DUTYPOINT

PUMPS | SYSTEMS | SERVICING | KNOW-HOW

AirBREAK® FQ

Installation, use and maintenance manual

DUTYPOINT.COM

DOC-ABFQ2506 | 05-02-26

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About us

Applied knowledge.

Shared know-how.

Fearless innovation.

Applied knowledge. Shared know-how. Fearless innovation. Together, we are Dutypoint. Since 1976, we've been building up industry-defining expertise in fluid technology.

This knowledge means we solve complex challenges with straightforward solutions that are built around meeting and exceeding our clients' needs. We approach everything with the same philosophy: how will we go above and beyond?

Our commitment to collaboration and sharing knowledge galvanises and cements robust relationships. Relationships that are built to last, because our clients are our partners.

Our focus for the future? Innovation. We want to be the future of our industry, globally. Where we benchmark thought leadership, expertise and customer care.

We set the bar.

Contents

1. IMPORTANT SAFETY INFORMATION

1.1. HEALTH & SAFETY AT WORK ACT 1974

Section 6(a) of this Act requires manufacturers to advise their customers on the safety and the handling precautions to be observed when installing, operating, maintaining and servicing their products. The user's attention is therefore drawn to the following:

- The appropriate sections of this manual must be read before working on the equipment.

- Installation, operating and maintenance must only be carried out by suitably trained/ qualified personnel.

- Normal safety precautions must be taken and appropriate procedures observed to avoid accidents.

Refer to Dutypoint for any technical advice or product information. It is the responsibility of the customer and/or the contractor:

- To ensure that anyone working on the equipment is wearing all necessary protective gear/clothing.

- Is aware of appropriate health & safety warnings and to read the information in this manual.

1.2. SAFETY MESSAGES AND HAZARD STATEMENT

Table 1.1: Hazard notice definitions

Icon	Message level	Definition
	**DANGER**	A hazardous situation which, if not avoided, will result in death or serious injury
	**WARNING**	A hazardous situation which, if not avoided, could result in death or serious injury
	**CAUTION**	A hazardous situation which, if not avoided, could result in minor injury or moderate injury
	**ELECTRICAL HAZARD**	Risks associated with electricity will cause hazards if not properly avoided
	**Note**	A situation which may arise resulting in undesirable conditions and/or will not cause direct hazards to persons

1.3. QUALIFIED PERSONNEL

WARNING

This product is intended for operation by qualified personnel only

- Only qualified personnel are allowed to install or operate this equipment.

- Qualified personnel are defined as trained staff, who are authorised to install, commission, and maintain equipment, systems and circuits in accordance with relevant laws and regulations. Personnel must be familiar with the instructions and safety procedures described within this document.

1.4. ENVIRONMENTAL PROTECTION

All local regulations and codes regarding emissions and waste disposal must be followed. This may include:

- Reporting of emissions to appropriate authorities

- Sorting recycling and disposal of solid or liquid waste

- Clean-up of spills

- Separate disposal of electrical components from domestic waste

1.5. MECHANICAL DEVICE SERVICING

- Familiarise yourself with the relevant contents of this manual.

- Installation, maintenance and repair work must only be carried out by trained, skilled and suitably qualified personnel

- Disconnect or lock-out the power source to ensure that the item(s) will remain inoperative. Locking out the equipment by switching off WILL NOT prevent accidental starting.

- Allow the item(s) to cool if overheated.

- CLOSE the isolating valves on the suction and discharge connections of the affected item(s).

- If working on the pump, VENT slowly and cautiously – refer to the relevant section of this manual.

- Drain the product of water.

1.6. PERSONAL PROTECTIVE EQUIPMENT

Use personal safety equipment according to the site conditions and employer regulations. This may include but may not be limited to:

- Hard hat
- Safety goggles with side shields
- Protective footwear
- Protective gloves
- Ear protection

1.7. PRECAUTIONS BEFORE COMMENCING WORK

Ensure that the following safety precautions are complied with before commencing work:

- Provide a suitable barrier around the work area.
- Ensure all safety guards are in place and secure.
- Ensure you have a clear path of exit.
- Ensure that the product cannot roll or fall over and cause damage to persons or property.
- Ensure all lifting equipment is in good condition and rated for the intended task.
- Allow hot components to cool before handling them.
- Ensure that the product has been thoroughly cleaned.
- Disconnect and lock-out the power supply, ensuring that it cannot be accidentally re-connected.

1.8. PRECAUTIONS DURING WORK

- Never work alone
- Always wear protective clothing and hand protection.
- Stay clear of suspended loads.
- Always use appropriate lifting devices.
- Beware of risks of sudden starts of any automated equipment.

- Beware of starting jerks of electric motors – these can be powerful.

- Do not exceed the stated operating limits of equipment.

- Do not remove vent plugs from a pressurised system – ensure pressurised components are relieved of pressure before disassembly.

- Ensure guards are in place during operation.

1.9. HAZARDOUS FLUIDS AND CHEMICALS

If hazardous chemicals come into contact with skin or eyes, use the following procedures:

Condition	Action
Chemicals or hazardous fluids in eyes	1) Hold your eyelids apart forcibly with your fingers 2) Rinse the eyes with eyewash or running water for at least 15 minutes 3) Seek medical attention
Chemicals or hazardous fluids on skin	1) Remove contaminated clothing 2) Wash the skin with soap and water for at least 1 minute 3) Seek medical attention

1.10. ELECTRICAL SAFETY - HIGH VOLTAGES

This information is especially applicable when Variable Speed Controllers (Inverters) are fitted to pumps.

When the inverter variable speed drive controller is connected to the power supply, the components of the power unit, as well as certain components of the master control unit, are also connected to the power supply.

DANGER

Touching these components can seriously endanger life

- Before removing the frequency inverter cover, the system must be disconnected from the power supply.

- After switching off the power supply wait at least 5 minutes before starting work on or in the inverter – the capacitors in the intermediate circuit must be given time to discharge completely via the discharge arrestors.

ELECTRICAL HAZARD

Up to 800V can be present – if there are faults this could be higher

- All work carried out when the frequency inverter is open must be performed only by suitably qualified and properly authorised personnel.

THE SYSTEM MUST ONLY BE OPERATED WHEN IT HAS BEEN CORRECTLY EARTHED AND PIPES BONDED TO EARTH IN ACCORDANCE WITH REGULATIONS

- When connecting external control wires, care must be taken not to short circuit adjacent components. Bare cable ends which are not in use must be insulated.

1.11. ELECTRONIC SAFETY DEVICES

- Inverter drives contain electronic safety devices which switch off the control element in the event of a fault developing.

- A motor can also be stopped by 'mechanical blocking'.

- If the product is switched off electronically, the motor is disconnected from the mains voltage supply via the electronics in the inverter drive.

- Voltage fluctuation and power failures (temporary outages) can cause the motor to switch itself off.

WARNING
A motor will have zero current but will remain energised as it stops

- Take necessary precautions – the motor is not voltage-free when stopped but still powered.

WARNING
Repair of faults can cause items to start up again unexpectedly

- Ensure the motor is isolated before commencing any work.

WARNING
High voltage tests of inverters may damage the electrical components

- To protect inverters, bridge before the incoming/outgoing terminals L-L2-L3 and U-V-W.

- To avoid the affect of capacitors incorporated in the electronic circuits, isolate the motor from the inverter drive head.

1.12. SPARE PARTS

WARNING
Use of non-genuine spare parts may cause damage to equipment, damage to property and voiding of warranty

- Use genuine, Dutypoint-approved spare parts only.

- If in doubt, contact Dutypoint technical support on 01452 300110.

1.13. TRANSPORTATION AND LIFTING

WARNING
Lifting hazards

- Stay clear of suspended loads.

- Observe accident prevention regulations in force.

- Do not damage the cables during transport.

- Always keep the cable ends dry.

- Secure the unit against tipping over and slipping until it's mounted and fixed in its final location.

- Lift and handle the product carefully, using suitable lifting equipment (stacker, crane, crane mounting device, lifting blocks, sling ropes etc.)

WARNING
Assembled systems are heavy

- Failure to properly lift and support this equipment can result in serious physical injury and/or equipment damage.

- Select the appropriate lifting points.

INSPECT THE PACKAGE

- Inspect the package for damage of missing items upon delivery.

- Note any damaged or missing items on the shipping paperwork and contact technical support on 01452 300110 immediately.

- File a claim with the shipping company if anything is out of order.

- If the product has been picked up at a distributor, file a claim with the distributor.

INSPECT THE UNIT

- Remove packaging materials from the product.

- Dispose of all packing materials in accordance with local regulations.

- Inspect the product to determine if any parts are damaged or are missing.

- If applicable, unfasten the product by removing any screws, bolts, or straps. For your personal safety, be careful when handling nails and straps.

- Contact technical support immediately on 01452 300110 if you have any issues.

NOTE
The unit comes delivered atop a pallet to be manoeuvred into position via lifting equipment such as a forklift or pallet truck (also known as pallet jacks)

WARNING
Only trained and certified workers may operate a forklift. Ensure operators are trained on types of trucks in use

NOTE
Some manual handling may be required when transporting and positioning the unit

The following are best practices outlined by the health and safety executive (HSE) for handling loads only. THIS IS A GUIDE. Refer to your own respective risk assessments & company policies when transporting & handling this unit.

- Think before handling. Assess the load and route of travel. Do not attempt to move the unit if it is deemed unsuitable.

- DON'T LIFT OR HANDLE MORE THAN YOU CAN EASILY MANAGE. If you need assistance, seek advice of get help.

- Do not exceed the capacity of any lifting equipment used. For the weights of each unit, see **Table 3.1: AirBREAK® FQ dimensions & weights** (p. 18).

- Always operate any lifting equipment according to the manufacturer's instructions.

- Always maintain all lifting equipment to a good condition to ensure they are suitable for their designated purpose and inspect all lifting equipment before use. If the equipment is damaged or is unsuitable for the product's weight, do not use it.

Figure 1.13A: Lifting best practice

Figure 1.13B: Bolt down best practice

Floor mounting brackets are fitted to a standard pallet for transportation and delivery.

Brackets are also used for final fixing to the floor on site (see image below)

1.14. STORAGE

NOTE
The product must be stored in a covered and dry location free from heat, dirt, and vibrations

- Protect the product against humidity, heat sources, and mechanical damage.

- Do not place heavy weights on the packed product.

- See **Table 3.1: AirBREAK® FQ dimensions & weights** (p. 18).on recommended space requirements for the product.

- Do not stack the product prior to installation.

- Do not place the product in a location susceptible to frost.

- Do not place the unit beneath any pipework or in areas where it is at risk of water damage.

1.15. DISPOSAL

- At the end of its working life, this product should not be disposed of with standard household waste, but rather dropped off at a collection point for the disposal of Waste Electrical and Electronic Equipment (WEEE) for recycling.

Figure 1.1: Waste Symbol

- This is confirmed by the Waste Symbol found on the user manual or packaging.

- Depending on their characteristics the materials may be recycled. Through recycling and other forms of processing Waste Electrical and Electronic Equipment, you can make a significant contribution towards helping to protect the environment.

- Please contact your local authorities for information on the collection point nearest to you.

NOTE
The product must be kept in good working order throughout its lifetime

- Empty the unit of water when left unused for extended periods of time.

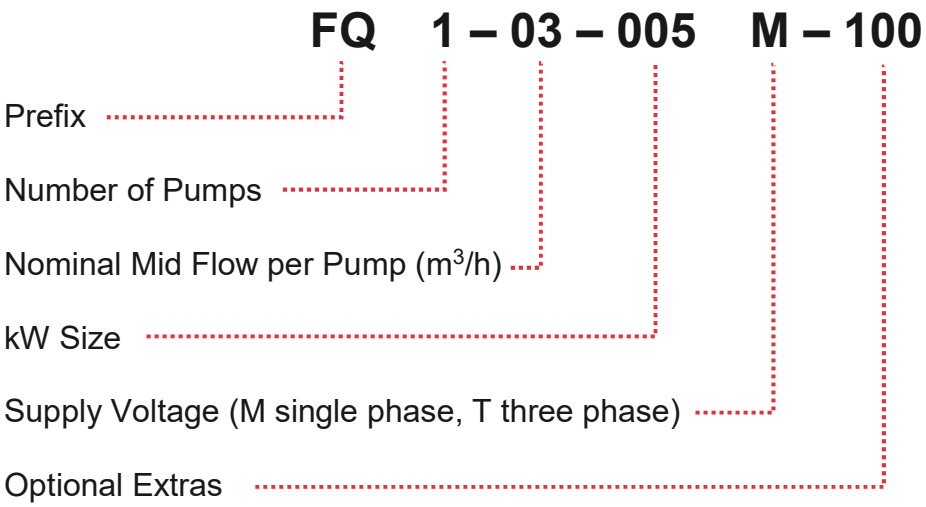
- For more information on decommissioning and disposal, contact technical support on 01452 300110.

2. SPECIFICATIONS

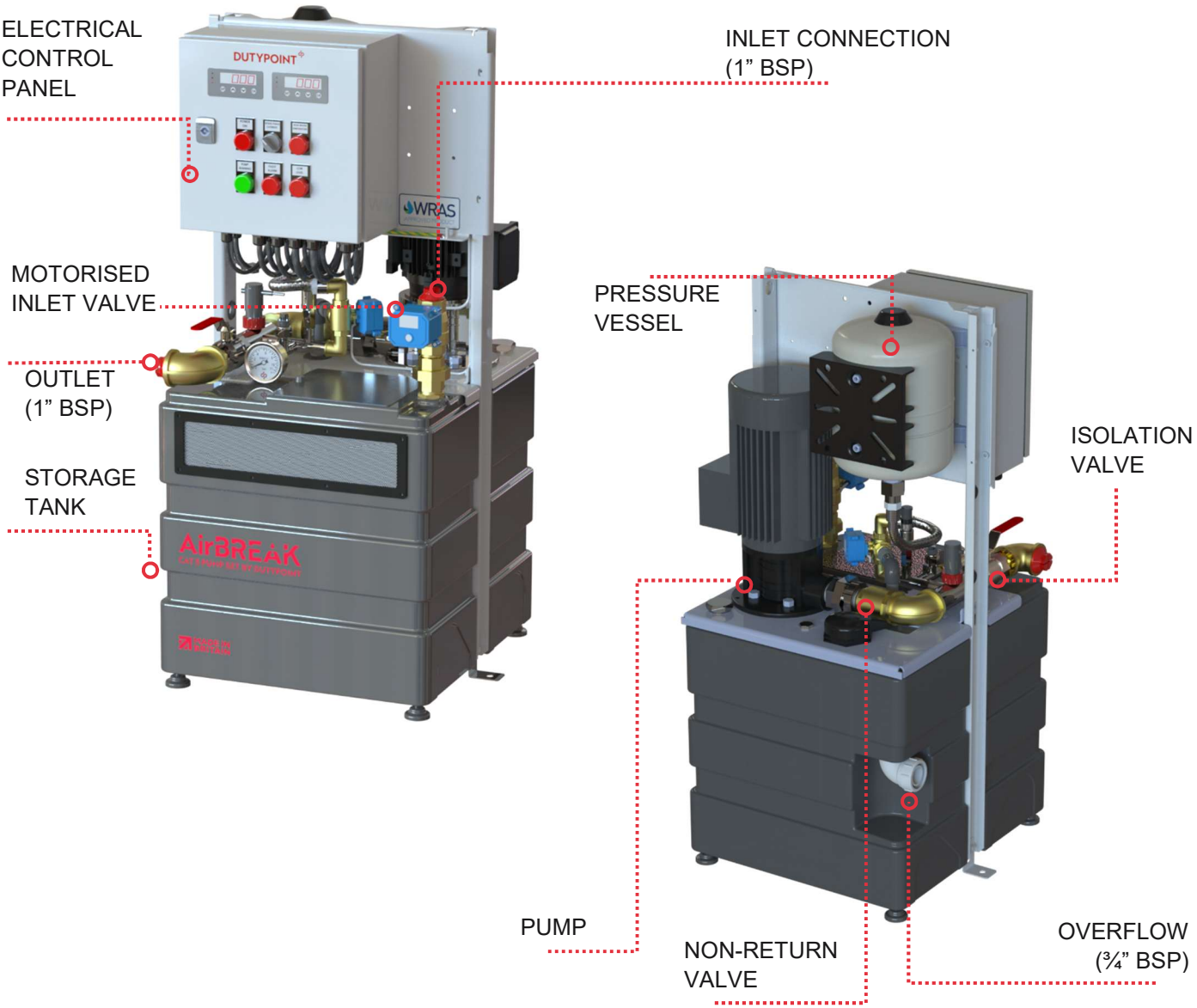
Table 2.1: AirBREAK® FQ standard range specifications

Applications	Category 5 (AB) Fluid Risk Applications (non-wholesome water only)
Flow range	≤ 2.2 litres/sec
Pressure range	≤10 bar
Liquid temperature	1°C - 23°C
Ambient temperature	+5°C - +40°C for indoor installations
Humidity	Max 50%
Controller type	Fixed Speed
Protection	Low water level
Tank construction	HDPE construction Insulated
Tank capacity	90
Inlet valve	1" BSP failsafe motorised ball valve
Discharge	1 ¼ " BSP
Pressure vessel	One or two 8 litre vessels (depending on model)

2.2. IDENTIFYING AirBREAK® FQ MODELS



2.3: AirBREAK® FQ components



2.4. PUMP CURVES

Figure 2.4.1: AirBREAK® FQ03 PumpCurves

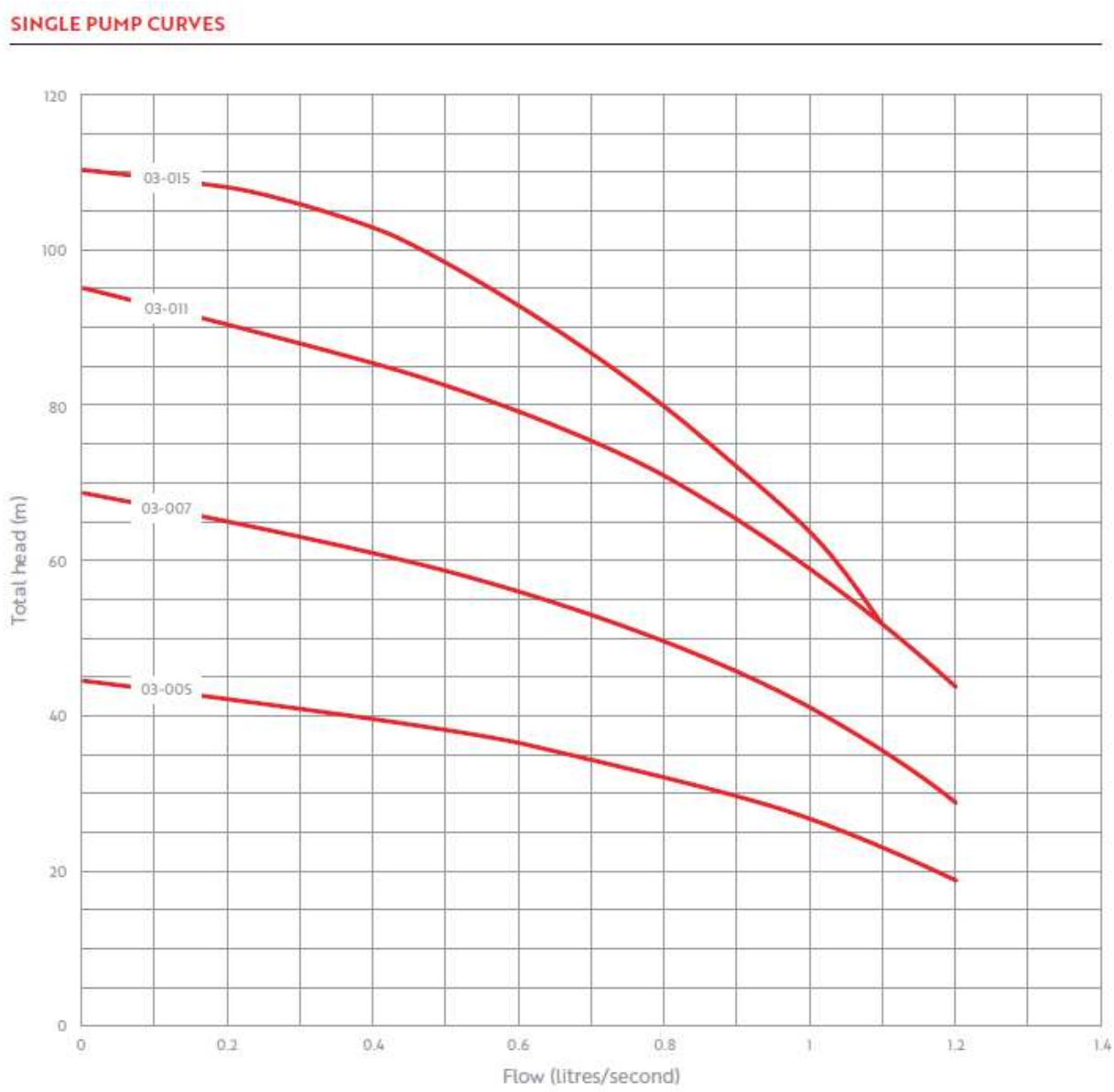
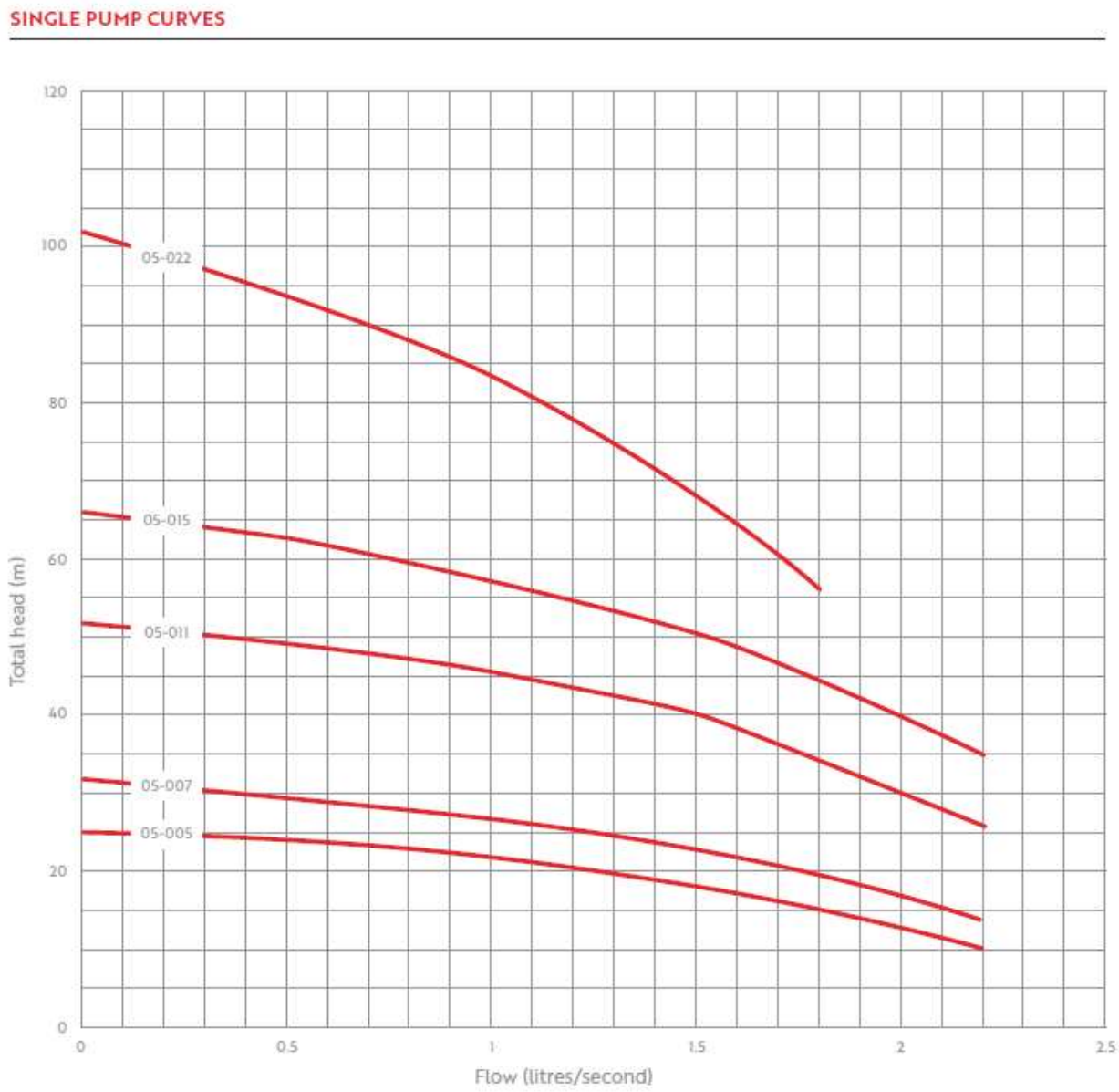


Figure 2.4.2: AirBREAK® FQ05 Pump Curves



3. INSTALLATION SEQUENCE

3.1. POSITION AND SECURE THE UNIT

- Inspect the package for any damage or breakages prior to installation and ensure all connections are tight. Contact technical support on 01452 300110 if there are any issues..

- Situate the product in a suitable location.

NOTE
The product must be installed on a stable, level surface or plinth capable of supporting the unit and the liquid

- Connect all hydraulic connections - see **Section 3.2 Hydraulic Connection** (p. 19). It is recommended to fit servicing isolation valves to both the inlet and outlet locations of the pipework.

- Check that all of the isolation valves are operating correctly.

- Connect the electrical supply cable using fly-lead supplied from a fused supply with the correct rating - see **Section 3.3 Electrical Supply** (p. 20).

- Fill the system and vent the pump.

- Test and commission - see **Section 4. Commissioning** (p. 22).

- The area should be dry, frost free, and, well ventilated, away from extremes of temperature. All pipework must be adequately protected from freezing.

- Adequate provision should be made for drainage, leakage damage protection, and, service access.

- The unit should be installed on a level and structurally sound surface.

- Suitable measures must be taken to prevent the ingress of liquids into the tank, such as protection from drips.

Table 3.1: AirBREAK® FQ dimensions & weights

Model Number	Footprint (mm)	Overall Height (mm)	Unpacked Dry Weight (kg)
FQ1-03-005	520 x 450	1025	54
FQ1-03-007			55
FQ1-03-011			62
VQ1-03-015			68
FQ1-05-005			53
FQ1-05-007			55
FQ1-05-011			62
FQ1-05-015			67
FQ1-05-022			72

3.2. HYDRAULIC CONNECTION

NOTE
The discharge pipework must be sized according to the system demand

NOTE
All pipework must be in accordance with local water authority regulations

NOTE
All pipework must be securely supported and not over-stressed

NOTE
The overflow must be piped to a suitable location

NOTE
Strainer to be installed upstream of AirBREAK® (BY OTHERS)

- Connect the inlet water supply via an isolation valve.
- Connect the overflow system to a suitable drain.
- Connect the outlet pipe.

3.3. ELECTRICAL SUPPLY

WARNING
All electrical work must be carried out by a suitably qualified person following the latest IEE

- The system must only be operated when it has been correctly earthed and pipes bonded to earth in accordance with the latest IEE regulations.

ELECTRICAL HAZARD
Controller electric shock danger. The controller contains high voltage

- Never open the controller or work with any electrical connections within it, unless the electrical supply to the unit is isolated.

- Wait a further 2 minutes after isolation for the internal circuitry to discharge.

- The electrical supply feed to the AirBREAK® FQ should be a dedicated line to minimise electromagnetic interference.

- The electrical supply rating must be at least double the FLC (see **Table 3.2: AirBREAK® FQ breaker ratings** (p. 21)) and be protected by a suitably rated external MCB.

- The power supply cable to the AirBREAK® FQ should be connected via an isolator switch located within 2m of the AirBREAK® FQ and suitably accessible for maintenance purposes. Connect the pre-fitted power cable to a suitable power source in accordance with local regulations.

NOTE
Upon initial powering up of the unit, the inlet valve will be open

WARNING
Leave power to the unit OFF whilst completing the electrical connections

- If the common fault or high level volt free contacts are fitted and/or intended for use, fit the signal cable through the spare cable gland on the enclosure and into the control panel (see **Section 11. Electrical Wiring Diagram** (p. 37) for detailed wiring schematics).

Table 3.2: AirBREAK® FQ1 breaker ratings

NOTE
C-rated breaker required as a minimum

Model Number	Pump Full load current (A)	Supply Voltage (Volts/ Phase/frequency)	Motor Nominal Power (Kw)	Recommended Breaker Rating (A)
FQ1-03-005M	3.6	230/1/50	0.55	10
FQ1-03-005T	1.5	400/3/50	0.55	10
FQ1-03-007M	4.5	230/1/50	0.75	10
FQ1-03-007T	2.0	400/3/50	0.75	10
FQ1-03-011M	5.0	230/1/50	1.1	10
FQ1-03-011T	2.3	400/3/50	1.1	10
FQ1-03-015T	3.1	400/3/50	1.5	10
FQ1-05-005M	3.6	230/1/50	0.55	10
FQ1-05-005T	1.5	400/3/50	0.55	10
FQ1-05-007M	4.5	230/1/50	0.75	10
FQ1-05-007T	2.0	400/3/50	0.75	10
FQ1-05-011M	5.0	230/1/50	1.1	10
FQ1-05-011T	2.3	400/3/50	1.1	10
FQ1-05-015M	8.5	230/1/50	1.5	20
FQ1-05-015T	3.4	400/3/50	1.5	10
FQ1-05-022T	4.4	400/3/50	2.2	10

3.4. TANK LEVEL SENSOR

- The AirBREAK® FQ water level is monitored via a level probe connected to a level relay in the control panel and the motorised inlet valve.

- The probes connected to the tank use the input signal for low level pump protection and inlet valve control.

- See **Section 11. Electrical Wiring Diagram** (p. 37) for detailed wiring schematics and electrical information.

4. COMMISSIONING

4.1. INSTALLATION AND COMMISSIONING OVERVIEW

- Before shipment, all Dutypoint pump sets are tested in accordance with a Factory Acceptance Test (FAT).

- The AirBREAK® FQ will come from factory with a standardised, generic setup.

- Commissioning, including important procedures such as venting, rotational direction checks, and, setting of optimal parameters specific to site conditions and requirements, including pressure settings and delay timers, need to be adjusted to suit the site conditions following installation.

- All commissioning works must be carried out by our service partner (AGM).

- Please note that engineer visits are priced at one visit to commission one pump set. If there are multiple units on site, special terms can be negotiated. To arrange a commissioning visit, please call our service partner, AGM, on 03335 775151.

- The following checks should be carried out at the initial installation before any run tests are performed.

WARNING
Ensure that you have read and understood SECTION 1. IMPORTANT SAFETY INFORMATION (see p. 4)

4.2. PIPEWORK AND MECHANICAL CHECKS

- Ensure that the mounting area and any associated groundwork provides adequate support for the pump set.
- Ensure all supports/brackets are in place and secure.
- Verify all pipe joints are sealed and tight.

4.3. ELECTRICAL CHECKS

DANGER
These checks must be carried out by a competent electrician

DANGER
Refer to SECTION 11. ELECTRICAL WIRING DIAGRAM (p. 37)

DANGER
Ensure that the power source is sufficient to allow for the running of all pumps together where there are multiple pumps in the system

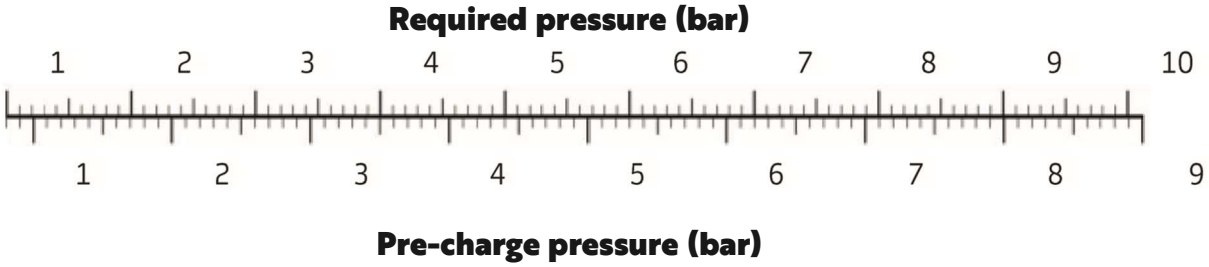
- Check that the motor voltage and frequency information on all the motor nameplates, controllers, etc. corresponds with that of the source supply.
- Check that all electrical connections are correctly made and secure. Pay particular attention to earth and bonding connections.
- Carry out specific checks for earth bonding.
- Carry out NICEIC certification checks as required for the installation (e.g. earth loop impedance, insulation tests, etc.).

4.4. FINAL CHECKS BEFORE COMMISSIONING

- Re-check all equipment for any accidental damage caused during installation.
- Carry out the pre-charging and venting procedures described next.

4.5. PRESSURE VESSEL PRE-CHARGING

Figure 4.1: Pressure Vessel Pre-charge



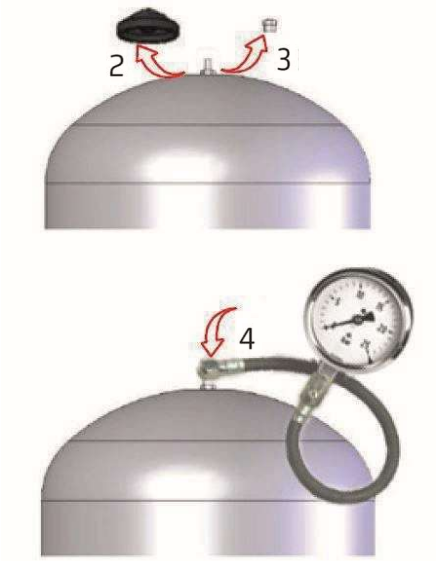
- Before commissioning starts, the pressure vessels' pre-charge should be checked.

- For variable speed systems (such as the AirBREAK® FQ), the pre-charge air pressure for vessels should be 90% of the maximum pressure generated by the pump in the pipework system. For example, if the maximum pressure generated by the pump in a system is 6 bar, this will require a pre-charge pressure of 5.4 bar (6 x 90%).

- To check and adjust the pressure vessel pre-charge, first check that the expansion of pressure tank is totally drained of water and isolated.

- Referring to **Figure 4.2: Pre-Charging a Pressure Vessel** (see below), remove the air vent cover and unscrew the air valve cap.

Figure 4.2: Pre-charging a pressure vessel



- Connect a pressure gauge. Verify that the pre-charge pressure is correct. If it is low, then the vessel pre-charge must be corrected by additional inflation of the diaphragm.

- When the pre-charge pressure is correct, replace the air valve cap and vent cover.

4.7. VENTING PROCEDURE

WARNING
This procedure should only be carried out by suitably qualified and competent persons.

- Open all valves on the inlet side of the unit, as well as the valve between the tank and the pump, but leave all discharge valves closed.

- Check that the pump MCB in the control box is switched OFF.

- Check that the level control relay settings are correct:

    - Top selector = Up - 2

    - Middle selector = 50

    - Bottom selector = 5

- Power up the unit. The motorised inlet valve should then open and the tank should start filling. When water reaches the top level probe the inlet valve should automatically close.

- Using the vent screw at the top of the pump casing, allow any air in the pump body to vent to atmosphere. Note, it may be necessary to also loosen the vent screw on initial pump start up to release any residual air once the pump is running.

- Switch on the pump MCB within the control panel. The pump will automatically start.

- Slowly open the discharge valve allowing water to be discharged from the system.

- Switch off, re-close the discharge valve, and, repeat steps 7-9 several times to ensure that all air is released from the pump body and the local pipework.

4.8. OPERATION AND PERFORMANCE TESTS

- Having checked that the pump set is installed, pre-charged, and, vented in accordance with the procedures set out earlier, carry out the following running tests before handing over the pump set for operational use.

- Create the conditions for a normal start and run. While running, observe the pressure values. Verify that the pump motor speeds up/slows down in accordance with the desired control philosophy.

4.9. COMMISSIONING/HANDOVER CHECK

- The AirBREAK VQ is fitted with an automatic vessel purge system that is controlled by timers and an override button. Within the control panel there is a timer module (T1) that is responsible for this function. It is possible to set the time period between purges and the duration of the purge. It is recommended that this is set to between 15 and 30 seconds purge every 24 hours.

In addition to the timer there is a purge override button on the outside of the panel that the operator can press and force a purge of the pressure vessel.

- Record any indicated voltage/amperage/pressure data/controller passwords for future reference

- Re-check that all isolating valves are fully open and replace any cover(s).

- With all the isolators ON and the switches and/or control programs set to AUTO, the pump set is now fully operational in automatic control mode.

CAUTION

The typical sound levels of the units in operation are less than 70dBA. However, if sound levels exceed this limit, cease operations immediately and contact technical support on 01452 300110

NOTE

No manual operation or attendance is required other than for routine servicing and maintenance checks. Other than for maintenance purposes, the supply of the controller(s) and pump motor(s) should never be switched off.

5. OPERATING THE PUMP SET

The AirBREAK FQ1 product is a fixed speed pump model and hence the motor is either on or off. There is no modulation of speed.

6. PRESSURE VESSEL

6.1. SAFETY NOTES

- The pressure vessel supplied as part of your Dutypoint product is used to absorb and conserve the potential energy of the pressurised liquid. Stored energy from the liquid under pressure is transferred to the water system when required.

- The vessel is designed to hold water up to 90°C.

- Never exceed the maximum working pressure and temperature of the expansion tank; ensure appropriate controls are installed for this purpose.

- During installation, the installer should account for external stress such as traffic, wind and earthquakes.

- Always install the unit in conformity to current legislation.

- The vessel must be installed and inspected by qualified personnel only.

- The manufacturer shall not be held liable for any personal or material damage caused by the product if installed and/or used improperly, or in any way diversely from the manufacturer's specifications.

- Exceeding temperature and pressure limits specified by the manufacturer will give cause to cancel any guarantee covering the product as well as any manufacturer's liability.

- For fluids other than water, check compatibility before installing.

- The unit must be installed in a safe place with access for authorised personnel only.

- The unit must be protected by an appropriate earthing system or isolated from the system by a dialectic joint.

6.2. PERIODIC MAINTENANCE

- Periodic maintenance is recommended once a year and should be carried out by authorised specialised personnel only, from our service partner (AGM).

- First, check that the pressure vessel is totally drained of water, that the system is switched off, and, that no electrical parts are live.

- Check, and if necessary, reset, the pre charge pressure. See section **4.5. Pressure Vessel Pre-Charging** (p. 24) for instructions on how to do this.

6.3. GENERAL MAINTENANCE AND REPAIR

- Disconnect all electrical equipment before starting on any maintenance jobs or checking the installation pressure and temperature.

- The pre-charge pressure should be checked, and if necessary, corrected during any maintenance work. See **4.5. Pressure Vessel Pre-Charging** (p. 24) for more information.

6.4. INSTALLING A REPLACEMENT VESSEL

- Ensure that the product is in good condition. If the product is damaged, do not start on installation. Return it back to the seller for immediate replacement.

- The product must be installed in the position (vertical or horizontal) specified in the technical specifications.

- While the system is cold, measure the static pressure with a gauge, at the point where the tank has to be installed.

- Set the pre-charge pressure, using the procedure in **4.5. Pressure Vessel Pre-Charging** (p. 24). Ensure that the pressure does not exceed the value specified in the procedure.

- The unit must be supplied with efficient and sufficient safety control facilities, in particular the safety valve must be connected to the unit and be free from interference, and, must be gauged to the quantity of fluid to be discharged. The safety valve should also be designed to ensure that the pressure does not permanently exceed the maximum tolerated pressure (a temporary pressure peak, limited to 10% of the maximum tolerated pressure, is allowed)

- Make sure the cap of the valve is fitted tightly after pre-loading and that there is no leakage.

7. SYSTEM USER MAINTENANCE

- Dutypoint pump sets have been designed to keep major maintenance requirements to a minimum. Planned maintenance of the pumps and other principal components should therefore be undertaken at the intervals recommended in the manuals referenced below.

- It is essential that a full test following the pre-commissioning procedure is carried out on an annual basis.

- In addition, the operator in charge should routinely make visual checks of the equipment during use, noting particularly any unusual noises or vibrations. This will give an immediate indication of any irregularity in the operation of the system.

DANGER
Do not commence work until you have read and understood SECTION 1. IMPORTANT SAFETY INFORMATION (p. 4)

DANGER
Ensure you have the appropriate personal protective equipment and all the necessary safety equipment to hand before starting work.

- Refer to the appropriate manufacturer's information for the equipment being serviced.

Table 7.1: Periodic user checks for pump sets

Timing	Checks
Weekly	Visually check the complete pump set. Observe the running of the pump(s) and note any unusual vibrations or sounds.
Quarterly	Visually check the complete pump set Observe the running of the pump(s) and note any unusual vibrations or sounds. Check any cooling fans and vents on the control unit(s) and clear any dust or other obstructions. Operate each manual isolating valve three times to ensure continued efficient working.
Bi-Annually	The water storage tank should be checked for signs of stagnation, infection or contamination.
Annually (essential)	Carry out the full pre-commissioning procedure to verify safe operation – see **Section 4. Commissioning** (p. 22). The pressure vessel should be drained and the pre-charge pressure checked. See Section **4.5. Pressure Vessel Pre-Charging** (p. 24).

- Cleaning of the tank and methods of determining cleanliness levels is the responsibility of the end user as the requirements are different depending upon site specific details.

8. PUMP MAINTENANCE

- If it is necessary to disassemble and repair the device, it is recommended that the safety instructions be strictly observed.

WARNING
The installation, use, and, maintenance of the product are strictly for qualified personnel who have undergone appropriate training. Any use by unqualified personnel must be carried out under the approval, responsibility and, close monitoring of the former

WARNING
Failure to follow the instructions may result in damage to the product, the system in which it is installed, and, in the worst cases, damage to the property or persons with potentially fatal consequences

CAUTION
Failure to comply with instructions may lead to loss of warranty

8.1. ROUTINE MAINTENANCE

- The pump itself requires no scheduled routine maintenance except to;

  - Check guards for proper positioning and safety devices for proper operation on a daily basis.

  - Check the condition of the cables (especially at the cable glands) on a monthly basis.

  - Clean the system filters and/or suction grille on a monthly basis.

WARNING
Prevent dust build-up on the motor and obstructions to the cooling airflow to prevent over-heating

WARNING
The pumped fluid may be pressurised even with the machine stopped. Before intervening, isolate the machine from the system by closing the upstream and downstream shut-off valves and partially unscrew the filter cap to reduce the internal pressure. Liquid may leak during this step, ensure that this drained liquid does not harm persons or property

WARNING
Close the shut-off valves upstream and downstream of the unit prior to any maintenance work

ELECRICAL HAZARD
Before any operation of the electric pump, make sure that the electrical voltage has been interrupted and that it cannot be accidentally restored during maintenance operations

ELECRICAL HAZARD
For single phase pumps, make sure that the capacitor is discharged

WARNING
If the electric pump is used for hot liquids and/or liquids that are dangerous for humans, strictly notify the personnel who will carry out the repair. In this case, clean the pump in order to ensure operator safety

CAUTION
Wait for the surfaces to cool down before working on the unit

8.2. PUMP REPLACEMENT

ELECRICAL HAZARD
Risk of electric shock. Before commencing work, isolate the electrical supply and ensure it cannot be accidentally reconnected. Wait a further 2 minutes for the internal circuitry to discharge before opening or working with any electrical connections

WARNING
It is the installer's responsibility to ensure that the installation is in compliance with local regulations and electrical guidelines

WARNING
Electrical pumps should never be used outside the limitations described in the technical specifications

- Replacement pumps should remain in their original packaging until installation.

- Before installation, check the new pump and verify its integrity and that is the correct type/rating. Contact the supplier if there are any anomalies.

- Disconnect the pump pipework.

- Disconnect the pump from the electrical controller.

- Insert the replacement pump into the enclosure and reconnect the pipework.

- Reconnect the electrical controller to the pump, ensuring all electrical connections are made.

- Test the system, checking rotation direction first (see section **8.3 Checking The Direction Of Rotation** below).

- When testing is complete and verified as ok, restore power and fix the front cover of the enclosure into position.

NOTE
Vent the pump(s) to remove any air pockets before testing the system. Dry running the pump(s) will damage the system

WARNING
Excessive force can damage equipment

8.3. CHECKING THE DIRECTION OF ROTATION

NOTE
This operation will be performed dry and must not last more than a few seconds

- If the direction of rotation is reversed due to incorrect connection or controller programming, the pump performance will be significantly lower than the nominal values.

- Use a clamp meter to measure the current of the pump. If the direction of rotation is incorrect, a higher amp reading will show on the meter compared to nominal values.

- Correct the rotation before using the system.

WARNING
Make sure to prime the pump upon completion of these checks before further testing or operations commences

9. TROUBLESHOOTING

- When a fault first occurs, turn off the main power to the pump set and leave off for 1 minute. Switching the power back on and re-energising the system may be sufficient to clear the fault.

- Isolate the power supply before performing any maintenance.

ELECTRICAL HAZARD
Check with the motor manufacturer the tolerability to withstand a current greater than its rated current

Table 9.1: Pump troubleshooting

Fault	Possible Causes	Possible Solutions
The pump runs but does not deliver	The internal parts are blocked by foreign bodies.	Disassemble the pump and clean.
	Clogged suction pipe.	Clean the pipe.
	Air inside the suction pipe.	Check the watertight integrity of the entire pipe up to the pump and waterproof it.
	The pump is not primed.	Fill and prime the pump. Check the watertight integrity of the foot valve.
Fault	**Possible Causes**	**Possible Solutions**
The pump runs but does not deliver (cont.)	The suction pressure is too low and generally accompanied by cavitation noises.	Too many pressure drops on the suction side or the suction height is too high (check the NPSH of the installed pump).
	Insufficient motor voltage.	Check the voltage of the motor terminals and the correct cross-section of the conductors.
The pump vibrates	Faulty anchoring to the surface.	Check and fully tighten the nuts of the stud bolts.
	Foreign bodies obstruct the pump.	Disassemble the pump and clean.
	Obstructed pump rotation.	Check that the pump rotates freely without any abnormal resistances.
	Faulty electrical connection.	Check the connections to the pump.

The motor heats up abnormally	Insufficient voltage.	Check the voltage at the motor terminals. The voltage must be ±6% of the rated voltage.
	Pump obstructed by foreign bodies.	Disassemble the pump and clean.
	Room temperature exceeding 40°C.	The motor is designed to operate at a maximum room temperature of 40°C.
	Connection error in the terminal block.	Check that the connections comply with the diagram shown inside on the terminal cover and rating plate.
The pump does not deliver the expected performance	The motor does not run at normal speed (foreign bodies or faulty power etc.)	Dismantle the pump and correct the anomaly.
	Faulty motor.	Replace it.
	Poor pump filling	Repeat the priming operation.
	The motor turns in the wrong direction (3ph. Motor).	Reverse the direction of rotation by crossing 2 phase wires in the terminal block or electric panel.
	Insufficient motor voltage.	Check the voltage of the motor terminals and the correct cross-section of the conductors.

Fault	Possible Causes	Possible Solutions
The circuit breaker trips	Thermal relay value too low.	Check the intensity with an ammeter. Set the intensity value indicated on the motor rating plate.
	Voltage too low.	Check that the cross section of the electrical conductors is correct.
	Phase down.	Check and replace the electric cable or fuse if required.
	Faulty thermal relay.	Replace it.
The flow rate is not regular	The suction height has not been adhered to.	Review the installation conditions and recommendations provided in this manual.
	The suction pipe has a smaller diameter than that of the pump.	The suction pipe must have the same diameter as the pump suction hole.
	The strainer and the suction pipe are partially clogged.	Clean the suction pipe.

WARNING

The installation, use, and, maintenance of the product are strictly for qualified personnel who have undergone appropriate training. Any use by unqualified personnel must be carried out under the approval, responsibility and, close monitoring of the former

WARNING

Failure to follow the instructions may result in damage to the product, the system in which it is installed, and, in the worst cases, damage to the property or persons with potentially fatal consequences

CAUTION

Failure to comply with instructions may lead to loss of warranty

CAUTION

Always use PPE and appropriate tools

10. EMERGENCY MANAGEMENT

10.1. FIRE

- In the event of a fire, use extinguishers approved for electrical devices.

10.2. LIQUID SPILLS

- The pumped liquid may escape from the machine as a result of installation, start-up, maintenance or disposal, unforeseen breakages or excessive wear of sealing devices.

- If spills can be dangerous or harmful to human, animal or environmental health, install a waterproof collecting basin around the machine. Collect the liquid and dispose of it correctly, without dispersing it in the environment.

11. ELECTRICAL WIRING DIAGRAM

Figure 11.1: FQ1-S-230 AirBREAK® FQ Wiring Diagram

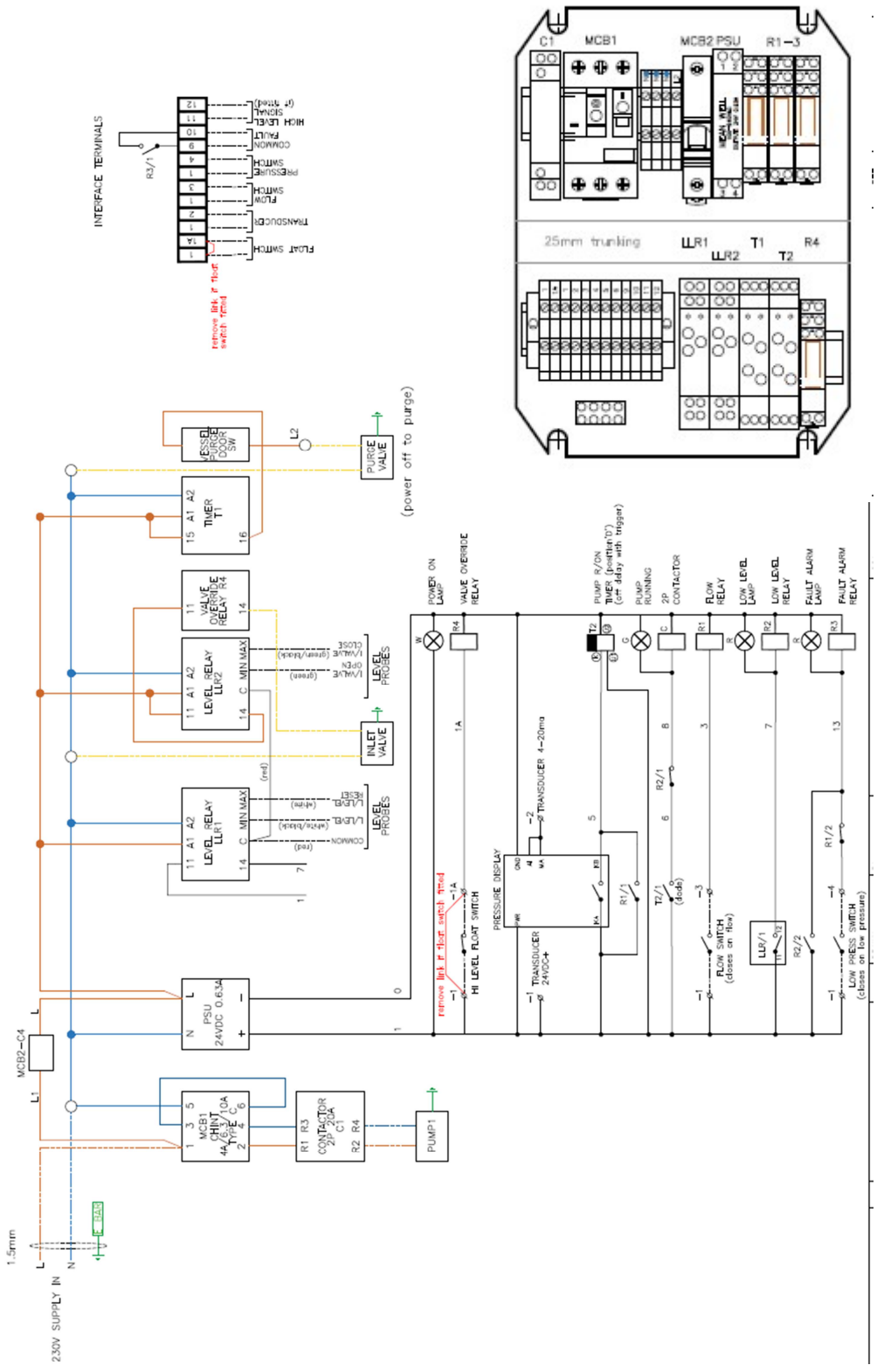


Figure 11.2: FQ1-S-400 AirBREAK® FQ Wiring Diagram

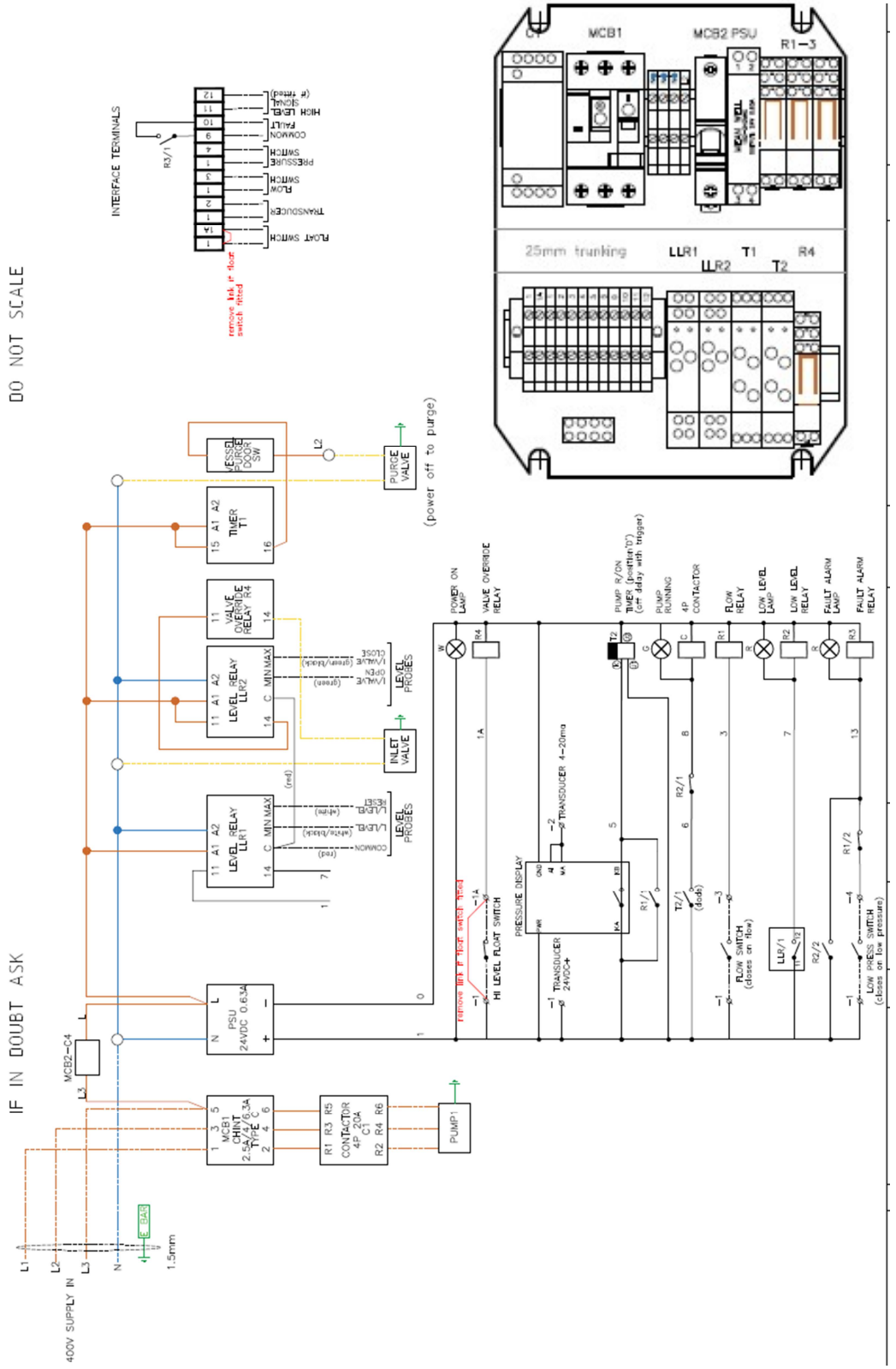


Figure 11.3: FQ1-V-230 AirBREAK® FQ Wiring Diagram

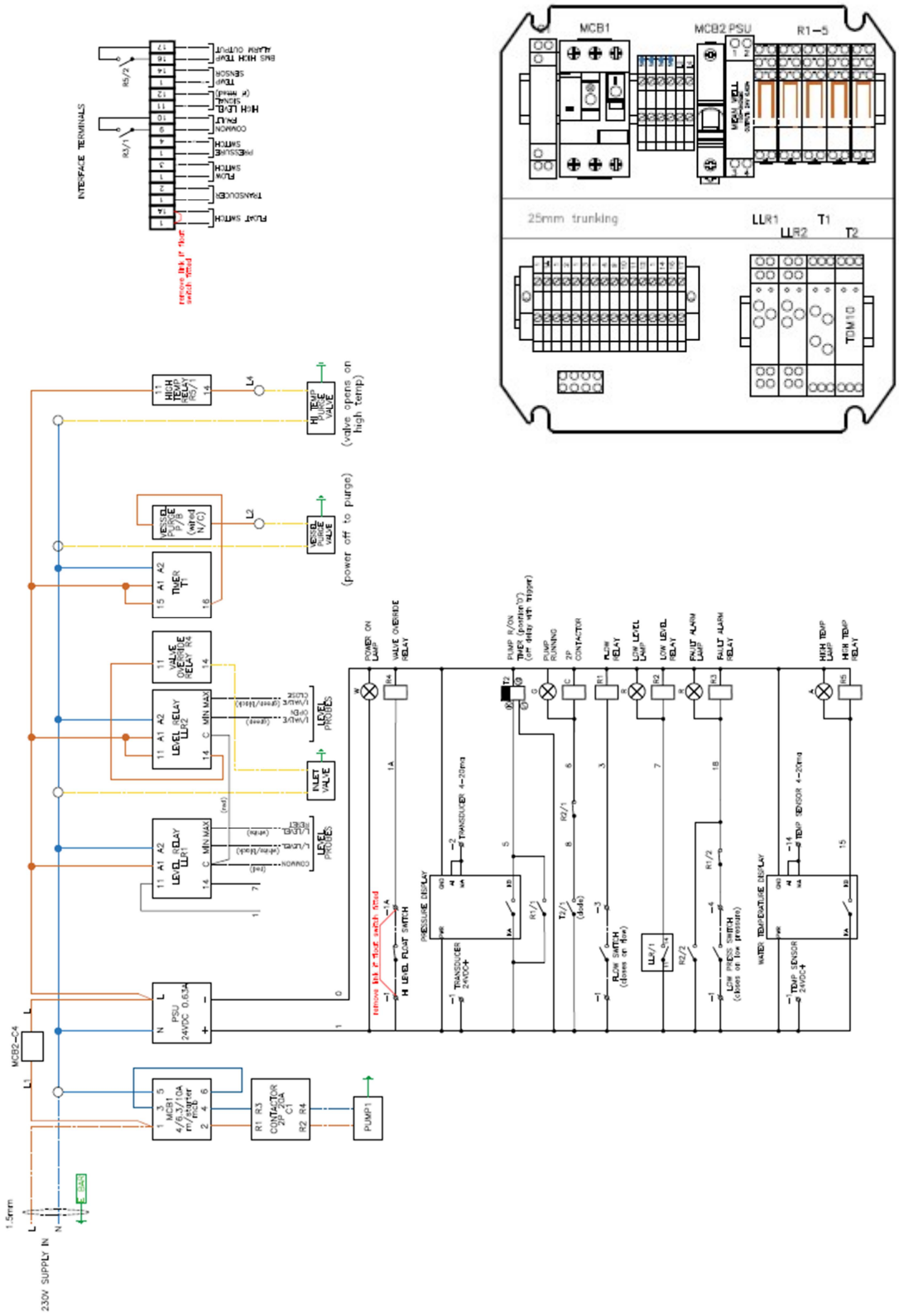
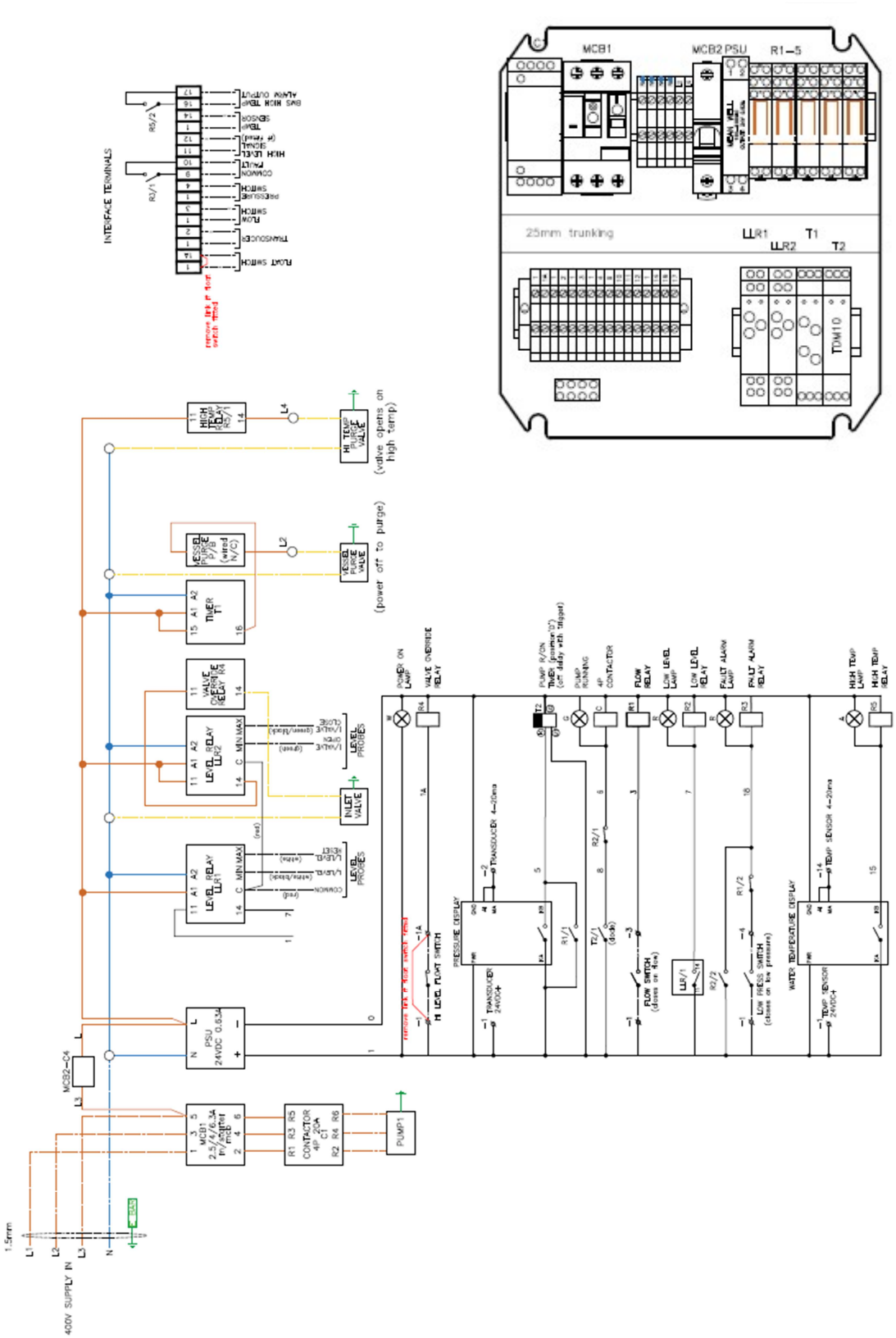


Figure 11.4: FQ1-V-400 AirBREAK® FQ Wiring Diagram



12. SBK PUMPS

SBK Series Immiscible pumps are vertical multistage pumps specially designed for pumping of cooling lubricants for machine tools, and to be mounted on top of tanks with the pump stack immerged in the pumped liquid.

12.1. IMPORTANT SAFETY INFORMATION

- The manufacturer strongly suggests carefully reading this operation manual before using and installing its products.

- Pay attention to all standard safety and accident prevention regulations.

WARNING
Any operation (installation, maintenance and repair) must be carried out by trained, skilled, and qualified personnel.

WARNING
Avoid any shock or significant impact during transport

WARNING
Check the pump immediately upon delivery and check for damage and/or missing parts. If either occurs, immediately notify the supplier

WARNING
Damages due to transport, incorrect installation, or improper use of the device will null and void the warranty

WARNING
Tampering or disassembly of any component will automatically void the warranty

NOTE
Vent pump(s) to remove any air pockets once submerged before testing the system. Dry running of the pump(s) will damage the system

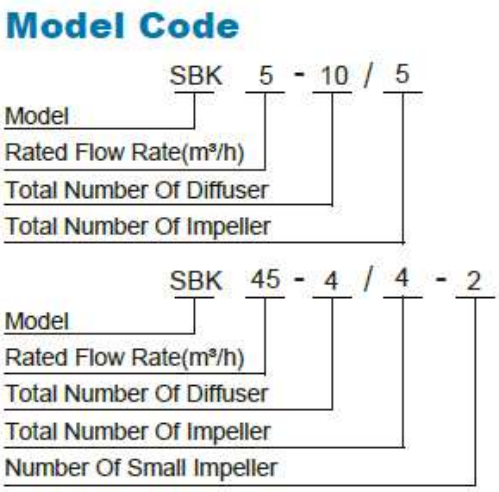
12.2. MODEL IDENTIFICATION

- The product model, main service specifications and serial number are shown on the rating plate.

- It is important to provide these details when requesting service or support and spare parts.

- The product model is identified by an alphanumeric code shown on the rating plate.

Figure 13.1: Pump Identification Matrix



12.3. TECHNICAL SPECIFICATIONS

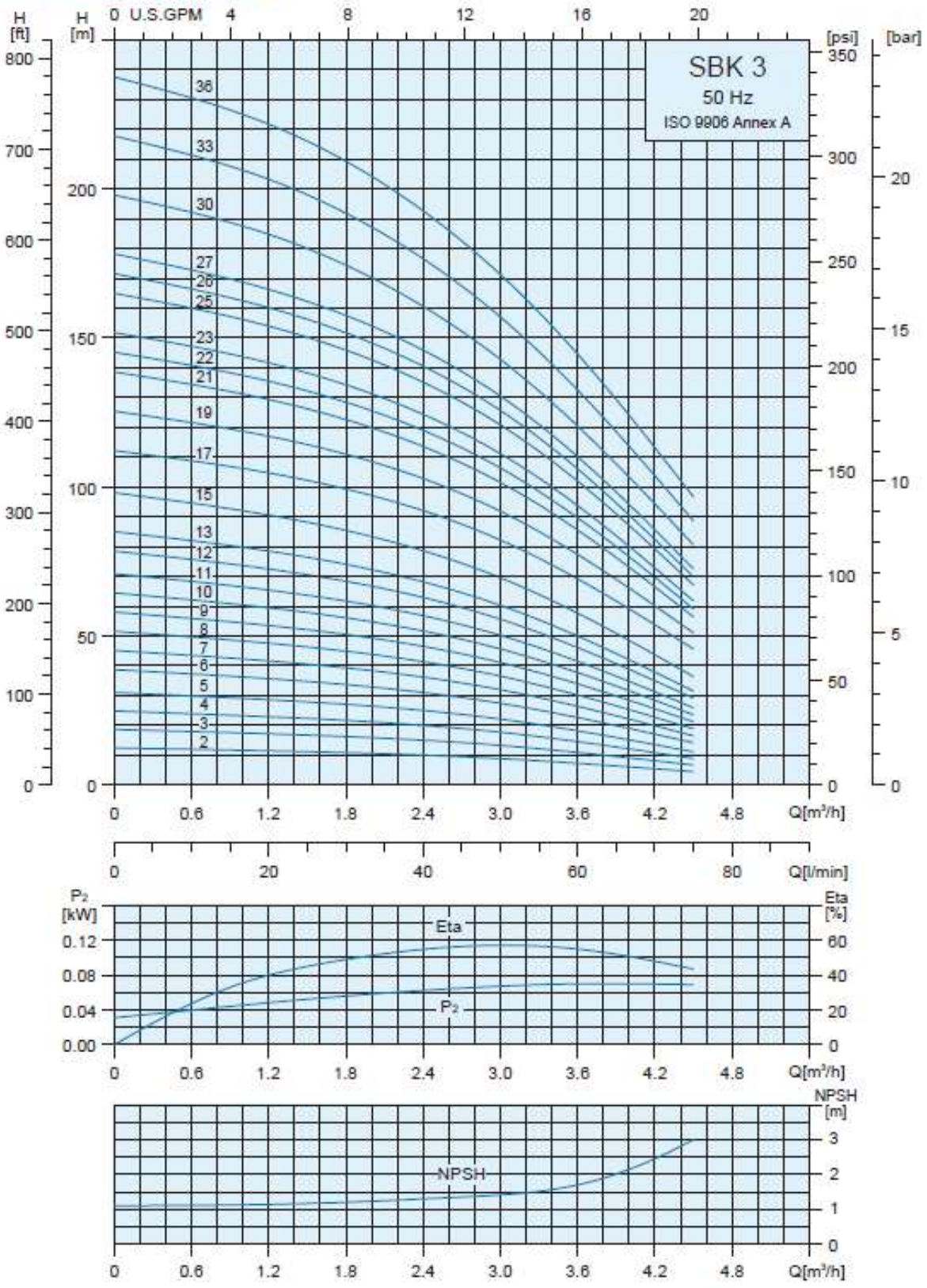
Product Data **50Hz**

Range	1	3	5	10	15	20	32	45	64
Rated Flow Rate(m³/h)	1.0	3.0	5.0	10.0	17.0	21.0	32.0	45.0	64.0
Flow Range (m³/h)	0.7~2.4	1.2~4.5	2.5~8.5	5~13	8.5~23.5	10.5~29	15~40	22-58	30-85
Maximum Head (bar)	22	23	24	23	23	24	27	32	22
Motor Power (kW)	0.37~2.2	0.37~3.0	0.37~5.5	0.75~7.5	1.1~15.0	1.1~18.5	1.5~30.0	3.0~45.0	4.0~45.0
Temperature Range (°C)	-10 to +90								
Pipe Connection									
Union	Rp 1 1/4			Rp 2"					
Flange							DN65	DN80	

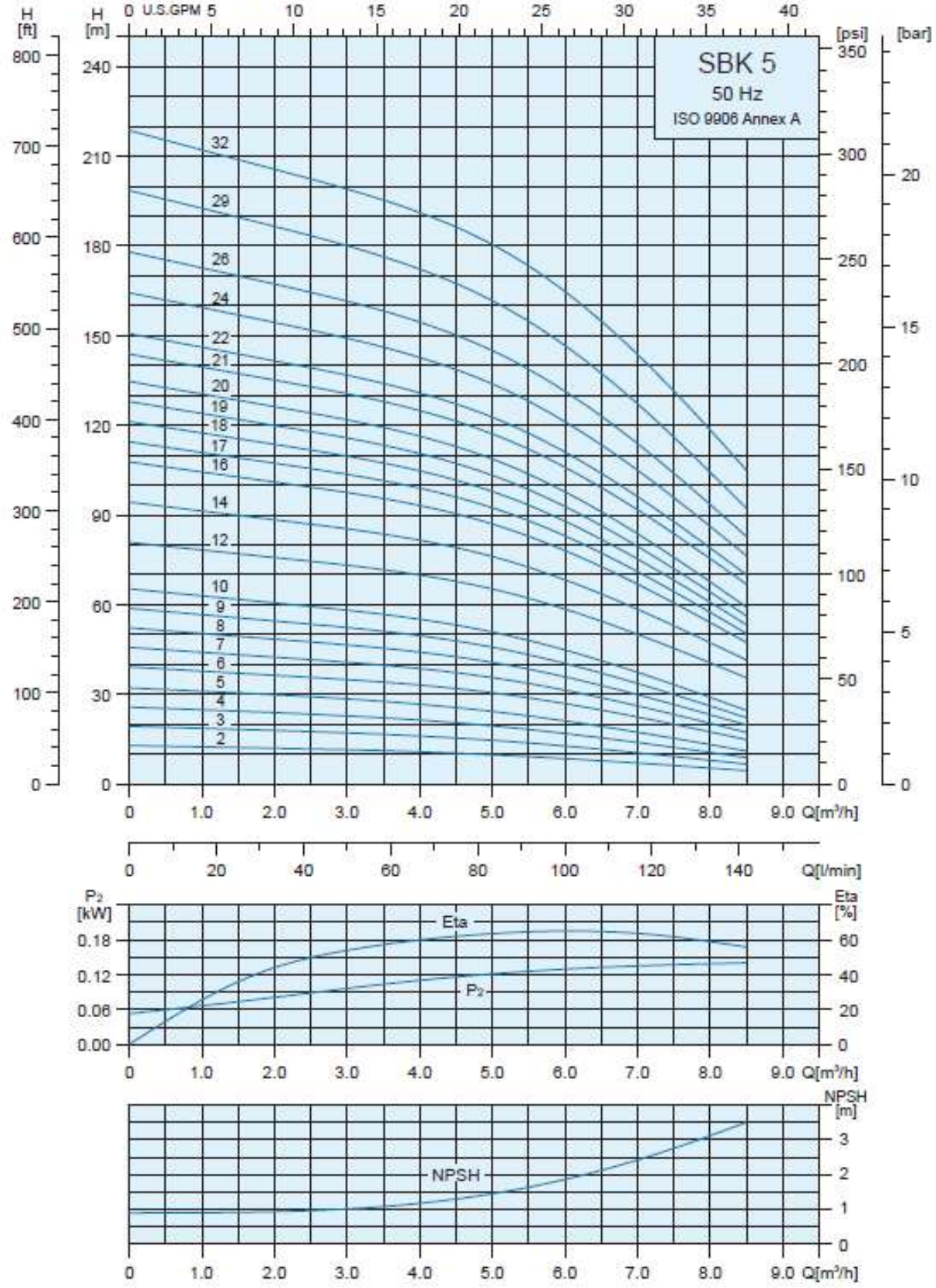
60Hz

Range	1	3	5	10	15	20	32	45	64
Rated Flow Rate(m³/h)	1.2	3.6	6.0	12.1	20.5	25.3	38.0	54.0	77.0
Flow Range (m³/h)	0.8~2.9	1.4~5.4	3~10	6~15.7	10.2~28.4	12.6~35	18~48	26~70	36~102
Maximum Head (bar)	24	23	23	26	23	21	27	26	18
Motor Power (kW)	0.37~2.2	0.37~4.0	0.55~7.5	0.75~11	1.5~18.5	2.2~18.5	2.2~30	5.5~45	7.5~45
Temperature Range (°C)	-10 to +90								
Pipe Connection									
Union	Rp 1 1/4			Rp 2"					
Flange							DN65	DN80	

Performance Range



Performance Range



12.4. HYDRAULIC CONNECTIONS

WARNING
Comply with the current accident-prevention regulations, use suitable protective equipment and refer to the standards, legislation and local and/or national codes of the country of installation for the connection to water and electrical mains.

WARNING
Installing the electric pump can be complex and dangerous for people. This operation must, therefore, be performed by competent, qualified installers.

ELECTRICAL HAZARD
Before starting any work on the electric pump or the motor, make sure that the power supply is disconnected and it cannot be accidentally restored.

- The following indications regarding the verification of the NPSH and the maximum pressure must be complied with to ensure the pump operates correctly and to prevent damage to people or things.

NPSH CHECK

- Check the electric pump characteristic curves to evaluate the NPSH factor and thus prevent cavitation problems in case of a difference in height between the pump and the level of the liquid to be drawn or for excessively high temperature.

- The pump must not work in the event of cavitation as this damages the internal parts.

- The maximum height of the pump from the liquid level “H” can be calculated with the following formula:

H = pb x 10.2 – NPSH - Hf - Hv – Hs

pb: Barometric pressure or pressure of the liquid on suction [bar] (absolute pressure).

NPSH: Suction head at maximum flow rate capacity [m]

Hf: Pressure drop in the suction pipe at maximum pump flow rate [m]

Hv: Vapour pressure [m] depending on the temperature of the liquid [m]

Hs: Safety margin [m] (minimum 0.5)

- If the calculated value is less than “0”, the pump must be positioned below the liquid level.

PRESSURE CHECK

- The sum of the maximum pressure created by the pump (see the rating plate) and the inlet pressure (Pin) must not exceed the nominal pressure indicated on the rating plate (Pmax).

- Use the following formula for the calculation:

Hmax [m] / 10 + Pin [bar] < Pmax [bar]

- The suction pressure must be limited according to the previous point, so as not to exceed the nominal pressure. In addition, it is recommended not to exceed the following limits:

EH 3 - max 2.0 bar; EH 5 - max 4.0 bar.

WARNING
The pump must never run dry (no liquid inside)

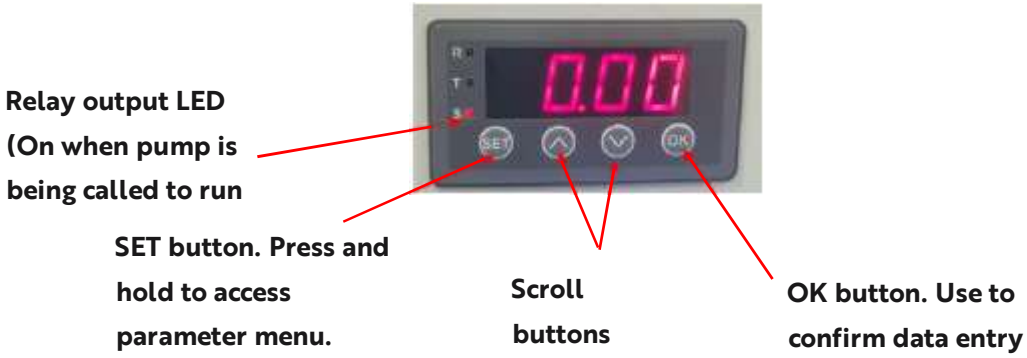
WARNING
The pump must never run with the delivery valve closed for more than 5 seconds

WARNING
Prolonged operation at a flow rate lower than the minimum one indicated on the rating plate may cause excessive and harmful overheating of the pump.

- If any problems occur when the pump is in operation, refer to **Table 9.3**: **Pump Troubleshooting** (p. 52).

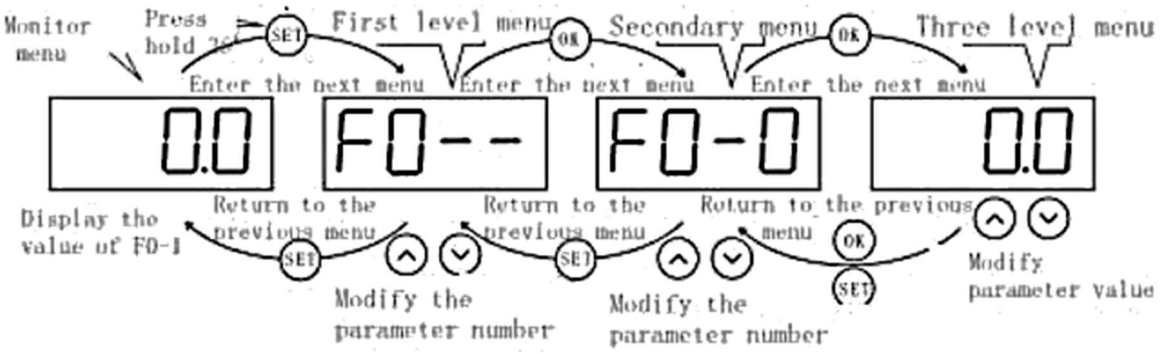
13 DIGITAL CONTROLLER

The digital controller, monitors the 4-20mA pressure transducer and provides a switching output to control a process measurement.



Accessing the parameter menu:

- Press and hold the SET button for 3 seconds to enter the configuration menu (See F1-5 for extra security to prevent tampering).
- Press OK to navigate forward.
- Press SCROLL buttons to navigate through parameter menu or adjust parameter values.
- Press OK to accept new parameter after changing with scroll buttons.
- Press SET to go backwards when in menu's.
- To exit parameter menu keep pressing SET.



The setup parameters are split into three groups

F0	General Display setup parameters
F1	Analogue configuration parameters
F2	Relay output parameters

Example of setting F2-3 and F2-4

Parameter values F2-3 and F2-4 are used to configure the cut in and cut-out values by means of a comparison value and a hysteresis band value.

Note the unit of these values are in percentage of total range.

The F2-3 value should be set to the mid-point between the required cut-in and cut-out values.
The F2-4 value should the % difference between those two points.

Example: if we require a cut in pressure of 3 bar and the duty pressure is 3.5 bar, and our pressure transducer is a 0-16 bar version:
- Set the F2-3 value to 20.3% (3.25(mid-point of 3 & 3.5) / 16 (transducer max pressure))
- Set the F2-4 value to 3.1% (0.5(difference between 3 and 3.5) / 16(transducer max pressure)

Pressure Controller

F0-X General Display setup parameters

Parameter	Parameter Name	Scope and description	Default	Recommended Setting
F0-0	Monitoring value	Percentage of the current analogue input. Range 0-100%		Cannot be changed
F0-1	Display value	Calculated output value set by F0-0, F0-2, F0-3 & F0-4		Cannot be changed
F0-2	Display accuracy	The number of decimal places displayed. Range 0-3.	1	1
F0-3	Minimum value	Value corresponding to 0V, 2V, 0mA or 4mA. Range 1999 - 9999	0	0
F0-4	Maximum value	Value corresponding to 10V or 20mA. Range 1999 - 9999	100	See setting below
F0-5	Offline status	0: Not disconnected; 1 Disconnected. (Disconnection detection is set by F1-4)		0

If 10 bar transducer set F0-4 to 100
If 16 bar transducer set F0-4 to 160

F1-X Analogue configuration parameters

Parameter	Parameter Name	Scope and description	Default	Recommended Setting
F1-0	Input type	0 : 0-10V or 0-20mA 1: 2-10V or 4-20mA	0	1
F1-1	Input filter time	Analogue input filter time range 0-10.000s	0.200	0.500
F1-2	Input gain	Range 0-1000.0%	100.0	100
F1-3	Input offset	-99.9 – 99.9 with 10V or 20mA as 100%	0.0	0
F1-4	Drop detection threshold	When input signal is lower than this value, displays E.oFL. Range 0-100%	0	19
F1-5	Enter the parameter setting selection	0: Press SET for 3 seconds to enter parameter setting mode. 1: Press SET for more than 3 seconds and press OK to entre parameter setting mode.	0	0

F2-X Relay output parameters

Parameter	Parameter Name	Scope and description	Default	Recommended Setting
F2-0	Relay output status	When output conditions are met: 0: No Control (Always open) 1: Relay closed 2: Relay open	0	1
F2-1	Condition type	0: Greater than comparison value 1 1: Less than comparison value 2 2: Greater than comparison value 1 and less than comparison value 2	0	1
F2-2	Comparison value 1	Range 0 – 100%	50	1.0
F2-3	Comparison value 2	Range 0 – 100%	50	See table below
F2-4	Hysteresis interval	Hysteresis prevents output from switching frequently when near the comparison value. Range 0 – 80%	5.0	10.0
F2-5	Relay status when offline	When condition in F1-4 is satisfied. 0: Not used 1: Relay closed 2: Relay open	0	0

10 Bar sensor

F0-4 = 1000

Duty point (Bar)	F2-3	F2-4
1.0	5.0	0.3
1.5	10.0	0.3
2.0	15.0	0.3
2.5	20.0	0.3
3.0	25.0	0.3
3.5	30.0	0.3
4.0	35.0	0.3
4.5	40.0	0.3
5.0	45.0	0.3
5.5	50.0	0.3
6.0	55.0	0.3
6.5	60.0	0.3
7.0	65.0	0.3
7.5	70.0	0.3
8.0	75.0	0.3
8.5	80.0	0.3
9.0	85.0	0.3
9.5	90.0	0.3
10.0	95.0	0.3

16 Bar sensor

F0-4 = 1600

Duty point (Bar)	F2-3	F2-4
1.0	3.1	0.2
1.5	6.3	0.2
2.0	9.4	0.2
2.5	12.5	0.2
3.0	15.6	0.2
3.5	18.8	0.2
4.0	21.9	0.2
4.5	25.0	0.2
5.0	28.1	0.2
5.5	31.3	0.2
6.0	34.4	0.2
6.5	37.5	0.2
7.0	40.6	0.2
7.5	43.8	0.2
8.0	46.9	0.2
8.5	50.0	0.2
9.0	53.1	0.2
9.5	56.3	0.2
10.0	59.4	0.2

Temperature Controller

For a 100°C temperature transducer with a 18°C lower temperature and 23°C upper temperature use the recommended settings in the tables on the following page:

F0-X General Display setup parameters

Parameter	Parameter Name	Scope and description	Default	Recommended Setting
F0-0	Monitoring value	Percentage of the current analogue input. Range 0-100%		Cannot be changed
F0-1	Display value	Calculated output value set by F0-0, F0-2, F0-3 & F0-4		Cannot be changed
F0-2	Display accuracy	The number of decimal places displayed. Range 0-3.	1	1
F0-3	Minimum value	Value corresponding to 0V, 2V, 0mA or 4mA. Range 1999 - 9999	0	0
F0-4	Maximum value	Value corresponding to 10V or 20mA. Range 1999 - 9999	1000	1000
F0-5	Offline status	0: Not disconnected; 1 Disconnected. (Disconnection detection is set by F1-4)		0

F1-X Analogue configuration parameters

Parameter	Parameter Name	Scope and description	Default	Recommended Setting
F1-0	Input type	0 : 0-10V or 0-20mA 1: 2-10V or 4-20mA	0	1
F1-1	Input filter time	Analogue input filter time range 0-10.000s	0.200	0.500
F1-2	Input gain	Range 0-1000.0%	100.0	100
F1-3	Input offset	-99.9 – 99.9 with 10V or 20mA as 100%	0.0	0
F1-4	Drop detection threshold	When input signal is lower than this value, displays E.oFL. Range 0-100%	0	19
F1-5	Enter the parameter setting selection	0: Press SET for 3 seconds to enter parameter setting mode. 1: Press SET for more than 3 seconds and press OK to entre parameter setting mode.	0	0

F2-X Relay output parameters

Parameter	Parameter Name	Scope and description	Default	Recommended Setting
F2-0	Relay output status	When output conditions are met: 0: No Control (Always open) 1: Relay closed 2: Relay open	0	1
F2-1	Condition type	0: Greater than comparison value 1 1: Less than comparison value 2 2: Greater than comparison value 1 and less than comparison value 2	0	0
F2-2	Comparison value 1	Range 0 – 100%	50	20.5
F2-3	Comparison value 2	Range 0 – 100%	50	20.3
F2-4	Hysteresis interval	Hysteresis prevents output from switching frequently when near the comparison value. Range 0 – 80%	5.0	5
F2-5	Relay status when offline	When condition in F1-4 is satisfied. 0: Not used 1: Relay closed 2: Relay open	0	0

14. OPTIONAL EXTRAS

14.1. FACTORY FITTED UPGRADES

- A selection of factory fitted upgrade kits are available and are identified by the last three digits of the AirBREAK® VQ model code (see **Section 2.1. Identifying AirBREAK® VQ Models** (p.15)).

-050, -150 or -250 PLUS SLAVE TANK

FEATURE DESCRIPTION

The system is supplied with an additional 90 L nominal capacity storage tank c/w inter-connecting pipes.

The inlet valve and valve switching level controls are installed on the slave tank to ensure cross-flow between tanks.

It is possible to combine either the HLA or PRO upgrade packages with the PLUS package. In this instance, the high-level float switch would also be installed in the slave tank.

The tanks are despatched individually but with pre-fitted and tested inter-connecting pipes with union ball valves to enable easy re-assembly on site.

-100 HIGH LEVEL ALARM VFC

- High-level float switch fitted to tank and pre-wired back to terminals within the control panel. The installer is to wire directly from these terminals to the monitoring system.

Figure 14.1: AirBREAK® VQ High Level Alarm Datasheet Extract

Applies to VQ & FQ product codes with suffix '-100', '-150', '-200' or '-250'.

FEATURE DESCRIPTION

High-level float switch fitted to tank and pre-wired back to terminals within the control panel. The installer is to wire directly from these terminals to the monitoring system.

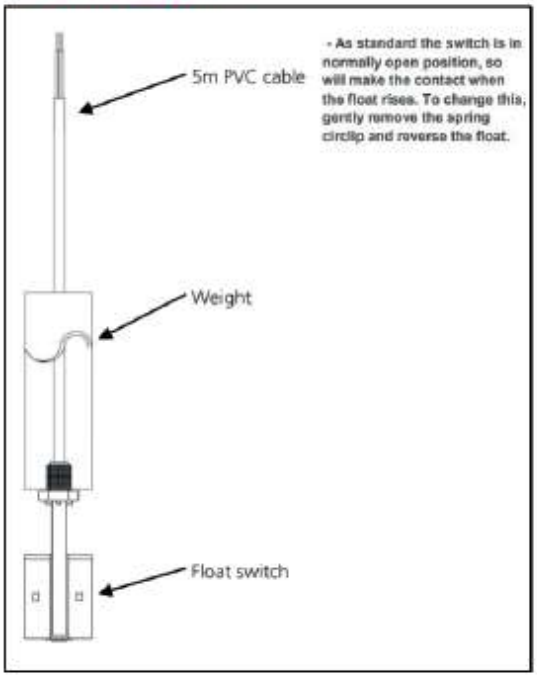
SPECIFICATION

Cable length	5 m
Contact	N/O, reversible
Switch rating	0.5 A @ 240 V AC
Cable material	PVC
Float material	Nylon
Weight	Polyethylene
IP rating	IP68

Please refer to the specific wiring diagram for your AirBREAK model for information regarding high-level alarm terminals.

OUTSIDE VIEW OF HIGH-LEVEL FLOAT SWITCH FITTED TO TANK

HIGH-LEVEL ALARM



-200 OR -250 PRO UPGRADE KIT

FEATURE DESCRIPTION

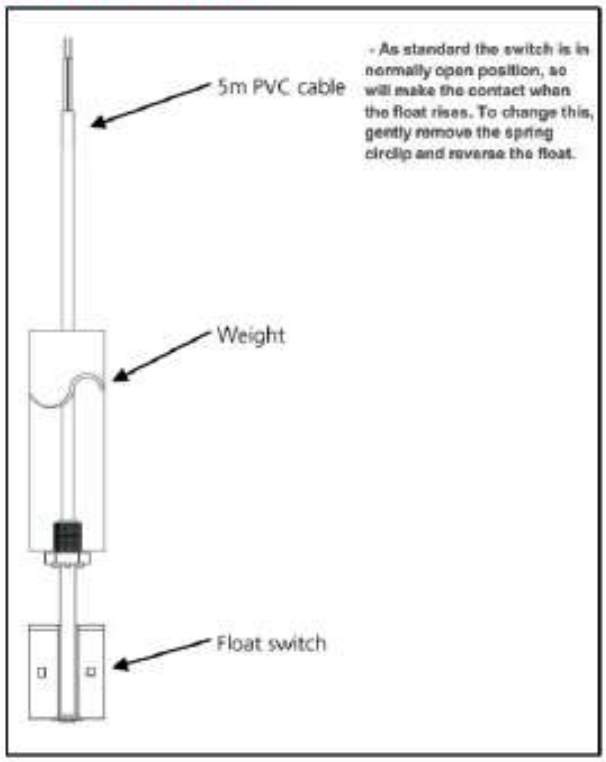
The PRO upgrade package for VQ/FQ includes the following equipment:

- High-level float switch fitted to tank and pre-wired back to terminals within the control panel to provide volt-free contact. The installer is to wire directly from these terminals to the monitoring system
- Weir catch tray with drain connection pre-piped to overflow
- Tank temperature sensor with live digital water temperature display
- High-temperature alarm output
- Provision for connection of external automatic high-temperature purge valve (valve available separately as an accessory, not included within the PRO package)

SPECIFICATION

Cable length	5 m
Contact	N/O, reversible
Switch rating	0.5 A @ 240 V AC
Cable material	PVC
Float material	Nylon
Weight	Polyethylene
IP rating	IP68

HIGH-LEVEL ALARM



WEIR CATCH TRAY

The tray has a 1" waste outlet connection.

TEMPERATURE SENSOR

Please refer to the specific wiring diagram for your AirBREAK model for information regarding high-level alarm terminals.

DIGITAL DISPLAY FOR TEMPERATURE

TEMPERATURE PROBE

14.2. ADDITIONAL EXTRAS

- In addition to the factory fitted upgrades listed in **Section 14.1. Factory Fitted Upgrades** (p.70), a selection of optional extras are available for the AirBREAK® VQ.

EXTERNAL GRP KIOSK

ITEM DESCRIPTION

Insulated GRP kiosk with access door, pre-fitted with distribution board, heater, frost stat, light and switch. The distribution board has a spare way for feeding the AirBREAK.

The kiosk has an open base designed for mounting directly onto a concrete plinth. The services should be ducted through the concrete plinth between the internal kiosk wall and the AirBREAK.

1-phase version code: 10-005680-000
3-phase version code: 10-005680-300

Overall dimensions are 1350 mm wide x 830 mm deep x 1710 mm high.

Colour: RAL 7038 agate grey (other colours available on request).

VQ1 STANDARD DRIP TRAY

ITEM DESCRIPTION

GRP drip tray 800 mm wide x 850 mm deep x 85 mm high to suit AirBREAK VQ1/FQ1.

The drip tray is supplied with a high-level float switch and mounting bracket. The high-level switch can be wired back to the AirBREAK control panel to override and close the inlet valve in the event of activation.

VQ2 STANDARD DRIP TRAY

ITEM DESCRIPTION

GRP drip tray 950 mm wide x 850 mm deep x 85 mm high to suit AirBREAK VQ2.

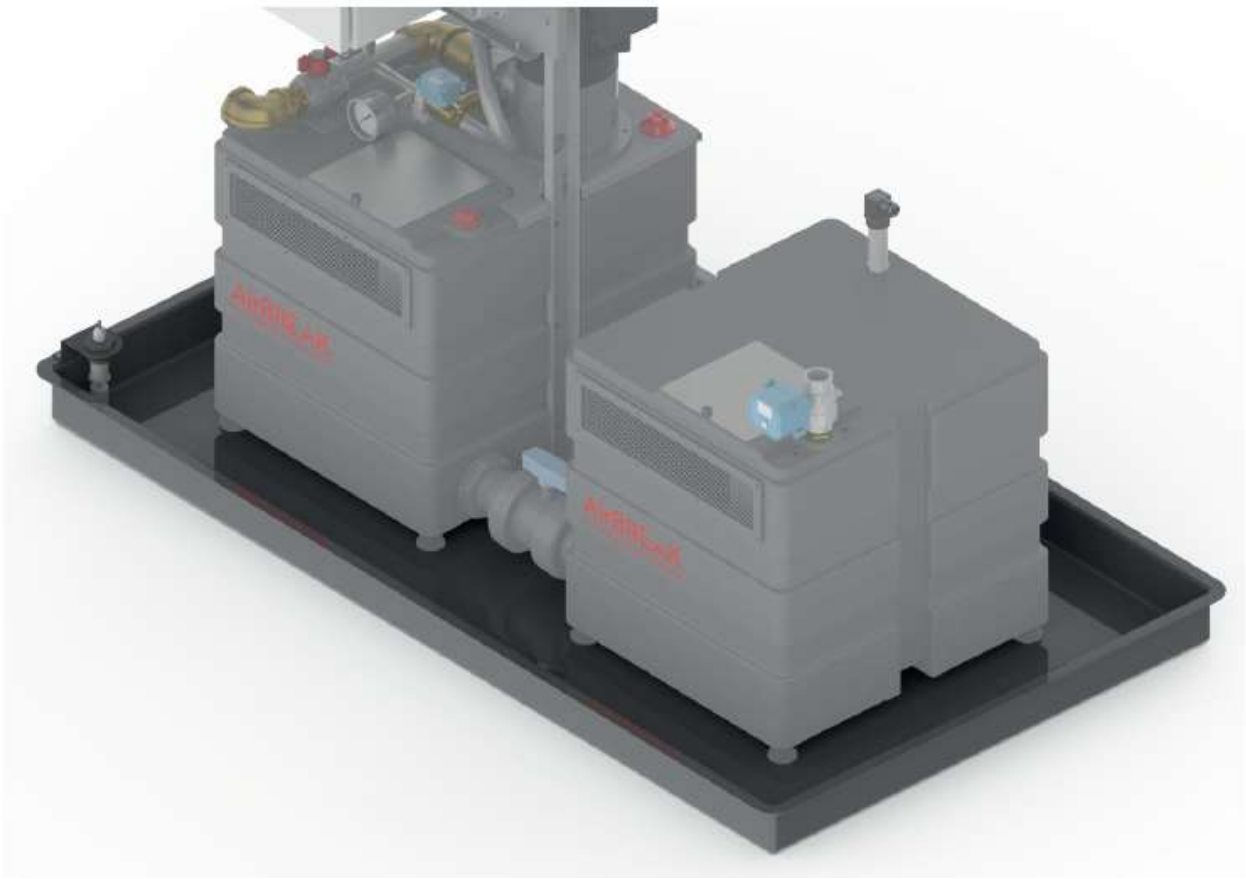
The drip tray is supplied with a high-level float switch and mounting bracket. The high-level switch can be wired back to the AirBREAK control panel to override and close the inlet valve in the event of activation.

VQ1 PLUS DRIP TRAY (For Slave Tank Version)

ITEM DESCRIPTION

GRP drip tray 1514 mm wide x 850 mm deep x 85 mm high to suit AirBREAK VQ1/FQ1 and slave tank.

The drip tray is supplied with a high-level float switch and mounting bracket. The high-level switch can be wired back to the AirBREAK control panel to override and close the inlet valve in the event of activation.

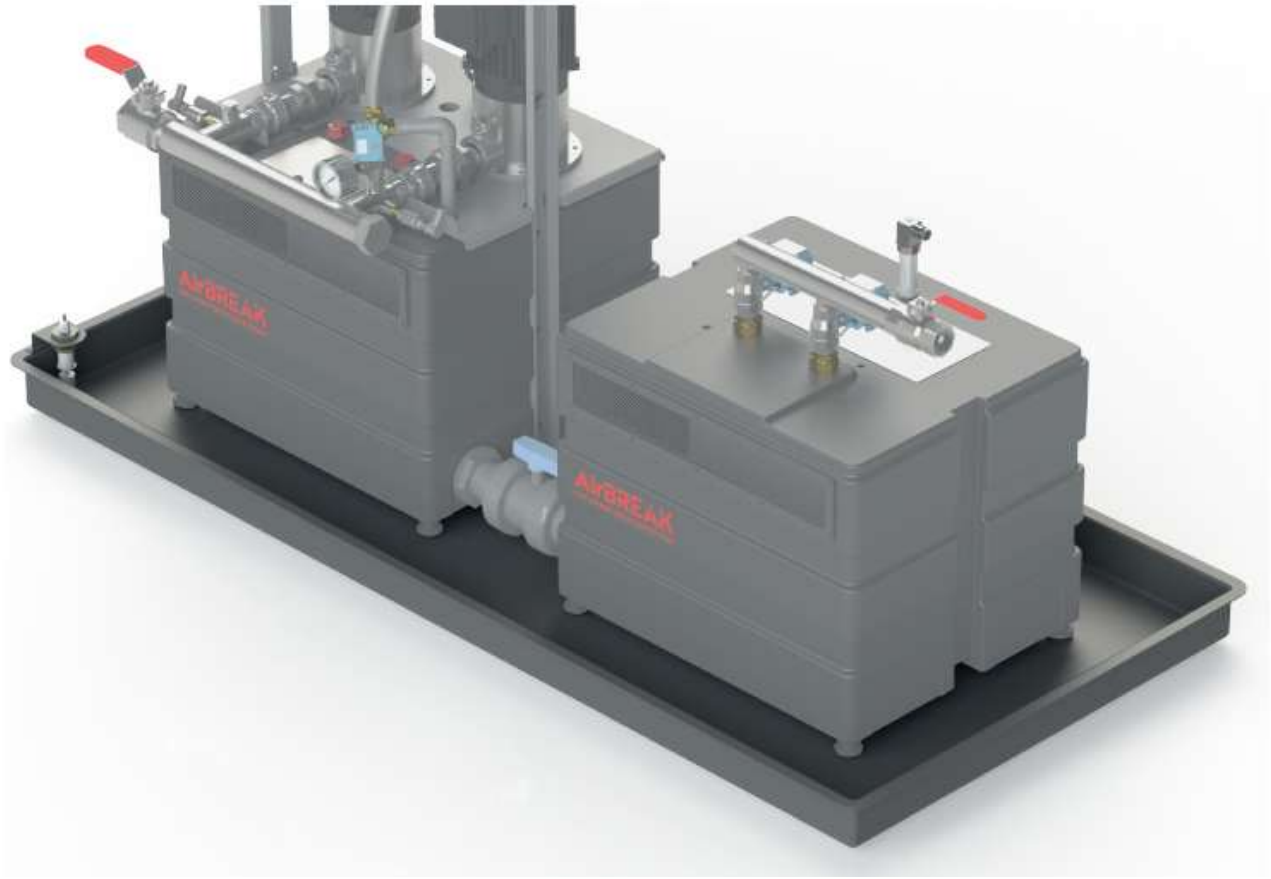


VQ2 PLUS DRIP TRAY (For Slave Tank Version)

ITEM DESCRIPTION

GRP drip tray 1814 mm wide x 850 mm deep x 85 mm high to suit AirBREAK VQ2 with slave tank.

The drip tray is supplied with a high-level float switch and mounting bracket. The high-level switch can be wired back to the AirBREAK control panel to override and close the inlet valve in the event of activation.



VQ TEMPERATURE PURGE KIT c/w 10m CABLE

ITEM DESCRIPTION

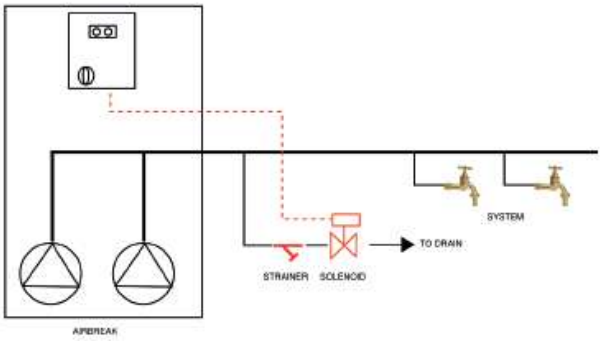
230 V normally closed solenoid valve ½" BSP c/w strainer and 10m cable for fitting into a tee off the system pipework to enable flushing of water. Please note: only compatible with the AirBREAK FQ/VQ fitted with the optional PRO upgrade package.

The solenoid valve cable can be connected directly to the purge valve connection terminals within the AirBREAK PRO control panel. When the AirBREAK temperature monitoring system detects high temperatures (default 23 degrees C), the system will activate the valve, allowing the warm water to drain out and replace it with fresh water from the mains. Once the tank temperature drops back down to the reset value (default 18 degrees C), the valve will automatically close.

The strainer is designed to be fitted upstream of the solenoid valve to protect it from any particles that could cause the solenoid valve to fail to seal.

SOLENOID VALVE SPECIFICATION

Connection	½" BSPF
Orifice	13 mm
Min operating pressure	0.5 bar
Max operating pressure	10 bar
Max rated pressure	15 bar
Max temperature	80°C
Voltage	230 V AC
Type	Normally closed



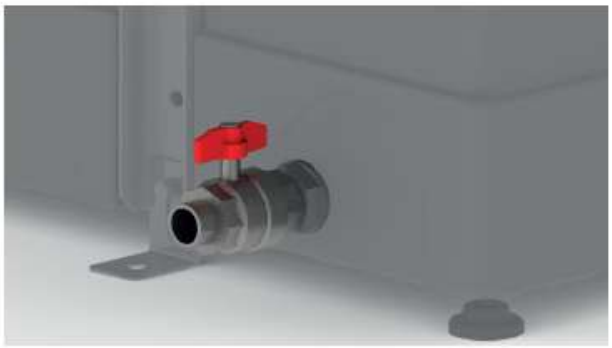
VQ DRAIN VALVE KIT

ITEM DESCRIPTION

1" ball valve with butterfly handle, complete with 1" quick tank connector with male thread.

The installer drills a 43 mm hole in the wall of the tank, fits the quick tank connector as per the images below, and then threads the ball valve onto the tank connector using a suitable sealant.

Access to the inside of the tank is not required in order to complete this installation.



Extended fitting

Mounted fitting

Fitting exploded view

A Threaded body
B Gasket
C Washer
D Ring nut

PRESSURE REDUCING VALVE

ITEM DESCRIPTION

For fitting into the discharge line of any pump system to mechanically limit the pressure supplied to the system. It is especially useful for fixed-speed systems where the pump set may otherwise pressurise the system above the design pressure.

1" version code: PRV25-0.5/6-G (adjustable 0.5 - 6 bar)

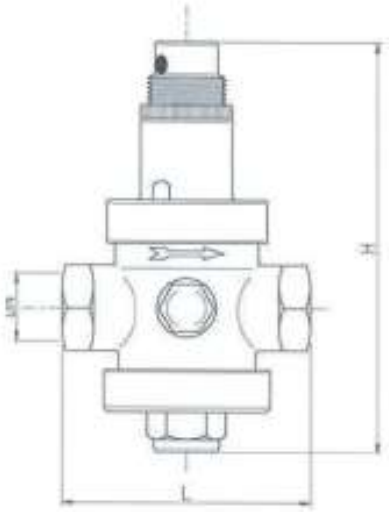
1 ¼" version code: PRV32-0.5/6-G (adjustable 1.5 - 6 bar)

- Screwed BSPP female
- Direct acting pressure reducing valve for water
- Brass diaphragm system
- Brass body & components
- Stainless steel seat
- WRAS-approved
- Pre-fitted with pressure gauge

Adjustable outlet pressure between 0.5 and 6 bar, maximum inlet pressure 25 bar.

DRAWINGS AND DIMENSIONS

Code	DN	H (mm)	L (mm)	Weight (kg)
PRV25-0.5/6-G	1"	160	90	1.34
PRV32-0.5/6-G	1 ¼"	220	115	2.09



15. DUTYPOINT STANDARD WARRANTY

AGM is Dutypoint's service partner under the formation of Fluid Water Group. Dutypoint Systems standard product warranty is valid for a period of 12 months. To qualify for 24 months of cover, commissioning must be carried out by a qualified person from our service partner (AGM) within the first 12 months from the date of despatch. A servicing visit must be completed within 12 months from the date of commissioning by a qualified person from our service partner. Full terms and conditions are located on the website https://www.dutypoint.com/terms-and-conditions

If you need to contact us regarding any issue regarding your Dutypoint product, please contact Dutypoint or AGM customer support teams.

Dutypoint Tel: 01452 300110
Dutypoint Email: enquiries@dutypoint.com

AGM Tel: 03335 775151
AGM Email: service@agmservice.co.uk

TALK TO THE TEAM

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