels are wrong.	<p>The ink level sensors are not reading or are reading incorrectly.</p> <p>They appear to be reading either full or empty when they appear to be neither.</p>	<p>Ensure Digitisers on containers are fully plugged in and working properly.</p> <p>Check Min. &amp; Max. Levels have been set in Ink Manager.</p> <p>Service personnel to ensure that the Ink Level sensor input PCB dip switch settings are correctly configured.</p>
Balance errors.	There is no weight output or the weight shown is incorrect.	<p>Check the calibration of the machine, if necessary, recalibrate.</p> <p>Check settings in ink manager are the same as settings in the Hardware Configuration sheet.</p>
Balance carriageway will not move.	Machine resets ok but balance carriageway will not move.	<p>Check side and front doors are all securely closed.</p> <p>Service personnel to check 5/8 Stepper Motor Driver Board protection fuse located on Electrical Chassis.</p>
Green Mains power indicator bulb is no longer lit on the front panel.	Green Mains power is no longer lit on the front panel of the machine.	Service personnel to check the mains power supply bulb has not blown, fit a replacement if necessary.
One or more of the beacon Red/Amber/Green bulbs are no longer lit.	One or more of the beacon bulbs are not at all lit during the normal operating cycle of the machine.	Service personnel to check each of the beacon bulbs have not blown, fit replacements if necessary.
Warning message 'Feed rate too slow' always appears during a dispense.	Machine will not dispense ink from valves.	<p>Check main air supply is switched on.</p> <p>Check the lid of the ink container is correctly fitted and the air tap is turned to the 'ON' position.</p> <p>Service personnel to check air regulator settings are correct inside electrical chassis.</p>

<b>My machine problem is not listed here, what do I do now...?</b>	<p>A Comprehensive list of <b>Technical Bulletin Guides</b> Have been produced to help <b>you</b> to resolve the problem. These are available from Vale-Tech</p>	<p>Contact your Authorised local Service Agent or contact</p> <p>Vale-Tech Ltd direct on:</p> <p>Office: +44 (0) 1638 668593</p> <p>Fax: +44 (0) 1638 676720</p> <p>Email: <a href="mailto:technical.support@vale-tech.co.uk">technical.support@vale-tech.co.uk</a></p>
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## 12 PC Hardware Configuration

The following information is recorded during the final quality control checks and reflects the PC configuration prior to shipping. Any changes made to the configuration after this may not be recorded. This record may provide essential information in restoring system operation in the event of system failure. Please do not remove it from this folder.

## 13 Ink Manager Hardware Configuration

The following information is recorded during the final quality control checks and reflects the Ink Manager Hardware configuration prior to shipping. Any changes made to the configuration after this may not be recorded. This record may provide essential information in restoring system operation in the event of system failure. Please do not remove it from this folder.

## 14 Drawings

The following drawings are provided for use by plant engineers/authorised service engineers to assist in the servicing of the IDS10 and for diagnostic purposes.

### Electrical

Main Circuit Diagram

Lead 1

Lead 2

Lead 3

Lead 4

Lead 5

### Pneumatic

Circuit Diagram 1

Circuit Diagram 2

Circuit Diagram 3 (Dependant upon machine specification)

# TRAINING MANUAL

## 15 Ink Manager Software

The Ink Manager Software Training Manual that follows will provide you with the information you need to use all the advanced functions and features, along with basic instructions necessary for simple operation of the software. It can also act as a complete package for structured on-site training.

# SERVICE LOG

## 16 Service Log

This Service Log serves to provide contact information; should additional assistance be required please refer to the contact details supplied below. Forms available at the end of this section allow space for the service history of the machine to be recorded for future reference.

### 16.1 Contact Information

If you require any additional assistance or have any queries, please contact

#### Vale-Tech Ltd

Telephone: +44 (0) 1638 668593

Fax: +44 (0) 1638 676720

Email: [technical.support@vale-tech.co.uk](mailto:technical.support@vale-tech.co.uk)

Website: [www.vale-tech.co.uk](http://www.vale-tech.co.uk)

Address:

#### **VALE-TECH LIMITED**

Unit 12  
Depot Road  
Newmarket  
Suffolk  
CB7 0AL  
UK



## 17 Service History

### 17.1 Machine Fault/Maintenance Log

<u>Date</u>	<u>Action Taken</u>	<u>Signed</u>

## Machine Fault/Maintenance Log (cont).

Date

Action Taken

Signed
