HAIGH

Operating and maintenance manual
Quattro Vanguard and Excel

Original Instructions

Your technical and user guide to the **Quattro Vanguard and Excel range of pulp product macerators** for operators and service engineers

DESIGNED, MANUFACTURED AND ASSEMBLED IN THE UK
RELIABILITY AS STANDARD

Contents

1. Introduction

This technical/maintenance manual is to be regarded by the owner/operator as an integral part of the equipment and must be available for use by the owner/service engineer as required.

It must be available during the life of the equipment and passed to any subsequent owner/user if the equipment is sold or transferred elsewhere.

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Definitions

Charged: the item has acquired a charge either because it is live or because it has become charged by other means such as by static or induction charging, or has retained or regained a charge due to capacitance effects even though it may be disconnected from the rest of the system;

Electrically Isolated: equipment (or part of an electrical system) which is disconnected and separated by a safe distance (the isolating gap) from all sources of electrical energy in such a way that the disconnection is secure, ie it cannot be re-energised accidentally or inadvertently.

Qualified person: (also known in some industries as ‘designated competent person’ and ‘authorised person’): a competent person appointed by the employer, preferably in writing, to undertake certain specific responsibilities and duties. The person must be competent by way of training, qualifications and/or experience and knowledge of the system to be worked on.

2. Safety precautions and procedures

WARNING – to reduce the risk of injury, users must read instruction manual

This manual provides instructions which must be followed when installing, servicing and operating the machine.

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children.

Caution: "This machine is not a medical device and installation is limited to soiled utility / en suite locations. Macerator only to be used and operated by trained hospital nursing or facilities staff."

Please note:

- The machine should only be installed by suitably qualified technicians who have read this manual.
- A copy of the manual must always be at hand where the machine or installation is being used.

  Staff Notices to be displayed in clear view next to the machine
- In addition to these general safety instructions you must observe the special safety instructions which are included in other sections of this manual.

Safety symbols

The hazard sign is used in the manual as a general hazard symbol to mark those safety instructions whose non-observance can result in danger to personnel or equipment

This signifies the risk of electric shock to personnel and is a warning against electric voltage:

- Single Phase supply - 230V
- Three Phase supply - 400V

The safety sign is used to denote that appropriate Personal Protection Equipment (PPE) must be worn.

Safety Information

- Low voltage electrical equipment (less than 1000V) can cause serious or fatal injuries.
- Any person installing or maintaining this equipment should be fully competent to carry out this work.
- Such persons should be familiar with the relevant codes of practice or standards which are applicable to the country of installation.
- Means for electrical disconnection must be incorporated in the fixed wiring in accordance with the relevant regulations.

- If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
- The water inlet pressure must be at least 0.05 MPa (0.5 bar) and should not exceed 1.0 MPa (10 bar)
- The appliance must be connected to the water mains using the new hose set supplied with the appliance and old hose sets should not be reused. Check the condition of the hoses regularly so that you can replace them in good time and avoid any risk of any water damage.
- The machine must be isolated from the electricity supply when cleaning and maintaining the machine and in the event of a fault.
- The heatsinks on the Power Supply Unit are NOT Earthed, under no circumstances should you attempt to earth the heatsinks or touch them while the unit is operating.
- Disconnection Warning: After switch off, all internal capacitors will discharge to safe levels within 30 seconds under normal conditions. However, under fault conditions, charges may be held for much longer and suitable precautions should be taken before handling the unit

Preliminary operating advice

- All instructions located directly on this machine must be observed and be kept completely legible at all times.
- This machine is designed to operate on a fully automatic cycle. During this cycle it will only stop if a fault occurs or if it is overloaded.
- If the hopper is overloaded beyond the recommended capacity the internal trip can cause the machine to stop. Continued abuse in this manner will eventually cause motor failure.
- If an emergency occurs, such as a foreign object being in the hopper, the machine should be stopped immediately by switching off the power at the isolator.

Staff qualifications and training

- All staff who operate, maintain, inspect or install the machine must be suitably trained and qualified and have the necessary equipment or tools to carry out their tasks safely.
- The person who is responsible for staff supervision should define the exact areas of responsibility and scope of authority for all staff using or maintaining the machine. If a member of staff lacks the necessary knowledge, he or she must receive due training and instruction.
- Any training or instruction required can be provided by the manufacturer or supplier.
- The supervisor must also make sure that the content of this manual is fully understood by the staff concerned.

Dangers arising from non-observance of safety instructions

- Danger to personnel and to the machine.
- Danger to the environment through leakage of hazardous substances.
- Loss of all entitlement to redress.

Safety conscious working

- In addition to the safety instructions given in this manual, it is essential to follow the national accident prevention directives currently in force and any internal regulations concerning work and safety.
- Duty of care - your personal safety, the safety of others, of the equipment and the environment is the responsibility of the user.

Safety instructions for maintenance, inspection and installation

- Leakages of contaminated material must be discharged in such a way that neither personnel nor the environment are placed at risk. Statutory directives must be observed.
- All possible danger from electric shock must be eliminated (for details see the regulations of the country of authority and your local power supply company).
- Observe equipment warning signs.
- The supervisor must ensure that all maintenance, inspection and installation work is carried out by authorised and qualified skilled staff, who are duly informed about the machine and/or installation after studying the manual thoroughly.
- Work on the machine must only be carried out with the machine stopped and electrical power supply turned off and locked off at the isolator switch.
- Pumps or assemblies which convey, or are in contact with, harmful media must be decontaminated before work starts.
- All safety devices (Interlocks), must be refitted and be in working order immediately after the work is carried out, and their operations checked.

Arbitrary modifications and replacement of product parts

- Modifications or changes to the machine are only permissible after consulting with the manufacturer.
- Original spare parts and accessories authorised by Haigh contribute to safety.
- If unauthorised parts are used, this will exempt the manufacturer from liability for any consequences caused by the use of those unauthorised parts.

Unacceptable modes of operation

- The safe operation of the machine as delivered is guaranteed only if it is used within the manufacturer's guidelines. This machine was designed on the basis of specified conditions of operation contained within the conditions of purchase of the equipment. The specifications listed in the conditions of operation are to be regarded as limit values and must not be exceeded under any circumstances.
- All users should be made aware that, if the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.
- In the event of prolonged absence it is essential to turn off the water supply to protect the installation, especially if there is no floor drain in the immediate vicinity.

Haigh cannot be held liable for damage caused by non-compliance with these Safety Precautions and Procedures.

3. Equipment description and specification

About the Quattro macerator

The Quattro is extended into two ranges – the Vanguard and Excel. Both machines offer unparalleled superfine maceration and also built-in Biomaster silver antibacterial technology (tested to ISO 22196:2011) giving a lifetime protection against the growth of bacteria.

This range has additional enhanced features that can be personalised to each healthcare setting.

Models are:

	Foot pedal open / manual soft close	Hands-free open and close (automatic)	TECcare rinse cycle	Superfine Maceration	Aero-jet drain flush	One-shot TECcare foam flush	Night mode
Quattro Vanguard Original	✓	-	Option	✓	-	-	Option
Quattro Vanguard Enhanced	-	✓	✓	✓	-	-	✓
Quattro Excel	-	✓	✓	✓	✓	✓	✓

Night mode noise level = 54dBA

All standard pulp items (bedpans, standard/large wash bowls, jugs, urine bottles/dishes, kidney dish, tray etc…) can be disposed of in a Haigh macerator.

NHS Supply Chain has independently tested all the leading pulp supplier products in Haigh macerators in accordance with PAS29:1999 (a British Standards Institute [BSI] Product Assessment Specification).

How the Quattro works

Quattro consists of an electric motor which drives a pulveriser, with a separate water pump that flushes the hopper and outlet pipe-work.

Water is supplied via mains supply or a storage tank through an inlet solenoid valve. It uses cold potable water only. The solenoid valve is operated by the machine's printed circuit board (PCB) which receives a signal from a level switch mounted in the cistern. The water is drawn from the cistern by a separate pump and is discharged via the plumbing system into the machine. A measured quantity of deodoriser is fed into the plumbing towards the end of the cycle.

The internal surfaces of the lid and hopper are automatically washed down by the spray from a vent centrally mounted on the underside of the lid.

Switching on the wall isolator actuates the microprocessor which performs a safety monitoring assessment of the condition of the machine before the green ready to run light illuminates. The machine is now ready to start a cycle of operation.

The electrical safety system is continuously monitored by the internal microprocessor.

If a problem occurs, cycle termination devices end the cycle of operation and the respective warning or fault light will illuminate. For operation refer to the indicator panel.

WRAS This machine is a Water Regulations Advisory Scheme (WRAS), approved product with protection from contamination to the water supply provided by an Air gap to EN 13077, Family A, Type B.

The pulveriser

The pulveriser consists of an impeller rotating at high speed within a toothed cutter ring which forms the lower part of the stainless steel hopper assembly.

The impeller is fitted with two sweep blades which pulp the bedpans and urine bottles before the pulp passes on through the disposer.

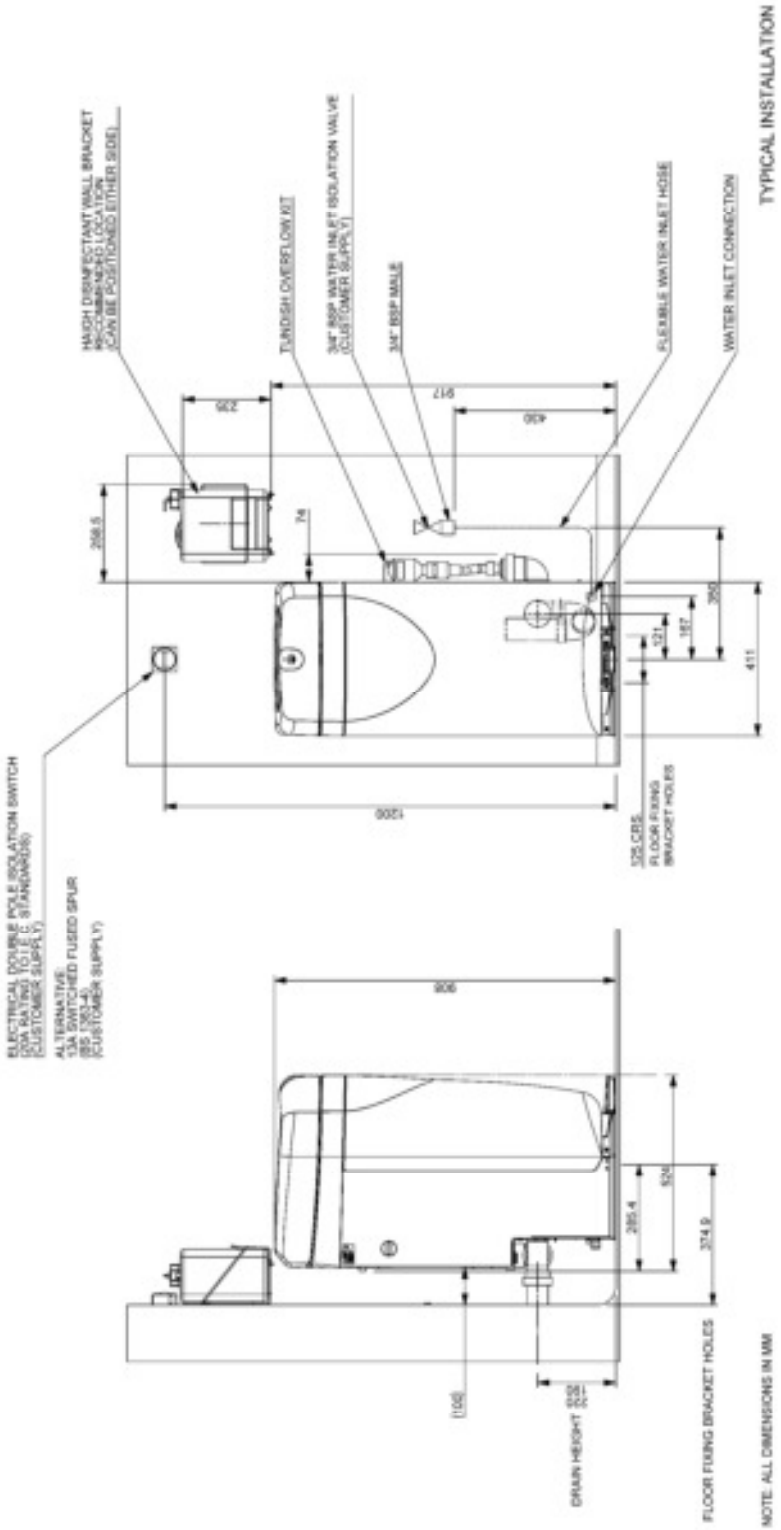
- Dispose of pulp products only e.g. bedpans and urine bottles.
- The machine is not designed to dispose of dressings, swabs, gloves etc as **these will jam the machine.**

Should an unsuitable object have been inadvertently placed in the machine and the impeller become jammed, the motor overload trip will operate to stop the machine and the red fault light will illuminate.

Always isolate the machine from mains electrical supply before servicing.

Remove the object and ensure the impeller is free to rotate. The overload trip device within the control box will automatically reset. Close and latch the lid.

Technical diagram - Typical Installation



Specification

	Quattro Vanguard	Quattro Vanguard Enhanced Quattro Excel
Metrics		
Size (W x D x H)	411 x 524 x 908 mm	411 x 524 x 908 mm
Capacity (pans/bottles)	4 pans	4 pans
Capacity (wash bowls)	2	2
Cistern capacity	11 litres. Inlet protected by 'EN 13077, Family A, Type B'	11 litres. Inlet protected by 'EN 13077, Family A, Type B'
Electrical supply	230 v / 1 Ph / 50 Hz 400 v / 3 Ph / 50 Hz	230 v / 1 Ph / 50 Hz 400 v / 3 Ph / 50 Hz 220 v / 1 Ph / 60 Hz 100 v / 1 Ph / 60 Hz 100 v / 1 Ph / 50 Hz
Energy use	0.01 KWh / cycle	0.01 KWh / cycle
Footprint	0.215 m^2	0.215 m^2
Height (lid open)	1218 mm	1218 mm
Humidity operating range	50-80% RH	50-80% RH
Altitude	Not intended for use in altitudes exceeding 2,000m	
Loading height	784 mm	784 mm
Motor power	600 w	600 w
Pump power	125 w	125 w
Temperature operating range	+5 to +40°C	+5 to +40°C
Volume	0.236 m3	0.236 m3
Water Inlet requirements	Cold – 5.5 lpm Min Pressure: 0.05 MPa (0.5 bar) Max Pressure: 1.0 MPa (10 bar)	Cold – 5.5 lpm Min Pressure: 0.05 MPa (0.5 bar) Max Pressure: 1.0 MPa (10 bar)
Weight (dry)	56 kg	58.5 kg
User handling		
Open / close	Manual open / soft close	Automatic hands-free
Auto-start	✓	✓
Maintenance access	All sides	All sides

Installation		
Cistern overflow indicator	Never connect the overflow indicator stub to the drain. Ensure any discharge is visible	Never connect the overflow indicator stub to the drain. Ensure any discharge is visible
Direction of rotation for macerator motor	Single phase machines are supplied with the correct rotation. Three phase machines must be checked. - Clockwise direction only when looking into the hopper. Refer to Commissioning section.	Single phase machines are supplied with the correct rotation. Three phase machines must be checked. - Clockwise direction only when looking into the hopper. Refer to Commissioning section.
Isolator	For single and three phase machines, 20A isolator to IEC standards	For single and three phase machines, 20A isolator to IEC standards
Mains water inlet flow rate	Required flow rate is minimum of 5.5 litres/min. Water regulated to 9 litres/min maximum	Required flow rate is minimum of 5.5 litres/min. Water regulated to 9 litres/min maximum
Mounting	Floor. 10mm dia securing bolts	Floor. 10mm dia securing bolts
Pipework (mains)	Inlet ¾" BSP female connection	Inlet ¾" BSP female connection
Pipework (waste drain outlet)	50mm (2" BSP) multifit P trap	50mm (2" BSP) multifit P trap
Water pump	Self-primed from the cistern. Electric centrifugal pump	Self-primed from the cistern. Electric centrifugal pump

The design and specifications are subject to change without notice for quality improvement purposes

All installations must comply with statutory regulations, local water by-laws and relevant codes of practice of the country of installation. Responsibility for this must rest with the installer. Haigh make every effort to comply with national requirements/standards.

Cycle times

The cycle time is determined by the position of the drain (in relation to the macerator) and the requirements of the hospital; this will be agreed during installation.

	Cycle	Time (seconds)	Water usage (litres)	Features	Selection
Vanguard	**V1**	82	15		4 Pulp Items Short drain run
	V1+	109	18.2		4 Pulp Items + Wipes Short drain run
	V2	96	17.4		4 Pulp Items Average drain run
	V2+	116	19.6		4 Pulp Items + Wipes Average drain run
	V3	114	20.0		4 Pulp Items Long drain run
	V3+	137	22.5		4 Pulp Items + Wipes Long drain run
Excel	**E1**	91	17.3	Includes aero-jet	4 Pulp Items Short drain run
	E1+	111	19.5	Includes aero-jet	4 Pulp Items + Wipes Short drain run
	E2	98	18.7	Includes aero-jet	4 Pulp Items Average drain run
	E2+	118	21	Includes aero-jet	4 Pulp Items + Wipes Average drain run
	E3	118	21.8	Includes aero-jet	4 Pulp Items Long drain run
	E3+	141	24.4	Includes aero-jet	4 Pulp Items + Wipes Long drain run

There are also optional cycles available:

Cycle	Time (seconds)	Water usage (litres)	Capacity	Comments
Nightmode	265	23.5	1 pan	

OLED panel chart

	✓	Ready / Standby (awake)
	✓	Lid opening initiated, (display flashes)
	✓	Running
	✓	Running, extended cycle

Identification of the symbols and indicator lights

	**Indicator light green**	Machine healthy
	**Indicator light amber**	Machine warning of attention required
	**Indicator light red**	Machine indicating fault. **Call for service engineer.** Please quote fault code when calling (see page 48)
	**Indicator light blue**	Machine in night mode
	**Water filling**	Rising until the tank is full. Illuminated on low water condition, after 180 seconds fault light also illuminates.
	**Drain block indicator**	Illuminated during a drain block cycle. On release, if water and pulp are still in the hopper covering the impeller, call the Service Engineer.
	**Low Disinfectant**	Illuminated when internal disinfectant requires changing. *This function is only available when fitted with an internal disinfectant kit (optional extra).
	**Service Recommended**	Service recommended. Displayed after 10,000 cycles or 12months

See Section 8 for troubleshooting of the above indicators

4. User operation instructions and care

How to operate the Quattro Vanguard (manual)

1. The green indicator light will be illuminated (see OLED panel chart on page 16)
2. Open the lid by pressing the foot pedal
3. Load the machine:

MAXIMUM load for this machine:

	Disposable bedpans	4
or	Urine bottles	4
or	Any combination of products above	4
or	Wash bowls	2

DO NOT exceed this maximum loading

4. Close the lid. The lid will lock and the machine will start its cycle automatically
5. Once the cycle has finished, the lid can be opened (by foot pedal) for the next operation.

Training is recommended for users. Haigh can provide you with support should you require it. A poster for advising users how to operate the machine will be made available in your welcome pack (part number E5042).

Staff notice - manual Quattro operation

Introducing your Quattro macerator

Your ward has installed a Haigh macerator which uses a foot pedal to open the lid and should be softly closed by hand. The machine will automatically start once closed. To operate the macerator:

- **Use the foot pedal to open the lid.**
- Take note of the items that you can and can't insert into the machine.
- Clean only with warm soapy water and disinfect with a non-corrosive disinfectant in accordance with its own instructions.
- Notify the hospital engineer if a continuous red light shows or the panel shows a fault.

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Call us on 01989 760 230 or email service@haigh.co.uk for technical support

E5039 05/2017

How to operate the Quattro Vanguard Enhanced (hands-free option) and Excel

1. The green indicator light will be illuminated (see OLED panel chart on page 16)
2. Open the lid by pressing the foot pedal
3. Load the machine:

MAXIMUM load for this machine:

	Disposable bedpans	4
or	Urine bottles	4
or	Any combination of products above	4
or	Wash bowls	2

DO NOT exceed this maximum loading

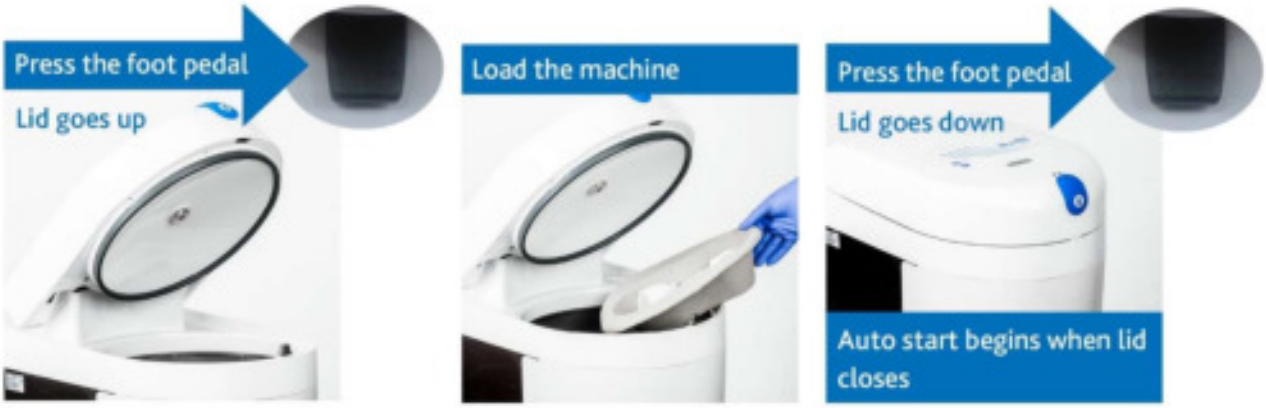
4. Close the lid using the foot pedal. The lid will lock and the machine will start its cycle automatically
5. Once the cycle has finished, the lid can be opened (by foot pedal) for the next operation.

Training is recommended for users. Haigh can provide you with support should you require it. A poster for advising users how to operate the machine will be made available in your welcome pack (publication number E5043).

Staff notice - automatic hands-free operation

Introducing the Quattro macerator to help prevent infections

Your ward has installed a hands-free Haigh macerator. As you only use the foot pedal to open and close the machine, this helps minimise infection contamination - a step change in infection control. To operate the macerator:



Do not close the lid manually. Use foot pedal

Do not close the lid manually. Use the foot pedal to open and close.

Take note of the items that you can and can't insert into the machine.

Clean only with warm soapy water and disinfect with a non-corrosive disinfectant in accordance with its own instructions.

Notify the hospital engineer if a continuous red light shows or the panel shows a fault.

ES043 05/2017

Put your foot down to stamp out infections

WARNING

Observe the risk of trapping when opening/closing the lid using the foot pedal. Before starting the process of opening and closing, check there is nobody near to the lid as trapping may have serious consequences. Always ensure there is nothing on top of the lid prior to opening, failure to do so may cause damage to the lid hinge mechanism.

Always operate the lid with caution.

Pinch protection

If something with sufficient resistance prevents the lid from closing then pinch protection is activated.

If an object is detected that would interfere with the lid closing, the lid stops and then reverses to the fully open position (if able to do so). An audible warning is given to indicate the reopening of the lid. Remove any obstructions and if the lid is open, press the foot pedal again to close the lid.

To stop the lid closing

This can be done by pressing the foot pedal. The lids movement is interrupted and it then reverses to the fully open position (if able to do so).

CAUTION

Do not attempt to manually close or open the lid when stationary or during automatic operation; this may cause damage to the hinge mechanism or latch actuators. In the event of this happening an audible warning may sound

Operating advice

- Activate Quattro immediately after every load; do not leave the lid open.
- Wash hands after every load.
- Never use a chemical reaction substance to clear a drain block situation in the disposer as damage to the seals will occur.
- To reduce the possibility of the machine jamming, do not place the bedpans inside each other when placing them in the hopper.
- If electrical power to the machine fails during an operation cycle, the interlock remains engaged. The interlock releases once power is restored to the machine.
- Do not attempt to force the lid open or shut.

Daily maintenance

- Run the machine under ‘no load’ conditions to clear any residue.

How to use night mode

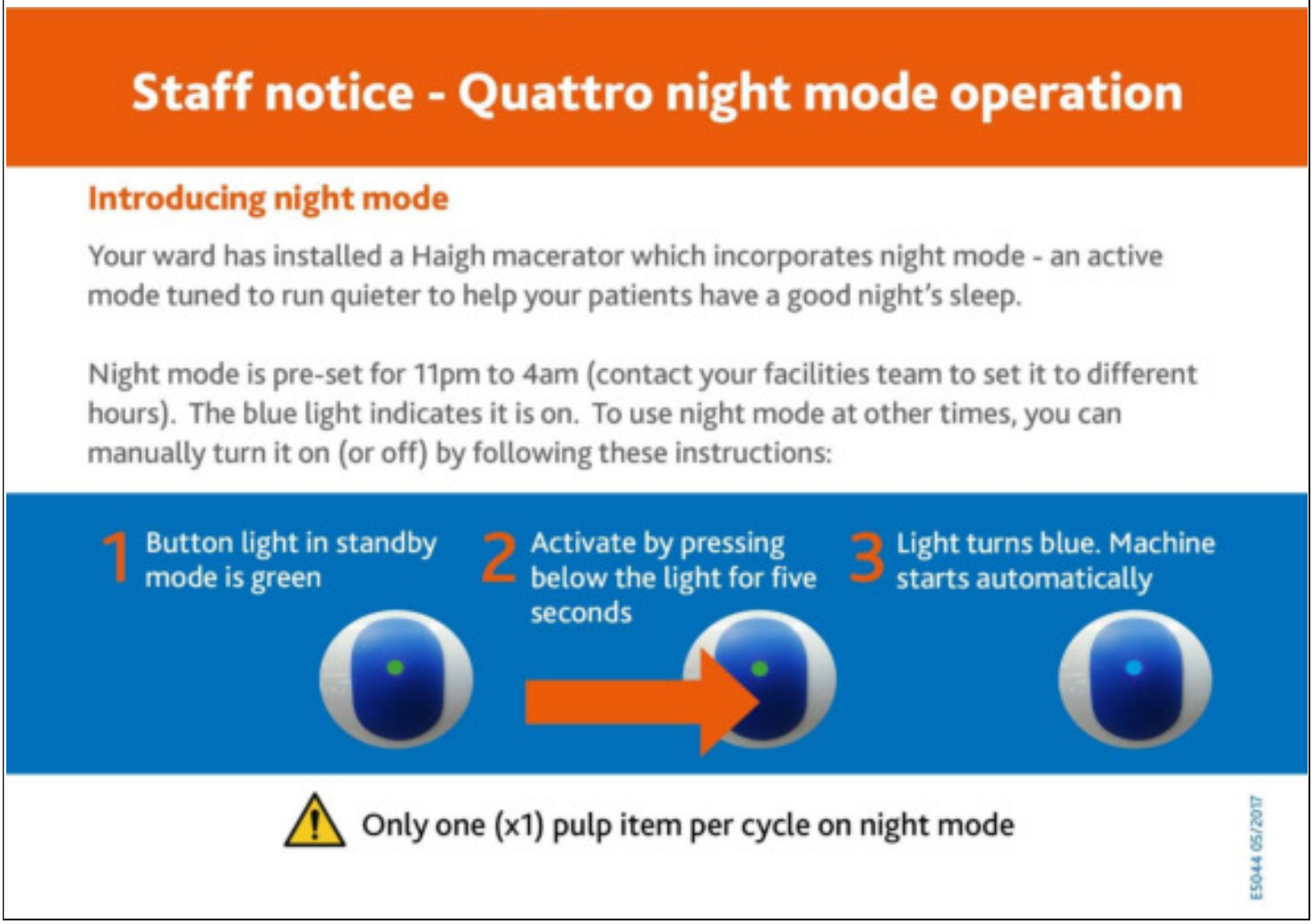
Night mode is an option available on selected models of the Quattro Vanguard and is standard on the Quattro Excel.

A typical pulp macerator operates at 60 – 64dBA whereas when night mode is activated, it operates at just 54dBA. This means you can continue to use macerators located in wards immediately as required.

The machine automatically switches to night mode during the hours of 11pm to 4am however the setting could be changed to suit whatever times you think are suitable for you. Speak to your facilities/estates team if you require this. If any further advice is required, contact one of Haigh's technical specialists on 01989 760 230 or email service@haigh.co.uk.

Only 1 x pulp item can be placed in the hopper during each cycle when in night mode. Please see cycle times for more information.

A poster for advising users how to set night mode manually will be made available in your welcome pack (publication number E5044) or can be printed from below:



Replacing the External Disinfectant bottle

It is placed outside the macerator in a basket which is mounted to the wall.

If you do not already have a basket, it can be ordered from Haigh using part number 401-112251.

1. Remove the cap from the bottle.

2. Replace with cap supplied with Quattro.

3. If you don't have a modified cap, please order the conversion kit (part number 401-061003). It includes a tube (1), grommet (2), cap (3) and weight (4).

4. Ensuring the tube is fed so that there is excess tube at the bottom of the bottle, screw on the lid.

5. Place the bottle into the basket

Please refer to product safety datasheet prior to using disinfectant.

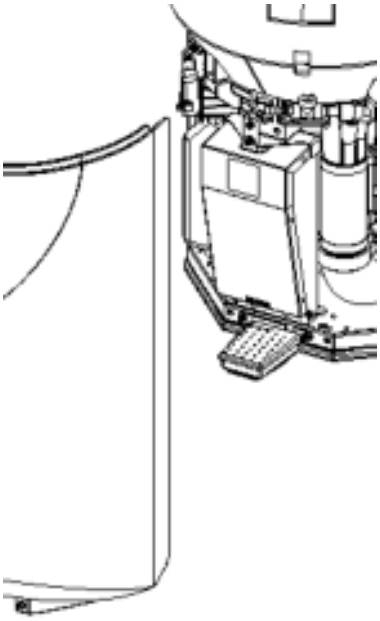
Fitting & Replacing the Internal Disinfectant bottle

It is placed inside the macerator front cover on the left hand side of the motor.

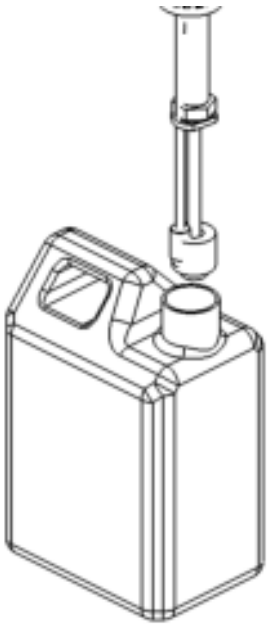
If you do not already have an internal kit, it can be ordered from Haigh using part number 402-112567.

Ensure that the machine is isolated from the electrical power supply before removing the front cover.

1. Remove the macerator front cover.

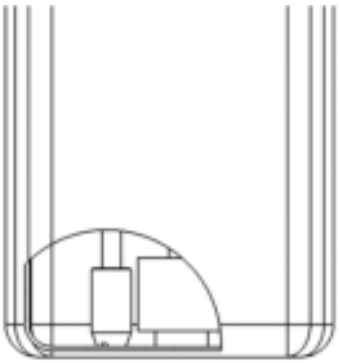


2. Remove the cap and level switch from the bottle.

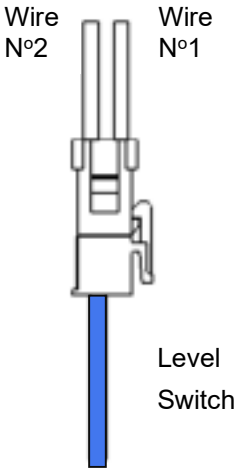


3. Fill bottle with disinfectant & replace lid and level switch.

4. Ensuring the tube is fed so that there is excess tube for the weight to touch the bottom of the bottle.
5. Screw on the lid.



6. Ensure the level switch is connected to the correct socket.



Please refer to product safety datasheet prior to using disinfectant.

5. Installation and commissioning

Please read and familiarise yourself with the technical points contained in this section of the manual before installing this machine

Installation requirements

Quattro requires the following services for installation. Please refer to specification page for details.

- Electrical connection.
- Cold water supply.

This machine is a WRAS approved product with protection from contamination to the water supply provided by an Air gap to EN 13077, Family A, Type B.

- Waste outlet connection - from internal 'P' trap to mains sewage only.
- Overflow

IMPORTANT: The Quattro contains an overflow weir at the rear of the machine to meet WRAS requirements. Installation of the machine must give thought to managing overflows appropriately. Haigh recommends as default the installation of a tundish overflow kit with visible discharge.

Installation planning

Consider location and availability of power, water supply and drainage

Note:

- Sufficient space should be allowed for the removal of the front panel and to service the machine.
- The machine must be level in both directions.
- Never allow the pump to run in a dry condition.

Cold water supply

Quattro is designed to operate on a minimum water flow rate of 5.5 lpm. The supply into the cistern is regulated to a maximum of 9 lpm via a flow regulator located in the inlet Solenoid

To establish the flow rate the refill of the machine at the end of a cycle is timed:

	Not Acceptable	Acceptable	Optimum	Acceptable	Not Acceptable
Seconds (s)	0-5	5-30	30-60	60-150	151+

The flow regulator may not be removed to improve the flow as this will invalidate the machines WRAS approval. For advice on low flow installations please contact Haigh or your service representative

Break tank supply is permissible providing a minimum flow rate of 5.5 lpm and 0.5 bar pressure is available at the machine connection.

- Ensure that the supply line to the machine is at no point less than 15mm, larger if the available head is very low.
- Ensure that the supply cannot be starved by other fittings.
- Ensure that the machine connection complies with statutory regulations, local water authority bylaws and relevant codes of practice.

A dedicated isolation valve (not supplied), must be fitted in the cold water supply pipework. It should be placed close to the machine so that it is readily accessible during maintenance or servicing

- A feed hose is required for connecting the machine to the water supply.

The cistern fitted to this machine contains an ‘EN 13077, Family A, Type B’ airgap to prevent back syphon of contaminated water. **Under no circumstances may the cistern be bypassed**

Waste outlet connection

Quattro is designed to be installed to 50mm pipework with a fall of 1:25 or sufficient to maintain a self-cleansing velocity

We recommend that the maximum total length of pipework before entering the 10mm vertical soil stack is 2m with one swept bend.

- Minimum size of waste pipe 50mm (Internal Diameter).

Connect the machine to the drain using the minimum number of long radius/swept bends. Use long radius or ‘swept’ bends - never short bends or 90° elbows:

- Ensure P-trap is connected to pulveriser head correctly and jubilee clips tightened sufficiently
- When a machine is installed on an existing drain then check that there is no calcium build-up as this reduces the efficiency of the drain and may lead to blockages.
- Provide easy access for rodding.
- The machine is fitted with a 50mm ‘P’ trap inside the cabinet terminating in a compression fitting suitable for a 50mm pipe stub. The outlet is for rear connection. Fitting a slow bend will allow for alternative connections through the floor / to the right / and to the left.

Never connect waste outlet to a septic tank

- Machine waste must be run separately to a 100mm vertical soil stack.
- Ensure the waste takes the shortest route to the soil stack.
- Ensure a clean run inside pipework - no burrs or reducing shoulders.
- Support plastic pipework adequately on runs to prevent sagging. Remember ceiling voids can get very warm.
- Avoid running the drain line near or across hot water pipes.
- A straight pipe run is preferable but if necessary any change of direction must be kept to a minimum, with an overall length run of two metres. However, if you need to exceed this length please contact Haigh for further assistance.

Overflow

The overflow indicator pipe from the integral cistern needs to be run to a suitable position. A 1” nominal push in socket is fitted to the cistern for customer connection.

- Ensure that discharge from the overflow is visible.

Don’t connect the overflow directly into the soil drain.

Haigh recommends as default the installation of a Tundish overflow kit.

Electrical information

Quattro is supplied for use on either single phase or three phase power supplies; refer to the rating label details on the top of the electrical connection cover of the machine.

All electrical installations comply with current I.E.E. regulations

- Appropriate I.E.C. approved cables have been used.
- The appliance is connected to a protective earth connection via the earth terminal and identified by the earthing label.

Isolator (customer supply) to be mounted adjacent to appliance

- A 2 metre cable flying lead is supplied ready fitted to the machine for connection to the customer's isolator.
- Mains supplies always to be protected by I.E.C. approved circuit breakers or fuses.
- The thermal relay overload device in the motor circuit should always be set for a value corresponding to the rated overload current (O.C.) of the motor. The overload is pre-set before leaving the factory in the automatic reset mode.
- The heatsinks on the power supply are NOT Earthed, under no circumstances should you attempt to earth the heatsinks or touch the power supply whilst the unit is operating / powered up.
- Disconnection Warning: After switch off, all internal capacitors will discharge to safe levels within 30 seconds under normal conditions. However, under fault conditions, charges may be held for much longer and suitable precautions should be taken before handling the unit

Circuit breakers / fusing

The following recommendations for electrical protection apply:

	230v 1 Phase	400v 3 Phase
Rating	Refer to rating label on machine	
Connection Cable	3 Core, 1.5mm^2 (2m Length)	5 Core, 1.5mm^2 (2m Length)
Install Details	Installed on 30mA RCD Protected Circuit (recommended) Fed by a 10A BS EN 60898-2 Type C mcb or Fed by a 10A BS EN 61009-1 Type C RCBO	Installed on 30mA RCD Protected Circuit (recommended) Fed by a 6A BS EN 60898-2 Type C mcb
Isolation Switch (Customer Supply)	Local double pole **Must** be accessible	Local 4 Pole **Must** be accessible

Existing installation

Where an isolator and a lead is already present from a previous installation, fit a junction box (not supplied) to the wall and connect the lead and the 2 metre flying lead of the machine into the junction box.

Ensure that the circuit breaker or fusing complies with the above table.

Decommissioning

If a machine needs to be removed prior to fitting a new machine please ensure the old machine has been cleaned with disinfectant and is empty of any media. Once complete please dispose of appropriately.

Storage (Customer)

If the machine is not to be installed immediately, it should be stored in the carton in which it has been transported, in a clean, dry place which is free from vibration.

Undo the carton, lift the lid to periodically rotate the impeller by hand to prevent the mechanical seal seizing. Re-seal the carton after doing this. (*manual machine only, Auto lid machine requires power)*

Industrial gloves must be worn when working on or rotating the impeller by hand.

Removing From Storage (Customer)

If the machine has been stored, ensure that the impeller boss is free to rotate. The mechanical seal may have seized if it has not been revolved frequently or through water drying out. Result: Motor will not start, or does start and damages seal faces.

To free the mechanical seal:

- Remove the impeller and part the seal faces, lubricate with clean water only.
- A new mechanical seal will be required if faces are damaged as the seal will leak.

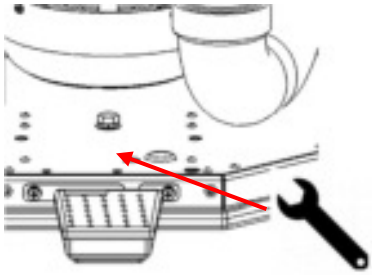
Note:

- **Industrial gloves must be worn when working on or rotating the impeller by hand.**
- Never put tools etc. on the cabinet top, these could damage the surface.
- Never allow the pump to run in a dry condition.

Unpacking the Machine

Tools Required

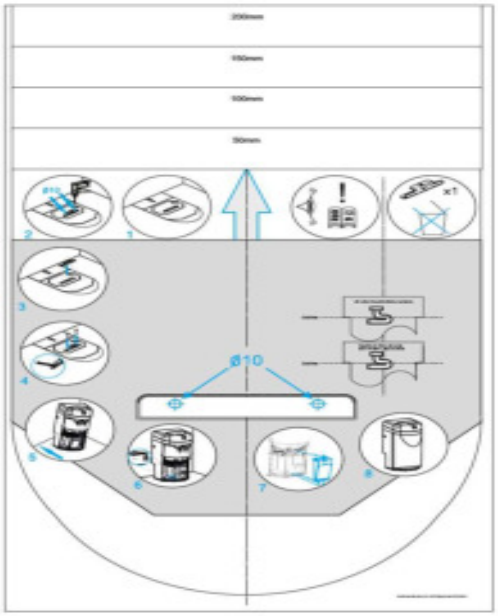
- **Phillips screwdriver / 8mm nut runner**
- **13mm Spanner**



1. Remove the carton and any packing materials.
2. Remove the front panel screws, hold both sides of the front panel at the bottom and pull to release it and access the interior.
3. Remove the electrical control box by removing single screw to access the central fixing down bolt.
4. Remove the central fixing down bolt. *(remove p-trap if preferred)*
5. Refit the electrical control box
6. Remove the machine from the pallet. *(lift directly upwards, 2 person lift may be required)*
7. Remove the bolts that secure the floor locating bracket to the pallet. The floor locating bracket will be used to fix the machine to the floor and is positioned by using the template (supplied).

Installation Procedure

Having read and understood the preceding contents of this chapter:



1. **Position the floor template -** Place the template in the desired position on the floor.

Ensure that there is sufficient clearance behind the machine for cleaning requirements.

CAUTION: Before drilling, check & position the template to ensure that the holes do not affect under floor heating or other services.

2. **Drill holes -** Place the floor locating bracket in the position indicated on the template and drill the fixing holes. **Ensure the template is not moved while drilling**.

3. **Remove template -** Take the template away and replace with the floor locating bracket.

4. **Secure the bracket -** Using the desired floor fixing fasteners (not supplied) bolt the floor locating bracket to the floor. Ensure the floor locating bracket is fitted the correct way round as indicated on the template. The machine should be rigid with compression on the rubber mounting keeping the machine secure.

5. **Position -** Lift the rear of the machine centrally over the floor locating bracket. Slide the machine forward on the runners underneath, until the floor locating bracket locates in the two guide slots in the runners.

6. **Secure the machine and connect services:**
    - Replace the mounting base bolt under the motor to secure the machine in position.
    - Make the waste connection from the internal ‘P’ trap (to mains sewage only). Ensure that connecting pipe is cut square and deburred before fitting to prevent the waste snagging within the pipework and restricting the flow.
    - The cistern overflow indicator pipe discharge should remain visible to indicate an overflow condition. It is recommended that an overflow tundish device is fitted. This is available as an optional extra to direct overflow water to a drain. Contact Haigh for details
    - Connect the mains cold water inlet supply. Open the inlet isolating valve.
    - Connect the flying lead supplied ready fitted to the machine, to the installation isolator. Note advice on electrical information page.
    - Turn on the electrical supply. The inlet solenoid valve opens to admit water to the cistern.
    - Continue with commissioning the machine. Ensure the rotational direction of the machine is correct. A direction of rotation label with cord tail is attached to the impeller in the hopper. The cord trail must indicate the trail towards the tick. This is only needed for the three phase machine.

7. **Fit front panel -** Refit the front panel. Secure with the front panel screws.

Commissioning

Commissioning must be carried out by person(s) suitably qualified and authorised to carry out mechanical and electrical maintenance.

Ensure that the machine is isolated from the electrical power supply.

Mechanical checks

- Ensure the machine has been securely bolted down.
- Clean off any accumulated surface dust and dirt.
- Check inside the machine and surrounding area for tools, fasteners, rubbish or other foreign objects and remove them accordingly. Most problems which arise during the first hours of operation are caused by such matter.
- Check that the water is connected and turned on.
- Check that the drain is connected.

It is recommended that a tundish overflow kit is fitted – Haigh will not be liable for any overflow scenario if an overflow is not fitted.

- Do not remove or adjust any internal plumbing fittings
- Ensure spring tension is correct by winding adjuster nut until rear hinge does not close lid (*using foot pedal to close*), once this is achieved unwind adjuster 1 whole turn **(auto lid only)**

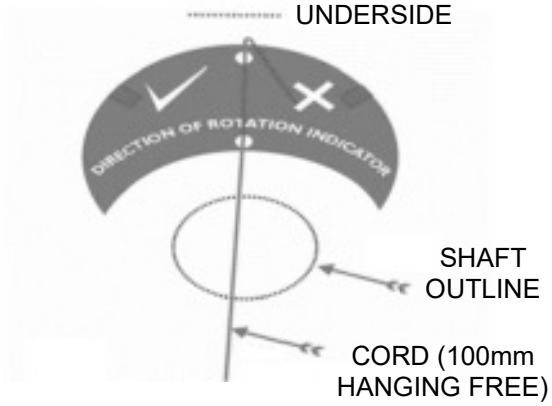
Electrical checks

- Check that the electrical connection is made in accordance with the previous section.
- Do not remove or adjust any electrical connections or components

Impeller direction of rotation - three phase machines only

The rotational direction of a single phase machine is correct when dispatched, but a three phase motor can be wired correctly when testing at the factory but incorrectly when the machine is installed. Pulp products remaining in the hopper is the result of incorrect rotation.

- Open the lid and look into the hopper to see the rotation indicator label and cord that is affixed to the impeller.
- Close the lid and start the machine.
- Open the lid after the cycle is completed and observe the direction of the resulting cord trail.
- If the direction is towards the 'X' the motor is revolving in the wrong direction. If so reverse the phases at the connection to the isolator.



6. Maintenance and servicing procedures

Routine maintenance

WARNING: Maintenance of a Quattro should only be carried out by a qualified person.

Electrically isolate the machine before undertaking any routine maintenance.

Industrial gloves must be worn when working on or rotating the impeller by hand

Daily

- Run the machine under “no load” conditions to clear any residue.

Monthly

- Lid spray- remove any scale and replace.
- Check that the lid micro-switch and solenoid latch operate.
- Check for leakage from the pulveriser and water pump seals.
- Check and clean inlet solenoid filter
- Ensure spring tension is correct by winding adjuster nut until rear hinge does not close lid (*using foot pedal to close*), once this is achieved unwind adjuster 1 whole turn **(auto lid only)**

Quarterly

Water supply and drainage

- Check for leakage from the pulveriser or water pump seals.
- Check for leaks cold water supply pipe-work.
- Check that the machine is draining correctly.
- Check that the drain block pressure switch tube is clear of water.
- Check and clean solenoid filter or replace
- Check and clean any residue off brass cistern inlet
- Check operation of cistern float switch and remove any build up of deposits.

  This check may be required more frequently depending on the quality of the water supply to the machine. Failure to do so could result in the float switch failing to operate.
- Check water solenoid shut off is instant, if unsure check internal filter

Mechanical

- Check wear on the hopper cutter ring/impeller.
- Check that the impeller is rotating freely and for absence of vibration.
- Inspect and tighten nuts and bolts as necessary.
- Check the condition of the lid/hopper seal, and that the lid opening spring operates correctly.
- Check the lid latch arrangement. Turn isolator off during an empty cycle to simulate a power loss and ensure that the solenoid has secured the latch in the locked position.
- Auto opening closing only- Check lid gap between lower lid moulding and cabinet top
- Ensure spring tension is correct by winding adjuster nut until rear hinge does not close lid (*using foot pedal to close*), once this is achieved unwind adjuster 1 whole turn **(auto lid only)**
- Ensure foot pedal screws are tight

Electrical

- Check contactor is operating correctly in control gear.
- Check overload units operating and set correctly.
- Check lid positive break interlock switch operates correctly.
- Check electrical connections in control gear and motor terminal box are secure.
- Low water sensor and drain/hopper block pressure switch operate
- Functionally test the machine.

Cleaning Recommendations

Electrically isolate the machine before cleaning

Never use a wet solution to clean the indicator panel

Daily

- All exterior panels to be wiped over with normal cleaning solution for worktops etc. (soapy water) and then dried.
- The best results are obtained by opening the lid which allows full access to the seating and the lid seal.
- All internal surfaces are automatically cleaned by the machine. Failure to do so must be investigated.

Weekly (as required)

- The lid seating area should be scrubbed with a brush, wiped and the neoprene seal washed with the same cleaning solution.

Lubrication

The machine is designed for minimum maintenance.

- The clip bushes used in this machine must ***not*** be lubricated.
- Apply anti-seize compound if indicated.
- The motor is fitted with sealed for life bearings.
- The mechanical seal face must be perfectly clean.
- Use only clean water to lubricate the seal face

Ordering spare parts

Spares parts are identified in Section 7 and can be ordered directly from Haigh:

 +44 (0)1989 763 131 (Option 2)

 service@haigh.co.uk

Please quote the following information:

- Your contact details
- The machine serial number
- The part number required
- The full part description
- The quantity of each part required
- The invoice address
- The delivery address.

Many parts are available within 24 hours. We can provide technical advice should you need it.

The information contained in this manual is subject to change without notice. Please see Haigh website for the latest version manual.

Please note some spare parts may only be available in kit format.

7. Part identification diagrams

Servicing Quattro

WARNING: Servicing of a Quattro must only be carried out by a qualified person.

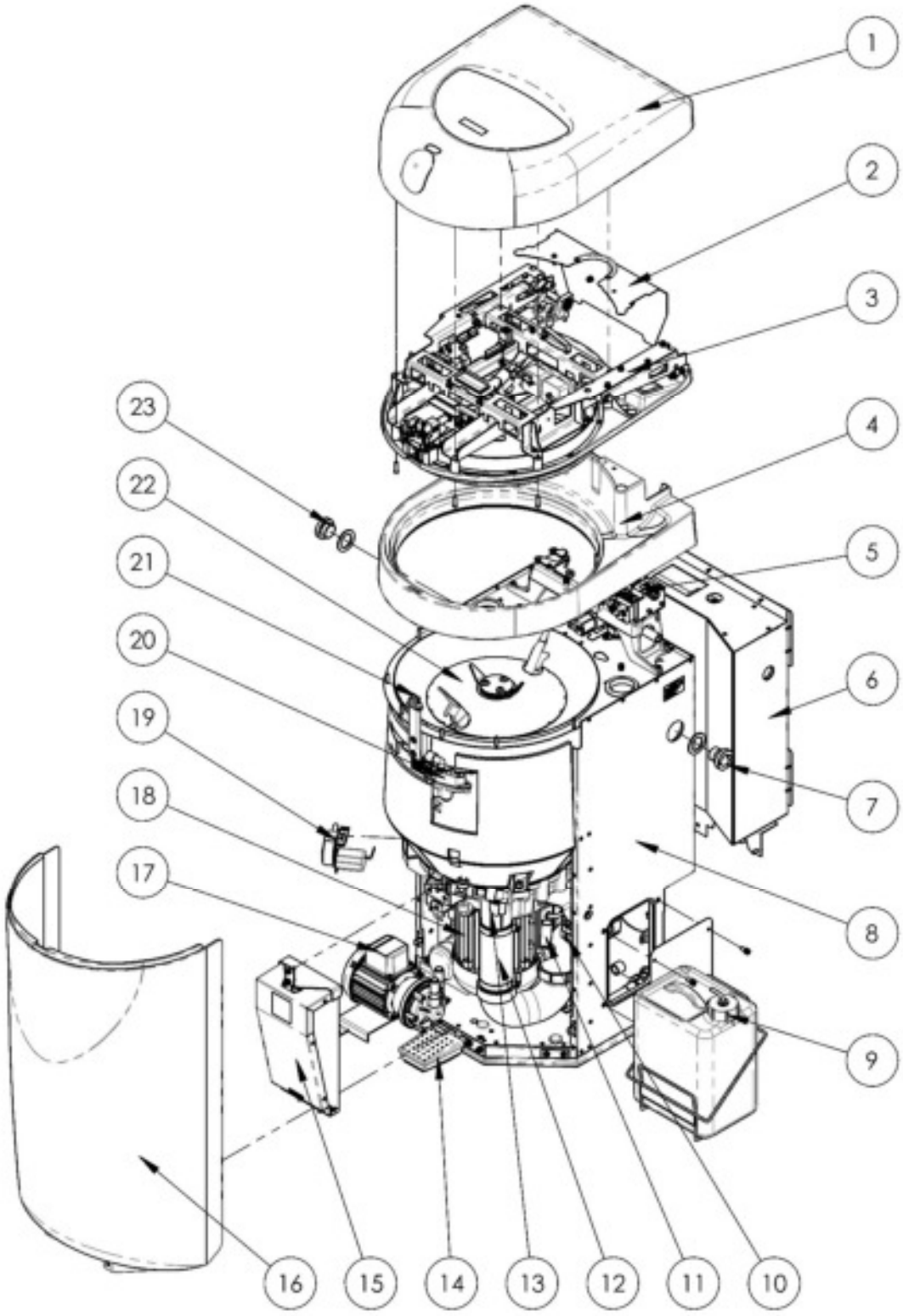
Ensure appropriate protective equipment is worn

ALWAYS isolate the machine from mains electrical supply before servicing

Isolate the water inlet to the pump at the service valve by turning the isolation screw 90°.
Reverse to vertical on completion.

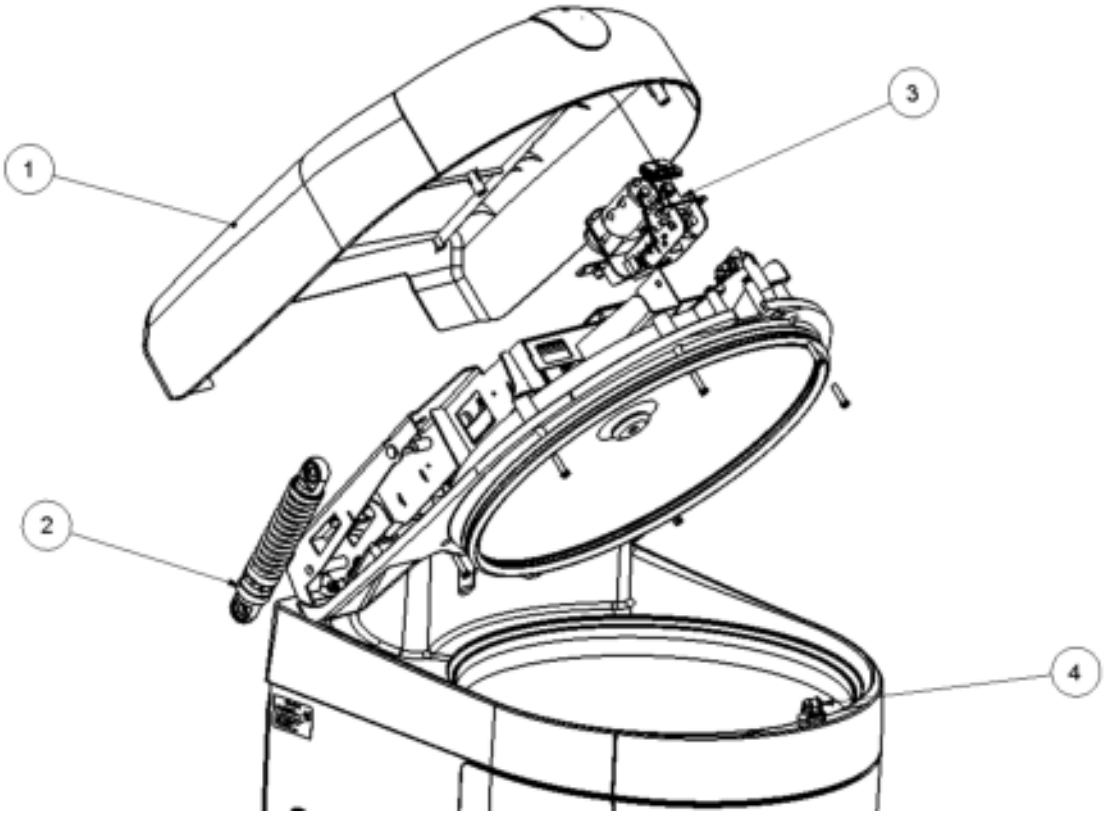
Denotes assembly step

General assembly



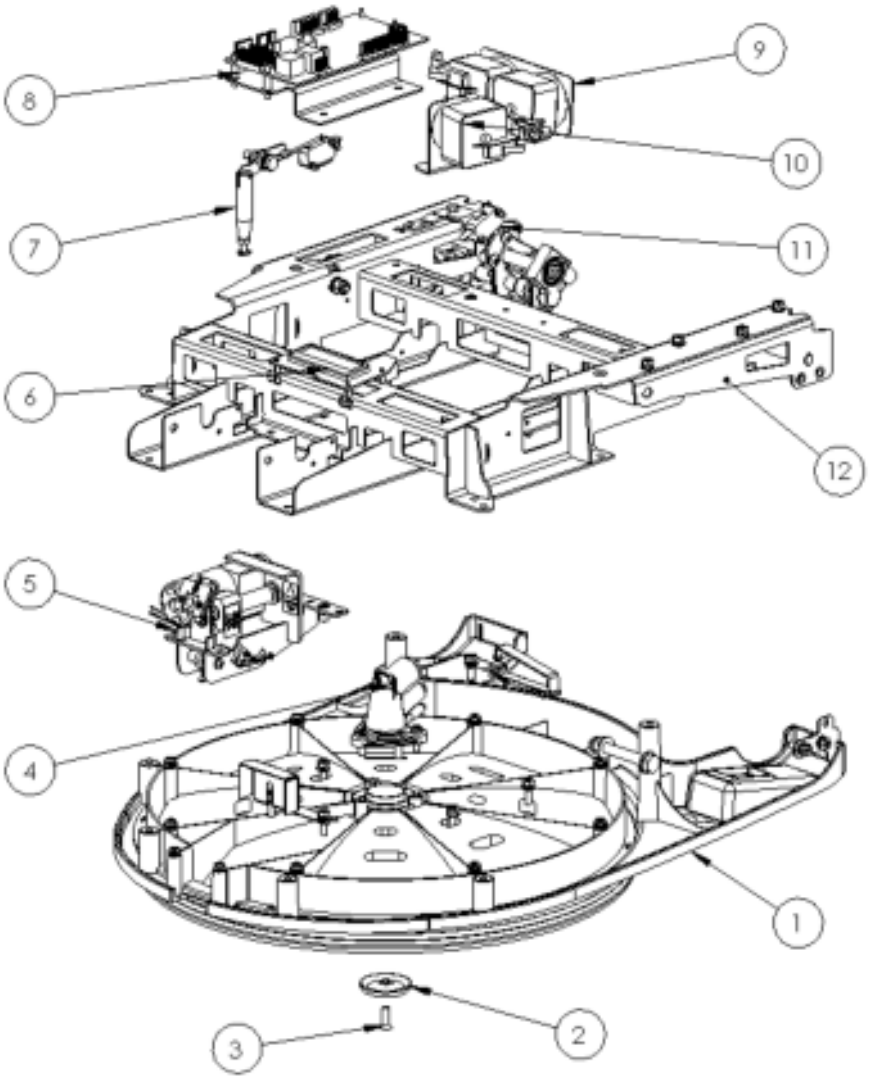
Item	Spares P/N	Description	Qty
1	407-111570	Top Cover Assembly	1
	406-111570	Top Cover Assembly (Auto opening/closing only)	
2	402-111851	Rear Cover Plate Assembly	1
3	n/a	Lid Assembly	1
4	401-111591	Cabinet Top & Seal Assembly	1
5	401-113188	Hinge Actuator Assembly (Auto opening/closing only)	1
6	n/a	Cistern	1
7	901-111512	Overflow Fitting	1
8	n/a	Frame & Top Plate Assembly	1
9	402-113455	Disinfectant Kit	1
10	403-111630	Inlet Solenoid	1
11	401-113451	Aero-jet Kit (Excel only)	1
12	403-110942	Drain Outlet Assembly	1
13	401-111567	Pulveriser Head Assembly	1
14	402-113409	Foot Pedal Assembly	1
15	n/a	230v/1ph/50Hz Control Enclosure Assembly	1
	n/a	400v/3ph/50Hz Control Enclosure Assembly	
	n/a	220v/1ph/60Hz Control Enclosure Assembly	
	n/a	100v/1ph/50Hz Control Enclosure Assembly	
	n/a	100v/1ph/60Hz Control Enclosure Assembly	
16	404-111581	Front Cover Assembly	1
17	410-111848	230v/1ph/50Hz Pump Assembly	1
	411-111848	400v/3ph/50Hz Pump Assembly	
	412-111848	100-120v/1ph/60Hz Pump Assembly	
	413-111848	220v/1ph/60Hz Pump Assembly	
	414-111848	100v/1ph/50Hz Pump Assembly	
18	404-111566	230v/1ph/50Hz Motor Assembly	1
	405-111566	400v/3ph/50Hz Motor Assembly	
	408-111566	220v/1ph/60Hz Motor Assembly	
	409-111566	100v/1ph/60Hz Motor Assembly	
	412-111566	100v/1ph/50Hz Motor Assembly	
19	402-111812	Deodoriser Pump Assembly	1
20	n/a	Internal Plumbing Assembly	1
21	401-111600	Striker Assembly	1
22	402-111576	Fine Maceration Impeller & Hub Cap Assembly	1
23	902-111512	Overflow Fitting (Blank)	1

Lid (external)



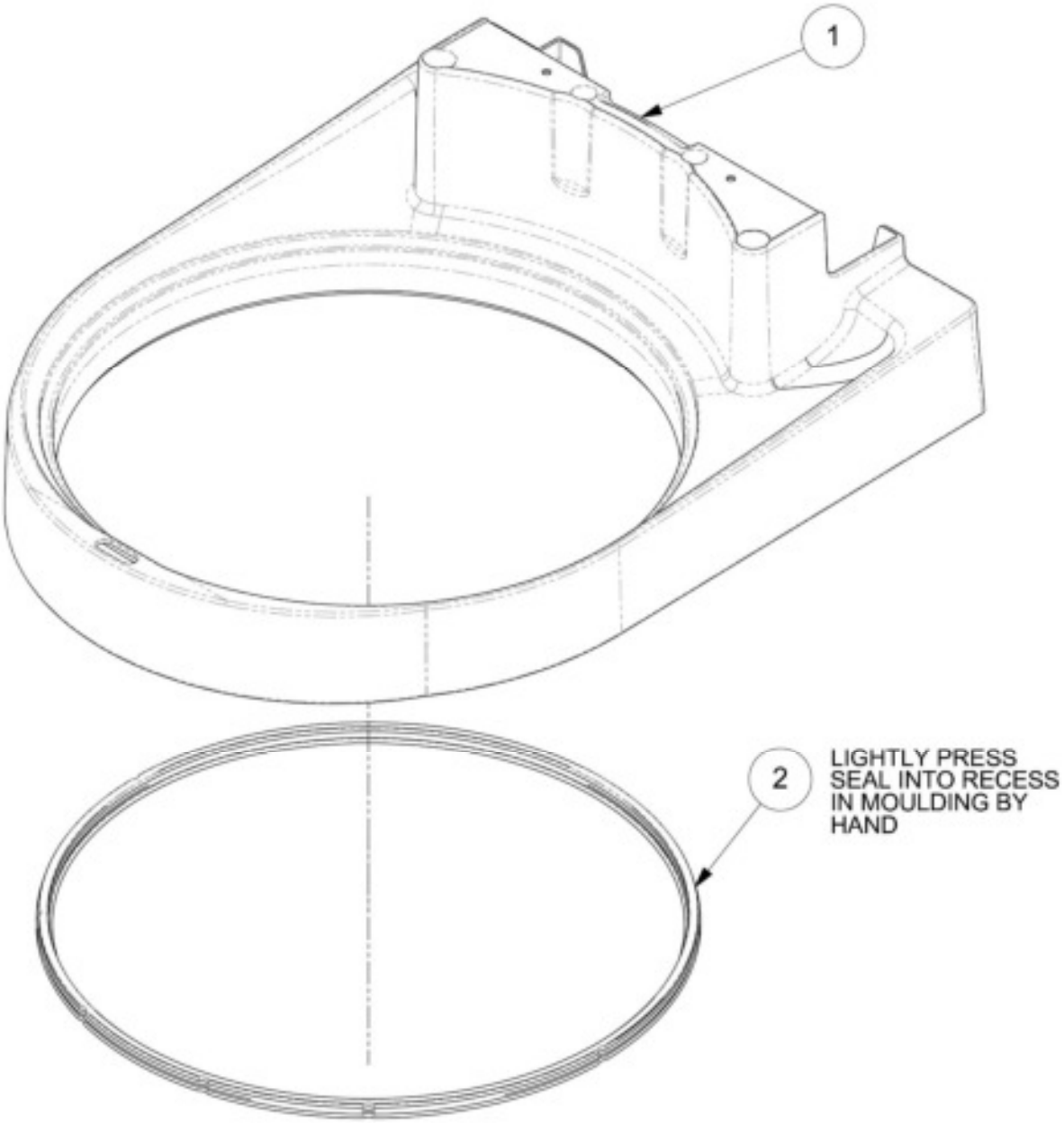
Item	Spares P/N	Description	Qty
1	407-111570	Top Cover Assembly (manual closing)	1
	406-111570	Top Cover Assembly	1
2	403-111488	Damped Spring Assembly (Manual Closing only)	2
	404-111488	Non-damped Spring Assembly (Auto opening/closing only)	1
3	403-111199	Latch Assembly (Manual Closing)	1
	401-113443	Latch Actuator (Auto opening/closing)	
4	401-111600	Striker Assembly	1

Lid (internal)



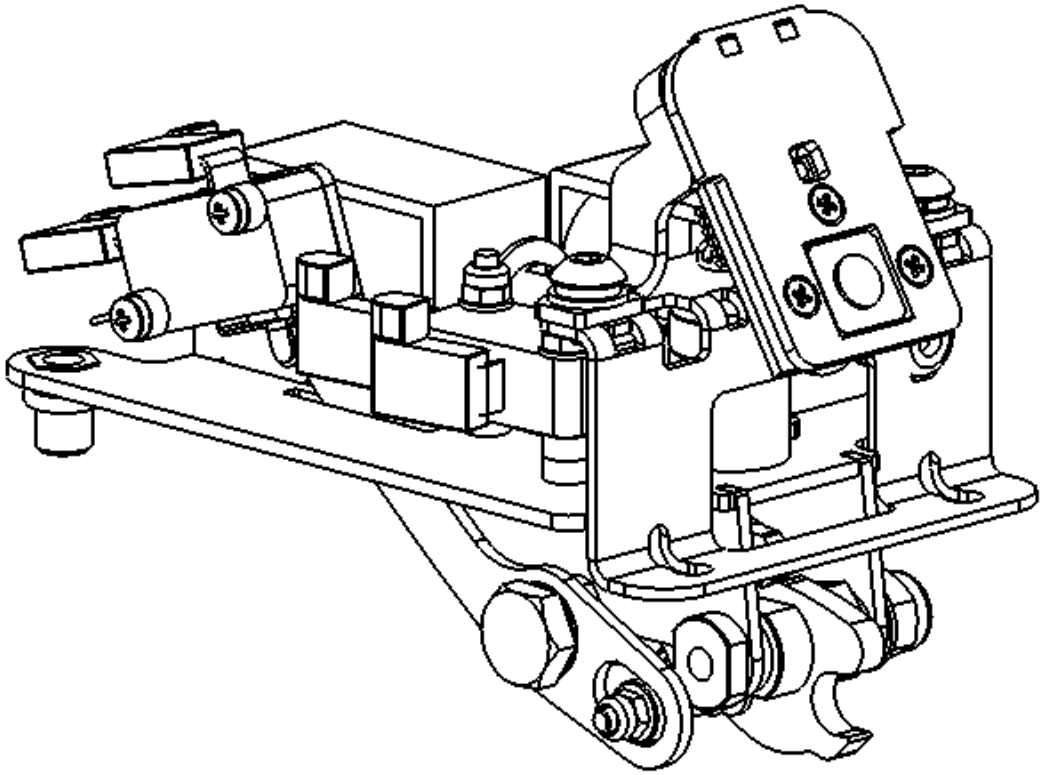
Item	Spares P/N	Description	Qty
1	401-111587	Lid Seal Assembly (Including Spray Vent & Screw)	1
2	400-013486	Spray Vent + Screw	1
3	n/a	Screw	1
4	401-112147	Spray Inlet	1
5	403-111199 401-113443	Latch Assembly (Manual Closing) Latch Actuator (Auto opening/closing)	1 1
6	402-111593	OLED	1
7	402-113793	Nodding Donkey Assembly (401 may be required on early lid frames)	1
8	402-111590	PCB (including bracket)	1
9	401-112470	Pressure Switch assembly	1
10	402-111592	Pump Pressure Switch Assembly	1
11	900-003940	Rear Positive Break Switch	1
12	404-111596	Lid Support (c/w Hinge Bracket and Spring Assembly)	1

Top assembly of cabinet



Item	Spares P/N	Description	Qty
	401-111591	Cabinet Top & Seal Assembly	
1		Cabinet Top	1
2		Hopper / Top Seal	1

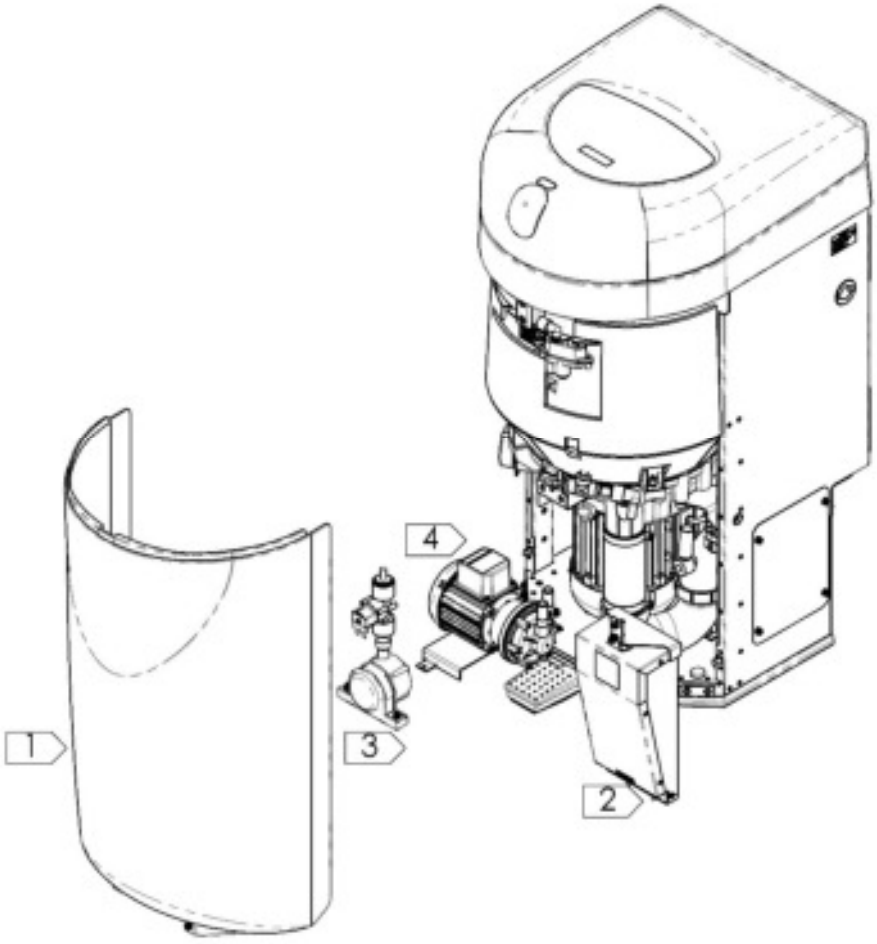
Latch assembly (manual closing only)



Item	Spares P/N	Description	Qty
1	403-111199	Latch Assembly	1

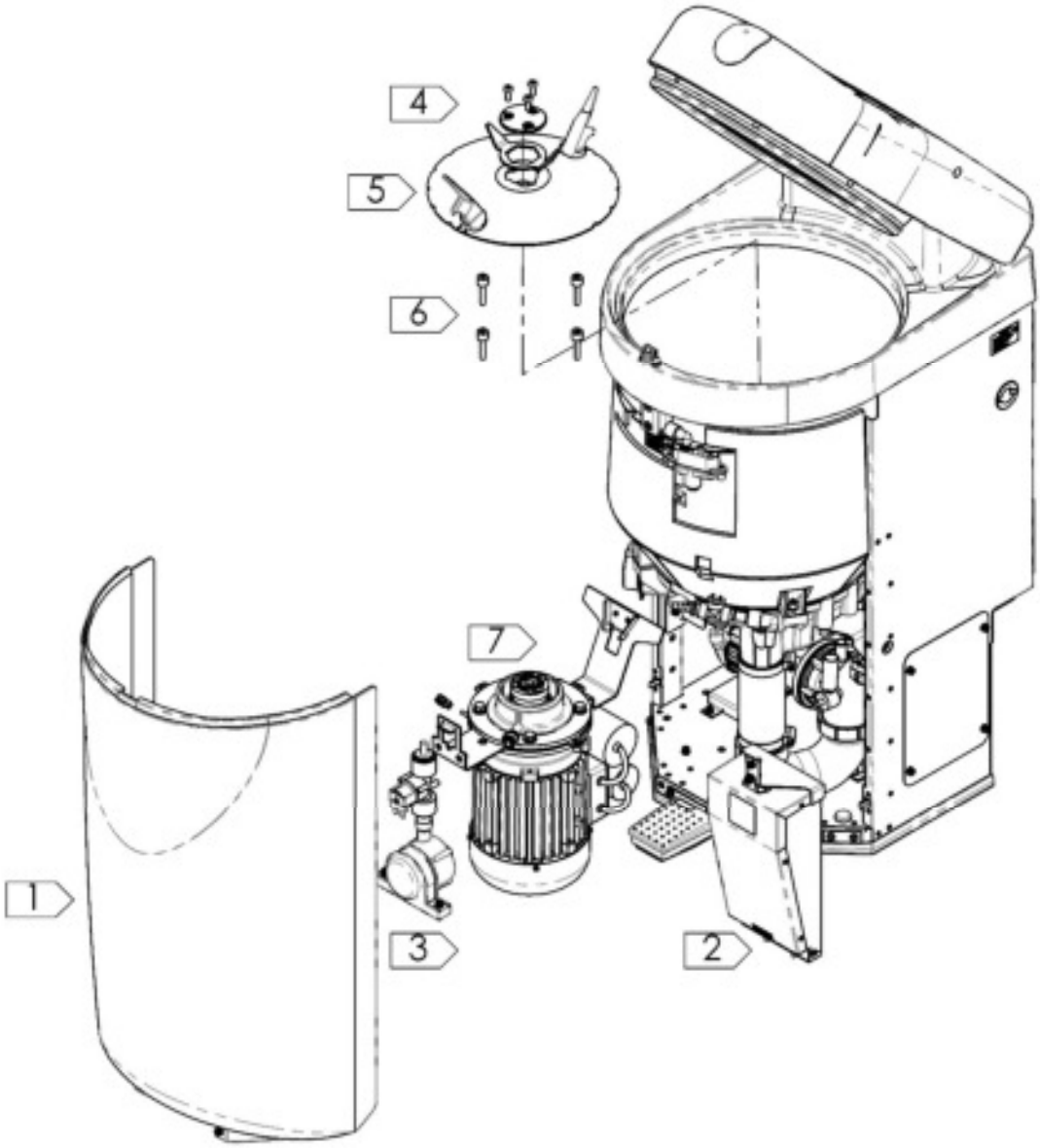
Please Note : To be fitted by Haigh service engineers only

Main pump and aero-jet pump removal diagram



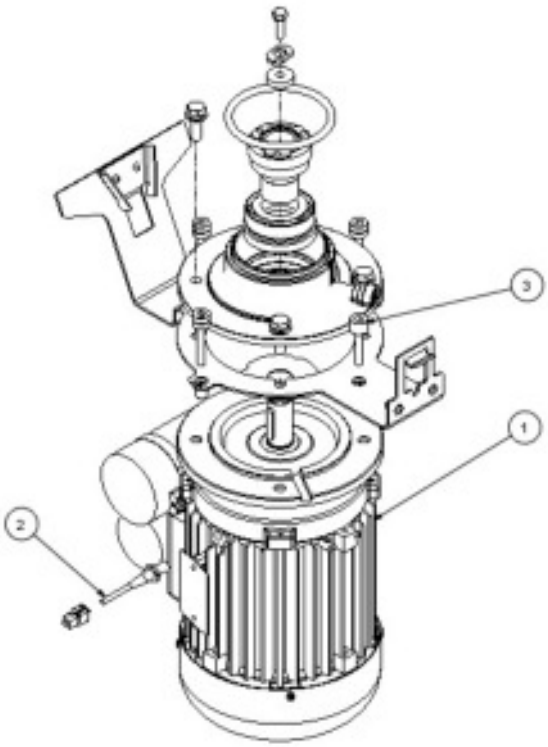
Step	Description
1	Remove Front Cover (2 x screws)
2	Remove Control Enclosure (1 x screw)
3	Remove Aero-jet Pump Assembly (1 x screw)
4	Remove Main Pump (1 x screw)

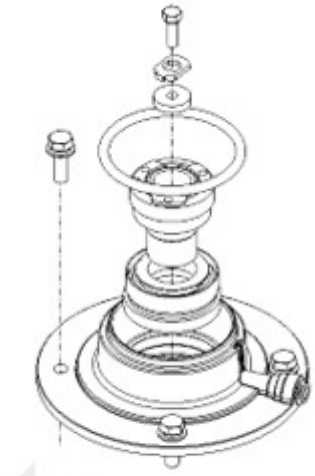
Motor assembly removal diagram



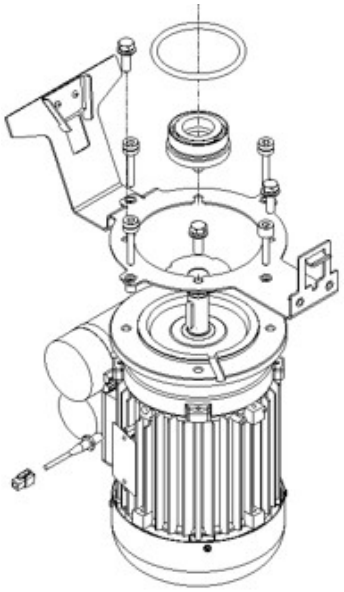
Step	Description
1	Remove Front Cover (2 x screws)
2	Remove Control Enclosure (1 x screw)
3	Remove Aero-jet Pump Assembly (1 x screw)
4	Remove Impeller Cap (3 x screws)
5	Remove Impeller
6	Remove 4 x Motor Bracket Screws
7	Unhinge Motor Assembly

Mechanical assembly servicing diagram





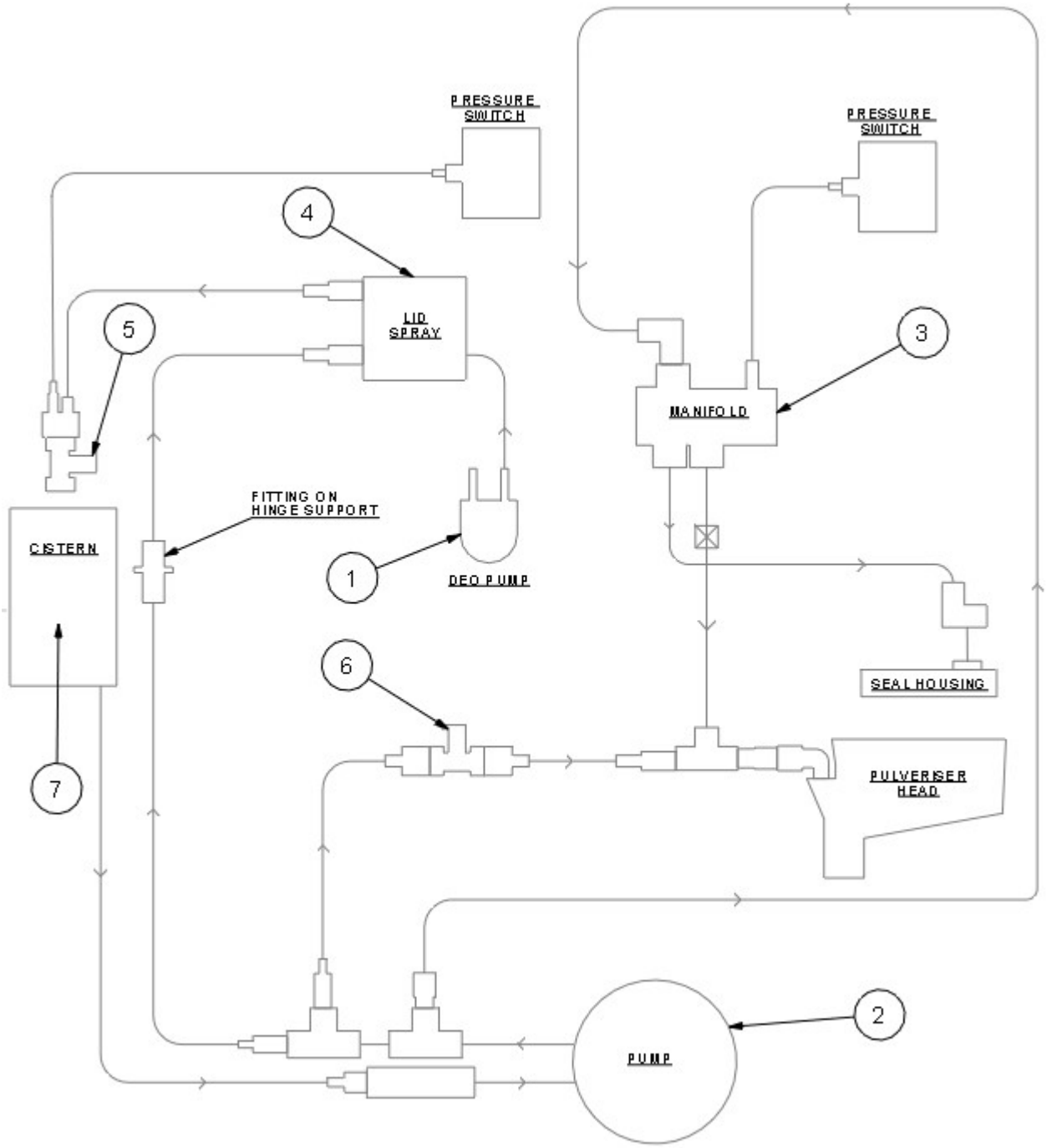
Seal housing assembly



Motor Assembly

Item	Spares P/N	Description	Qty
1	404-111566	Complete Motor Assembly 230V-1-50Hz	1
	405-111566	Complete Motor Assembly 400V-3-50Hz	1
	406-111566	Complete Motor Assembly 120V-1-60Hz	1
	408-111566	Complete Motor Assembly 220V-1-60Hz	1
	409-111566	Complete Motor Assembly 100V-1-60Hz	1
	412-111566	Complete Motor Assembly 100V-1-50Hz	1
2	402-112120	Speed Sensor	1
3	401-111568	Motor Screw assembly (Including O-ring)	1
	402-111568	Motor Screw Assembly (Including O-ring)	3

Plumbing diagram



Plumbing parts list

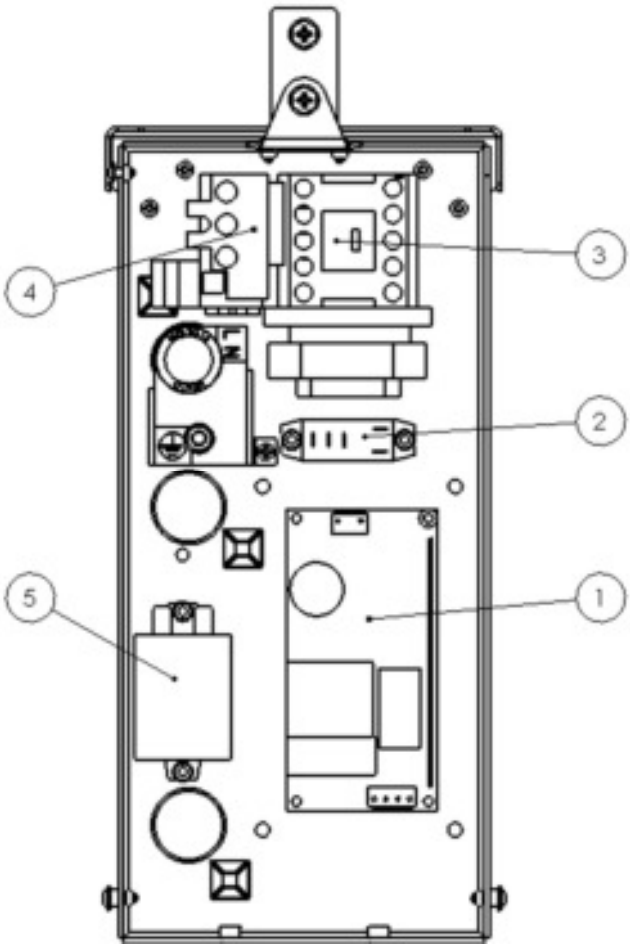
Item	Spares P/N	Description	Qty
1	402-111812	Deodoriser Pump Assembly	1
2	410-111848	Single Phase Pump Assembly	1
	411-111848	Three Phase Pump Assembly	1
	412-111848	100-120V. Pump Assembly	1
	413-111848	220V 60Hz Pump Assembly	1
3	401-110425	Manifold Assembly	1
4	401-112147	Spray Inlet	1
5	402-111626	HPR Assembly	1
6	401-111631	Drain Flush Solenoid Assembly (BLUE Identifier)	1
7	401-111627	Cistern Level Switch	1

Note:

All hose fittings to be fastened with Jubilee Clip as follows:

Hose part number	Jubilee clip size	Part number	Quantity
604-000131	00	703-006082	2
627-000139	M00	900-005293	10

Control enclosure

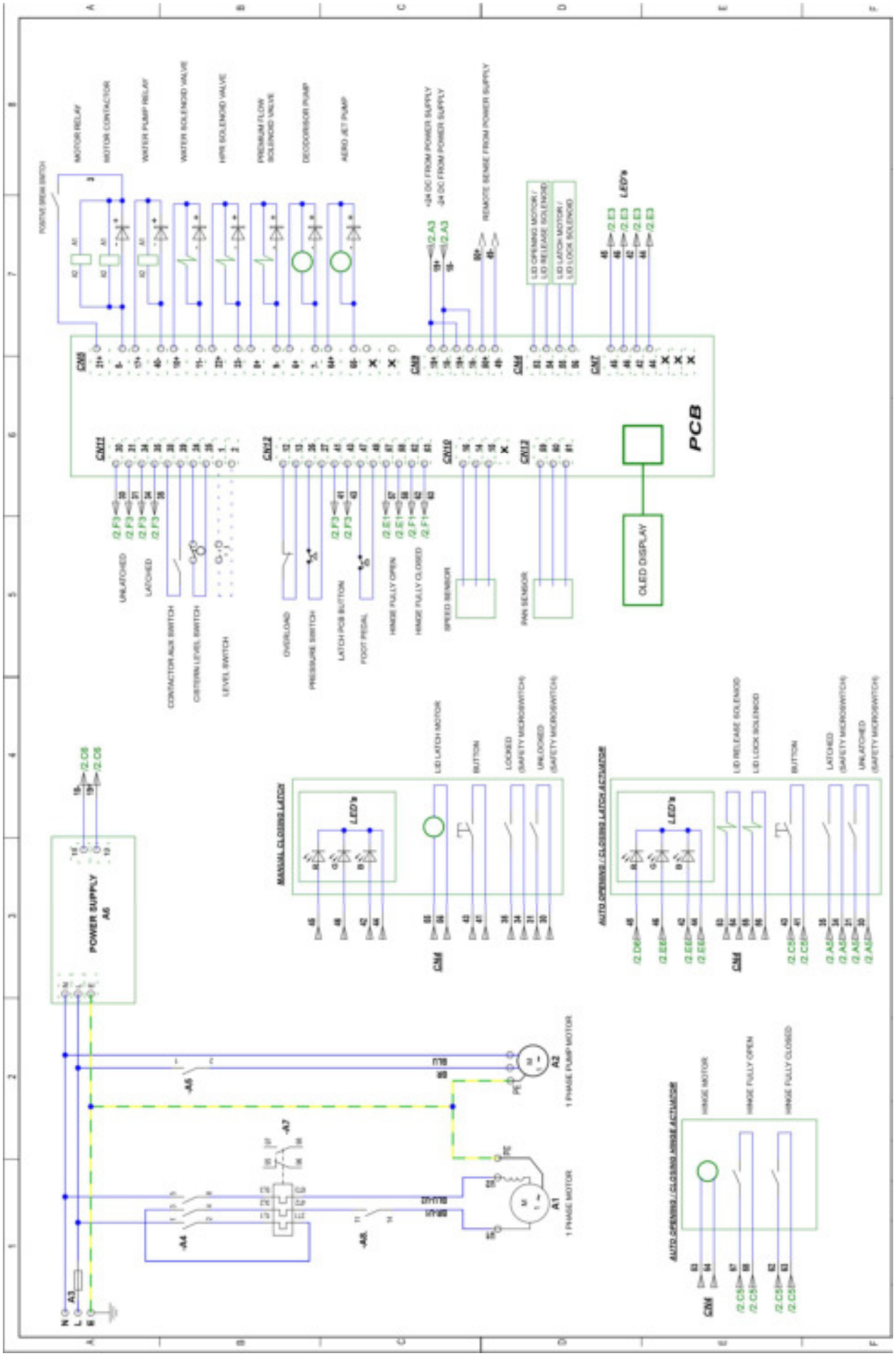


Item	Spares P/N	Tag	Description	230v 1 ph.	400v 3 ph.	220v 1ph.	100v 1ph 50Hz	100v 1ph 60Hz
1*	901-114567	A6	24V PSU (Meanwell)	1	1	1	1	1
	901-111557	A6	24V PSU (Stadium Power)					
2	106-031088	A5	Water Pump Relay	1	1	1	1	1
3	900-030209	A4	Motor Contactor	1	1	1	1	1
4	906-030154	A7	Overload Device 2.7-4.2A	1	-	1		
	904-030154		Overload Device 1.8-2.8A	-	1	-		
	905-030154		Overload Device 8.0-12.0A				1	
	901-030154		Overload Device 6.0-9.2A					1
5	901-115231	A8	Motor Relay (SPNO)	1	-	1	1	1
	901-115243		Motor Relay (DPST-NO)	-	1	-		

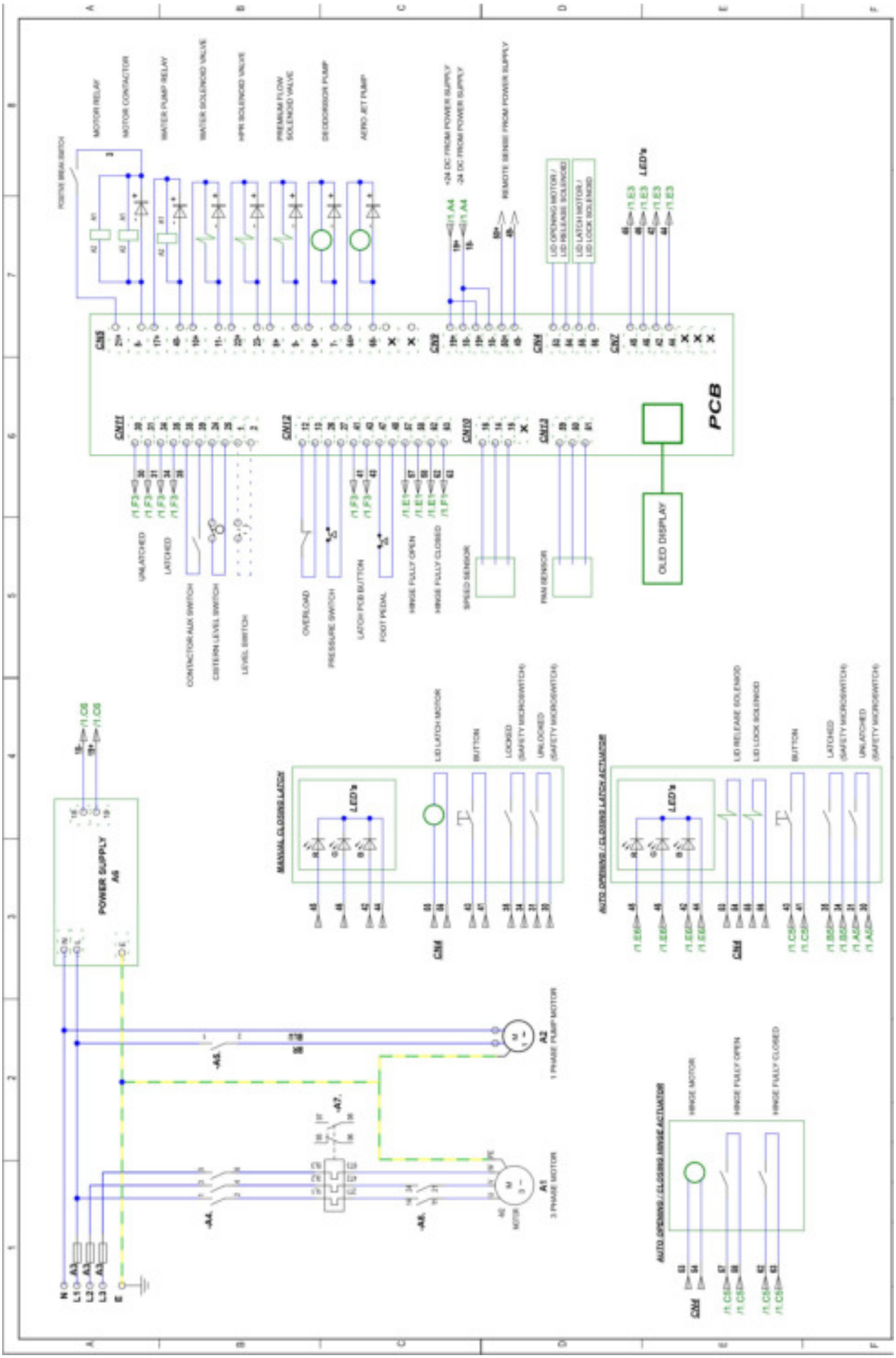
*931,32,33&35-111503 (Stadium Power) 936,37&38-111503 (Meanwell)

Spares P/N	Tag	Description	230v 1 ph.	400v 3 ph.	220v 1ph.	100v 1ph 50Hz	100v 1ph 60Hz
111-031099	A3	Fuse 10A HBC 20xØ5mm	1		1		
112-031099		Fuse 6.3A LBC 20xØ5mm		1			
114-031099		Fuse 15A LBC 20xØ5mm				1	1

Wiring diagram – single phase



Wiring diagram – 3 phase



Control gear

Tag	Description	Function
A1	Motor	
A2	Pump	
A3	Mains Fuse 10A (1Φ)	
	Mains Fuse 6.2A (3Φ)	
	Mains Fuse 15A (1Φ 100v)	
A4	Contactor	Motor control
A5	Relay	Control water pump
A6	Power Supply	Supply 24V DC output
A7	Overload Device 4.0-6.2A	Motor control
	Overload Device 1.8-2.8A	
	Overload Device 8.0-12.0A	
	Overload Device 6.0-9.2A	
A8	Motor Relay (SPNO)	Motor Control
	Motor Relay (DPST-NO)	Motor Control
B1	Solenoid Valve Kit	Mains water supply
PCB	PCB	Logic Control
B2	Solenoid Valve (RED Identifier)	HPR
B3	Solenoid Valve (BLUE Identifier)	Premium Flow
B4	Solenoid (latching)	Lid Lock
B5	Solenoid	Lid Release
B6	Pump	Deodoriser
C1	Micro-switch	Safety monitoring
C2	Micro-switch	Safety monitoring
C3	Positive Break switch	Break contactor coil connection
C4	Level switch	Low water level indication
C5	Level switch	Low deo level indication
C6	Pressure switch	System pressure sensing
C7	Soft Touch Button	Signal to operate night mode
C9	Speed sensor	Signal to indicate motor turning
C10	LED	TBA
C11	Buzzer	Audible feedback regarding machine operation
C12	Foot Pedal Switch	Lid Opening
D1	OLED	Visual feedback regarding machine operation

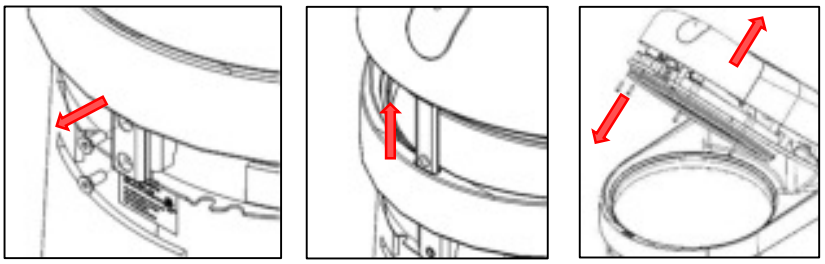
8. Fault finding

Electrically isolate the machine before any maintenance

Maintenance should only be performed by qualified personnel

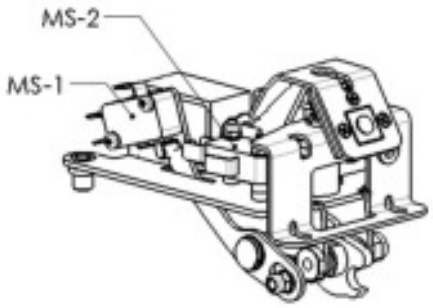
Always check the indicator lights on the machine before calling maintenance staff, as simple remedies may work.

Problem	Possible causes / resolution
Machine is not clean internally after use	Lack of water or a failure to circulate within the machine. Check that the main water solenoid valve is operating. Make sure that the main isolating valve is open. Is the water isolator service valve in the 'Open' position? Check that the pump is working. Check fall of waste pipe is minimum of 1 in 25 fall If an F4 is present machine has potentially been overloaded
Underside of lid has a deposit after use	Check for foreign matter in the gap of the vent in the centre of the lid. If this is blocked, remove the vent, clean it and replace it. The jet gap must be the same around its circumference. If the problem is with the pump you will require an exchange unit for this part.
Lid seal is leaking	Check that the lid seal sits centrally on the lid gasket. Adjust and rectify, before making any adjustments to the latch mechanism. Remove any scum that has accumulated around the lid/hopper seal area.
Unable to open lid	Power failure. Auto-opening & Closing: The latch actuator is in the fully latched (locked) position. Manual Close: A solenoid on the latch mechanism locks the lid. In both instances, the lid cannot be opened until: Power to the machine has been restored or by releasing the Striker. Step 1. Remove the front cover. Step 2. Remove the 2 x Countersunk screws fastening the striker. Step 3. Lift the lid up by hand. The striker will lift with the lid. Step 4. Remove the 6 x Screws from the top cover. Step 5. Remove the top cover. ***NOTE – 2 countersunk screws will need 243 Loctite (or similar) and tightened to 5Nm when refitted***

	 Once open check the operation of the latch and replace as necessary.
Unable to close lid	Foreign object present. Investigate and remove.
Internal water leakage	The pulveriser or pump mechanical seal is leaking: • Fit a new mechanical seal in the main assembly, or if the pump is leaking, exchange this for a new part. The plumbing is leaking: • Investigate where the leakage originates and rectify the problem • Damaged hopper seal therefore replace the hopper seal, ensuring that the new seal fits correctly.

Identification of fault codes

Problem	Possible causes / resolution
	Latch not engaged, display flashes
F1 (manual close only)	Latch not engaged after three attempts: • Lid latch not correctly fastened. • Note - Occurs after three failed attempts to latch the lid closed. Make sure that the lid interlock is correctly adjusted, adjusted if required.

F2
 	
(manual close only)
	Safety monitor circuit malfunction:
	• Interlock micro switch circuit broken during machine operation
	• Remove lid cover:
	  • Check micro switch (MS-1 and MS-2) operation
	  • Check MS-1 and MS-2 circuits for continuity.
	 

F3	Contactor circuit fault: • Check operation of rear positive break switch. • Main contactor fault. • Check contactor connections, replace contactor if necessary.
F4	Overload trip: Motor has tripped out on overload, probably jammed therefore switch off at isolator and remove the obstruction from the hopper. Machine overloaded
F5 	Drain Block Stage 1: Pressure in hopper has built up to trigger the pressure switch but the machine recovered and continued.
F6 	**Drain Block Stage 2** Pressure in hopper: • Blockage in pulveriser exit or drain. Investigate the cause and clear the blockage. • Incorrect installation, pipe size, or position of waste pipework. 50mm minimum. • Non return/in line valves not operating correctly. Clean or replace as required. • Never use a reactive chemical drain block clearer within the machine as it will damage the seals.

F7 	Cistern fails to replenish with water after 150 seconds: • Lack of water in cistern: • Check that the mains inlet valve is open. • Check that there is sufficient water pressure. • Check and clean the inlet solenoid filter. • Check solenoid valve is operating. Replace if required.
F8 	Water level fails to drop after 20 seconds: • Pump not operating or level sensor problem: • Check the pump and replace if faulty. • Check the cistern level switch and replace if faulty.
F9	Locked Rotor: Motor has stopped due to no rotation of impeller. Impeller is probably jammed therefore switch off at isolator and remove the obstruction from the hopper. Check speed sensor is working.
F10 (Hands-free models only)	Hinge Actuator Fault, Lid fails to open or close within 4s. • Check that nothing is obstructing the lid. • Check lid open and closed micro switches for continuity. • Check hinge actuator motor is working. • Clutch worn, increase spring tension.
F11 (Hands-free models only)	Latch Actuator Fault, Lid fails to latch or unlatch within 4s. • Check that nothing is obstructing the lid. • Check latched and unlatched micro switches for continuity. • Check latch actuator motor is working.
F12 (Logged Only)	Hinge Actuator Current monitoring, an object has been detected that would interfere with the lid closing.
F13 (Logged Only)	Latch Actuator Current monitoring, an object has been detected that would interfere with the lid latching.
F14 (Logged Only)	Lid Closed Manually, Lid closed without foot pedal activation.
F15	Latch Actuator Current Monitoring (F13) triggered consecutively 3 times.
	No indicators illuminated: • Power failure • No power to machine. • Check indicator membrane is connected properly. • Check fuses / electrical connections.

9. EC Declaration of Conformity

EU Declaration of Conformity (DoC)

Name & Address of Manufacturer:	The Haigh Engineering Company Limited Alton Road, Ross-on-Wye, HR9 5NG, UK
Name & Address of Authorised Representative within the European Community:	Haigh Engineering Limited The Black Church, St Marys Place Dublin7, D07 P4AX, Ireland

Declares that the machinery as described

Product:	Pulp Disposal Unit
Model/type:	Quattro

Complies with all the relevant provisions of the following directives and the corresponding national regulations;

2006/42/EC	The Machinery Safety Directive
2014/30/EU	The Electromagnetic Compatibility Directive
2014/35/EU	Low Voltage Directive
2011/65/EU	Restriction of Hazardous Substances Directive

Name and address of the person authorised to compile and transmit, in response to a reasoned request by the national authorities, relevant part(s) of the technical file.

Haigh Engineering Limited

The Black Church, St Marys Place Dublin7, D07 P4AX, Ireland

Conformity is shown by compliance with the applicable requirements of the following standards:

EN ISO 12100:2010

EN 61000-6-3:2007 + A1:2011
EN 61000-3-2:2014
EN 61000-3-3:2013
EN 61000-6-1:2007

EN 60335-1:2012 + AC:2013 + AC2:2014 + A11:2014 + AC3:2014 + A13:2017 + A2:2019

IEC 60335-1:2010 + A2:2016

EN 60335-2-84:2003 + A1:2008 + A2:2019

IEC 60335-2-84:2019

Signed for and on behalf of:	The Haigh Engineering Company Ltd
Place & Date of Issue:	UK, 12th January 2021
Name:	Jacob Shepherd
Position:	Managing Director
Signature:	

This declaration is issued under the sole responsibility of the manufacturer.

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