borg& overström

b4

Install & Operation Manual



sales@borgandoverstrom.com

borgandoverstrom.com

Synergy House Fakenham Road Morton On The Hill NR9 5SP

borg& overström

Model Overview

Introduction

A range of compact water dispensers, available in four different operational types:

- Chilled and Ambient (Low Pressure Tank System)
- Chilled and Hot
- Chilled and Sparkling
- Chilled, Hot and Sparkling

All are available as countertop and floor standing models.

All Models

All models are self-contained machines with robust steel framed cabinets and attractively injection moulded plastic front, side and top panels. There is sufficient space internally for most filters to be fitted behind the right side panel. An IEC Power Lead is supplied for connection to the IEC socket found on the rear of all models (An additional Schuko type is supplied for the European market).

Chilled

Water is fed into the insulated cold tank under mains pressure. We strongly recommend a Pressure Reducing Valve is fitted to all supplies to regulate the pressure to 3.5 bar/355 KPat. The cold tank is chilled via the outer evaporation coil of the capillary controlled refrigeration compression system. The cold temperature is thermostatically controlled via the adjustment screw on the back of the machine. This is factory set and is not necessary to adjust in most cases (see Controls).

Ambient

Water bypasses the cold tank for the ambient dispense option. Sparkling

Water is chilled as it passes through the coil immediately before dispense or being pumped under pressure into the carbonator which it fitted inside the same coil. The carbonator is also level controlled and allows the sparkling effect to occur through saturation with CO2.

The level control system also incorporates a leak detection device within the unit which switches the machine off in the event of detecting a water leak.

Hot

Hot water is provided by hot water tank with an integrated heater element. The water is supplied directly into the tank under the pressure as connected into the back of the unit. The water fills the tank and hot water is dispensed by displacement. The water flow is controlled by a solenoid.

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Chilled

On/Off Switch: at upper rear of machine, switches cooling operation on/off.*

Cold Thermostat: at rear of machine.

Cold Button: press to dispense cold water.

Green LED (LH): Colours to show cooling operation is switched on.

Green LED (RH): Colours to show when compressor is operating/water is above set point.

10A Fuse: On rear of machine, integral with IEC socket.

*All sparkling variants incorporate an auto-fill system

Ambient

Ambient Button: Press to dispense ambient water.

Sparkling

Soda: Switches sparkling operation on/off.

Sparkling Button: Press to dispense sparkling water. Yellow LED (bottom RH): Colours to show the sparkling operation is switched on.

Hot

On/Off Switch: The hot water heating mode is controlled by a switch on the back of the unit, next to the cooling mode switch. This switch is labelled "Hot".

Hot Thermostat: regulated by a pre-set, non-adjustable sensor on the tank.

Hot Button: press to dispense hot water.

Lock Button: toggles on and off the dispense of hot water.

Red LED (on hot water icon): Colours to show heating mode is enabled.

Red LED (marked heating): Colours to show heating element is active according to thermostatic demand.

Floor standing Version

All models are designed to fit straight onto the top of the base cabinet to create a floorstanding model.

Ensure the feet are in the nesting positions.

The Door Panel is hinged and fastened with Magnetic Catches. The cabinet can be levelled using the adjustable feet. Service entry is at the back of the machine.

Every Base Cabinet is supplied with a Level Sensor Kit, comprising of:

• A water container.

• Sensor unit (c/w 2 no. CR3032 batteries). (Requires some assembly – see page 7).

• Drip Tray with Drainage Outlet.







Installation

Major Components



Water & CO2 Connection



CO2 Bottle Installation (Sparkling Versions Only)



IMPORTANT! ALWAYS ENSURE SECURITY CLIPS ARE USED ON ALL WATER AND CO2 CONNECTIONS.



Attach the regulator to the disposable CO2 bottle, ensuring the regulator is closed.



Connect the assembled CO2 bottle and regulator to the machine using 1/4 inch pipe.



After completing the water installation, turn on the soda power switch and the pump will run. Do not open the regulator valve until the carbonated switch has been turned on.



Flush through approximately 10 litres of water. Check and adjust the CO2 pressure accordingly.



We recommend between 3.5 - 5 bar. Do not exceed 5 bar pressure.



It will be necessary to leave the machine for up to 1 hour for sparkling water to develop, by absorbing the CO2.



Check all parts are present.



Unscrew lid.



Fit both batteries and refit lid.



Exchange the drip tray.



Connect the drainage tubing that is pre-fitted down the front left hand side of the cabinet.



Level sensor positioned in container.

A WARNING TONE WILL SOUND WHEN THE WATER RISES. UPON EMPTYING THE CONTAINER THE WARNING TONE WILL STOP.



Operation

Water Connection & Operation



Connect and turn on the water supply. Then connect the power supply (sparkling variants will fill automatically).



All hot & non sparkling cold tanks must be purged of air by holding the corresponding button.



On sparkling models turn on the carbonation switch on the back of the unit.



The relevant indicator lights will be lit.



Press and hold the cold water button until water comes out.



To avoid damage do not turn on the cold power switch until water flows out of the machine. (If applicable)

Water Connection & Operation (Continued)



Flush through 10 litres of water before use.



When the cold water switch is turned on, the cold water and chilling LED will be on.



Allow up to 1 hour for the water to reach its minimum temperature.



The temperature of cold water can be set from 4c to 10c. When the chilling LED is off the set temperature has been reached. This can take up to one hour.

Functions & Controls



General Safety





Maintenance

Isolation & Removal



Please make sure the machine is completely disconnected from electricity before carrying out any maintenance work.



Turn off the water supply.



To drain the Direct Chill tank, remove the cap on the back of the machine. We recommend it is refitted immediately upon draining being completed.

Sanitisation Guide

NOTE: Before beginning the sanitation process please ensure that water is turned off at the mains and refer to the MSDS document for further information. Use bioguard hand gel and ensure gloves are worn.



Briefly press cold/ambient dispense buttons to release internal water pressure from the machine.



Remove the existing filter.



Add 25 ml of Bioguard Internal Sanitisation fluid to a clean and empty service filter cartridge.



Connect to machine.



Turn on incoming water, allow service cartridge/doser to fill.



Dispense water using the cold button until the water appears pink. Briefly press the ambient button too. Repeat with sparkling button if present.



Leave the solution inside machine for sanitisation to take effect (minimum 5 minutes) while thoroughly cleaning the machine externally, pay particular attention to the dispense faucet and button controls.



Remember to include the drip tray. If a Waste Overflow System is fitted, empty this and flush through with a small amount of sanitisation fluid if needed.



When the external cleaning (minimum 5 minutes) is completed, flush the machine using the cold button with clean water until the dispense water runs clear. Repeat briefly with the ambient button.



Turn off water and remove the service filter. Retain service filter for reuse.



Fit new filter. Turn on incoming water supply.



Pre-flush the new filter to waste using the ambient button (and sparkling button if present) until the water appears clear and is free of air. Flush through a small amount of water to check all functions.

Leak Detection (power cut off) -Sparkling Variants Only Enhanced Leak Detection (Flood prevention) Available as Optional Extra.

NOTE: If this machine is equipped with a leak detection device. When leaking is detected the dispense operation will be cut off automatically.

To reset:



Unplug the machine.



Locate the source of leakage and rectify.



Locate the detection probe which can be found in the bottom front left hand corner. Dry the probes and internal area with a dry cloth.



If enhanced Leak Detector is fitted as optional extra: locate the Leak Detector valve.



Reset the red lever (push it in).



Reconnect the power to machine and test operation.

If leak detector is fitted as optional extra, reset the red lever (push it in)

Emptying the Carbonation Tank

back of the unit.



Switch off the Carbonation System switch on the Press



Press and hold the Sparkling water dispense button until all water is expelled



The tank is empty of sparking water when only CO2 is being released.



Ensure to release the Sparkling water button and take care to avoid releasing excess amounts of CO2 gas.



Advanced Troubleshooting

Fault Diagnosis: No Water Dispenses

| Problem/Report | Possible Cause | Suggested Action | | |
|--------------------|--|---|--|--|
| From Ambient Valve | Water Supply turned off. | Check all taps/valves/ filters on incoming supply are fitted and are turned on. | | |
| | No Electricity/Power Supply. | Check power cord is connected and live and machine is switched on. | | |
| | "Waterblock" tripped off (and tank empty). | Reset the "Waterblock" (refer to manufacturer's instructions and check for any leaks). | | |
| | | Check valve action. Carefully dismantle valve and clean out/ part replace/complete replace as needed. | | |
| | Solenoid Valve not working. | Valve clicking but no water - Check if hole in centre of washer is clear. | | |
| | | Valve not clicking - Check for voltage output from control PCB when operated (Caution-High Voltage). If not present, check wiring for continuity and/or replace PCB. If present, check coil/PCB and replace solenoid coil/whole valve coil/whole valve assembly complete/PCB as needed. | | |
| | Leak detector has disabled dispense operation (if fitted). | Check for internal leakage, ensure probes are dry and reset. | | |
| From Cold Valve | Firstly all as for Ambient Tap. | Carry out checks and actions as for ambient tap. | | |
| | Chiller tank frozen – Thermostat not working. | Thaw out and check thermostat. Replace Cold Water thermostat as needed. | | |
| | Chiller tank Frozen - Tank pump not working. | Thaw out and check tank pump. Replace pump and or check electricity supply to pump present. | | |
| | Leak detector has disabled dispense operation (if fitted). | Check for internal leakage, ensure probes are dry and reset. | | |

| Problem/Report | Possible Cause | Suggested Action | | |
|----------------------|---|---|--|--|
| From All Valves | Button not being pressed enough. | Press button firmly. | | |
| | Control PCB not working. | Check/replace Control PCB. | | |
| From Sparkling Valve | Firstly as for ambient and cold valve. | Carry out the checks and actions as for cold and ambient. | | |
| | Low or no CO2. | Check and replace cylinder as necessary. | | |
| | Pump not operating. | Check carbonator level control system. | | |
| | | Check probes connected/Leads attached. Check power supply to pump. | | |
| | Carbonator Tank over pressurised with CO2. | Switch the Sparkling System off. Shut off CO2 supply. Press the Sparkling Water button to release CO2 from carbonator. Switch the Sparkling system on. Check pump operation is running normally. Wait for the pump to stop running. Re-open CO2 supply. | | |
| | Pump Feed Solenoid Valve. | Check function/condition and repair/replace accordingly. | | |
| | Carbonation System switched off. | Switch on (Switch on back of the machine). | | |
| From Hot Valve | Hot water lock button not being pressed. | Press hot water lock button prior to hot water button. | | |
| | Check for internal leakage, ensure probes are dry and reset. | Follow 'Initial Operation' guide. | | |
| | If following normal usage: Follow the same guidance as for 'Ambient' and 'Cold' valve advice. | Carry out check. | | |

Fault Diagnosis: Water Dispenses but not Correct Temperature

| Problem/Report | Possible Cause | Suggested Action | | |
|------------------------|---|---|--|--|
| Ambient Water too Warm | Low usage and/or fed from water supply pipe in warm ducting. Advise user replacing external causes and solutions. | | | |
| Cold Water not Cold | Cooling switched off. | Check switch positions as necessary. | | |
| | Compressor runs and switching off (cool/warm to touch) - Thermostat set too high. | Decrease Cold Thermostat set point. | | |
| | Thermostat not working. | Check/replace Thermostat. | | |
| | Compressor runs but not switching off (hot to touch). | Please contact technical support. | | |
| | Refrigeration problem. | Please contact technical support. | | |
| | Compressor not running at all. | Check and trace voltage path. Check windings resistance. | | |
| | No electricity power supply. | Check the Power cord is connected and live, and the machine is switched on. | | |
| | Compressor only hums slightly/ briefly. | Check and replace relays. | | |
| | Relays loose. | Check and refit relays. | | |
| | Compressor not working. | Please contact technical support. | | |
| | Fan not working. | Check and replace, as required. | | |
| Hot Water not Hot | Hot water mode switched off. | Switch on hot water mode (status LED should show). | | |
| | Heating cycle incomplete. | Wait for heating LED to stop showing. This indicates heating cycle is complete. | | |
| | Hot water demand too high. | Advise user/s. | | |
| | Hot Thermostat not working. | Check/replace thermostat. | | |
| | Over heat function active (Heating mode LED not showing while heating mode switch on). | Reset switch on overheat temperature sensor. | | |
| | Heating element not working. | Check and replace, as required. | | |

Fault Diagnosis: Water Leaks

| Problem/Report | Possible Cause | Suggested Action | | |
|---|---|--|--|--|
| Water lying on top edge of lower door panel and/or bottom of Cabinet. | Overflowing Drip Tray waste container. | Empty Waste Container and check drainpipe is not blocked. | | |
| Water lying in bottom of machine. | Level Sensors not working. | Check operation/repair/replace as required. | | |
| | Leak in supply inlet pipe work and/ or filter. | Locate and repair accordingly. | | |
| | Leak from machine water pipe work | Locate and repair accordingly. | | |
| | fittings. | Check pressure and fit pressure reducing valve if needed. | | |

Fault Diagnosis: Miscellaneous

| Problem/Report | Possible Cause | Suggested Action | | |
|---------------------------------|---|--|--|--|
| Bleeping Noise | Level Sensor fitted and tank full. | Empty Level Sensor tank. | | |
| No LED Control Lights | No electricity to Machine. | Check power supply and reconnect as necessary (Also check out other symptoms as described separately). | | |
| | Check Fuse in IEC Socket. | Replace if necessary. | | |
| | Control PCB not working (Machine working normally otherwise). | Check/replace PCB. | | |
| Machine Shakes on Start-up | Compressor Starting. | No action needed. This is quite normal. | | |
| | Level Surface. | nomai. | | |
| | Uneven Surface. | Level up machine using adjustable feet. | | |
| | Missing Fixings. | Replace missing fixings. | | |
| Tripping out Electricity Supply | Machine in high humidity environment. | Discuss possible repositioning with customer. | | |
| | Electrical circuitry faults. | Test, identify and address accordingly. See Electrical Diagrams. | | |
| | | Please contact technical support | | |

| Problem/Report | Possible Cause | Suggested Action | | |
|--|--|---|--|--|
| No/Inadequate Water Dispenses | Low incoming Water pressure. | Consider re-plumbing to alternative supply if possible or providing a pressure boost system. | | |
| | Low/no CO2 Pressure. | Check Regulator and/or replace cylinder. | | |
| | Leak Detector device (if fitted) activated. | Check, identify cause, rectify and reset as applicable. | | |
| Intermittent Water Dispense From Sparkling Water Valve | Trapped air in pipe work (especially where water pressure is low or after filter change). | Hold button on to purge air out. (This could take several minutes where pressure is low). | | |
| | | Use filter function if available. | | |
| | Button not being pressed enough. | Press button firmly N.B. This could be caused by a surrounding cold environment making the action stiffer. | | |
| | Control PCB not working. | Check/replace Control PCB. | | |
| Intermittent Water Dispense From Hot Water Valve | Follow the same guidance as for "Ambient' & 'Cold" valve advice. | Carry out checks. | | |
| | From dispense faucet at the Check/Monitor and replace H completion of the heating cycle Tank if occurring regularly | | | |
| | (This is expansion/vent water from hot tank only. This can intermittently occur but if regularly, this could indicate limescale build-up inside the hot tank). | | | |
| Intermittent Water Dispense & Hammering Noise | Fluctuating mains water pressure situation. | ure Contact Technical Support regarding special replacement washers available. | | |
| Continuous Water Dispense | Button jammed on/faulty. | Replace Control PCB and or/ button Panel as needed. | | |
| | Debris blocking hole in diaphragm washer. | Dismantle Valve and clean out. | | |
| | Solenoid valve not working. | Check valve and replace if needed. | | |
| Continuous Water Dispense From Hot Valve | Follow the same guidance as for "Ambient" & 'Cold" valve advice. | | | |
| Slow but Continuous Water Dispense From Hot Water Valve | Follow the same guidance as for Carry out checks. "Ambient' & 'Cold" valve advice. | | | |
| | Limescale build-up inside Hot Replace Hot Water Tank. Water Tank. | | | |



Exploded Diagrams & Parts List

Chilled & Ambient Exploded Diagram



Chilled & Hot Exploded Diagram



Chilled & Sparkling Exploded Diagram



Chilled, Hot & Sparkling Exploded Diagram





Parts List

| Diagram Ref: | Diagram Ref: Description | | Quantity | | Borg & Overstrom | Engineer | |
|--------------|--|----------------------|---------------|------------------------|-----------------------------|-----------|------------------|
| | | Chilled & Ambient | Chilled & Hot | Chilled & Sparkling | Chilled, Hot & Sparkling | Part No | Service Parts |
| S1 | b4 Left Side Panel | 1 | 1 | 1 | 1 | 121855 | |
| S2 | b4 Right Side Panel | 1 | 1 | 1 | 1 | 121856 | |
| S3 | b4 Top Cover Panel | 1 | 1 | 1 | 1 | 123185 | |
| S4 | b4 Drip Tray Counter Top | 1 | 1 | 1 | 1 | 125831 | |
| S5 | b4 Drip Tray Floor standing Unit |] | 1 | 1 | 1 | 125832 | |
| S6 | Faucet | 1 | 1 | 1 | 1 | 133514 | |
| S7 | LED Assembly | 1 | 1 | 1 | 1 | 172176 | |
| S8 | Solenoid Valve | 2 | 2 | 4 | 5 | 173245 | * |
| S9 | Cold Thermostat | 1 | 1 | 1 | 1 | 173264 | * |
| S10 | 10A/250V Fuse | 1 | 1 | 1 | 1 | 174323 | * |
| S11 | Fan | 1 |] | 1 |] | 174351 | * |
| S12 | Level Sensor Module (inc battery set) | 1 | 1 | 1 | 1 | 193197 | |
| S13 | b4 Control Button Panel | 1 | 1 |] |] | 126826 | |
| S14 | 2-Port Drainage Outlet |] | 1 | 1 | 1 | 131426 | |
| S15 | 1/4" PF x 1/4" Stem Single Check Valve | 1 | 2 | 1 | 2 | 132448 | * |
| S16 | IEC Power Cord set - Danish |] | 1 | 1 |] | 172144 | |
| S17 | IEC Power Cord set - Schuko/EURO | 1 | 1 | 1 | 1 | 172148 | |
| S18 | IEC Power Cord set - UK | 1 | 1 | 1 | 1 | 172152 | |
| S19 | IEC Power Cord set - Swiss | 1 | 1 | 1 | 1 | 852108 | 1 |
| S20 | Grit Filter | 1 | 1 | 1 | 1 | 194121 | 1 |
| S21 | b4 DCA/DCS Main Control Board | 1 | 0 | 1 | 0 | 171222 | * |
| S22 | DC Rectifier Set | 0 | 0 | 2 | 2 | 172167 | * |
| S23 | Compressor Relay Set | 1 | 1 | 0 | 0 | 172231 | * |
| S24 | Compressor Relay Set | 0 | 0 | 1 | 1 | 172240 | * |
| S25 | Level Control Module | 0 | 0 | 1 | 1 | 173272 | * |
| S26 | DC Pump Set | 0 | 1 | 0 | 1 | 174310 | * |
| S27 | Hot Water Tank | 0 | 1 | 0 | 1 | 166980 | * |
| S28 | 105C Temperature Safety Cut-out Sensor | 0 | 1 | 0 | 1 | 173255 | * |
| S29 | 92C Temperature Sensor | 0 | 1 | 0 | 1 | 173266 | * |
| S30 | CO2 Regulator (Single Gauge) | 0 | 0 | 1 | 1 | 193222.01 | |
| S31 | b4 DCH Main Control Board | 0 | 1 | 0 | 0 | 171223 | * |
| S32 | b4 DCHS Main Control Board | 0 | 0 | 0 | 1 | 171224 | * |
| S33 | b4 DCA Control Button Membrane |] | 0 | 0 | 0 | 191161 | * |
| S34 | b4 DCH Control Button Membrane | 0 | 1 | 0 | 0 | 191163 | * |
| S35 | b4 DCS Control Button Membrane | 0 | 0 | 1 | 0 | 191162 | * |
| S36 | b4 DCHS Control Button Membrane | 0 | 0 | 0 | 1 | 191164 | * |
| S37 | Door Panel Assembly |] | 1 | 1 | 1 | 120811 | |
| S38 | Complete Base Cabinet Set |] | 1 | 1 | 1 | 103910 | |
| S39 | b4 Level Sensor Kit (Inc Waste Container) |] | 1 | 1 | 1 | 193195 | 1 |
| S40 | Waste Connection Elbow | 1 | 1 | 1 | 1 | 131567 | 1 |



Technical Information

Chilled & Ambient Electrical Circuit Diagram



Chilled & Hot Electrical Circuit Diagram



Chilled & Sparkling Electrical Circuit Diagram



Chilled, Hot & Sparkling Electrical Circuit Diagram











Specification

| COOLING SYSTEM | All Models | High efficiency compression system with capillary control. Premium quality long life hermetic compressor. Compact internal condenser – fan assisted for greater efficiency. Environmentally friendly R134A refrigerant. |
|--------------------------------------|-----------------------------|--|
| | Chilled & Ambient | High volume 3.5 litre stainless steel pressurised cold tank for optimum water capacity on demand and hygiene. Low sanitisation and maintenance. Insulated tank for energy conservation. Large volume output performance via high pressure valves. Thermostatically controlled chilled water temperature (range down to 1°C minimum). Integrated stainless steel carbonator on sparkling water machine option. |
| | Chilled & Sparkling | 3.5 litre stainless steel chiller tank with level control containing stainless steel cold water direct chill coil. Stainless steel carbonator tank with independent level control fitted inside coil. High capacity, low voltage diaphragm inlet pump. |
| HEATING SYSTEM | Chilled & Hot | High volume 3.5 litre stainless steel pressurised cold tank for optimum water capacity on demand and hygiene with low sanitisation and maintenance requirement. Thermostatically controlled chilled water temperature (range down to 1°C minimum). 1.75It stainless steel hot water tank with thermostatic temperature control (92C max). Insulated tanks for energy conservation. Large volume output performance via high pressure solenoid valves. |
| | Chilled, Hot & Sparkling | 3.5 litre stainless steel chiller tank with level control containing stainless steel cold water direct chill coil. Thermostatically controlled chilled water temperature (range down to 1°C minimum). Stainless steel carbonator tank with independent level control fitted inside coil and high capacity, low voltage diaphragm inlet pump. 1.75It stainless steel hot water tank with thermostatic temperature control (92C max). Insulated tanks for energy conservation. Large volume output performance via high pressure solenoid valves. |
| COLD TEMPRATURE | | 2°C to 11°C |
| HOT TEMPRATURE | | 92°C Max |
| THROUGHPUT PER HOUR | | 18 litres cold < 12°C / 16 litres sparkling <12°C |
| DISPENSE | | Ergonomically designed and situated light touch sensitive controls. |
| MAXIMUM RUNNING POWER CONSUMPTION | Chilled & Ambient | 100 watt |
| | Chilled & Hot | 600 watt |
| | Chilled & Sparkling | 140 watt |
| | Chilled, Hot & Sparkling | 640 watt |
| POWER SUPPLY | | IEC power socket. |
| WATER CONNECTION | | 1/4 inch quick connection. |
| CO2 CONNECTION | | 1/4 inch quick connection. |
| COUNTERTOP DIMENSIONS | | (w x d x h) 320 x 440 x 415mm |
| WEIGHTS | Chilled & Ambient | 14.5kg |
| | Chilled & Hot | 16.2kg |
| | Chilled & Sparkling | 21.0kg |
| | Chilled, Hot & Sparkling | 22.9kg |