



# Quantum 110 & 210



## Installation Manual



Document Ref 947571-001  
Rev - 2  
03/2011

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**REVISION RECORD**

<b>Date</b>	<b>Revision</b>	<b>Page</b>	<b>Reason</b>
30/06/2010	1	All	Original Issue
03/03/2011	2	3-2	Dimension change
	2	3-3	Remove Q110 dimensions drawing (dims from cladding)
	2	3-6	Remove Q210 dimensions drawing (dims from cladding)

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## **1 INTRODUCTION**

### **1.1 How To Use This Manual**

It is recommended that all relevant persons familiarise themselves with the contents of this manual prior to carrying out any operations or procedures.

This manual is divided into sections which are described as follows: -

#### **Section 1 - Introduction**

This section contains information on how to use the manual, the scope of equipment covered, recommendations on qualified technicians and contact information. It also includes relevant health and safety information required for the safe installation and commissioning of the product.

#### **Section 2 - Site Preparation**

This section details the procedures to be carried out in preparation for receipt of equipment at site and the necessary actions prior to installation.

#### **Section 3 - Drawings**

All necessary drawings required for reference during the installation and commissioning, are listed and contained in this section.

#### **Section 4 - Packaging and Handling**

This section provides instructions for unpacking and safe handling of the equipment.

#### **Section 5 - Installation**

The instructions for the correct installation of the equipment are contained within this section.

#### **Section 6 - Commissioning**

This section highlights the actions and checks, to be carried out, in preparation for the commissioning activity and the procedures required from commissioning of the equipment to handover.

### **1.2 Product Scope**

The equipment and models covered by the contents of this manual are: -

The Quantum 110 & 210 range of fuel dispensers, with the exception of the LPG versions. For information on Quantum LPG dispensers refer to the relevant LPG manual as provided by Tokheim.

All dispensers in the Quantum 110 & 210 ranges use the same standard sub-assemblies and offer a wide range of configurations and includes provision for options such as vapour recovery etc.

### 1.3 Authorised Technicians

Only qualified technicians familiar with the contents of this manual should carry out the procedures contained herein.



**WARNING : ANY ATTEMPTS TO CARRY OUT THE PROCEDURES OF THIS MANUAL, BY UNQUALIFIED OR UNAUTHORISED PERSONS, MAY RESULT IN SERIOUS INJURY OR LOSS OF LIFE.**

**NOTE : THIS MANUAL IS NOT INTENDED TO REPLACE THE SERVICES OF A FULLY QUALIFIED TECHNICIAN.**

### 1.4 Contact Information

For information relating to the contents of this manual please contact: -

Technical Author  
Tokheim UK Ltd.  
Dundee, Scotland  
author@dundee.tokheim.com

For technical assistance please contact the appropriate service division listed on the back cover of this manual.

### 1.5 Health & Safety

#### 1.5.1 SAFETY CHECKLIST

- It is obligatory that this checklist be fully complied with during all work at the petrol station, particularly construction or repair work.
- It is the duty of the contractor to ensure that all workers employed by him obey each and all of the relevant laws, directives and other regulations.

#### **Areas where special caution is required**

- The insides of tanks, tubes, dome shafts, filling shafts, change over shafts, vessels and dispensers.
- All areas in which fuel vapour that is heavier than air can accumulate, e.g. fuel separator, draining shafts, low located rooms, cellars, excavations, pipe trenches etc.
- The areas around the outlets of tank ventilation pipes, especially during the filling phase.
- All areas near dispensers, tanker lorries and other vehicles while they are being tanked up, and particularly when there is a lack of wind.
- A radius of 1.0 metres around petrol carrying pipes, as well as pipes that are not vapour free.
- Silt traps.

#### 1.5.2 DUTIES OF THE EMPLOYEES

- To ensure optimal accident prevention in our company, in addition to general rules applying to worker's protection, it is necessary to take into account all the national protection of workers legislation and to actively support all measures which enhance safety standards.

- It is an employee's duty to follow all company directives regarding the prevention of accidents, unless such directives can be proved to be unfounded.
- Employees should not follow any instructions that go against safety standards.
- Employees are only permitted to use equipment for its original purpose, and this is defined by the company alone.
- If an employee detects equipment that is deficient in terms of safety, he shall eliminate this deficiency immediately. If such safety rectification is not part of his defined area of activities, or if his knowledge is insufficient to carry out such work he must immediately inform his superior about the detected safety deficiency.

This equally applies to:

- 1) **Work Materials** which have not been correctly packed or correctly marked in order to meet safety requirements.
- 2) **Work Methods** or work processes which have not been correctly coordinated or controlled in order to meet safety requirements.
- 3) **Where dangerous activities are carried out by several persons**, the need for a permanent faultless communication between them in order to avoid dangerous events shall require the appointing of one person in order to carry out overall supervision.

### 1.5.3 HAZARDS

Prior to starting work, the dispenser must be isolated (i.e. entirely disconnected from the mains supply) and the mains supply switch locked in the OFF position. The submerged pump (if applicable) and control signals from the dispenser must also be isolated. This is done to provide safety for the technician. As a further precaution, switch off the mains supply in the service station shop and place a clear notice on the switch to avoid it being turned on again inadvertently.



**WARNING : THE CONNECTION AND DISCONNECTION OF ELECTRICAL CONNECTIONS MAY ONLY BE CARRIED OUT BY QUALIFIED PERSONNEL AUTHORISED FOR SUCH ACTIVITIES. WORK IN DANGEROUS AREAS MUST BE MADE SAFE BY OBSERVING ALL THE NATIONAL SAFETY REQUIREMENTS IN FORCE.**

It is not permitted to put a fuel dispenser into operation before an authorised official has inspected it and released it. This depends upon the national regulations in force.

Dismantled packaging and cladding must be stored in such a way as to avoid damage to components or injuries to persons. Covers that can be opened, such as the calculator housing, should be handled with care. Ensure that the retaining catch is placed in the correct position to prevent the cover falling onto the head of the service engineer or other persons in the area.

At unattended service stations, every end-user should be able to read the User Instructions. They should be visible on a notice board or integrated into the DIT and should be sufficiently well lit so that they can be read at night.

At unattended service stations break away couplings must always be used to reduce the danger caused by a motorist driving off with the nozzle still in the tank.

1.5.4 WARNING SIGNS

The following warning signs are fitted as standard, on the dispenser, however they may vary according to individual country requirements or customer specifications.

SIGN	MEANING	POSITION
	Do not use mobile phones	Visible from both sides of dispenser
	No naked flames	Visible from both sides of dispenser
	Do not spill fuel on the ground	Visible from both sides of dispenser
	Smoking forbidden	Visible from both sides of dispenser
	Stop vehicle engine	Visible from both sides of dispenser
	Trucks only	At Diesel high speed dispensers near the nozzle boots
	Do not drive away with nozzle in tank	Visible from both sides of dispenser
<b>For more information see User Manual available at this station</b>		Next to User Instructions near the nozzle boot

**1.5.5 PERSONAL PROTECTIVE EQUIPMENT (PPE)****PROTECTIVE CLOTHING**

The following clothing should be worn **at all times** during installation and maintenance procedures:-

- Protective helmet.
- Protective shoes (conductive).
- Protective gloves and/or protective hand cream.
- Anti static clothing.
- Eye protection.

**SAFETY EQUIPMENT FOR WORKING IN HAZARDOUS AREAS**

The following safety equipment is required for working in hazardous areas:-

- Only spark free tools are permitted for work on dispensers.
- Work on bearings is only permitted using the standard workshop tools authorised for this kind of work.
- The use of all electrical tools is strictly prohibited.
- Only the use of explosion protected work lights is permitted.
- The use of telecommunications equipment in hazardous areas is strictly prohibited.

**SAFETY INSTRUCTIONS**

The following safety instructions must be adhered to during installation and maintenance procedures:-

- Inhalation of petrol vapour must be avoided. Suitable precautions must be taken and where necessary respirators used.
- Avoid direct contact of fuel with the skin.
- Use suitable protective clothing, protective gloves and/or protective hand cream.
- Avoid fuel spills.
- No smoking, no naked flames are permitted.
- Long hair and ties can get caught in moving parts. Hair must be suitably covered.

1.6 Standards & Certificates

This dispenser is constructed in conformity with the requirements of all the applicable European Directives (Machinery 2006/42/EC; EMC 89/336/EEC; ATEX 94/9/EC).

The components used within the dispenser, including connection facilities, are selected in accordance with the European Standard EN BS 60079-0 (Electrical Apparatus for explosive gas atmospheres), and the supplementary Standards listed therein.

Diesel dispensers do not create an explosive hazard, but due to the probability of these being in close proximity to gasoline dispensers, the same construction rules are applicable.

The dispenser is certified by SIRA as suitable for use in Potentially Explosive Atmospheres Directive 94/9/EC, and marked to be in accordance with the European Dispenser Construction Standard EN 13617-1.

This dispenser is also certified to OIML International Recommendations R117 and R118. Certificate Numbers R117/1995-NL-01.04 & 08.

The production and end test is controlled through the Quality Assurance systems within the Tokheim Manufacturing Centres, and has received Quality Assurance Notification from a Notified Body.

No modification to the dispenser may be performed without express permission from Tokheim and must always use original components or Tokheim retrofit kits. Failure to comply with the above will invalidate product conformance with the relevant European Directives and Tokheim will no longer accept product liability.

1.6.1 DISPENSER MARKING FOR THE ATEX DIRECTIVE

The dispenser is labelled by Tokheim in accordance with the requirements of the ATEX Directive. This labelling includes:-

- The CE mark (CE conformity)
- The specific explosion protection mark, together with the mark indicating the equipment group and category; and, relating to equipment group II, the letter “G” (concerning explosive atmospheres caused by gases and vapours)
- The “Tokheim” name or logo and manufacturing location
- The dispenser type and serial number including the year of production

Labels can either be plastic stickers or metal plates and may vary according to national requirements. A typical example of a label follows:-

0518 SIRA  
or  
0081 LCIE

QUANTUM T: Measuring equipment for Gasoline/Diesel/E85 PATTERN APPROVAL N°:					
BA: C2007 2-S-1028	BE: 2523-B-85	BG: 3537	CH:	CZ: TCM 141/02-3542	DE: 5_101 01_09
DK: ES: H: 012 16	FI: VJ.A.1.85=Q1001 VJ.A.7.85=Q2001	FR: VJ.A.8.85=Q2001 VJ.A.8.85=Q2001	HR: HR 2-S-1031	HU: Tn: 74545-0002	
IV-353cs	IT: 02002	NL: T5453	NO: N-23/2003	PL: 1037/2001	PT: 02 103 91713
MK: 2-05-018-M	SE: VCS18=Q300T VCS18=Q400T VCS17=Q200T	SK: VCS20=Q500T	SI: TSK 141/03-021	UK: 2286	SCG: 2-05-37 2-05-42
CERTIFICATION N°:			EU: Q500T-SIRA 02ATEX0719M Q300T-SIRA 02ATEX0719M Q100T-SIRA 02ATEX0719M Q200T-SIRA 02ATEX0719M Q400T-SIRA 02ATEX0719M Q110-SIRA 02ATEX0719M Q10-SIRA 02ATEX0719M		
HU:  03 ATEX 207 03 ATEX 208	BG: [Ex ia] d m IIA T3		[Ex ia] d m IIA T3		
Reference Standard EN 13617-1, БДС IEC 79-0+A1+A2, JUS A-K2-401. SERIAL N°/YEAR: _____ Qmin/Qmax : 4/40; 8/80; 13/130 LPM Pmin : 2.3bar , Pmax : 3.5bar "CLASS C" 901689-001					

DUNDEE  
or  
GRENTHEVILLE

“X” CONDITIONS -  
refer to section 1.6.2

### 1.6.2 SPECIAL CONDITIONS FOR SAFE USE

Certain models include Special Conditions for Safe Use which must be observed prior to putting the dispensers into operation. Failure to do so will invalidate the ATEX certification of the dispenser. These models can be identified by an X at the end of the certificate number as shown on the dispenser typeplate.

The Special Conditions for Safe Use are identified in the ATEX EC Type-Examination Certificates and are repeated below:-

- Where a dispenser is supplied without hoses and/or nozzles, they shall be fitted in accordance with:
  - Hoses : EN1360 or EN13483
  - Nozzles: EN13012
- When used for ethanol (blend) dispensing, the fuel specification must be less than or equal to 85% ethanol, with minimum water content.
- The metering pumps and dispensers are designed for use in open air. Where a metering pump or dispenser is positioned within a building, incorporated into an enclosure, or integrated into a larger piece of equipment, additional measures shall be taken to ensure that the zoning diagrams illustrated in the schedule drawings are not compromised.

## 1.7 MID Dispensers

From mid 2007, Tokheim dispensers may be shipped from European factories in accordance with the Metrological Instruments Directive (MID). Such dispensers are calibrated and the relevant seals stamped in the factory so that the dispensers are fit for trade immediately upon installation without the need for a local Weights and Measures inspector to put them into use.

The dispenser is shipped with its own “MID datasheet” which documents the serial numbers of the prime components fitted in the dispenser. This datasheet must remain with the dispenser. Similarly dispensers are shipped with a Declaration of Conformance to the MID. This document must not be lost as it is an essential document to allow the continued use of the dispenser.

MID dispensers can be identified by the typeplate which contains a reference to the MID certificate number as shown:-



### CHECKING THE SEALS



It is the responsibility of the Installer to check that all required seals are present and correct prior to putting the dispenser into use. This includes seals on the pumping unit, meter, pulser and calculator. **Under no circumstances must any seals be disturbed or broken during installation.**

### METER CALIBRATION

A calibration check should be performed during Commissioning (refer to section 6).

If a seal is damaged or missing, or if the calibration is outwith legal tolerances or in the unlikely event that any repair is required to a pumping unit, meter, pulser or calculator during installation, the factory MID verification is invalidated and a local National verification will need to be performed before the dispenser can be used.

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## 2 SITE PREPARATION

### 2.1 General

Tokheim dispensers must only be installed on a level island or forecourt surface.

The ground plan will depend on the model ordered. See drawings in Section 3. Refer to separate LPG Dispenser Manuals for information on LPG dispenser classifications.

#### VENTILATION

There are no vapour traps in the structure of the dispenser. The hydraulic cabinet is ventilated via the hydraulic doors. **Note : The hydraulic doors must not be blocked during installation.**

#### VAPOUR BARRIERS

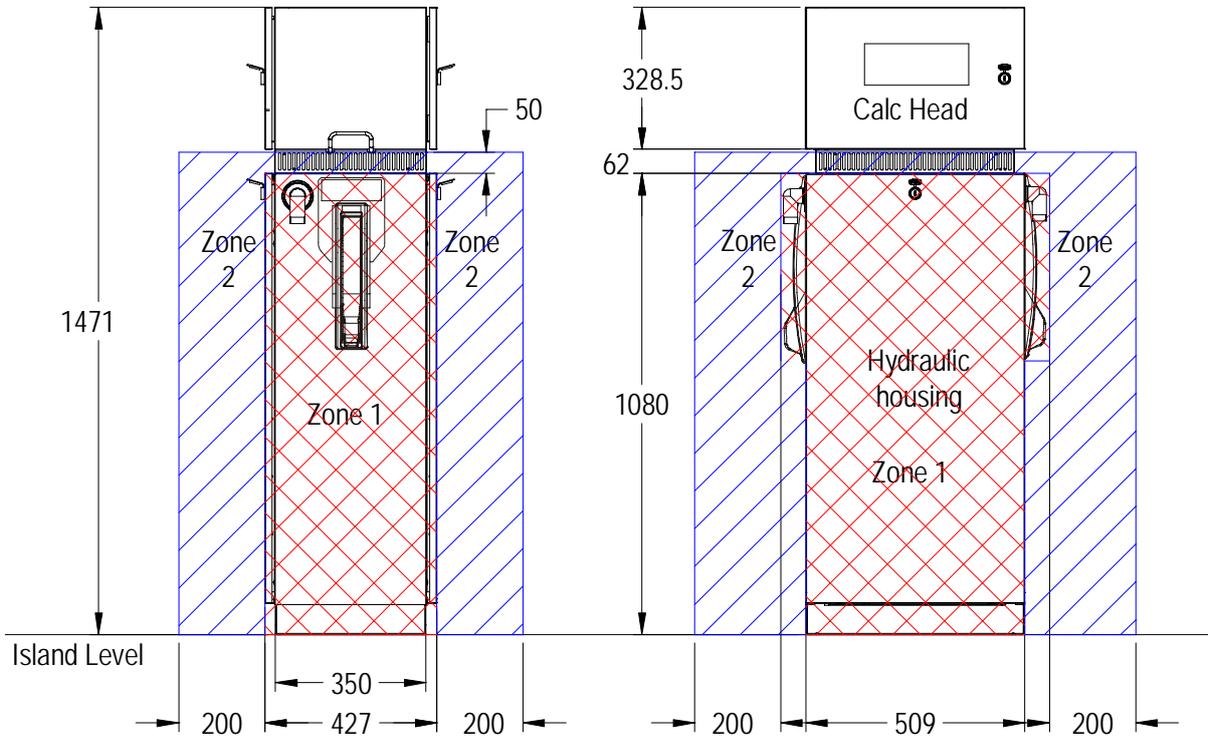
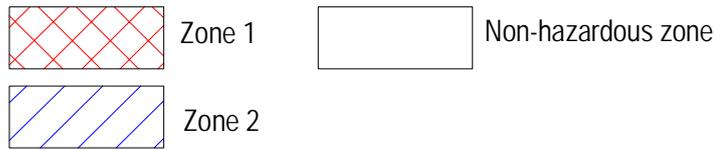
Hazardous areas, as defined in this manual, are applicable only when the dispenser is located in open air. The control of the hazardous areas in and around the fuel dispenser is by the use of Vapour Barriers. No specific precautions are taken to reduce the Zone 1 classification of the internal hydraulic housing of the dispenser.

##### 2.1.1 ZONING DIAGRAMS

Quantium 110 and 210 dispensers comply with the requirements of the ATEX Directive 94/9/EC by conforming to PrEN13617-1.

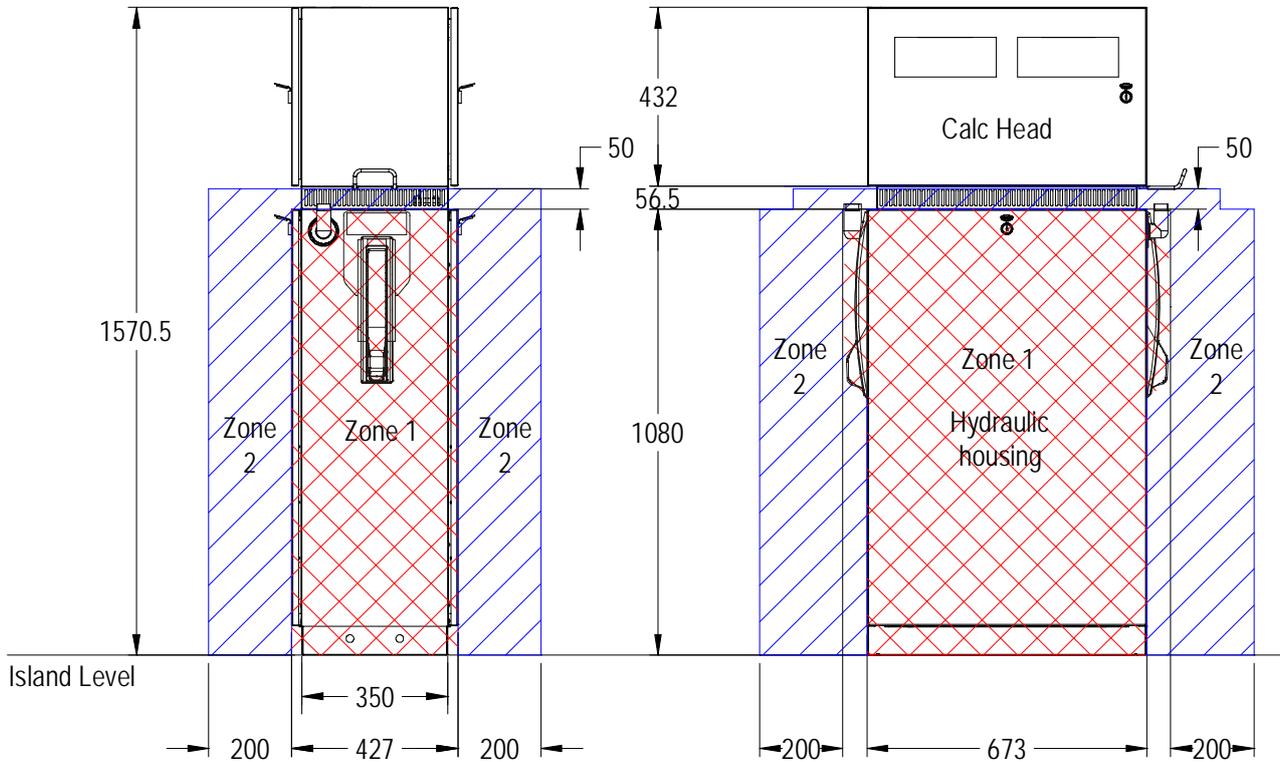
The classification of vapour barriers are indicated in the following diagrams. The zone classifications shown are always the highest applicable to that location within the dispenser. The zone drawings respect the zones created by the use of vapour recovery systems. No fuel pipes pass through any vapour barrier except dispensers with Mechanical Registers where a drive shaft passes through the airgap. Cables glands and blanking plugs used in the vapour barriers are certified to an equivalent protection rating.

**Q110 DISPENSER**



Note:- On this drawing all zone 2 areas are external of the dispenser.  
 Zone 1 is internal in the dispenser.

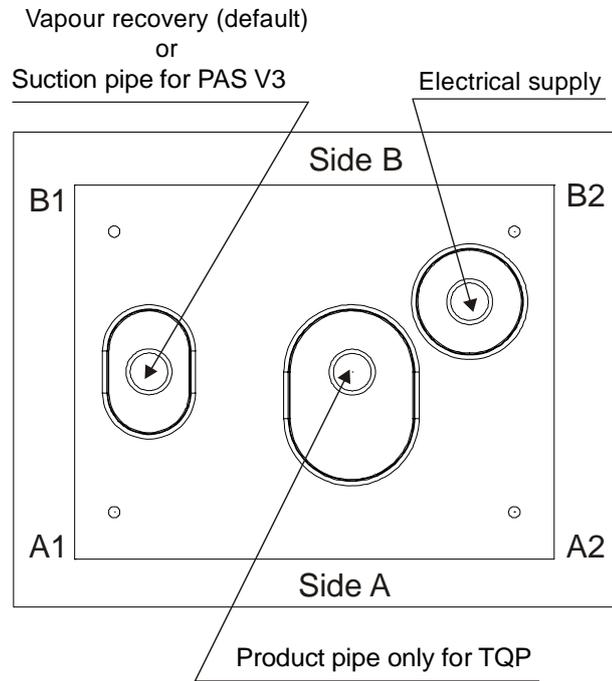
Q210 DISPENSER



Note:- On this drawing all zone 2 areas are external of the dispenser.  
Zone 1 is internal in the dispenser.

2.2 Q110 and Q210 Hose and Pump Configurations

The diagram below shows the possible functioning positions of the Q110 dispenser.



**Hose outlet positions**

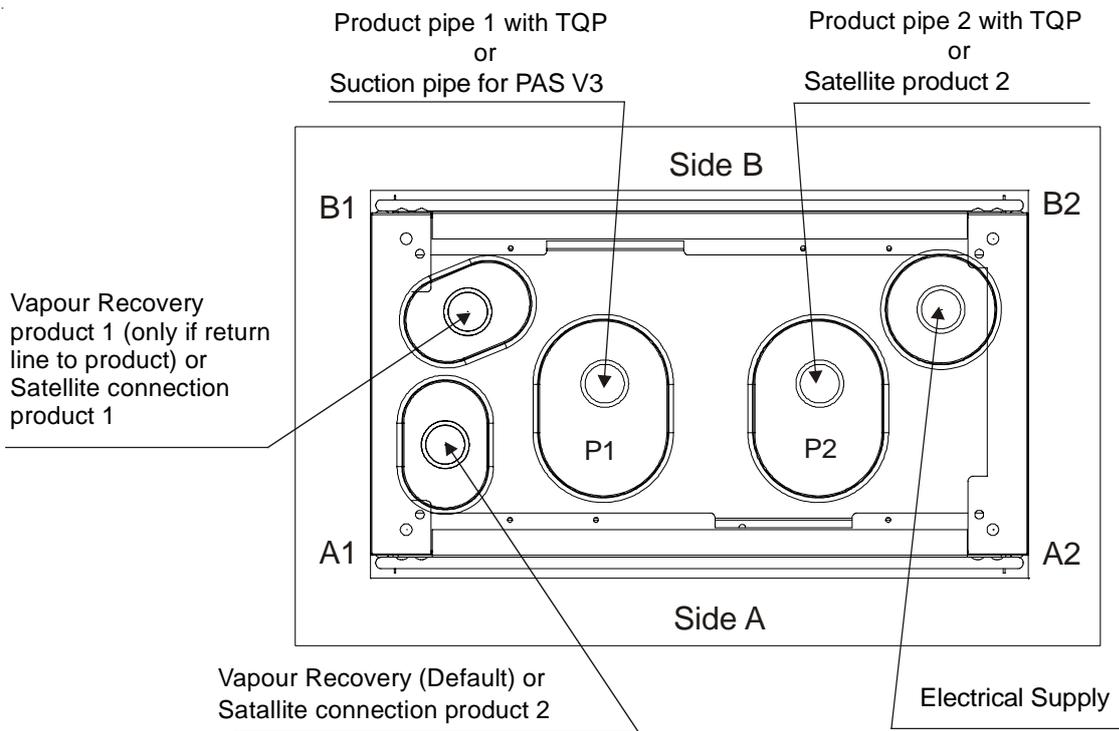
1 Product, 1 Hose = Hose Position A2

1 Product, 2 Hose = Hose Position A2 + B1

Any Product + 1 Hose = TQP Low Power 40 or 40/80 or 80  
 PASV3 High Power 130  
 Submerged 40 or 40/80 or 80 or 130

Any Product + 2 Hose = PASV3 High Power 40 or 80, Shared 130  
 Submerged 40 or 40/80 or 80 or 130

The diagram below shows the possible functioning positions of the Q210 dispenser.



### Hose outlet positions

- 1 Product, 1 Hose = Hose Position A2 (Default Pump Position P2)
- 1 Product, 2 Hose = Hose Position A2 + B1 (Default Pump Position P2)
- 2 Product, 2 Hose = Hose Position A2 + B1 )

Any Product + 1 Hose = TQP Low Power 40 or 40/80 or 80  
 PASV3 High Power 130  
 Submerged 40 or 40/80 or 80 or 130

Any Product + 2 Hose = PASV3 High Power 40 or 80 or Shared 130  
 Submerged 40 or 40/80 or 80 or 130

2.3 Hydraulic Connections

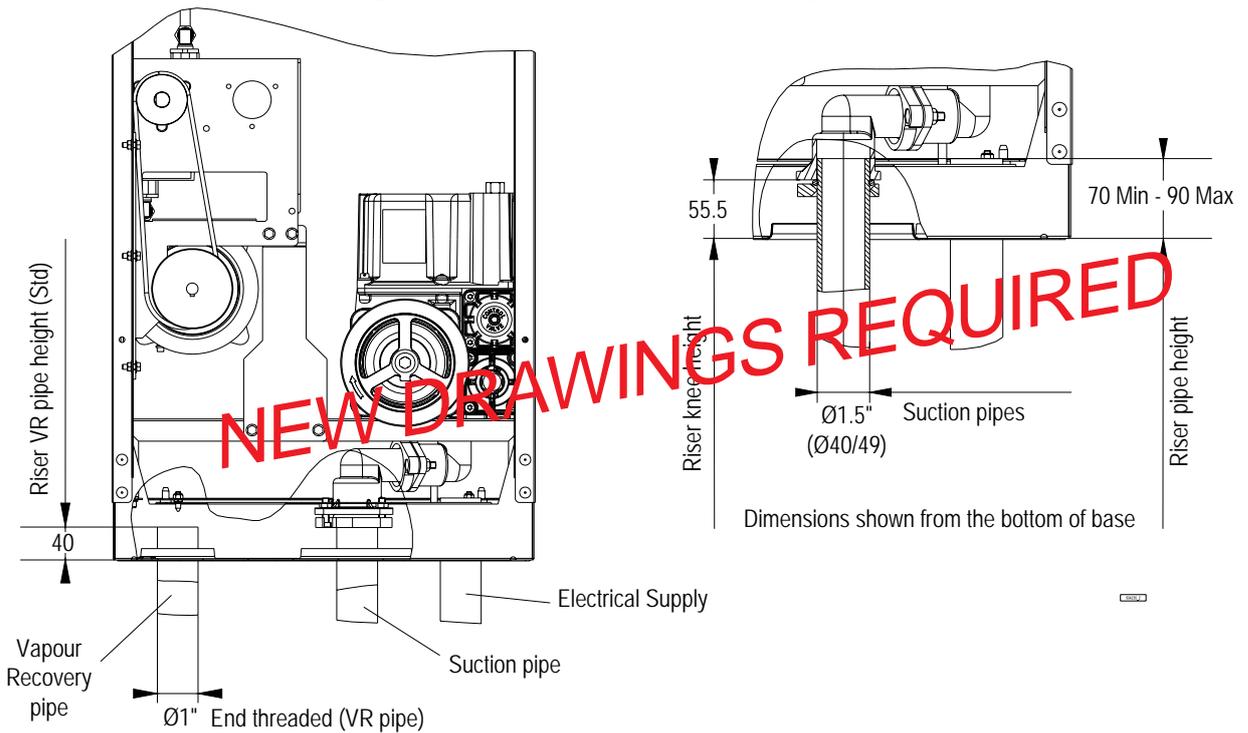
The suction pipes are accessible from either side of the Dispenser. Different types of hydraulic connection are available depending on the dispenser configuration.

**Please note : If the inlet riser pipe has a female connection, an adaptor must be used (1.5" or 2").**

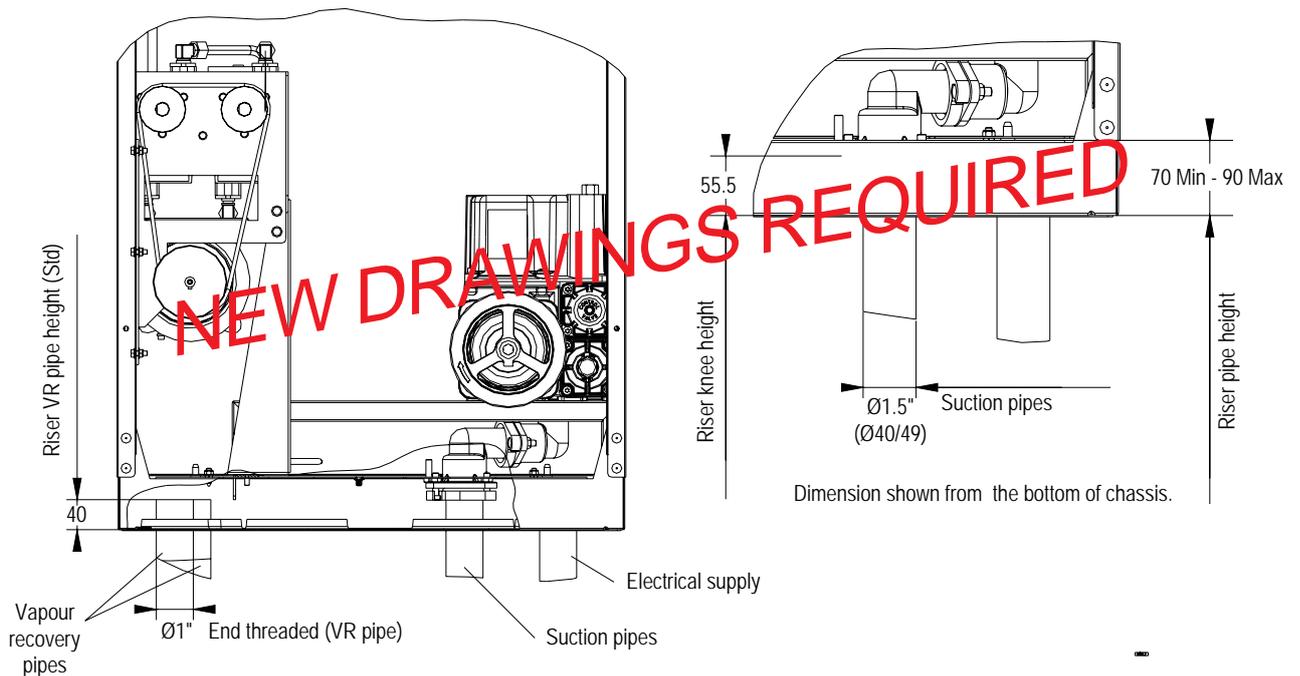
If an adaptor is used, the dimensions shown will need to be reduced (maximum 36mm).

2.3.1 TQP CONNECTIONS

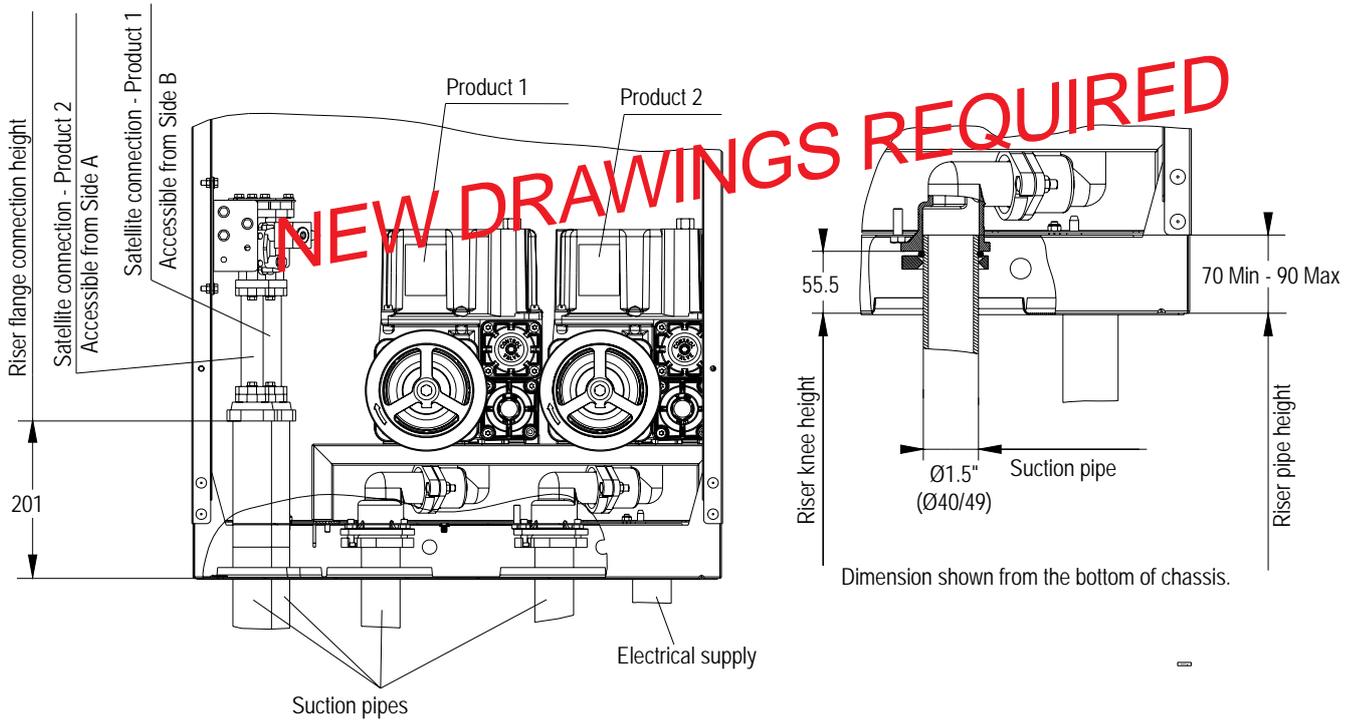
**Q110 Dispenser with TOP (Standard configuration)**



**Q210 Dispenser with TOP (Standard configuration)**

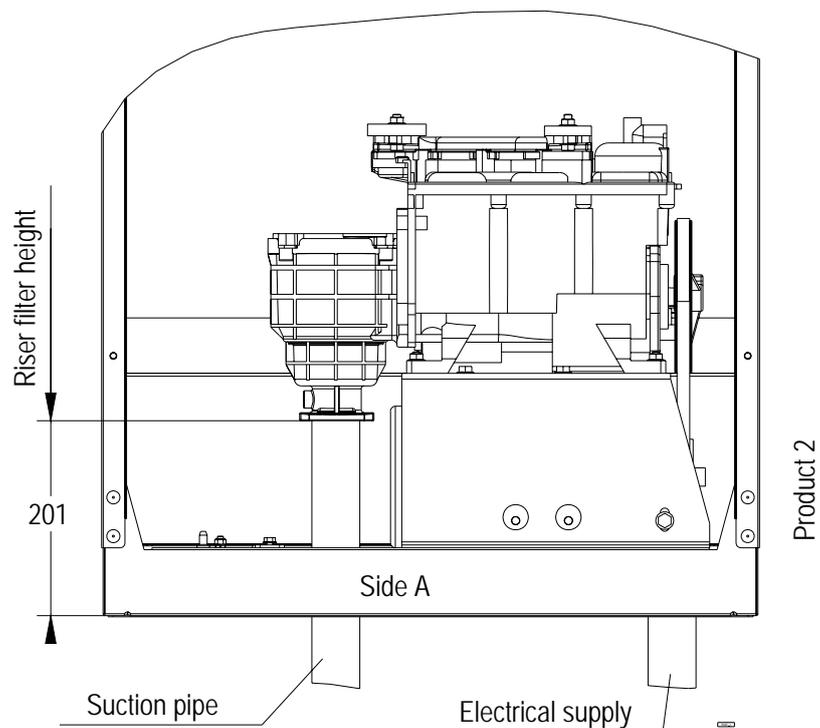


**Q210 Dispenser with TOP & Satellite Connection**



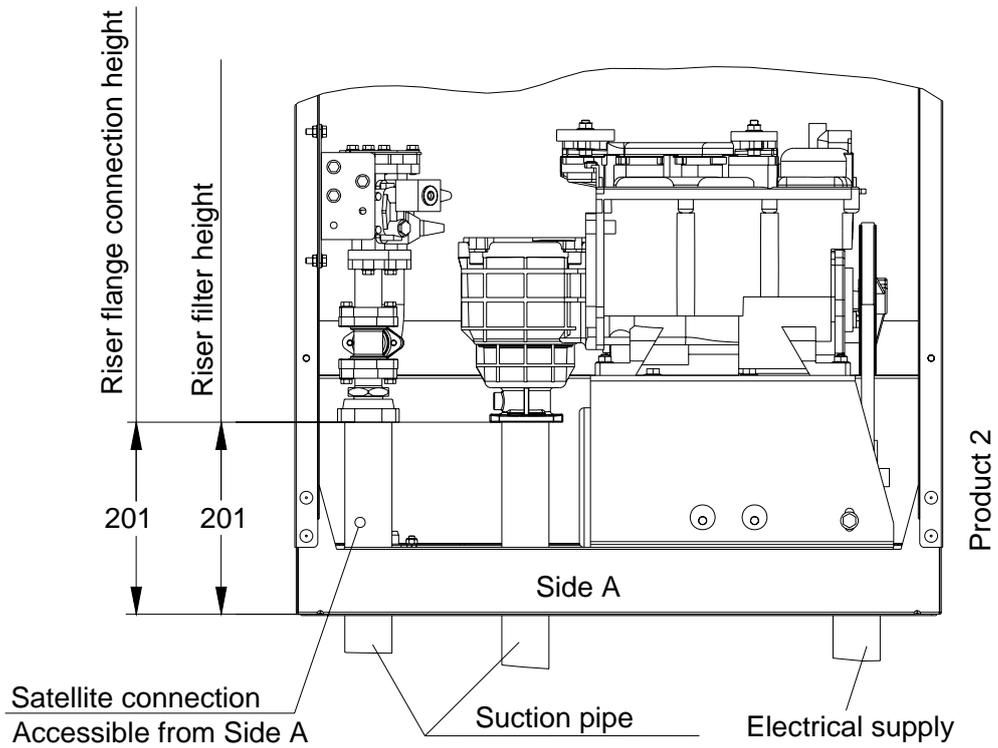
2.3.2 PAS V3 CONNECTIONS

**Q110 & Q210 Dispensers with PAS V3 (Standard configuration)**



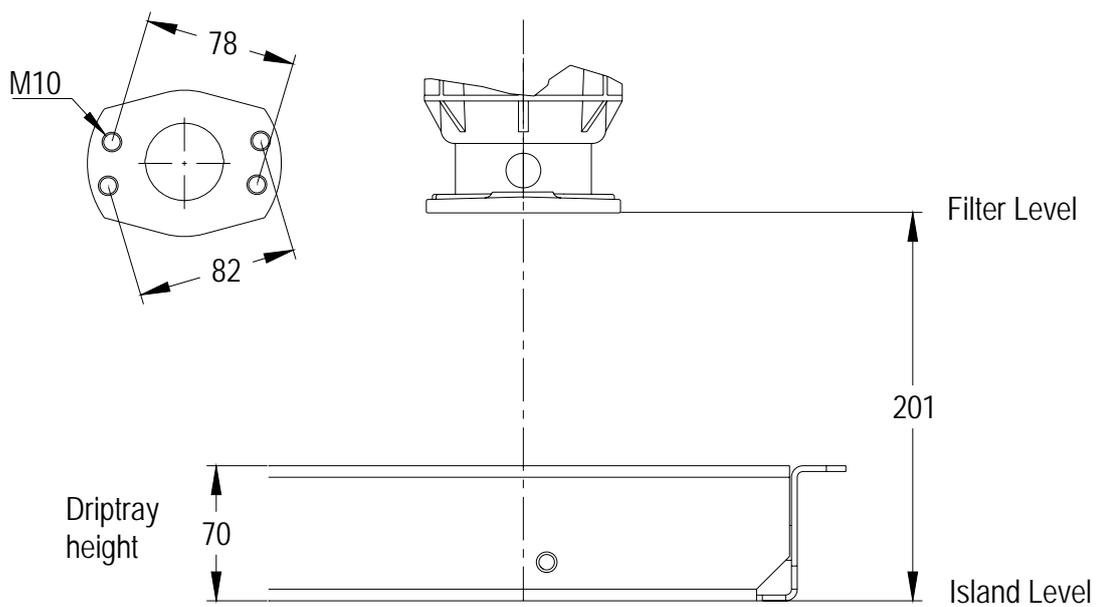
Dimensions shown from the bottom of the base

**Q110 & Q210 Dispensers with PAS V3 & Satellite Connection**

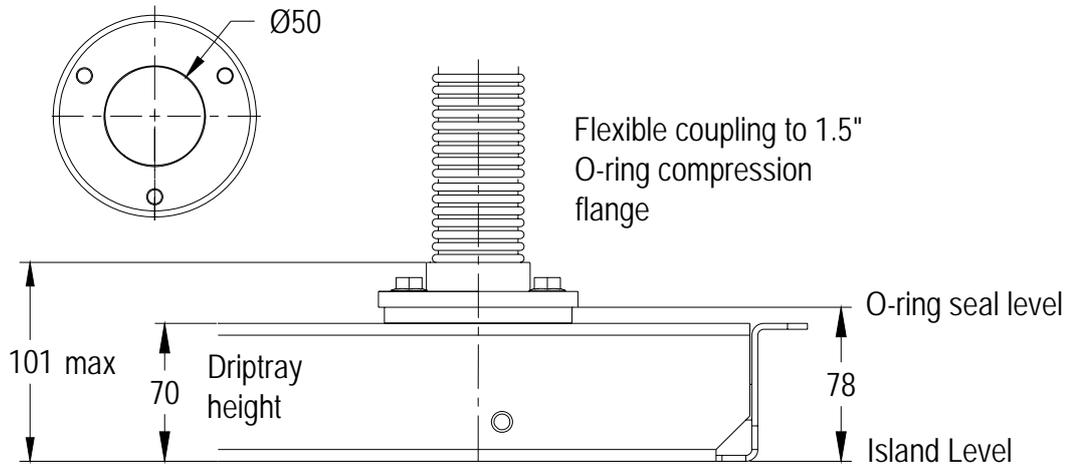


Dimensions shown from the bottom of the base

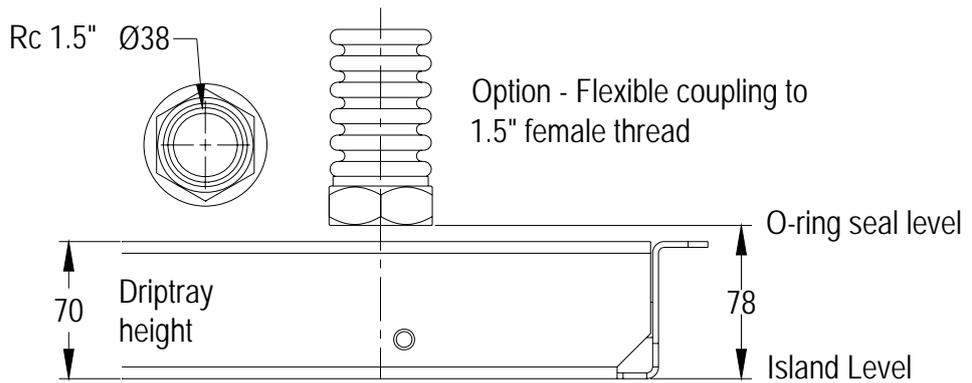
**PAS V3 Standard Suction & Submerged Hydraulic Connection (without flexible coupling)**



**PAS V3 Suction Connection - Flexible Coupling to 1.5" O-Ring Compression Flange**

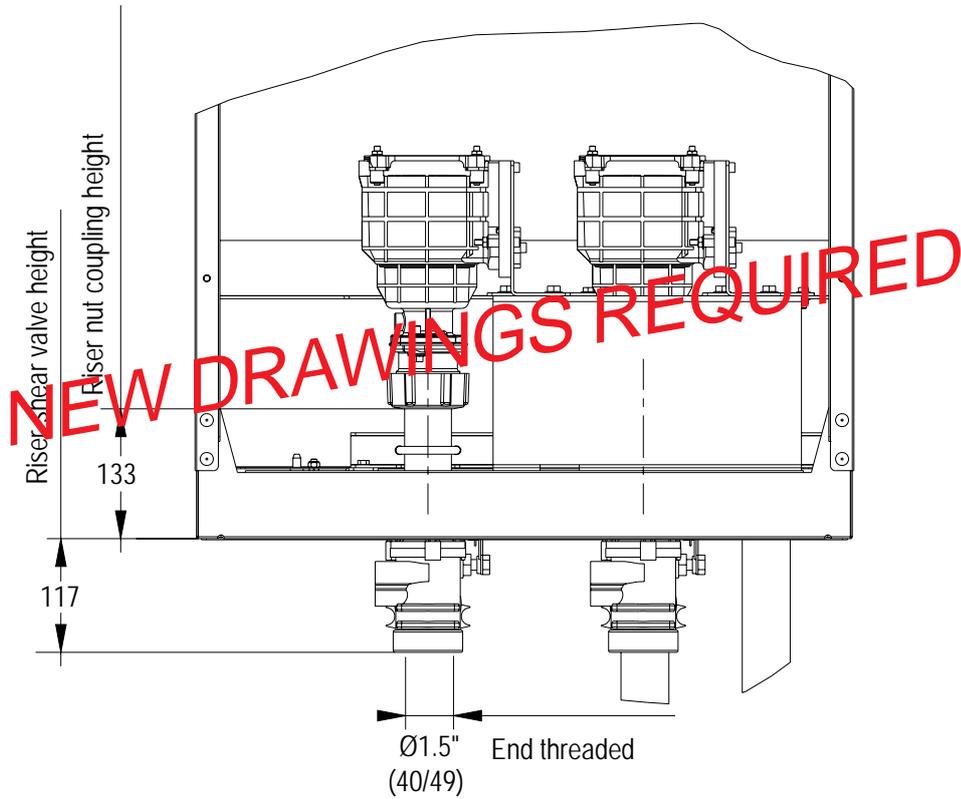


**PAS V3 Suction Connection - Flexible Coupling to 1.5" Female Thread**



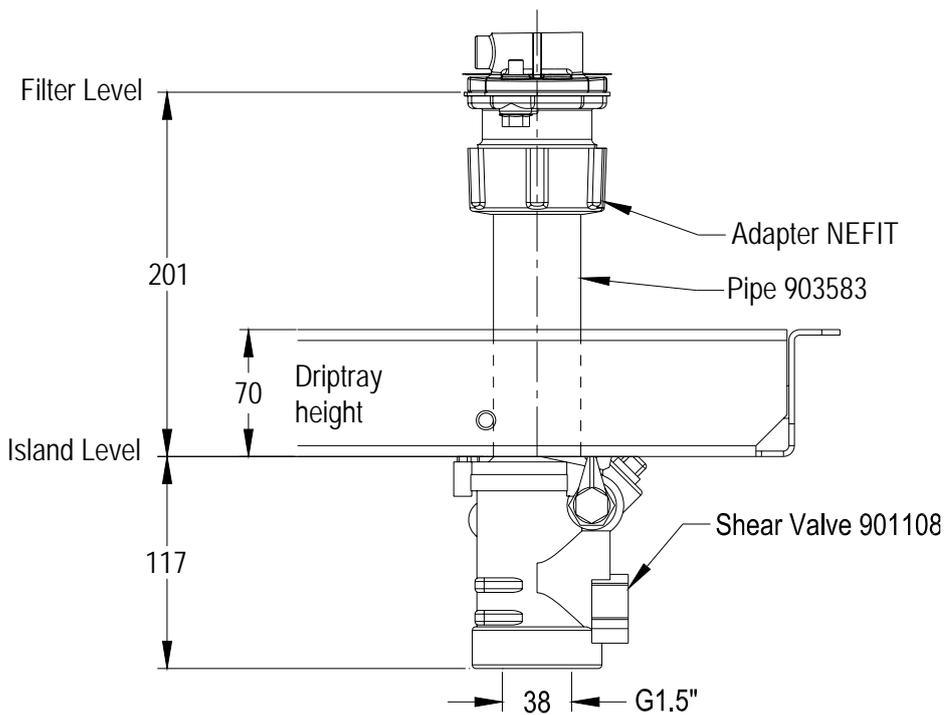
2.3.3 SUBMERGED CONNECTIONS

Standard Submerged Connection



Dimensions shown from the bottom of the base

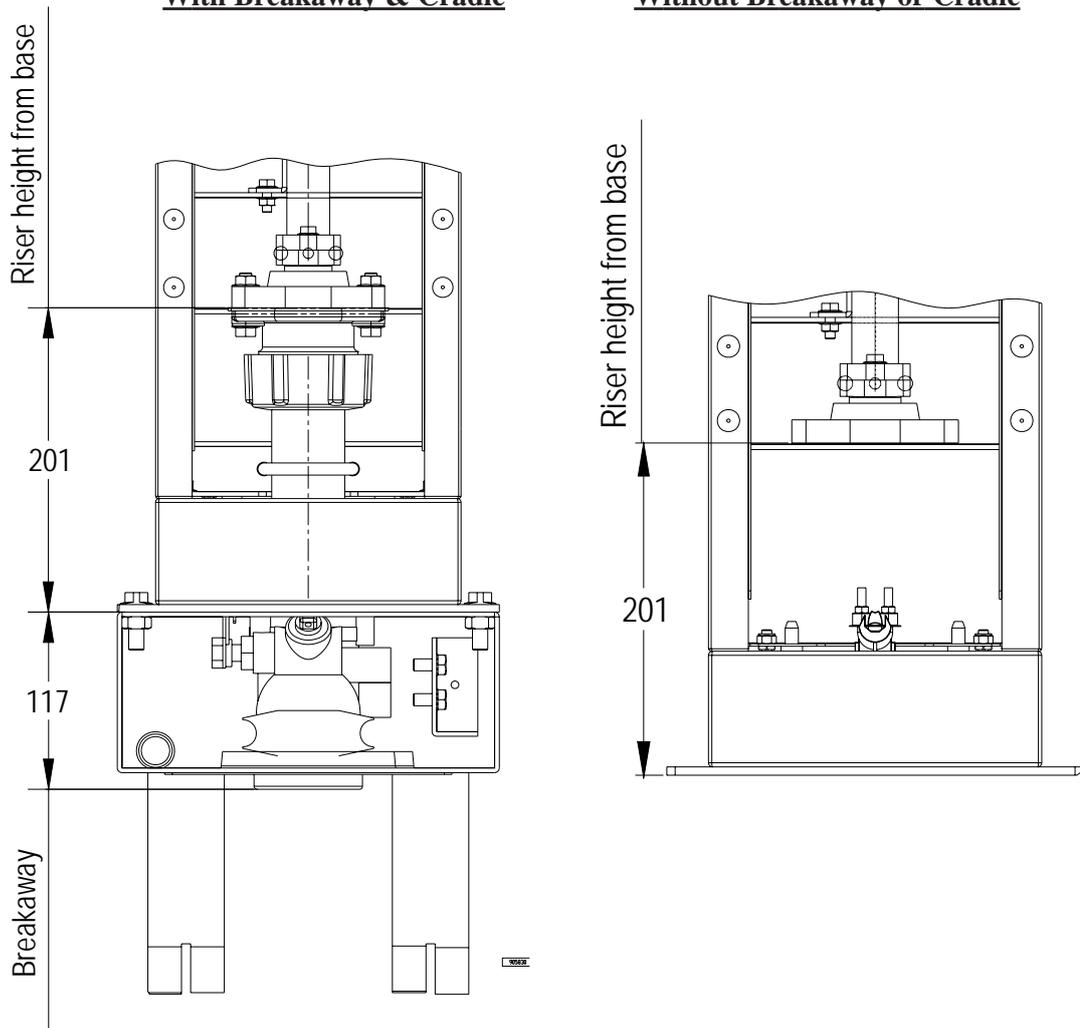
Submerged Connection with Nefit Adaptor & Tokheim Shear Valve



2.3.4 Q210 SDS CONNECTIONS

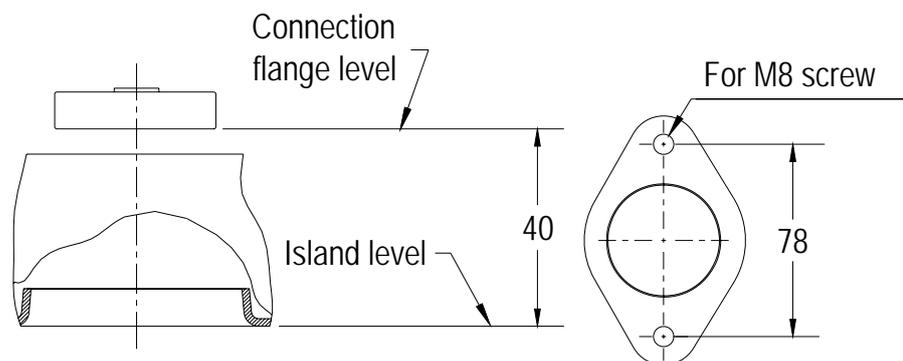
With Breakaway & Cradle

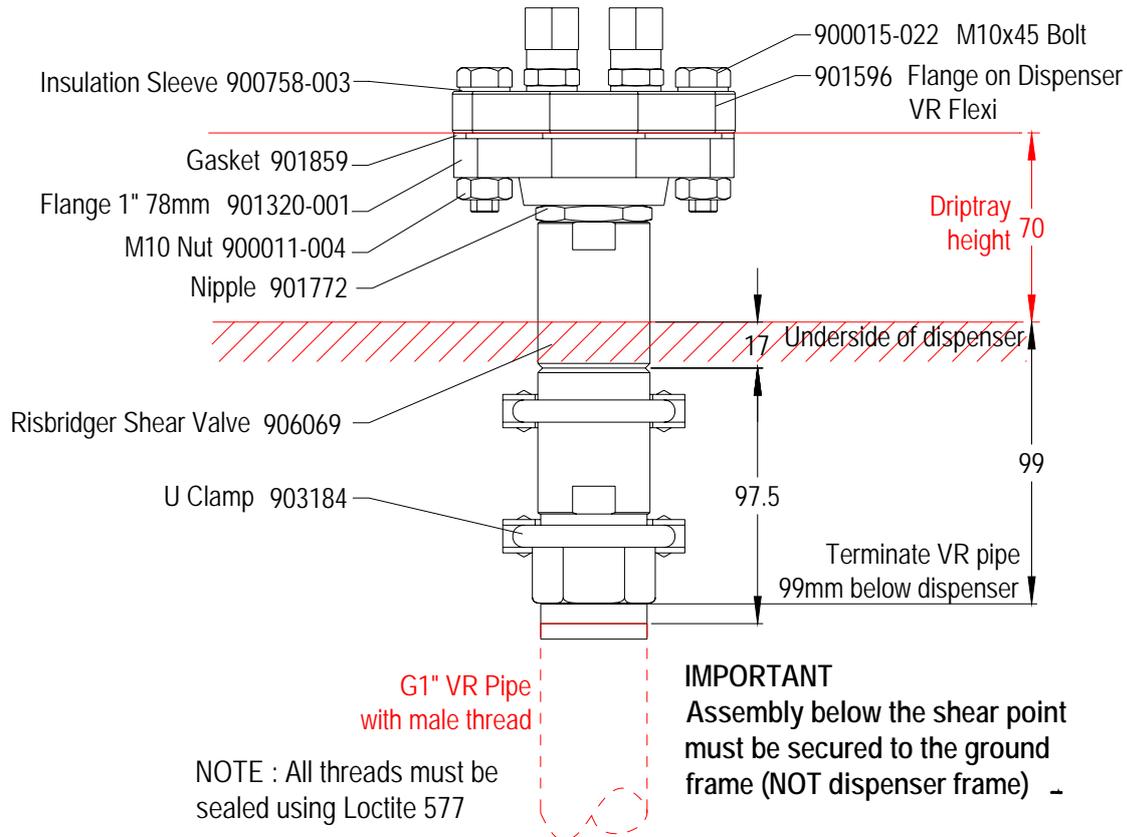
Without Breakaway or Cradle



2.3.5 VAPOUR RECOVERY CONNECTIONS

Standard VR Connection



**VR Connection with Risbridger Shear Valve Option****SPECIAL INFORMATION RELATING TO HIGH BLEND ETHANOL FUELS (HBEF) & VAPOUR RETURN (VR) RETURN LINES**

Following extensive explosion safety tests with HBEF by PTB, Tokheim recommends all pipework back to the vapour space of the HBEF storage tank should be protected by special flame arresters.

The vapour return line to the underground storage tank should be protected in the event of a vehicle collision with a dispenser and also for maintenance operations. The flame arrester(s) in the dispenser VR pump do not meet this requirement.

An additional flame arrester must be positioned under the dispenser and must be protected from potential damage during a vehicle collision so it remains connected to the vapour return line to the tank in the event that the dispenser is knocked off the island.

*Note : This flame arrester is a requirement of the installation, not a requirement of the dispenser.*

If the Stage II VR return lines are routed back to the HBEF tank then the VR return line from the dispenser vapour recovery system should protect the tank by including a flame arrester.

The correct type of flame arrester must be carefully selected:-

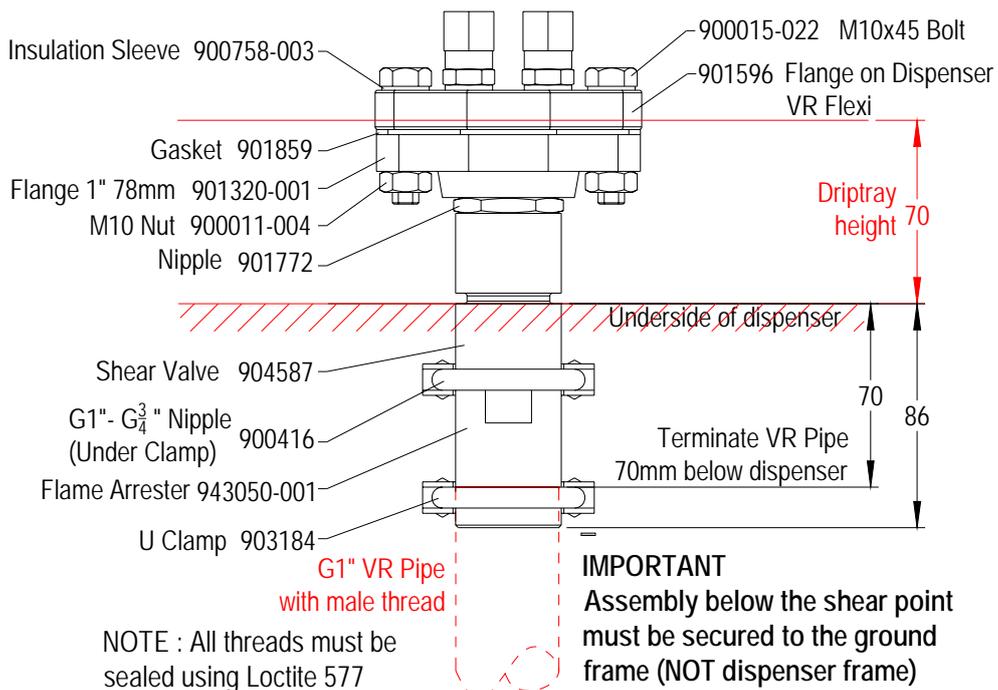
- Deflagration or detonation arrester dependent upon its position relative to the anticipated end of line
- Inline type (unless it can be guaranteed to be at the end of line during maintenance or after a vehicle collision)
- End of line types will need to be suitable for use with burning alcohol
- Arrester must be suitable for the correct Gas Group:-
  - Ethanol blends 60% to 90% require Gas Group IIA Arresters
  - Ethanol blends >90% require Gas Group IIB1 Arresters
- Arrester must be manufactured from materials suitable for use with ethanol and bio-ethanol blended fuels

Tokheim offer two kits for use with Quantium dispensers to fulfil these requirements, both kits using the inline deflagration flame arrester certified for use with Gas Group IIB1 thus suitable for all percentage ethanol blends. The kit must be installed in close proximity to the underside of the dispenser in accordance with the drawings in this section.

- The standard kit includes an intentionally weak section above the arrester to ensure that the device remains on the underground vapour pipe following a vehicle collision
- The alternative kit includes a certified shear valve (with poppets) above the arrester which additionally ensures that the line back to the tank is closed following a vehicle collision

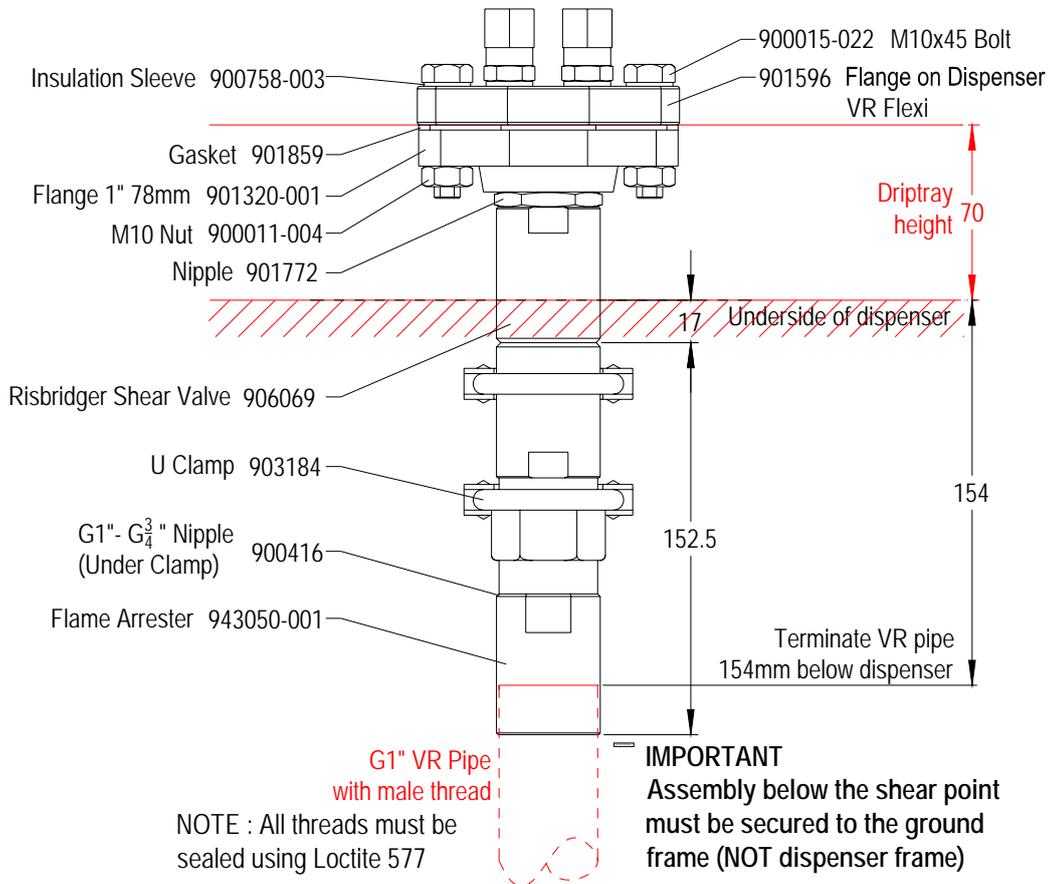
**VR Connection with Shear Point & Flame Arrester for Ethanol**

Kit 1 - Tokheim Part No 943143-001



**VR Connection with Risbridger Shear Valve & Flame Arrester for Ethanol**

Kit 2 - Tokheim Part No 943143-002



**2.4 Electrical Connections**

The electrical connection to be established between the kiosk and the dispenser exists in different configurations. The mains connection (power from the mains supply panel to the dispenser) and the data connection (link between forecourt controller and calculator) are customer, country and configuration specific. The number of cores and the cross section of the cable will be specified, as will the cable construction (armoured or Explosion proof) and guidance troughs, channels or cable trunks have to be carried out in accordance with national technical regulations.

**CONTENTS**

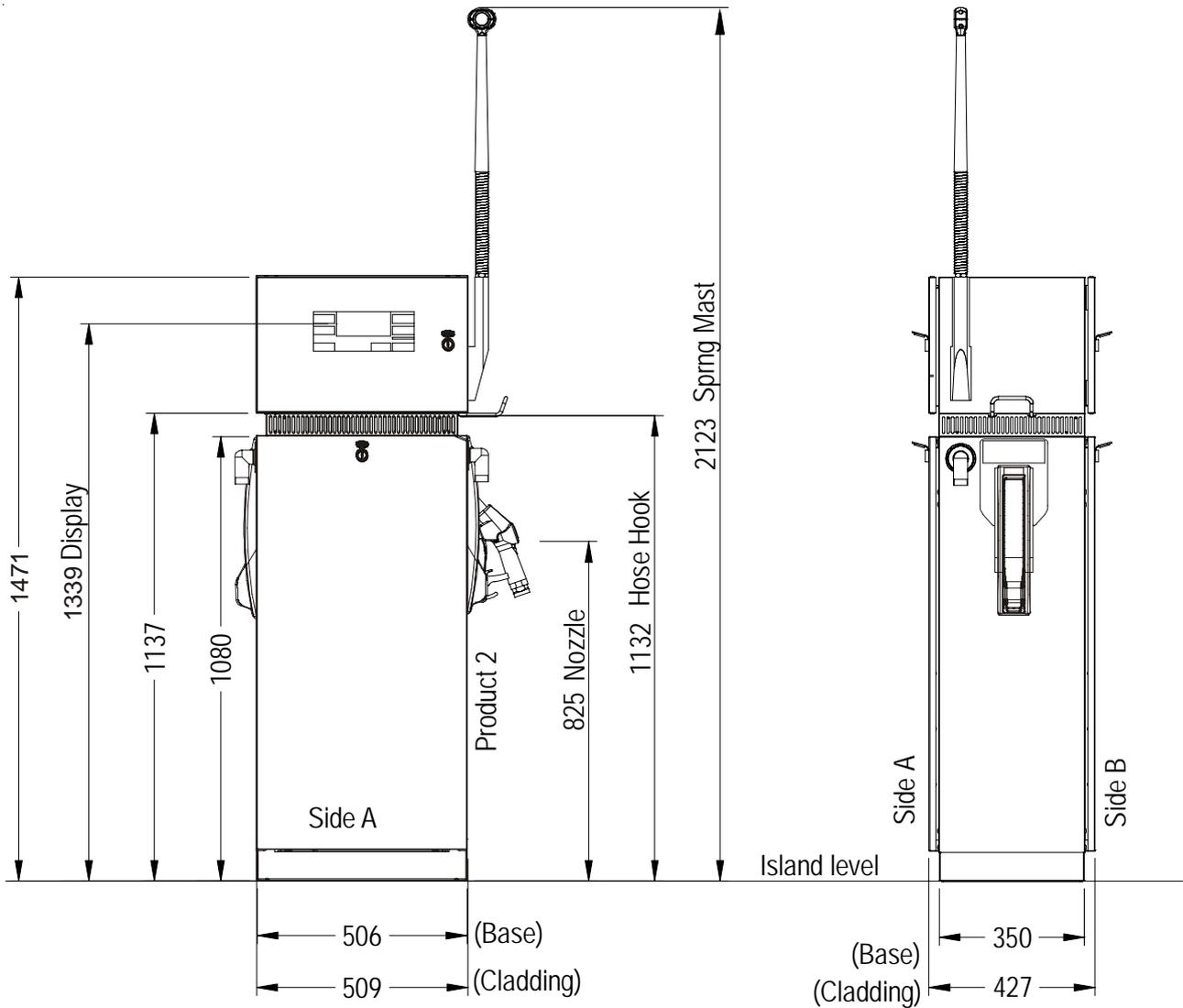
**3 DRAWINGS ..... 3-2**

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3 DRAWINGS

3.1 Q110 Dispenser

3.1.1 Q110 DISPENSER DIMENSIONS



Side A is the side where the pulley is (if TQP config).

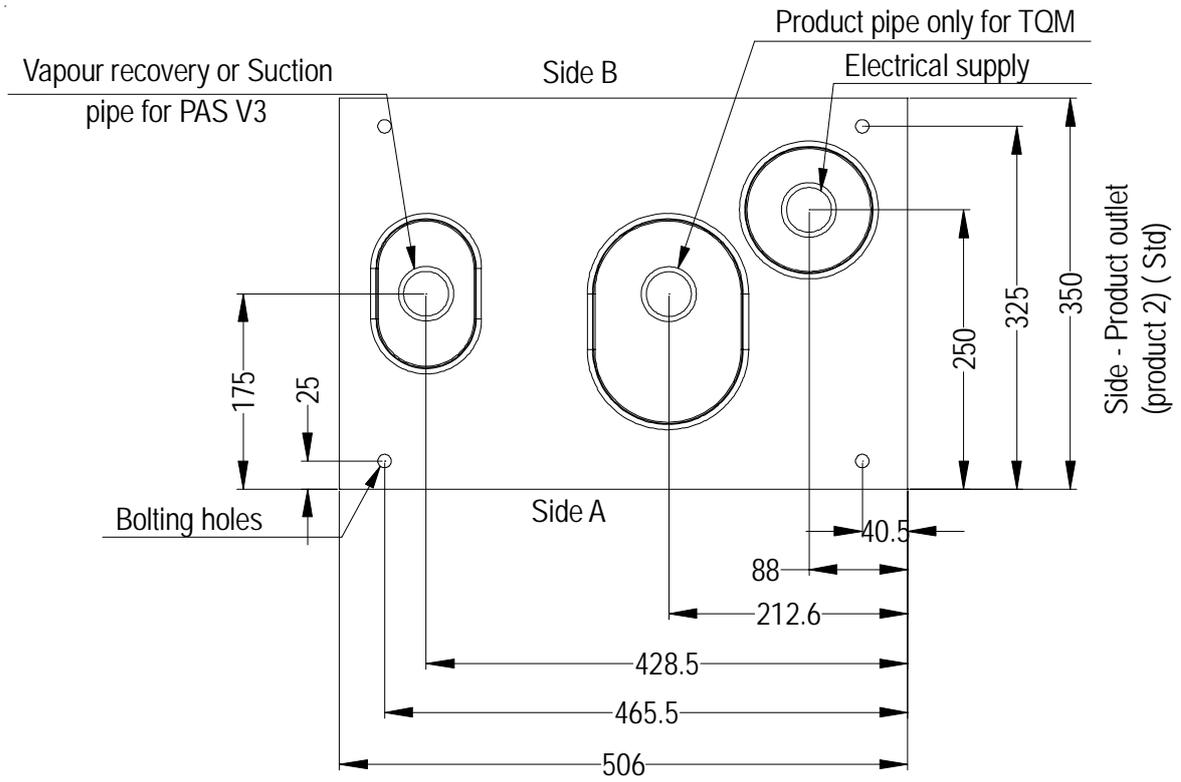
Side B is the side where the air vent outlet is.

For option "Display one side only", display is on side 'A'.

With single hose models, the hose is always on the right hand side when facing side A.

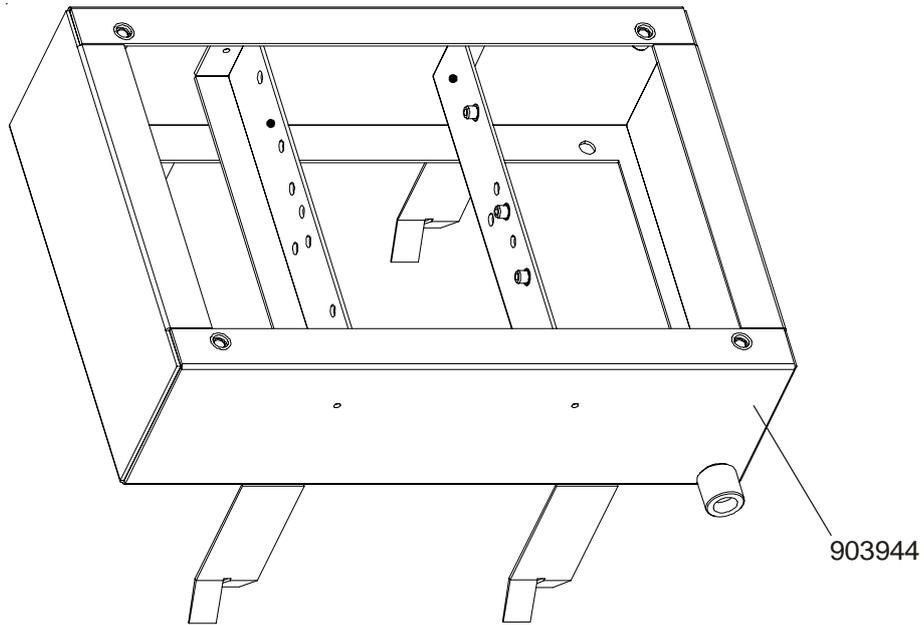
Outlet elbows are oriented upwards for springmast and oriented downwards for hose hook.

3.1.2 Q110 GROUND PLAN



Dimensions shown are from bottom of base.

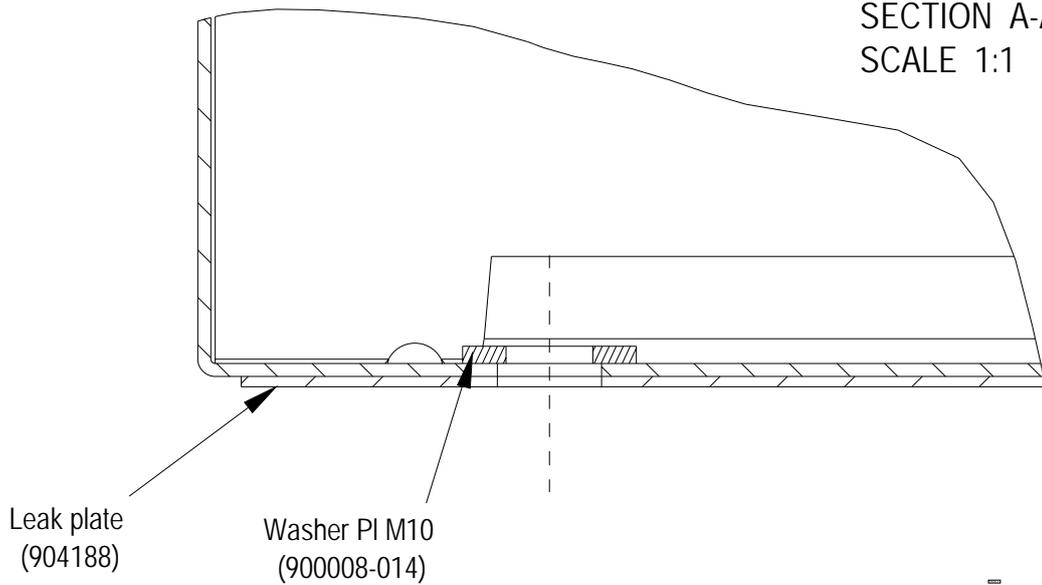
3.1.3 Q110 RETENTION TRAY ASSEMBLY



3.1.4 Q110 GROUND FIXING

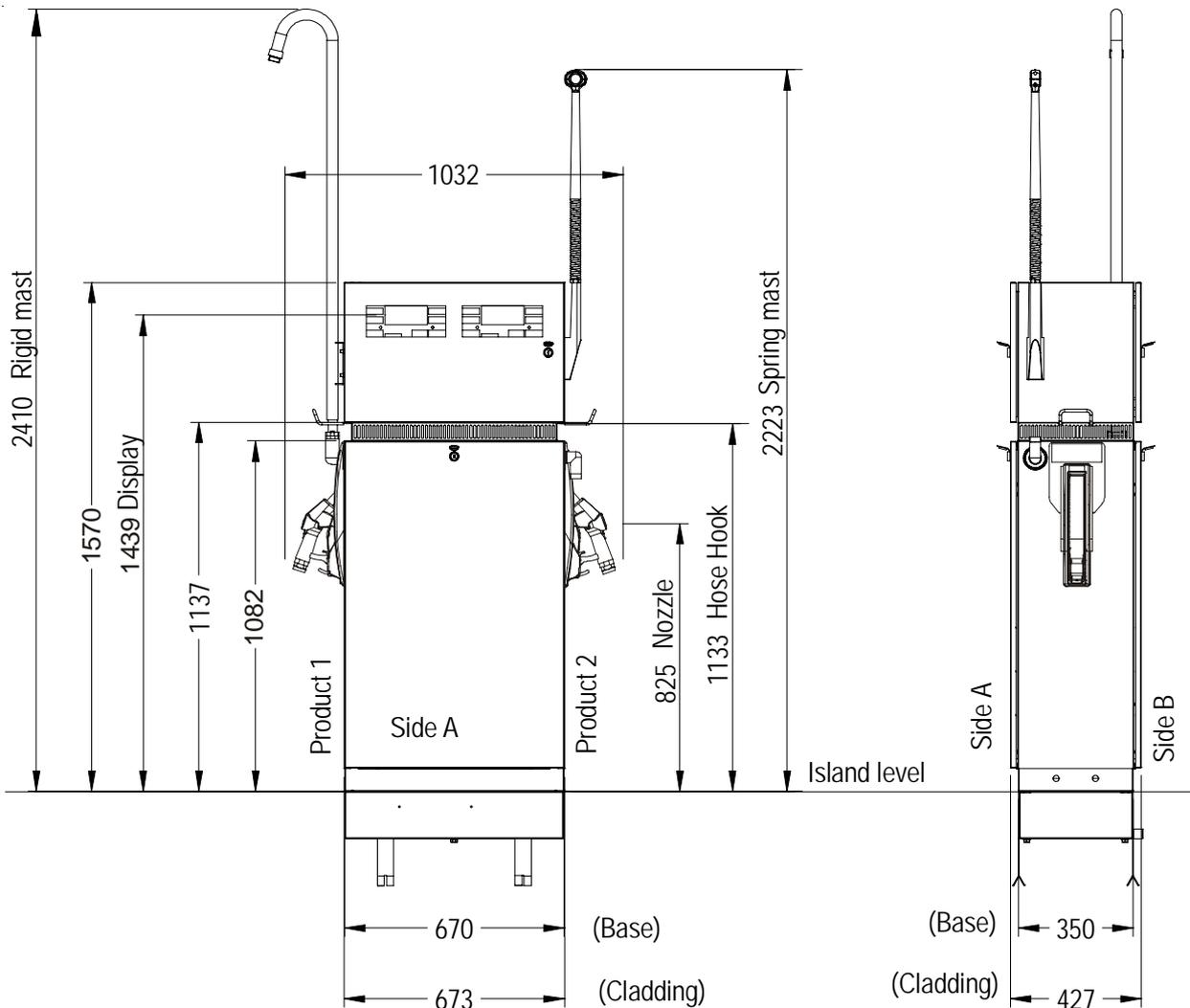
Leak plate option

SECTION A-A  
SCALE 1:1



3.2 Q210 Dispenser

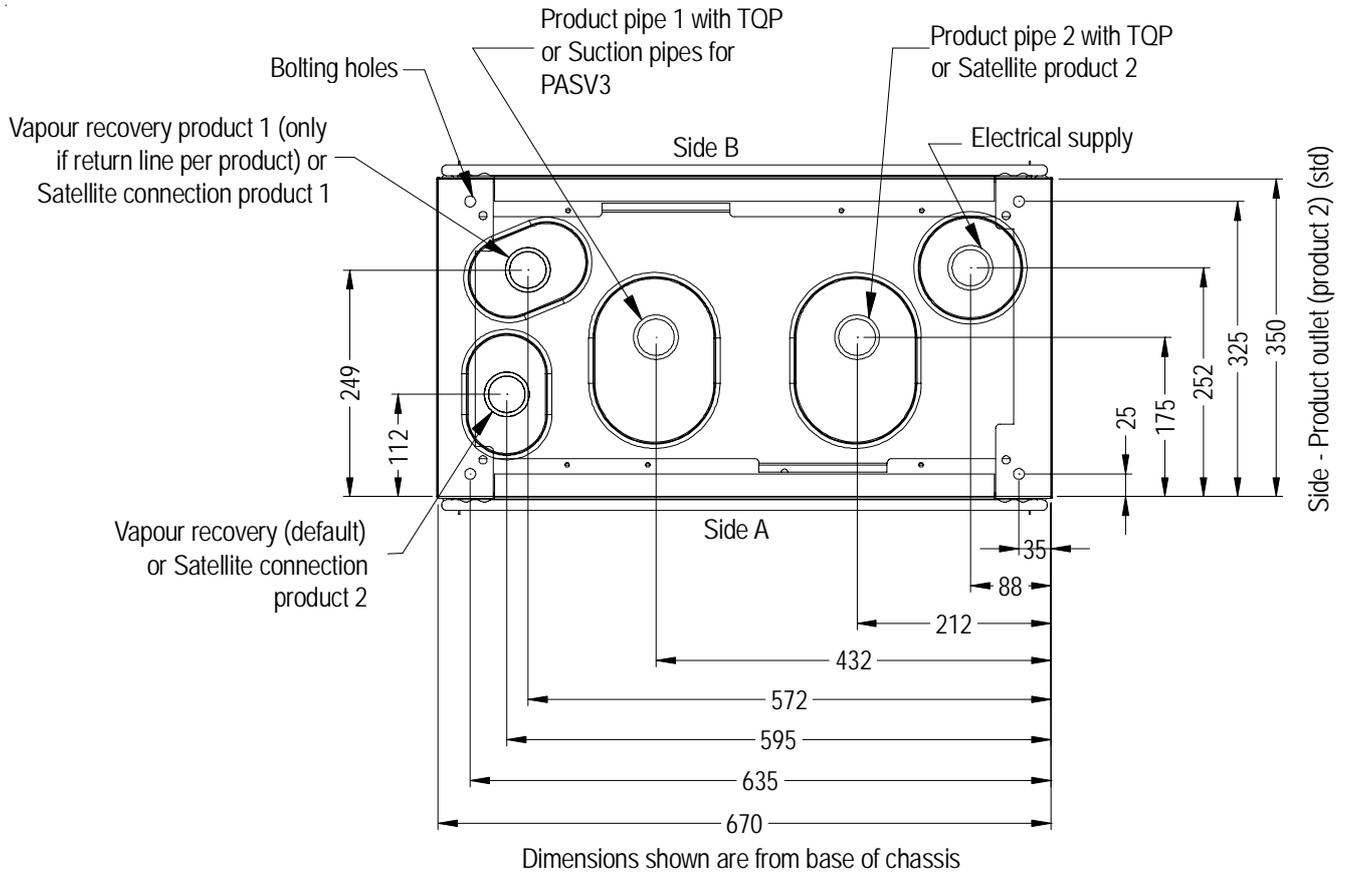
3.2.1 Q210 DISPENSER DIMENSIONS



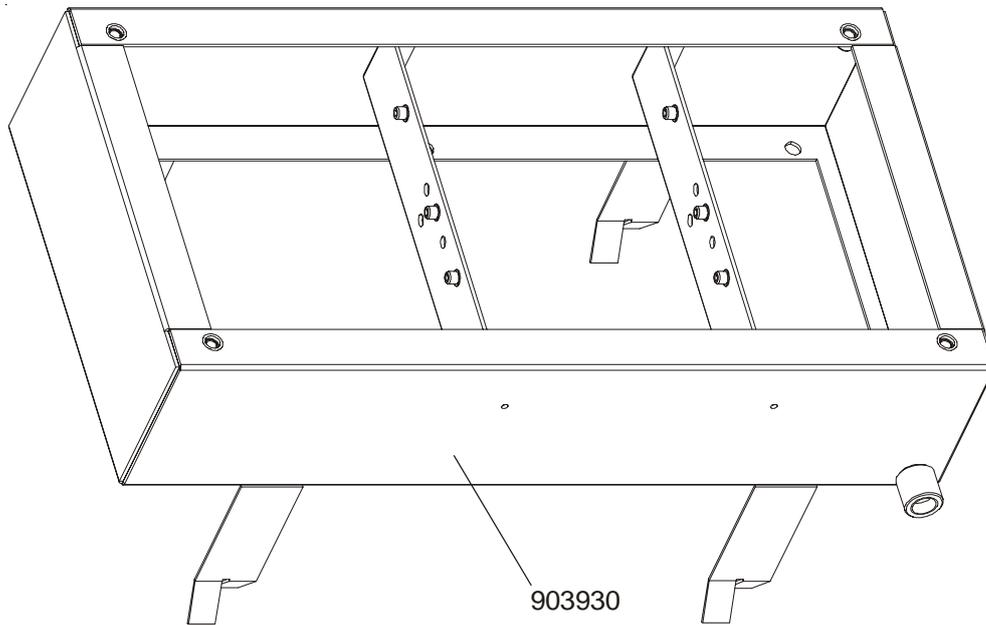
NOTES:-

- Side A is the side where the pulleys are (if TQP config).
- When facing Side A the pump pulley is on the right hand side (if PASV3 config)
- When facing Side A, filter brackets are on the right hand side (if submerged config)
- For option "Display one side only" displays are on side A
- Product outlet always on side 2 for single product
- Outlet elbows are oriented upwards for springmast and oriented downwards for hose hook
- For retaining hose option, the standard one is with the hook otherwise other options are either spring or rigid mast.

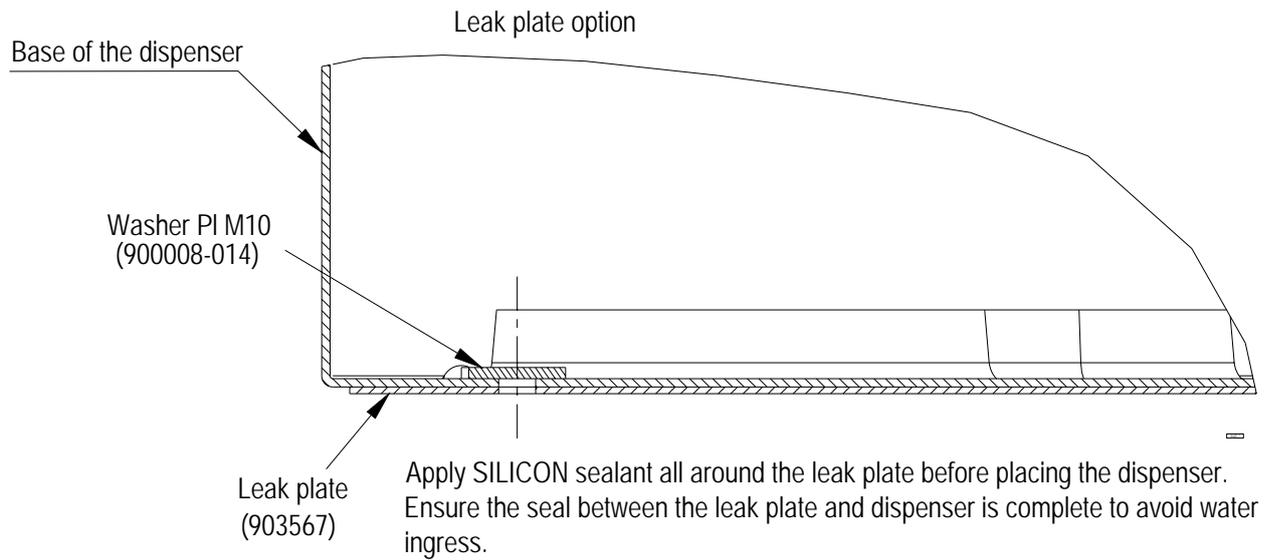
3.2.2 Q210 GROUND PLAN



3.2.3 Q210 RETENTION TRAY ASSEMBLY



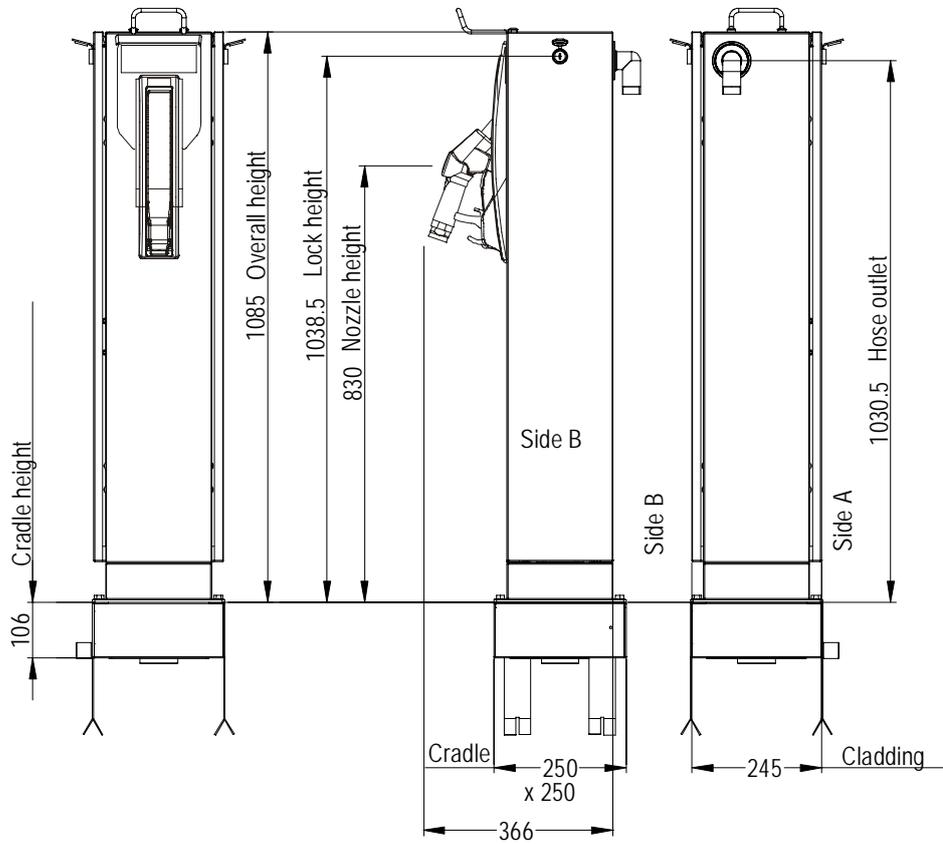
3.2.4 Q210 GROUND FIXING



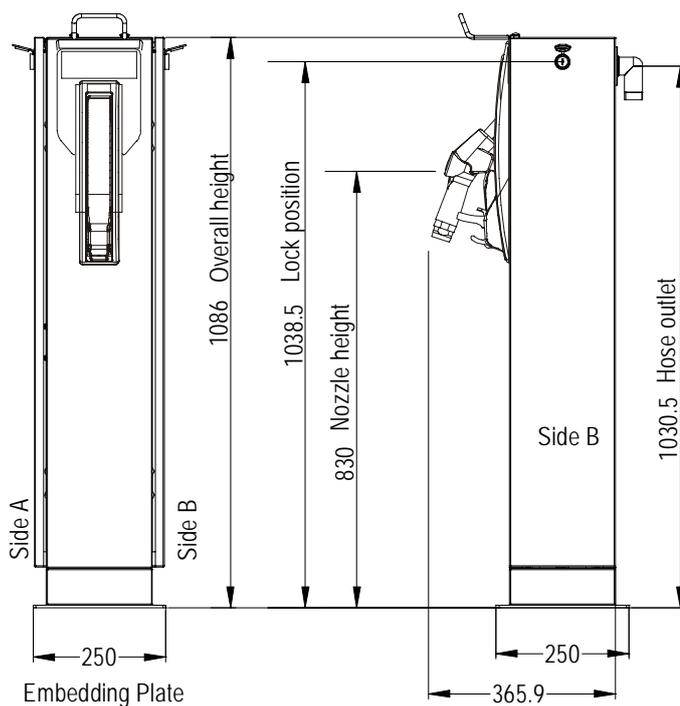
3.3 Q210 SDS Dispenser

3.3.1 Q210 SDS DIMENSIONS

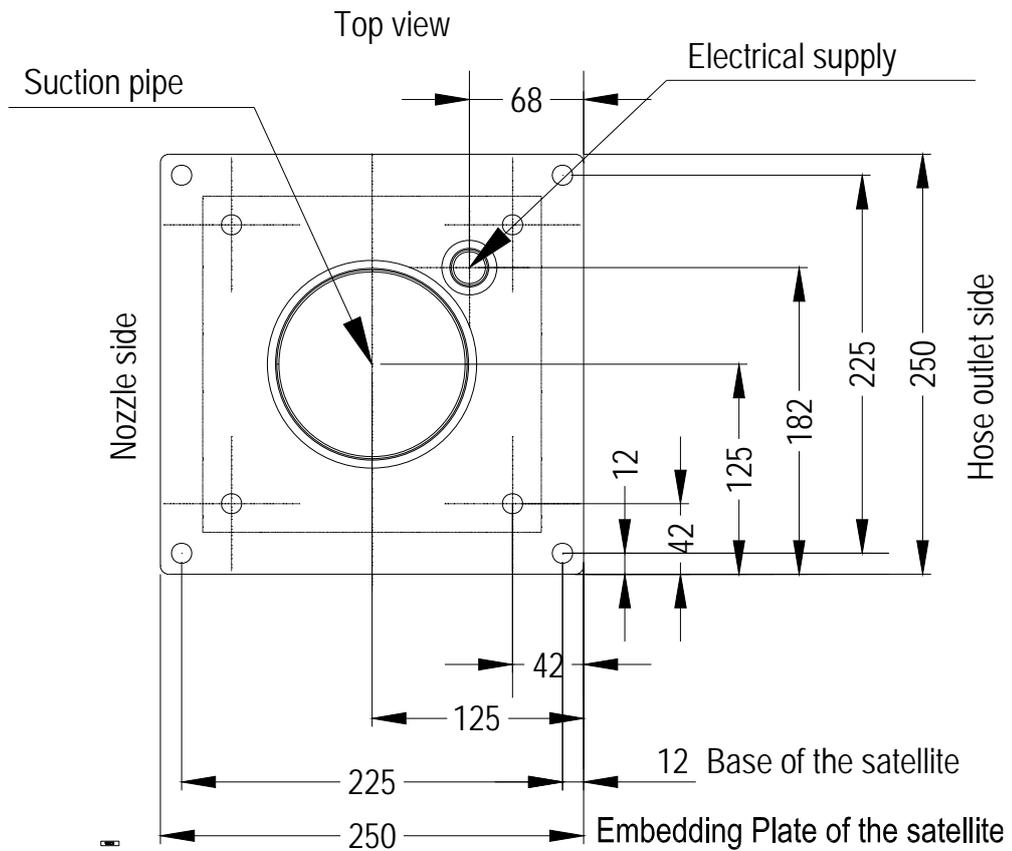
Stripped down satellite with breakaway and cradle



Stripped down satellite without breakaway or cradle



3.3.2 Q210 SDS GROUND PLAN



Dimensions taken from the base

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- 4.2 Packaging ..... 4-2
  - 4.2.1 Unpacking ..... 4-2
- 4.3 Inventory Inspection ..... 4-2
  - 4.3.1 Checking List ..... 4-3
- 4.4 Dispenser Weights ..... 4-3
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- 4.8 Access the Junction Box ..... 4-5
  - 4.8.1 Bernstein Junction Box ..... 4-5

## **4 PACKAGING & HANDLING**

### **4.1 Shipping Documentation**

The following documents will accompany every delivery:-

- Shipping List
- Packing/Checking List
- CE Sticker
- Certificate of Conformity

The Serial Number on the dispenser should be identical to the Serial Number on the Shipping List, CE sticker and Certificate of Conformity. Please inform Tokheim UK Ltd before unpacking if there are any discrepancies in the notation.

### **4.2 Packaging**

The type of packing depends on the destination of the goods. All products containing a frame are fixed on a pallet by means of screws and by the use of beams or blocks screwed onto the frame.

The goods are protected from moisture and scratching by bubble wrap and polystyrene corner blocks and a standard carton is used for packing. Where the use of a forklift truck or pallet truck is necessary, special arrangements make this possible through the use of pallets, beams, dispenser beam bridges or blocks.

All separate components belonging to the same delivery are packed together.

#### **4.2.1 UNPACKING**

When the dispensers arrive at the installation site, the unpacked units should be inspected for possible shipping damage. If damage is evident, it must be reported to the carrier. Shipping damage is not covered under the Tokheim warranty policy.

After checking the equipment, the dispenser may be unwrapped. Cladding is packed in such a way that paint, screening and stickers are protected. Take care when unwrapping so that these elements are not damaged.

After unwrapping, the dispensers must be checked for any faults or damage. Any faults or damage found must be reported to the Installation Supervisor immediately.

Make sure that all packing materials are removed from the service station. It is recommended that you discuss this with the station's supervisor.

### **4.3 Inventory Inspection**

After unpacking and prior to installation, the delivered equipment should be inspected to ensure that all the required materials are on hand, and the dispensers have all the ordered options and markings. If discrepancies in dispenser options and markings are evident, contact Tokheim France.

#### 4.3.1 CHECKING LIST

Proper installation of today's sophisticated electronic dispensing systems is essential to ensure trouble-free performance. Therefore, Tokheim has established inspection and check-out procedures to be followed to ensure correct equipment installation.

All products within a package are listed on the Checking List. Follow the procedure on the Checking List to ensure all required components have been delivered then return the completed Checking List to the Quality Dept., Tokheim, Grentheville, France.

### 4.4 Dispenser Weights

The following weights are approximate and will vary according to options fitted.

#### 4.4.1 Q110 DISPENSER WEIGHTS

- One Hose Dispenser : 120kg

#### 4.4.2 Q210 DISPENSER WEIGHTS

- Two Hose Dispenser : 190kg

### 4.5 Handling

The recommended procedure for safe handling of the dispenser is by use of a forklift under the pallet.

The installer must supply all handling equipment and ensure safe working practice at all times.



#### 4.6 Access the Hydraulic Area

The following instructions detail the procedure to be followed for the removal of the hydraulic access panel(s) to allow safe access to the dispenser hydraulics.

##### INSTRUCTIONS

- 1) Locate the key for the hydraulic access panel.
- 2) Unlock the hydraulic access panel.



- 3) Carefully lift out the panel.

**Note - the panel is still attached by a retaining cord, earth and/or electrical cables.**



- 4) Disconnect the retaining cord, earth and/or electrical cables from the panel door.



- 5) Lift up the panel to release from the drive pins in the base and remove the hydraulic access panel completely.

- 6) Repeat for opposite side of dispenser as required.
- 7) Place the hydraulic access panel(s) in a safe position.
- 8) To re-fit the hydraulic access panels, follow the instructions in reverse.



#### 4.7 Access the Calculator Head

The following instructions detail the procedure to be followed for the safe access to the calculator head.

##### INSTRUCTIONS

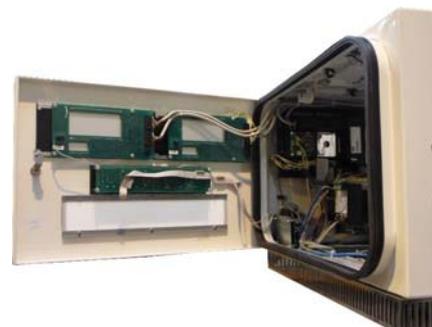
- 1) Locate the key for the calculator head door.
- 2) Unlock the calculator head door on the relevant side of the dispenser and carefully open it.



**Note : the door is still attached by electrical and/or earth cables.**

- 3) Secure the calculator head door in the open position.
- 4) Repeat for opposite side of dispenser as required.
- 5) To close and lock the calculator head door, follow the instructions in reverse.

**Note : ensure the electrical and/or earth cables remain inside when closing the calculator head door.**



**4.8 Access the Junction Box**

**4.8.1 BERNSTEIN JUNCTION BOX**

The following instructions detail the procedure to be followed to allow safe access to the junction box connections.

**INSTRUCTIONS**

- 1) Follow the instructions given to access the hydraulic area.
- 2) Locate the Junction Box in the hydraulic area.
- 3) Using a screwdriver, loosen and remove the four screws on the junction box cover and remove completely.
- 4) Refer to the wiring diagrams in section 5.
- 5) To re-fit the junction box cover, follow the instructions in reverse.



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## 5 INSTALLATION

### 5.1 General

Before the dispenser can be installed, the Safety Instructions as described in Section 1.5 and the Installation Instructions in this section must be carefully read.

Follow unpacking instructions in Section 4.2.1.

After unwrapping and before installation, the dispensers must be checked for any faults or damage. Any faults or damage found must be reported to the Installation Supervisor immediately.

**NOTE: IF USING SUBMERGED PUMPS, THE CONTROL MUST BE COMPLETELY ISOLATED DURING ALL PHASES OF INSTALLATION.**

The following checks need to be made before starting the installation :-

- Check that the electric cabling and the piping arrangements have been made in accordance with the Installation drawings in section 3.
- Check that the leakage plates have been produced in accordance with the Installation drawing. Any differences or defects should be reported to the Installation Supervisor immediately. The function of the leakage plate is to drain leakages to the outside of the dispenser where they act as a warning to the station attendant.
- Check that all flame arresters are correctly installed according to the drawings.

### 5.2 Identification of Side A

The different sides of the dispenser referred to in this manual are described as follows:-

- Side A of the dispenser has the pulleys and inlet connections (visible upon removal of hydraulic doors). All single hose models have the hose on the right hand side when facing side A.



Side A

- Side B of the dispenser has the electrical supply (visible upon removal of hydraulic doors). All single hose models have the hose on the left side when facing side B.



Side B

### 5.3 Lifting

The responsibility for carrying out the procedures described in this manual lies with the persons lifting and placing the dispenser.

The installer must supply all lifting equipment and ensure safe working practice at all times.

Quantium 110 & 210 dispensers can be lifted by forklift truck under the pallet.

### 5.4 Placement

Before placement on the island can take place, the following procedures must be carried out:-

- Check that the electric cabling and piping arrangements have been made in accordance with the Installation drawing
- Check the pipes have been flushed before connecting the hydraulic components (if necessary, contact the tank installer)
- Removal of stop plugs on fuel and vapour recovery pipes
- Preparation of mounting frame
- Fitting of seals for cable, fuel and vapour recovery pipe access
- Sealing of non-used holes

**IMPORTANT - Make sure Side A of the dispenser is positioned onto the island per customer specifications. See Section 5.2 for locating Side A.**

**⚠ WARNING**

Lifting equipment can be hazardous, and must be rated to lift the weight of the dispenser. Equipment could fall and cause severe injury or death. Stand clear from the dispenser when lifting and lowering.

## 5.4.1 BY FORKLIFT

- 1) Lift the dispenser using a forklift truck under the pallet. Position the dispenser close to the dispenser island. Ensure side A with the inlet connections is correctly positioned - refer to section 5.2 for the identification of side A.



- 2) Remove the hydraulic doors. Unbolt the pallet from the base of the dispenser.



**IMPORTANT -** Where supplied, the leak plate must be placed in the ground **PRIOR** to positioning the dispenser. Once placed, the leak plate must be sealed to the ground frame and to the dispenser using a suitable sealant.

- 3) Where supplied, place the leak plate onto fixing studs provided on the island prior to positioning the dispenser ensuring the riser pipes and cables pass through the correct holes in the leak plate.

Carefully lift the dispenser and position on the leak plate.



- 4) **IMPORTANT:-**

Secure the dispenser to the ground as described in section 5.4.2.



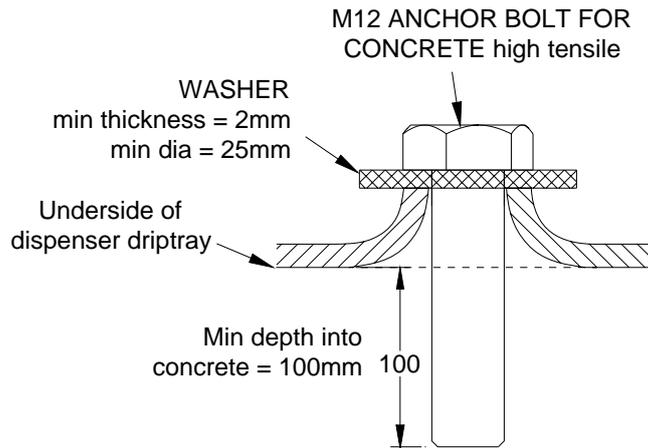
Placement complete.

5.4.2 FIXING TO GROUND

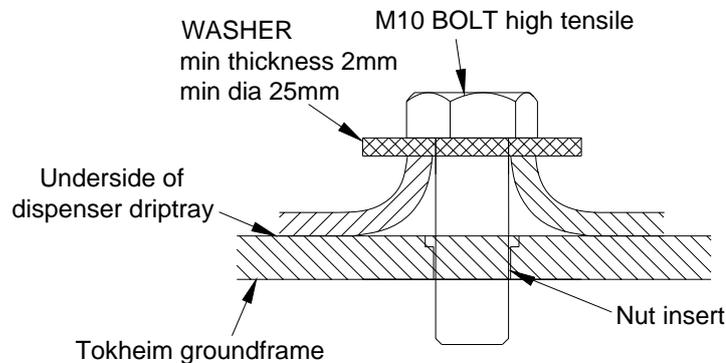
The following information relates to a typical Tokheim dispenser, unmodified by the user, with no additional advertisement boards, canopies or items added to the dispenser. Any such modifications may affect the stability and have warranty/liability consequences.

**IMPORTANT:- Tokheim dispensers must be secured to the ground using all 4 mounting positions provided in the driptray - refer to the groundplan drawings in section 3 for mounting hole positions.**

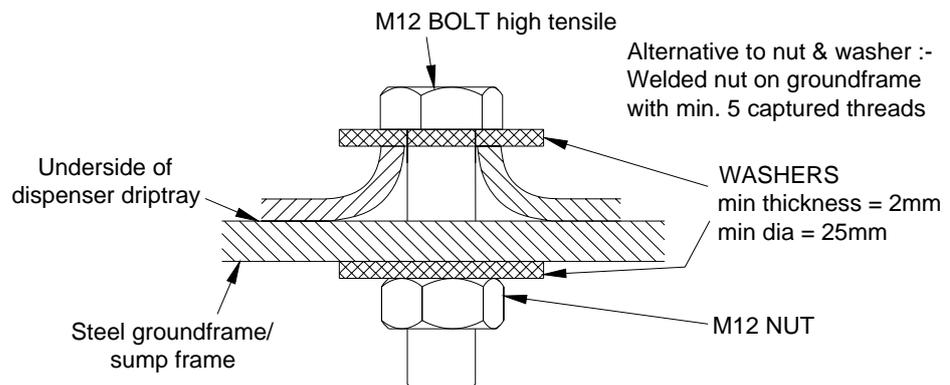
**TYPICAL FIXING INTO CONCRETE (NO GROUNDFRAME)**



**TYPICAL FIXING INTO TOKHEIM GROUNDFRAME**



**TYPICAL FIXING INTO THIRD PARTY GROUNDFRAME / SUMP FRAME**



### 5.4.3 EARTHING

Earthing requirements are dictated by local National regulations and must always be observed.

Tokheim recommends the following guidelines as a **minimum requirement**:-

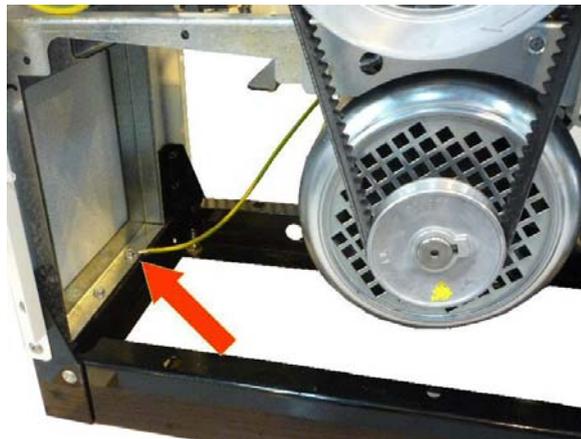
- 6mm<sup>2</sup> earth conductor(s) back to main site earth (up to 85m cable run)
- 10mm<sup>2</sup> earth conductor(s) back to main site earth (85 to 150m cable run)

The primary earth connection point for Quantium dispensers is the M2000T Junction Box provided for installation cable connections. Threaded inserts or studs (M8) are also provided in the base frame as an additional external connection facility for an earthing or equipotential bonding conductor.

Earthing requirements are dependent upon the number of earth conductors provided (one per power cable) and the types of cable used. For example, where steel wire armour cables or MICC are used in conjunction with the appropriate termination glands, no supplementary specific earth cable is likely to be required. Where simple PVC covered cables are used, Tokheim recommends an additional earth core is connected to the point provided on the dispenser base frame.

**IMPORTANT : It is the responsibility of the Installer to supply the earth wire and ensure the dispenser is safely earthed.**

The photograph below is a typical example of an earth connection point on a Q210 dispenser (exact location and/or fixture may differ between dispenser ranges):-



**5.5 Hydraulic Connections**

Connect all hydraulic and electric junctions according to the specifications as described in this section and indicated on the drawings in Section 3.

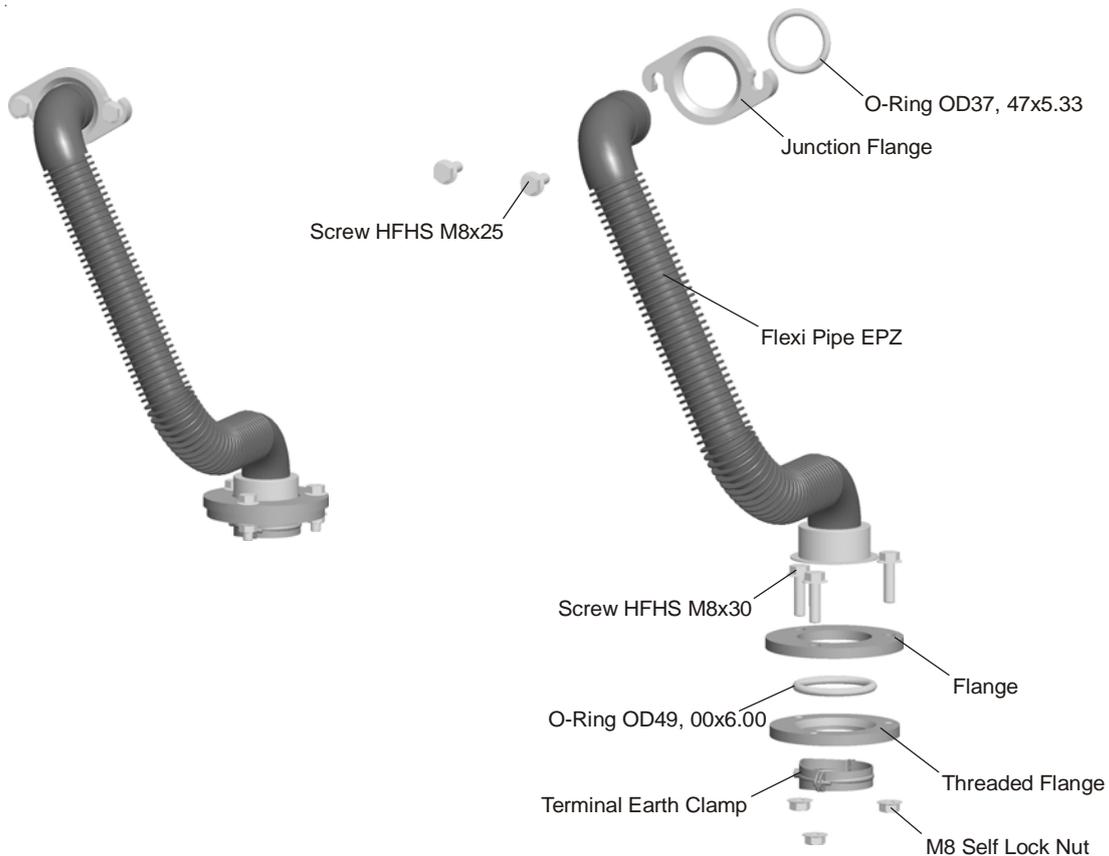
Flow rates achieved are dependent upon the type of submerged pumping system used and other site-specific conditions.

**Note : The maximum pressure must not exceed 3.5 bar.**

**5.5.1 PIPEWORK - SUCTION DISPENSERS WITH INTERNAL FILTER**

Connections to the fuel supply pipes and the vapour return lines are accessible from side A of the dispenser (see section 5.2 for identification of sides).

**TQP PUMPS WITH INTERNAL FILTER**



- 1) Place the terminal earth clamp over the supply riser pipe and tighten.  
Add the threaded flange and O-ring OD49.



- 2) Place the elbow of the flexi pipe through the hole of the flange. Connect to the threaded flange resting on the supply riser pipe using 3 M8x30 screws.



- 3) Tighten the screws on the terminal earth clamp and the 2 flanges.



- 4) Place the elbow of the flexi pipe through the hole of the junction flange, then add the O-ring OD37. Bend the flexi pipe until the junction flange mates with the pump inlet.



- 5) Tighten the screws from the junction flange to the pump inlet.
- 6) Repeat steps 1 to 5 for each hydraulic position as required.



### 5.5.2 PIPEWORK - SUCTION DISPENSERS WITH EXTERNAL FILTER

Connections to the fuel supply pipes and the vapour return lines are accessible from side A of the dispenser (see section 5.2 for identification of sides).

The dispenser is positioned with the filter box positioned above the relevant fuel supply risers. If required, adapters should be fitted to the supply pipes. The flexible connection (rigid for pressurised systems) should then be fitted between the fuel supply risers and the filter box.

#### PAS V3 PUMPS WITH EXTERNAL FILTER BOX ONLY

- 1) Remove the protective covers on the fuel supply riser pipe and on the filter box.

**WARNING : BEWARE OF FUEL SPILLAGE.**

- 2) Cut the rubber manchet to suit the riser pipe diameter and fit over the pipe to cover the hole in the drip tray.
- 3) Apply a sealant compound to the fuel supply riser and to the inside of the flexible coupling.



- 4) Fit the flexible coupling to the fuel supply riser pipe.

**Note : Hand tighten only at this point**



- 5) Insert the top hat filter (provided in the installation kit) into the flexible coupling.



- 6) Manoeuvre the flexible coupling into the correct position, ready for securing to the filter box.

- 7) Insert the gasket between the filter box and the flange on the flexible coupling.



- 8) Fit the flange to the filter box using the two screws provided in the installation kit.

**Note : Hand tighten only at this point.**



- 9) Use a large adjustable spanner to tighten and secure the flexible connection to the fuel supply riser pipe.



- 10) Using a 15mm spanner or socket, tighten the two screws on the flange.



- 11) Repeat steps 1 to 10 for each hydraulic position as required.



### 5.5.3 PIPEWORK - SUBMERGED DISPENSERS

The Installer is responsible for supplying the riser pipe to the heights given in section 2.4 and all pipework and connections below the filter box connection.



#### EXTERNAL FILTER BOX ONLY

- 1) The dispenser must be positioned directly above the riser pipes and carefully lowered into position.
- 2) Remove the protective covers on the fuel supply riser pipe and on the filter box.



#### WARNING : BEWARE OF FUEL SPILLAGE.

- 3) Connect the fuel supply pipe to the filter box or optional flange (where fitted).
- 4) Repeat for each hydraulic position as required.

## 5.6 Electrical Connections

During installation, the main switch must be switched off - ensure the main switch cannot be switched on inadvertently.

The installation of the cables must be carried out carefully to ensure the Eex-norm is enforced (insertion of cables via glands).

The electrical connections are compatible with all European installation practices and typical country specific cable types. The following information is the Tokheim recommended installation, however where differences exist in the standards relating to installation according to country specific legislation, the local/national standards must be employed. Electrical connections are made by either :-

- Direct wiring into a terminal rail in a WWC (refer to section 5.6.1):-
  - Single Phase Suction
  - Three Phase Suction
  - Submerged
- Wired into a junction box in hydraulic area (refer to section 5.6.3):-
  - Single Phase Suction
  - Three Phase Suction
  - Submerged
  - Split Power option - Three Phase Suction
  - Split Power option - Single Phase Suction
  - Split Power option - Submerged

## CABLING

The type of cabling used will differ by country according to local and/or national laws and regulations. The drawings in this section show the minimum number of cores required in cables and the minimum core cross sectional area. Cables with more than the minimum can be used provided that the cables are suitable for use with the cable gland sizes fitted. Individual cables can be combined provided that the minimum number of conductors remains.

The maximum number of forecourt cables required will be :-

- One power cable for motor power supply
- One power cable for calculator and lighting supply
- One cable for dispenser communications
- One cable per side for OPTimum communications (optional Q210 only)
- One cable per submerged pump control signals (where applicable)

## ELECTRONICS & LIGHTING PROTECTION

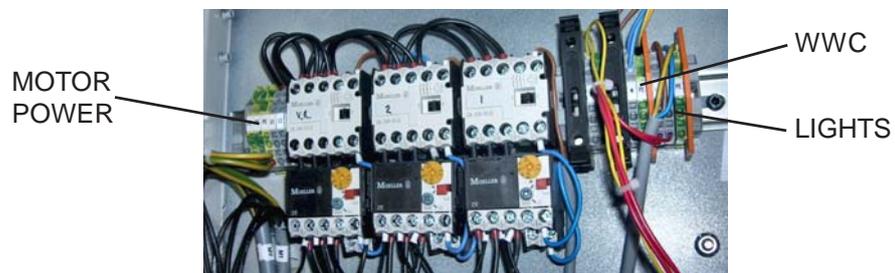
Tokheim recommends the use of a 2 pole thermal-magnetic device for protection of the metering pump electronics. A fuse must **NOT** be used in the neutral conductor. Thermal-magnetic breakers or fuses must be capable of extinguishing a fault current of at least 4000A. Pump lighting and lighting switched remotely are optional.

## MOTOR WIRING

The number of motors per dispenser will vary according to different models and options. Always connect to the furthest left terminal first. Jumper sizes and positions vary according to the number of motors connected.

### 5.6.1 DIRECT WIRING INTO TERMINAL RAIL - WWC

- 1) Follow the instructions given in section 4.7 to access the calculator head. Locate the relevant terminal rail inside the head:-
  - WWC - terminal rail located on side wall of WWC head

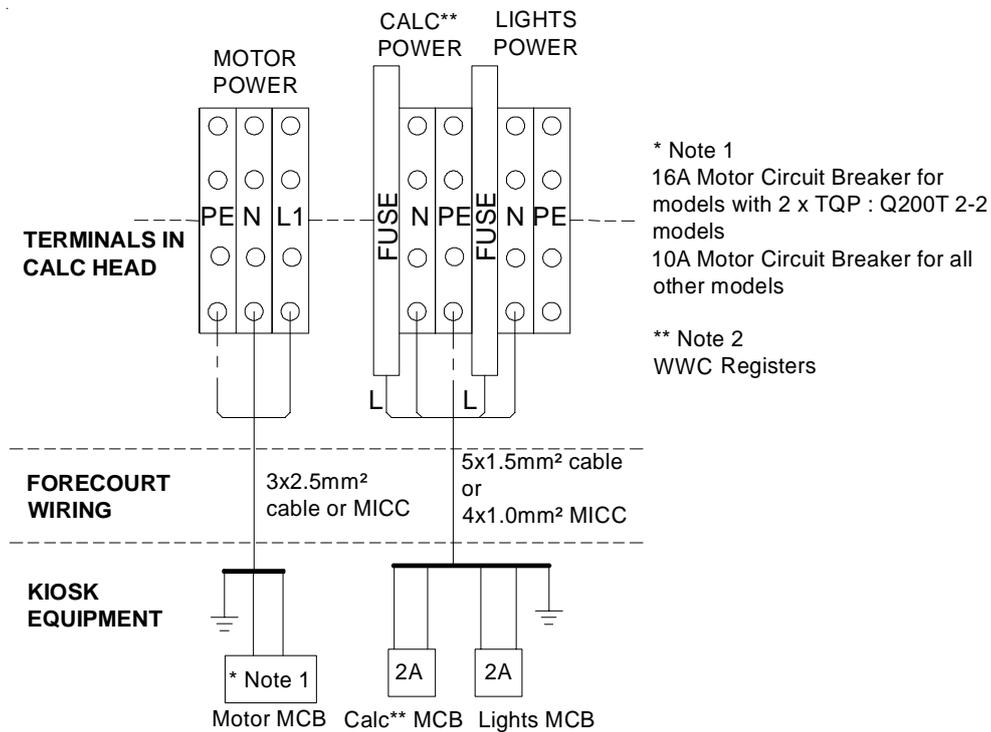


- 2) Make the connections according to the correct wiring diagram shown in this section.

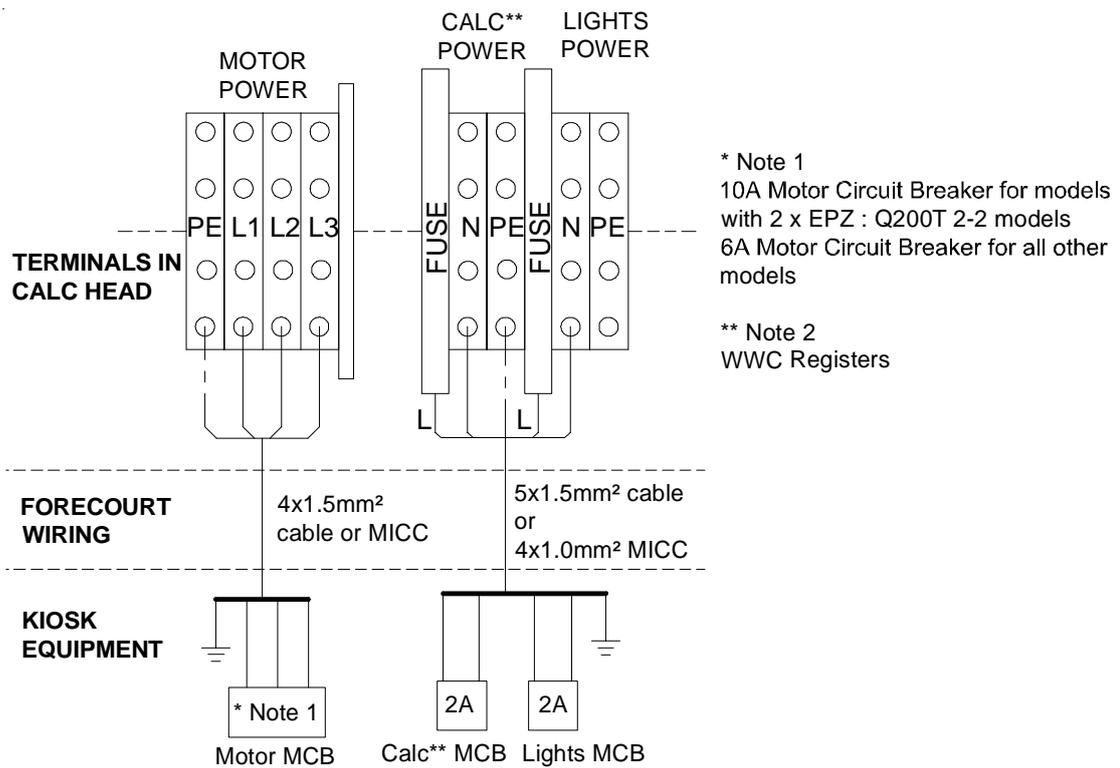
**IMPORTANT :- ENSURE THE CORRECT WIRING DIAGRAM IS FOLLOWED.**

- 3) When complete, ensure that all tools and unused materials are removed, close the calculator door and lock.
- 4) Re-instate power to the dispenser and test its operation.

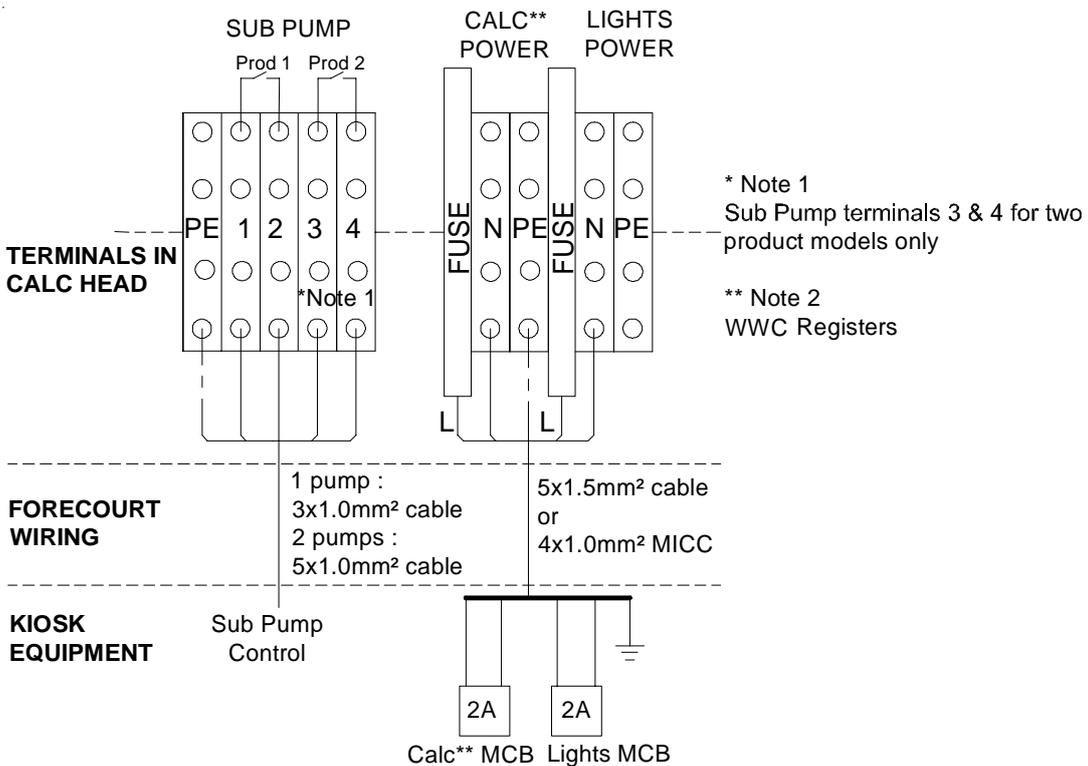
**WWC - Single Phase Suction**



**WWC - Three Phase Suction**



**WWC - Submerged**



5.6.2 JUNCTION BOX WIRING

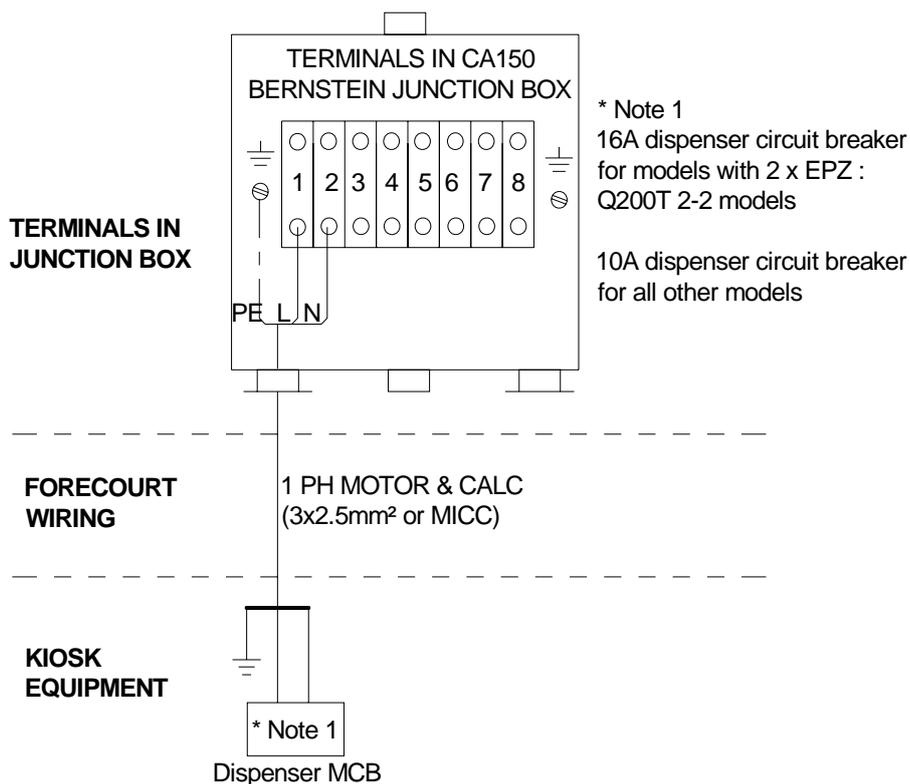
- 1) Follow the instructions given in section 4.6 to access the hydraulic area. Locate the relevant Junction Box in the hydraulic area.
- 2) Remove the four screws on the junction box cover and remove completely.
- 3) Locate the relevant terminal rail inside the relevant junction box.
- 4) Make the connections according to the correct wiring diagram shown in this section.



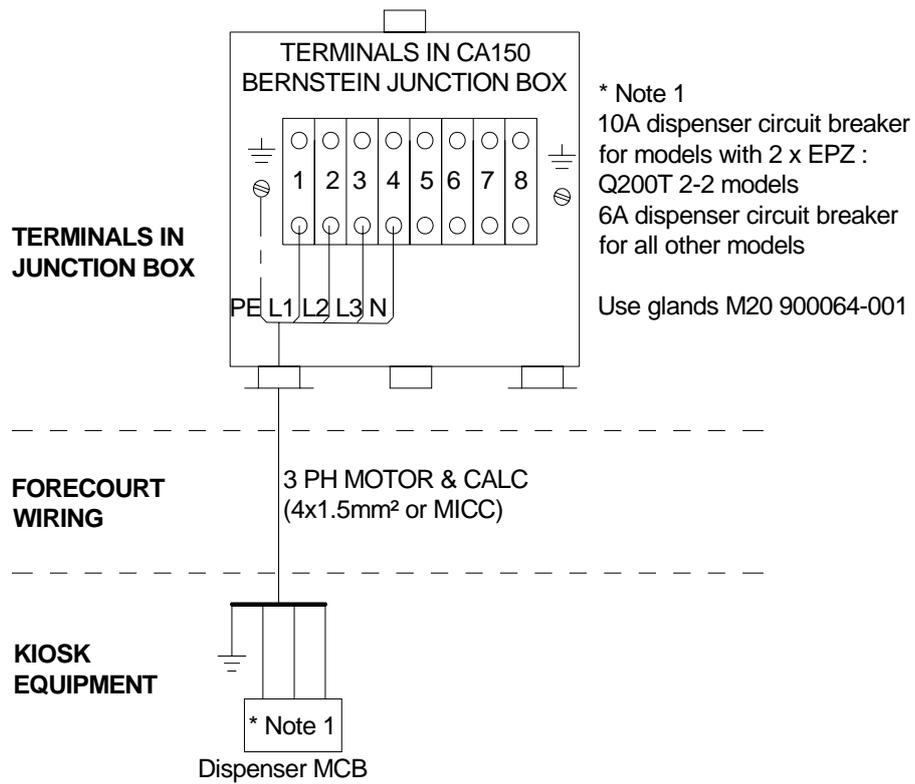
**IMPORTANT :- ENSURE THE CORRECT WIRING DIAGRAM IS FOLLOWED.**

- 5) When complete, re-fit the junction box cover.
- 6) Ensure that all tools and unused materials are removed, close the hydraulic door and lock.
- 7) Re-instate power to the dispenser and test its operation.

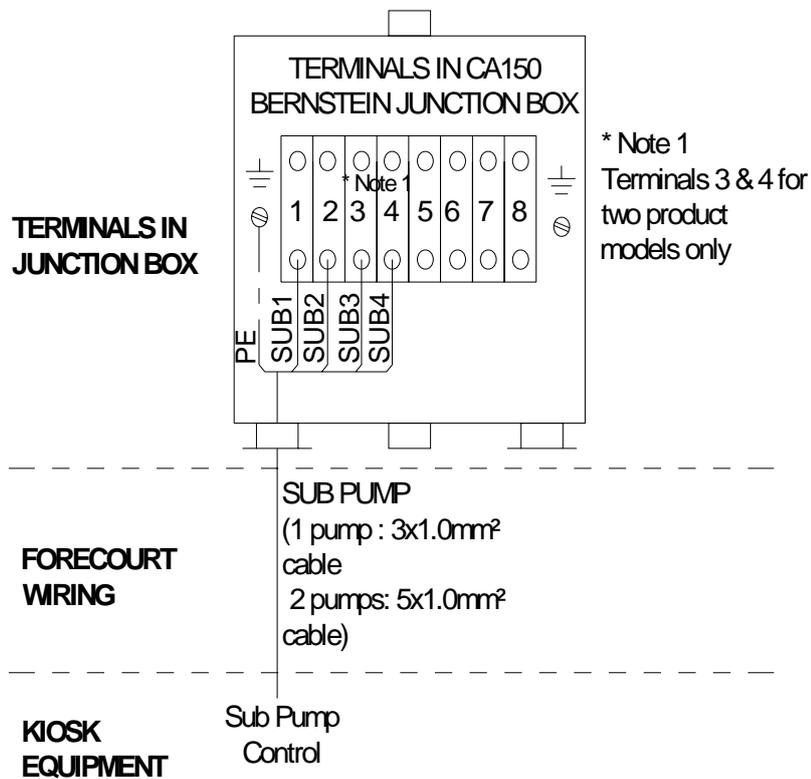
**Junction Box - Single Phase Suction**



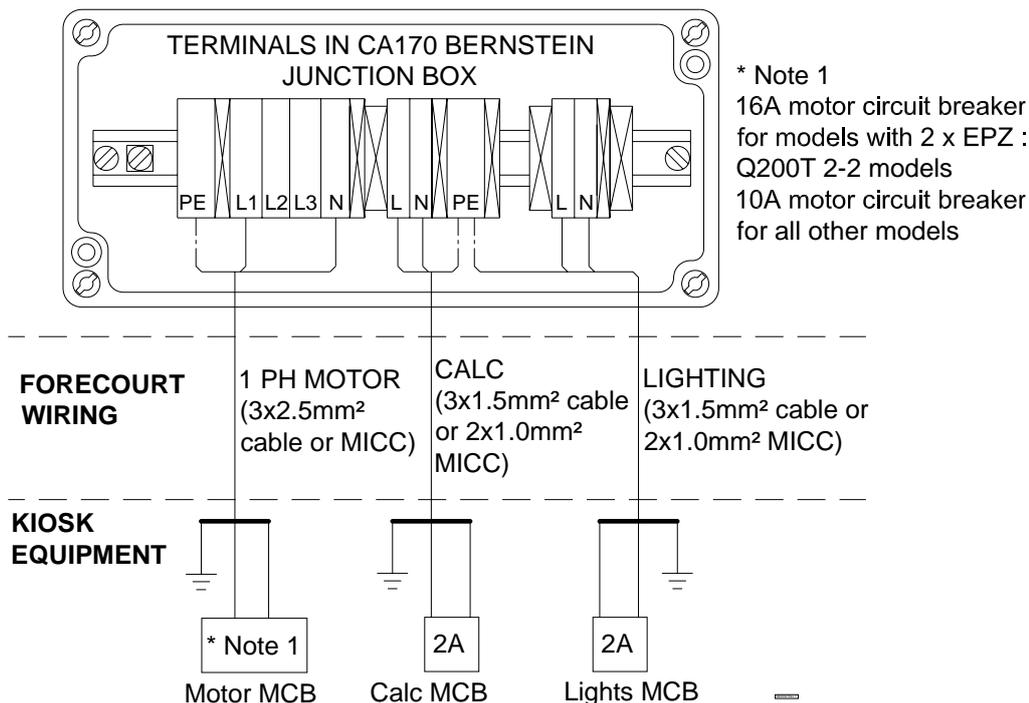
**Junction Box - Three Phase Suction**



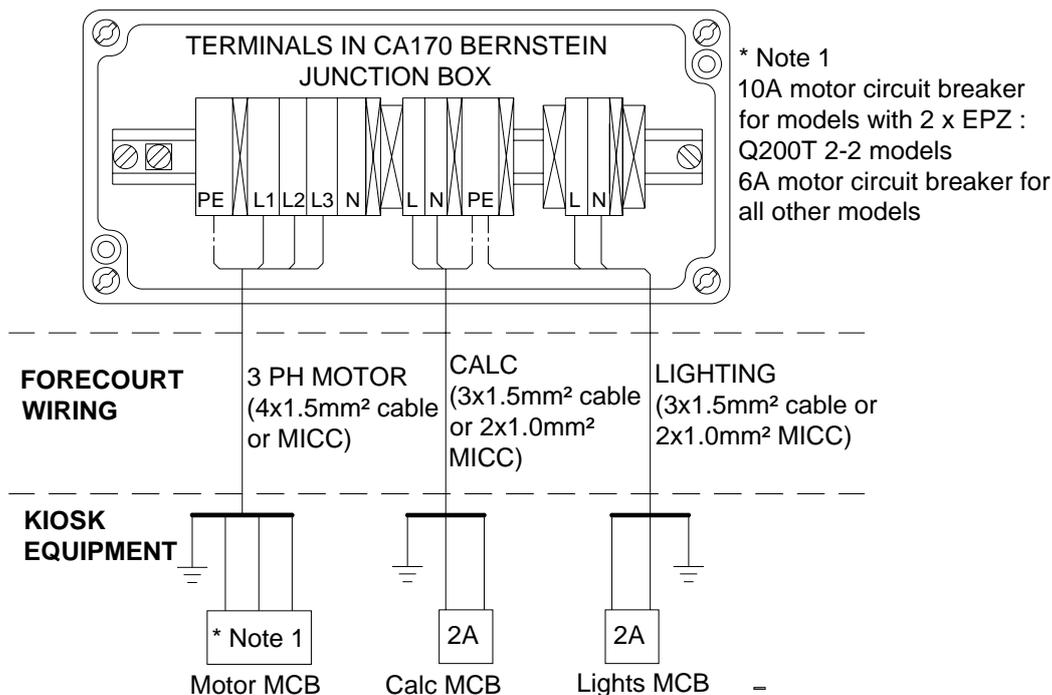
**Junction Box - Submerged**



**Junction Box - Single Phase Suction (SPLIT POWER OPTION)**



**Junction Box - Three Phase Suction (SPLIT POWER OPTION)**



### 5.6.3 COMMUNICATIONS WIRING (WWC HEAD ONLY)

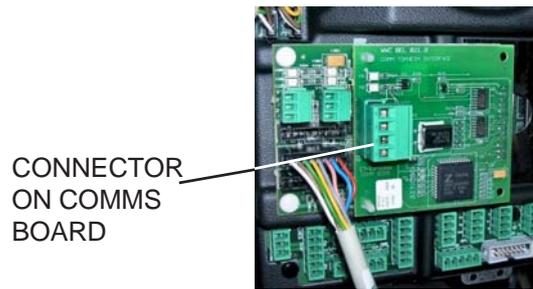
Communications wiring will vary according to the different software protocols.

Comms connections are made by either :-

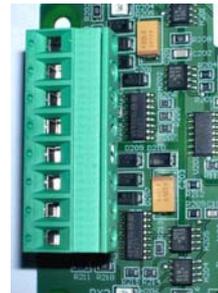
- Direct wiring into a connector on the Comms board
- Wired into a Comms junction box in hydraulic area

#### **DIRECT WIRING INTO CONNECTOR ON COMMS BOARD**

- 1) Follow the instructions given in section 4.7 to access the calculator head. Locate the Comms board on the mainboard inside the calculator head.



4 WAY  
CONNECTOR



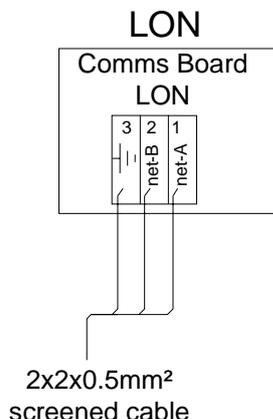
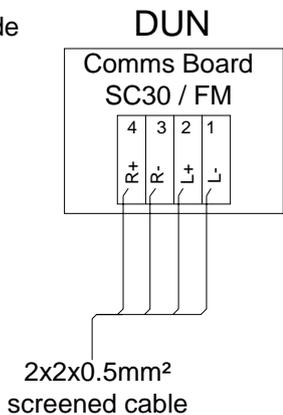
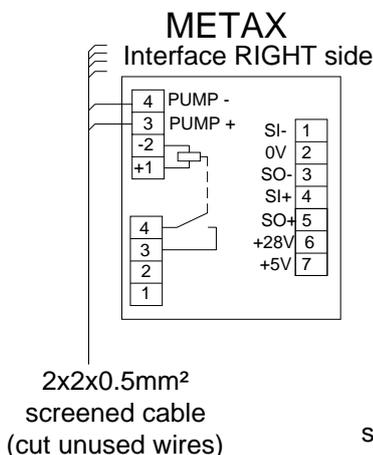
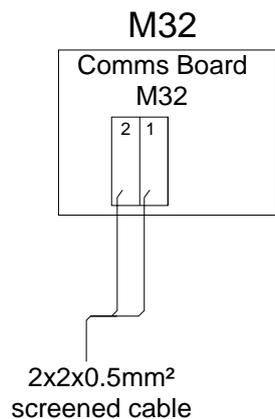
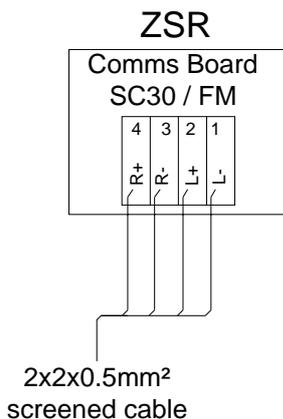
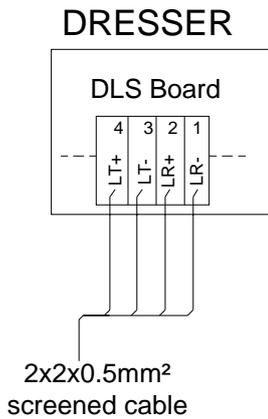
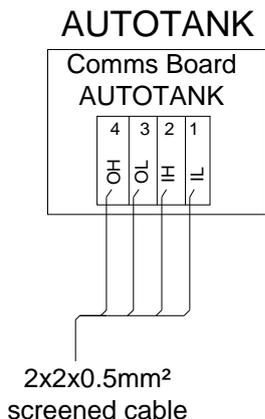
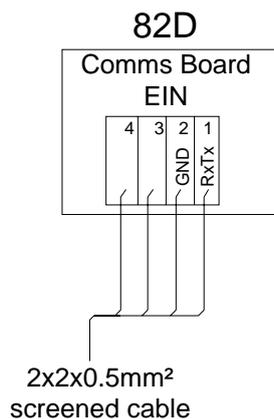
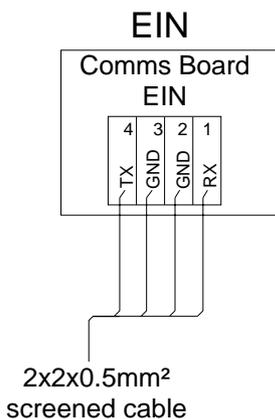
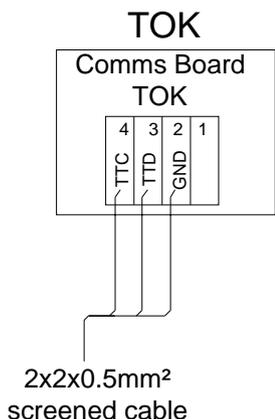
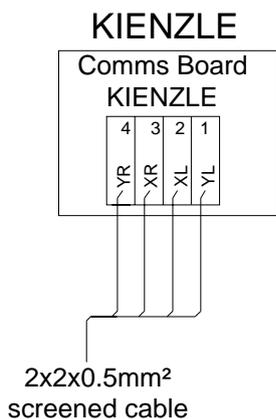
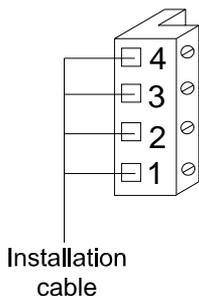
8 WAY  
CONNECTOR

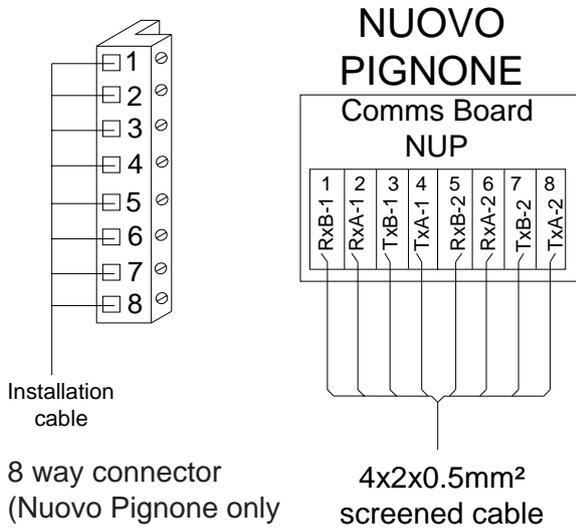
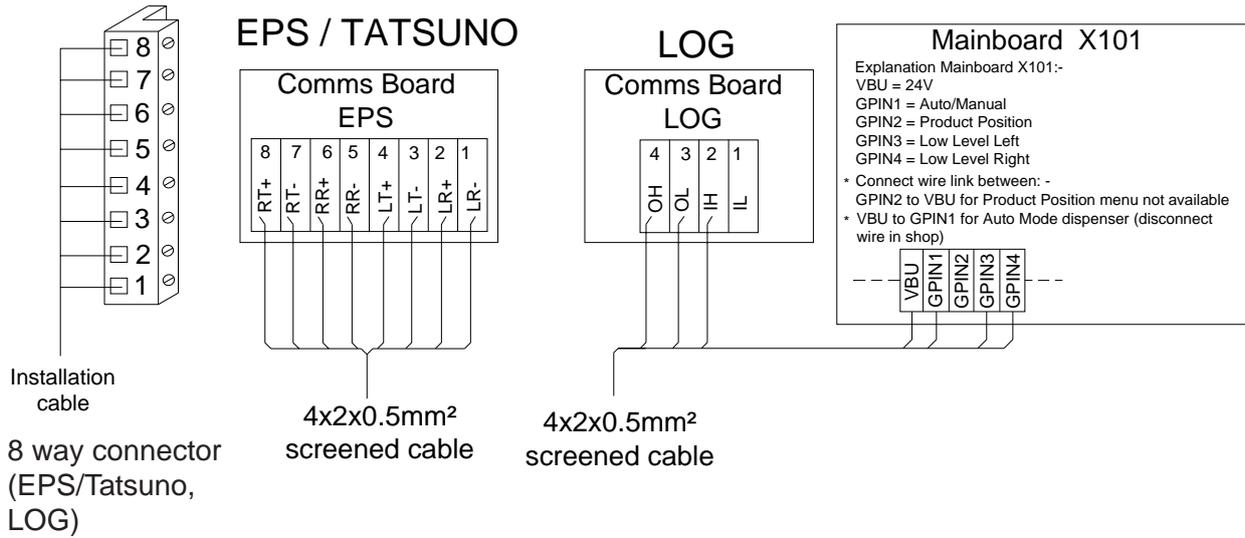
**Note : Connectors are either 4-way or 8-way dependent upon software protocol ordered**

- 2) Use a small screwdriver or similar to open the connector for cable entry.
- 3) Make the connections according to the correct wiring diagram shown in this section.

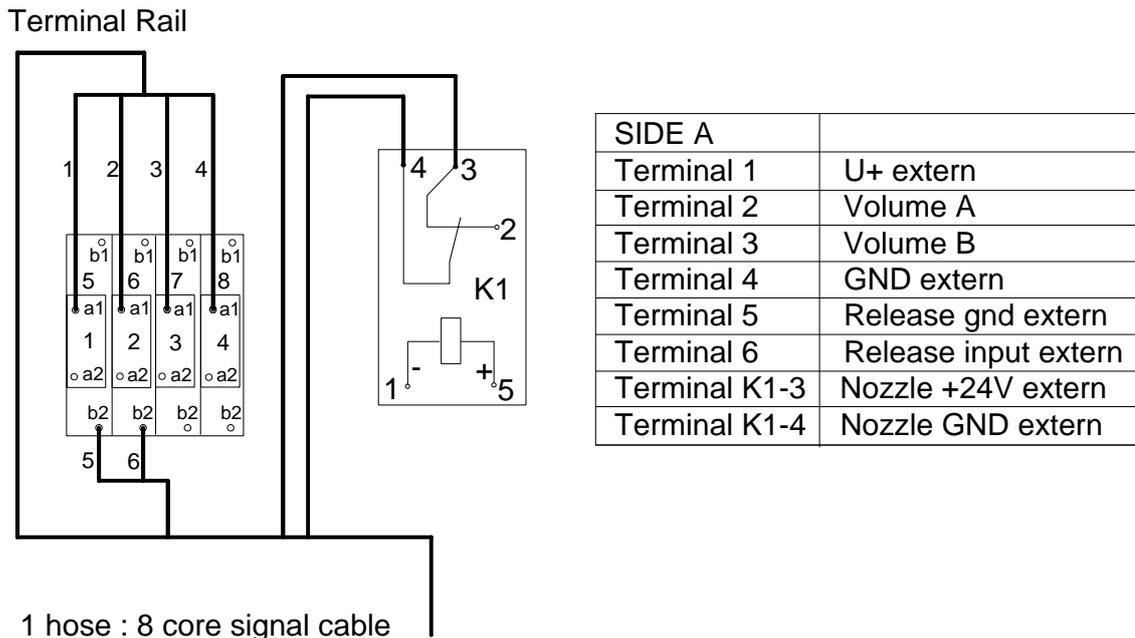
**IMPORTANT :- ENSURE THE CORRECT WIRING DIAGRAM IS FOLLOWED. SCREEN AND UNUSED WIRES MUST BE CUT AS CLOSE AS POSSIBLE TO CABLE GLANDS. ENSURE WIRING IN DISPENSER MATCHES WIRING IN KIOSK.**

- 4) Ensure that all tools and unused materials are removed, close the hydraulic door and lock.
- 5) Re-instate power to the dispenser and test its operation.





**Fleet Interface (Q100T only)**



**WIRED INTO COMMS JUNCTION BOX**

- 1) Follow the instructions given in section 4.6 to access the hydraulic area. Locate the relevant Comms Junction Box in the hydraulic area.
- 2) Unlock the four screws on the junction box cover and remove completely.
- 3) Locate the relevant terminal rail inside the relevant junction box.

**Note : The Comms are always located in a separate Bernstein Junction Box.**

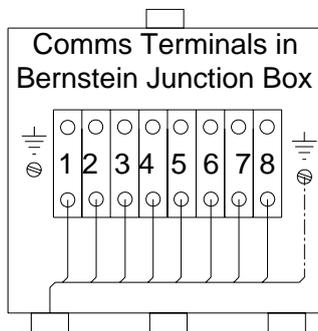


Terminal Rail in Comms Junction Box

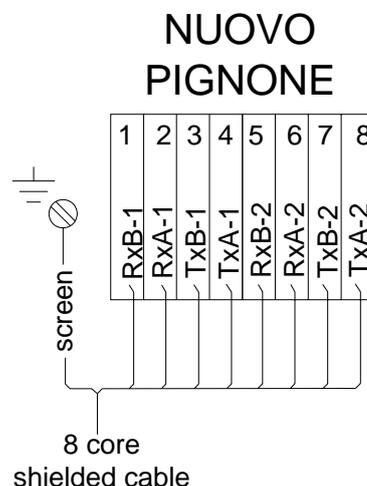
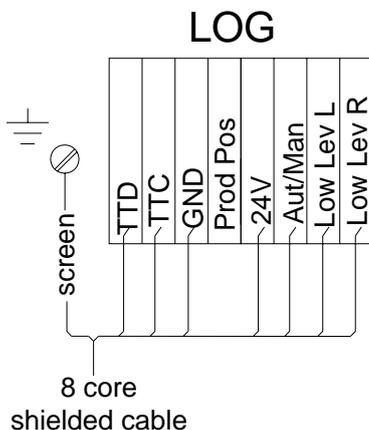
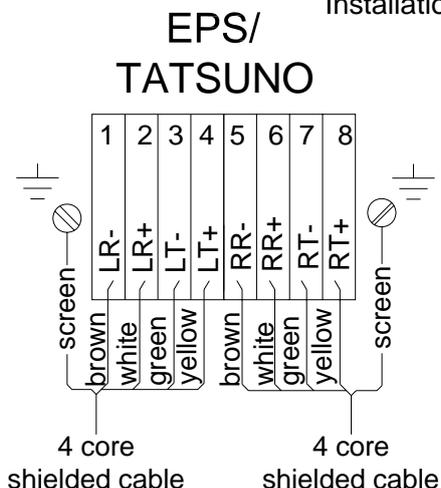
- 4) Make the connections according to the correct wiring diagram shown in this section.

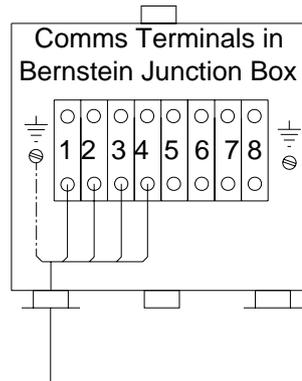
**IMPORTANT :- ENSURE THE CORRECT WIRING DIAGRAM IS FOLLOWED.**

- 5) When complete, re-fit the junction box cover.
- 6) Ensure that all tools and unused materials are removed, close the hydraulic door and lock.
- 7) Re-instate power to the dispenser and test its operation.



8 TERMINAL COMMS (EPS/Tatsuno, Nuovo Pignone, LOG, Metax)

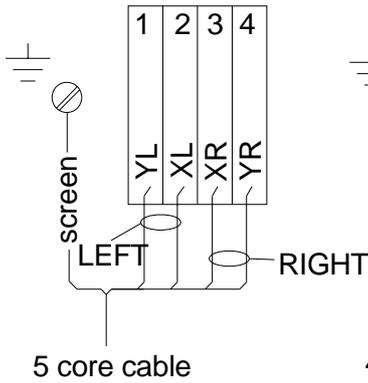




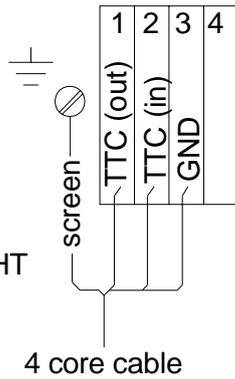
UP TO 4 TERMINAL COMMS  
(Kienzle, TOK, EIN, 82D, Autotank,  
Dresser, ZSR, M32, Metax, DUN,  
LON)

Installation cable

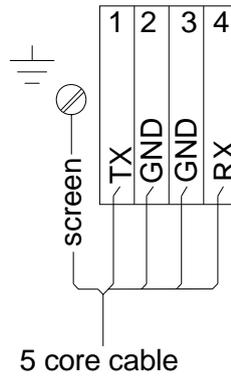
**KIENZLE**



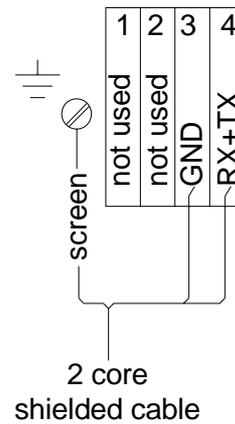
**TOK**



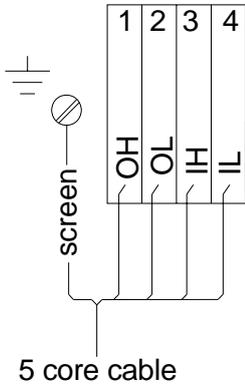
**EIN**



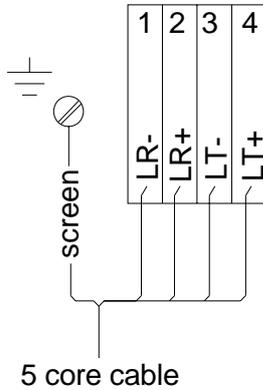
**82D**



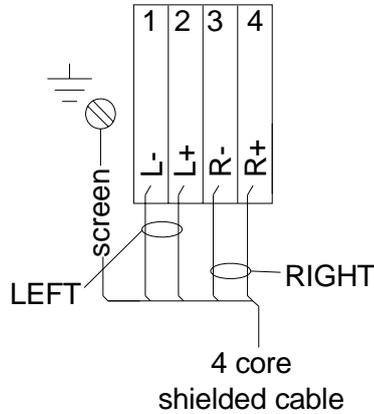
**AUTOTANK**



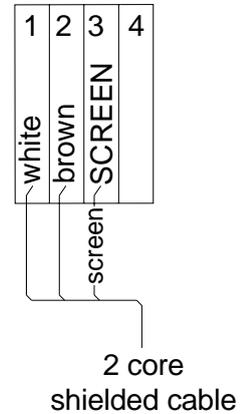
**DRESSER**



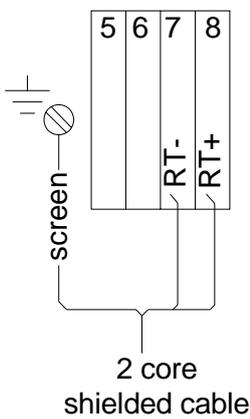
**ZSR**



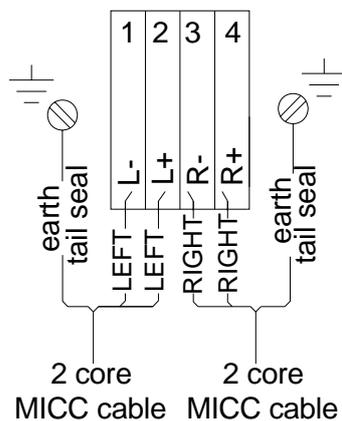
**M32**



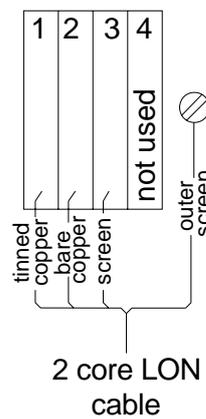
**METAX**



**DUN**

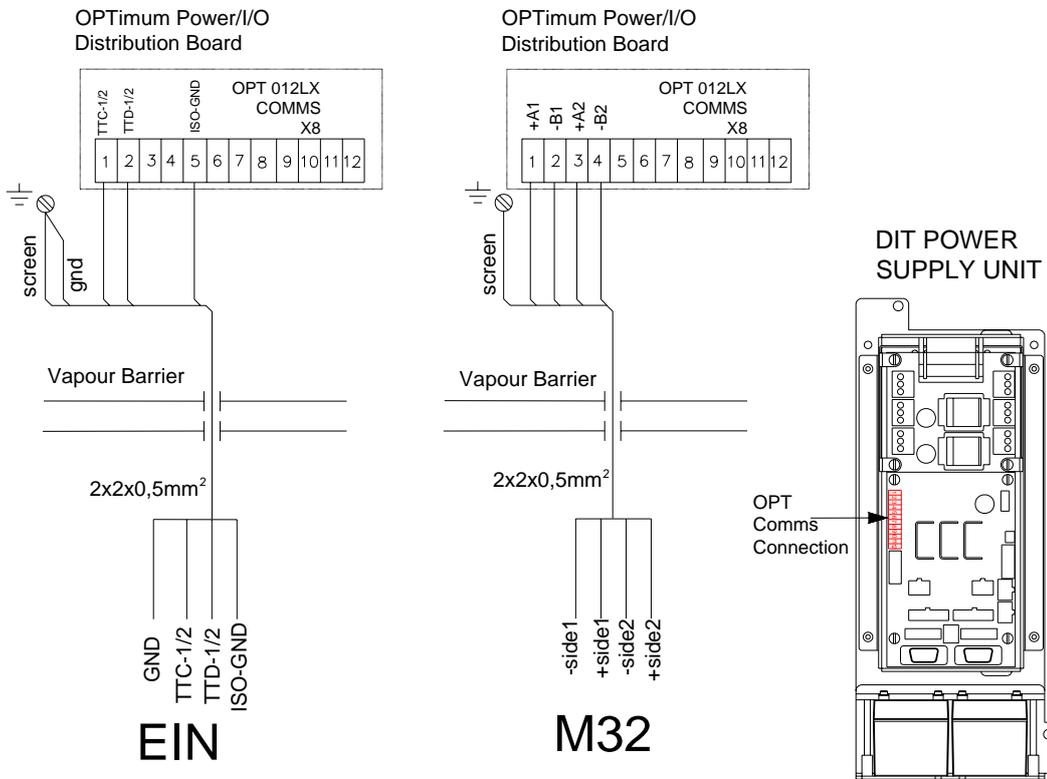


**LON**



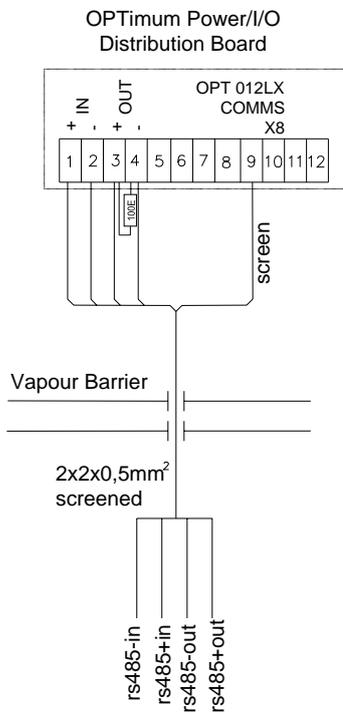
5.6.4 OPT COMMUNICATIONS OPTION

**OPT Comms (Q210 only)**

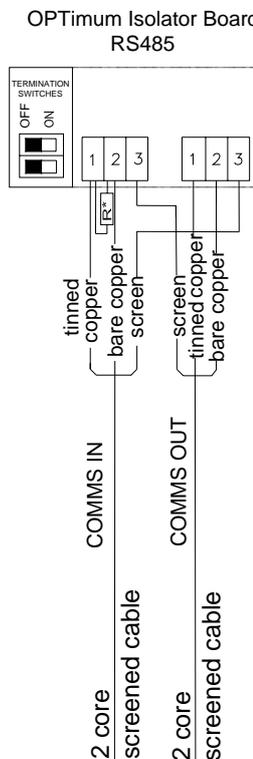


**EIN**

**M32**



**RS485**



**RS485 WITH OPTO ISOLATION**

\* If the dispenser is last on the Comms daisy chain, there is no COMMS OUT cable.

In this case:-

IF COB Board is used

Add Resistor R=100 ohms and set Termination Switches to OFF position

If RS232 to RS485 Converter is used

Do NOT fit Resistor R and set Termination Switches to ON.

**CONTENTS**

**6 COMMISSIONING ..... 6-2**

- 6.1 Test and programming the Dispenser ..... 6-2
  - 6.1.1 Program the Dispenser ..... 6-2
  - 6.1.2 Dispenser Functions ..... 6-2
  - 6.1.3 Test the Dispenser ..... 6-2
- 6.2 Calibration of the Dispenser ..... 6-3
  - 6.2.1 Mechanical Calibration of the Meter ..... 6-3
  - 6.2.2 Electronic Calibration of the MPE Pulser ..... 6-4
  - 6.2.3 Temperature Compensation Function ..... 6-6
- 6.3 Final Checks ..... 6-7
- 6.4 Handing over to the Station Manager ..... 6-7

## 6 COMMISSIONING

The procedures in this section are Tokheim recommended procedures for commissioning the dispenser but differences may exist in the standards relating to commissioning in different countries and local regions, in which case the local and/or national standards must be employed.

Follow the instructions given in section 4.7 to gain access to the calculator head.

### 6.1 Test and programming the Dispenser

Prior to Commissioning, the following must be checked:-

- Ensure that all the cabling and hydraulic connections have been made correctly.
- Check that power is present.

**Note : Disconnect the Comms before switching on power to the dispenser. This will reduce the possibility of errors.**

- Check that the voltage of power supply is in accordance with the WWC calculator voltage.
- Check that back-up batteries are in correct working order.

#### 6.1.1 PROGRAM THE DISPENSER

- If permitted, use the User Access Keypad (UAK) to place the dispenser(s) in Stand-alone Mode and enter the unit prices.
- Alternatively, use the UAK to place the dispenser in Self-Service Mode. Re-program the console for the new dispenser. The unit prices will be communicated automatically to the dispenser.
- Check the unit prices are correct for each new dispenser.
- Where applicable, note the readings on the electronic and mechanical totalisers.

#### 6.1.2 DISPENSER FUNCTIONS

- Where fitted, check that the leakage plates are correctly installed.
- Carry out a test filling using each nozzle and check all supported functions are working correctly (local preset, HS/LS, etc.).
- Check that the nozzles correspond to the correct products and that product names are correct.
- Check the correct operation of all hose retraction systems.
- Check the correct operation of all locks.
- Check the calculator lighting (where applicable).
- Check that all required warning stickers are in the correct positions.

#### 6.1.3 TEST THE DISPENSER

The following procedures must be performed at each nozzle position:-

- Test the flow rates (litres/minute) - refer to the WWC Calculator Manual.
- Where applicable, test the Vapour Recovery for correct operation.

- Test the meters are within the legal requirements:-
  - Lift each nozzle and deliver approximately 20 litres into a Tokheim approved calibrated container until all air and fuel substitute has been expelled through the nozzle and/or air vent pipes.



**Note : Discard this filling since it will contain fuel substitute from the dispenser pipes and components and air from the supply pipes.**

**IMPORTANT : DISCARD ALL TEST FILLINGS SAFELY.**

- Perform a test filling into the calibrated container until 20 litres have been dispensed according to the calculator display.
- Read the measurement on the calibrated container.

If the fuel dispensed into the container is above or below the calibration line (i.e. greater or less than the 20 litres dispensed) then the meter must be adjusted to ensure Weights & Measures (W&M) compliance.

**Note : W&M regulations vary according to different countries.**

## 6.2 Calibration of the Dispenser

If the meter is fitted with an enhanced pulser for electronic calibration (MPE-EC) or temperature compensation (MPE-TC) then it should not be necessary to perform mechanical calibration. Refer to section 6.2.2 to perform electronic calibration.

### MID CERTIFIED DISPENSERS

MID certified dispensers are calibrated in the factory with the relevant seals stamped so it can be put into operation immediately upon installation without Weights & Measures verification. Refer to section 1.7 for the identification of MID dispensers.

A calibration check should be performed as part of the Commissioning procedure. If the calibration is outwith legal tolerances, the factory MID verification is invalidated. The meter should be adjusted accordingly then a local National verification will need to be performed before the dispenser can be used.

#### 6.2.1 MECHANICAL CALIBRATION OF THE METER

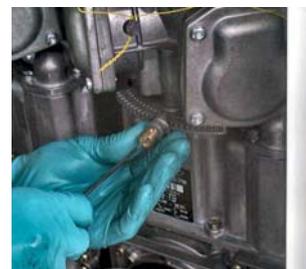
- Carefully remove the W&M seal on the bottom of the meter.

**Note : Store the seal in a safe place for re-use.**

- Use a small screwdriver to adjust the calibration on the meter.

**Note : each notch on the meter corresponds to approximately 20ml.**

- Adjust in a clockwise direction to reduce the amount of fuel delivered i.e. if the fuel in the container is greater than the reading on the calculator display.
- Adjust in an anti-clockwise direction to increase the amount of fuel delivered i.e. if the fuel in the container is less than the reading on the calculator display.
- Re-test the dispenser until calibration is within acceptable tolerance levels.
- Replace the W&M seals to the bottom of the adjusted meter(s).



6.2.2 ELECTRONIC CALIBRATION OF THE MPE PULSER

Refer to separate MPE Pulser Manual for more detailed information. Each MPE pulser is required to be set up and configured independently.

**IMPORTANT - To perform EC, the EC function must be turned ON and the TC function must be switched OFF.**

Connect the User Access Keypad (UAK) to the relevant Dipnet connection on the Pulser Sealing Board and power up the UAK.

INITIAL SET UP

	U	A	M	f	o	r	W	W	C		
V	e	r	s	i	o	n	:	0	1	0	7

The first screen is displayed for a few seconds. Check the software version is 01.07 or higher.

0	7	5	0	.	0	0		+	2	0	.	3	°	C
0	0		0	0		0	0		0	0		0	0	0

The UAK checks for connected devices then alternately flashes between two delivery messages (displaying raw volume, EC volume, TC volume and density, temperature, hose expansion time, value, suppressed and flow rate).




M	P	E	0	1	.	0	7			D	3	3	F
1	:	M	A	2	:	T	S	T	3	:	S	I	M

Press ON to start configuration. A choice of menus is displayed. Press 1 to enter MAINTENANCE menu.



1	:	E	C		2	:	S	E	T				
3	:	S	E	R	V	4	:	A	D	C			

Press 2 to enter SET menu to allow entry of the EC/TC parameters.



P	A	R	A	M	E	T	E	R	S				
S	e	t		d	i	r	e	c	t	i	o	n	

The first parameter, DIRECTION, will set the direction of the rotation for the meters. This is preset in the factory. Press 7 to skip to next function.



P	A	R	A	M	E	T	E	R	S				
S	e	t		E	C								

The next parameter, EC, will turn the EC function on or off. Press F4 to enter EC sub menu.




S	e	t		E	C								
O	F	F											

Default OFF is displayed. Press 7 to change to ON. Press F4 to save and continue.



P	A	R	A	M	E	T	E	R	S				
S	e	t		T	C								

The next parameter, TC, will turn the TC function on or off. Press F4 to enter TC sub menu.



S	e	t		T	C									
												O	F	F

Default OFF is displayed. Press F4 to save and continue. **IMPORTANT : TC must be OFF if EC is to be performed.**



1	:	E	C		2	:	S	E	T				
3	:	S	E	R	V	4	:	A	D	C			

Press F1 to return to MAINTENANCE menu.

**TEST FILLING PROCEDURE**

- Do a test filling at maximum flow rate into a W&M calibrated container.
- Stop the delivery manually when the exact nominal volume of the can is displayed on the calculator display.
- Check the volume on the gauge on the calibrated container.
- If the difference between the container volume and the calculator display does not exceed the maximum allowed deviation (check local requirements) then no further action is necessary. If the difference is outwith the maximum allowed deviation then follow the instructions below to perform electronic calibration.

**ELECTRONIC CALIBRATION FUNCTION**

Perform a test filling as described above.

MPE	01	.07		D33F
1: MA	2: TST	3: SIM		

Press ON to start configuration. A choice of menus will be displayed. Press 1 to enter MAINTENANCE menu.



1: EC		2: SET		
3: SERV	4: ADC			

Press 1 to enter EC menu.



D i s p l a y e d v o l u m e				
-	-	-	-	L

Read the volume displayed on the calculator and enter into the UAK using the numeric keys. Press F4 to save and continue.



C a n v o l u m e				
-	-	-	-	L

Read the volume displayed on the calibrated container and enter into the UAK using the numeric keys. Press F4 to save and continue.



C A L I B R A T I O N O K				
---------------------------	--	--	--	--

If the difference is within acceptable limits i.e. +/- 0.5% then a new calibration factor will be calculated and stored and CALIBRATION OK is displayed.



C A L I B R A T I O N E R R				
N O C H A N G E				

If the difference is outwith the acceptable limit then CALIBRATION ERR is displayed. Manual calibration of the meter should then be performed before attempting electronic calibration again.

1: EC		2: SET		
3: SERV	4: ADC			

Press F1 to return to MAINTENANCE menu.

6.2.3 TEMPERATURE COMPENSATION FUNCTION

Refer to separate MPE Pulser Manual for more detailed information. To set the temperature compensation (TC) function:-

  MPE 01.07 D33F  
1:MA 2:TST 3:SIM

Press ON to start configuration.  
A choice of menus will be displayed.  
Press 1 to enter MAINTENANCE menu.

 1:EC 2:SET  
3:SERV 4:ADC

Press 2 to enter SET UP menu.

 PARAMETERS  
Set direction

The first parameter, DIRECTION, is displayed.  
Press 7 to skip to next function.

 PARAMETERS  
Set EC

The next parameter, EC, is displayed. Press 7 to skip to next function.

 PARAMETERS  
Set TC

The next parameter, TC, is displayed. Press F4 to enter TC sub menu.

 Set TC OFF

Default OFF is displayed. Press 7 to change to ON.  
**IMPORTANT : TC must be OFF if EC is to be performed.**

 Set TC ON

Press F4 to save and continue.

 Set TC ON  
Fuel: 90

Press 7 to scroll through fuel density options:-  
90 = unleaded 90 (750kg/m<sup>3</sup>)  
95 = unleaded 95 (750kg/m<sup>3</sup>)  
98 = unleaded 98 (755kg/m<sup>3</sup>)  
Diesel = diesel (833kg/m<sup>3</sup>)  
LPG = LPG (537kg/m<sup>3</sup>)

 Set TC ON  
Density: - - - . -

Or enter density value for different fuel type using the numeric keys. Press F4 to save and continue.

 TC Setting OK  
Enter (F4)

Press F4 to continue.

 MPE 01.07 D33F  
1:MA 2:TST 3:SIM

Press F1 several times until the main menu is displayed.

 UAM for WWC  
Version: 0107

Press OFF to disable the UAK and allow it to be disconnected safely.

**6.3 Final Checks**

- Check that all W&M requirements have been fulfilled.
- Where applicable, use the UAK to check the limit of the High Speed Diesel as per W&M regulations.
- Where applicable, note the readings on the electronic and mechanical totalisers.
- Where applicable, clear the error counters.
- Note the type/serial number(s) of the dispenser(s).
- Complete the Arrival Quality checklists and country specific product identification forms for the dispensers and return them to the local Sales & Service Division.

**6.4 Handing over to the Station Manager**

Explain to the Station Manager the working of the dispenser(s) and train him in their use (according to the User Manual).

Together with the Station Manager, go through the Acceptation checklist to check that everything has been delivered as ordered and is in good condition. Both the Service Engineer/Technician and Station Manager must sign the checklist.

The Station Manager must check the unit prices.

Hand over the following documents to the Station Manager:-

- One copy of the installation report including the totals of all totalisers and the type and serial numbers of dispenser(s).
- User Manual.
- Declaration of Conformity (usually located in the Calculator Head).
- Copy of signed Acceptation checklist (usually located in the Calculator Head).
- All keys.

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**GLOSSARY OF TERMS USED IN THIS MANUAL**

VHS : VERY HIGH SPEED

T : TANK

DIT : DISPENSER INTEGRATED TERMINALS

OPT : OUTDOOR PAYMENT TERMINALS

POS : POINT OF SALE

MICC : MINERAL INSULATED COPPER CLAD CABLE

RCD : RESIDUAL CURRENT DEVICE

HMS : HOSE MANAGEMENT SYSTEM

UAK : USER ACCESS KEYPAD

HS / LS : HIGH SPEED / LOW SPEED

WWC : WORLD WIDE CALCULATOR

W&M : WEIGHTS AND MEASURES

MPE-EC : ENHANCED PULSER METER, ELECTRONIC CALIBRATION

MPE-TC : ENHANCED PULSER METER, TEMPERATURE CALIBRATION

TM80 : TOKHEIM METER

HSM : HIGH SPEED MASTER

VHSM : VERY HIGH SPEED MASTER

HBEF : HIGH BLEND ETHANOL FUELS

VR : VAPOUR RETURNS

TQP-RS : TOKHEIM QUALITY PUMP - REGULAR SPEED

HOM : HYDRAULIC OPTION MODULE



**NL Spare Parts**  
Koppens Automatic (Bladel)  
Industrieweg 5  
5531 AD Bladel  
The Netherlands  
☎ +31 497 389 555  
☎ +31 497 381 950

**GB Manufacturing**  
Unit 3, Baker Road  
West Pitkerro Industrial Estate  
Dundee DD5 3RT  
Scotland  
☎ +44 (0)1382 598000  
☎ +44 (0)1382 598001

**F Manufacturing**  
Route de Soliers  
14540 Grentheville  
BP268, Caen Cedex 14013  
France  
☎ +33 231 15 15 15  
☎ +33 231 23 15 06

### SALES & SERVICE DIVISIONS

#### EUROPE

**A Austria**  
Tokheim Austria GMBH  
Eitzenberger Strasse 4-6  
A-2544 Leobersdorf  
☎ +43 (0) 2256 606 0  
☎ +43 (0) 2256 606 170  
✉ office@leobersdorf.tokheim.com

**B Belgium**  
Tokheim  
Everdongenlaan 31  
2300 Turnhout  
☎ +32 (0) 14 44 85 00  
☎ +32 (0) 14 44 85 55  
✉ sales@turnhout.tokheim.com

**CZ Czech Republic**  
Tokheim  
Pernerova 48  
CZ-18602 Prague 8  
☎ +420 224 890 312  
☎ +420 222 327 267  
✉ pribrsky@prague.tokheim.com

**DK Denmark & Scandinavia**  
Tokheim Scandinavia A/S  
Hejrevang 10  
3450 Allerød  
☎ +45 48 13 45 45  
☎ +45 48 17 45 96  
✉ service@alleroed.tokheim.com

**F France - Le Plessis**  
Tokheim Services France  
9 Avenue Galilée  
92350 Le Plessis-Robinson  
☎ +33 (0)1 41 36 13 00  
☎ +33 (0)1 41 36 13 70  
✉ info@tokheim-services.com

**F Tokheim Europe & Africa Headquarters**  
ZAC Paris Nord 2  
B.P. 40027 Tremblay-en-France  
95912 Roissy C.D.G. Cedex  
☎ +33 (0)1 49 90 77 00  
☎ +33 (0)1 49 90 77 77  
✉ marcom@tremblay.tokheim.com

**D Germany**  
Tokheim GmbH  
Lothstrasse 1a  
D-80335 München  
☎ +49 (0)89 189 53 0  
☎ +49 (0)89 189 53 148  
✉ service@muenchen.tokheim.com

**I Italy**  
Tokheim Sofitam Italia S.r.l.  
Quattordio Km 10800  
S.P. 26  
14030 Scurzolengo (AT)  
☎ +39 0141 2038200  
☎ +39 0141 2038222  
✉ info@asti.tokheim.com

**NL Netherlands**  
Tokheim Netherlands B.V.  
Touwslagerstraat 17  
Postbus 4186  
2980 GD Ridderkerk  
☎ +31(0) 180 48 15 00  
☎ +31(0) 180 48 15 55  
✉ sales@ridderkerk.tokheim.com

**PL Poland**  
Pol-Germann Tokheim Sp. z.o.o.  
ul. Narwicka 1  
PL-80-557 Gdansk  
☎ +48 58 343 21 71  
☎ +48 58 343 22 15  
✉ pol-germann@tokheim.pl

**P Portugal**  
G.N.C.  
Parque de Ciencia e Tecnologia  
Edificio Tecnologia 1, N° 27  
2780-920 Oeiras  
Lisboa  
☎ +351 214 220 420  
☎ +351 214 214 226

**RUS Russia & CIS Countries**  
Tokheim Representative Office  
Room 313, Hotel "Ukraina"  
Kutuzovski Prospekt, 2/1  
Stroyenie 1  
Moscow 121249  
☎ +7 095 933 69 35  
☎ +7 095 933 69 34  
✉ kolobov@dol.ru

**SK Slovak Republic**  
Tokheim  
Mlynske Nivy 70  
SK-82015 Bratislava  
☎ +421 2 58 27 02 15  
☎ +421 2 52 41 41 23  
✉ schroeder@berlin.tokheim.com

**E Spain**  
Tokheim Koppens Iberica S.A.  
Calle La Granja, 41  
Poligono Industrial de Alcobendas  
28108 Alcobendas (Madrid)  
☎ +34 91 2030465  
☎ +34 91 6614130  
✉ urra@madrid.tokheim.com

**CH Switzerland**  
Tokheim Switzerland AG/SA/LTD  
Route du Crochet 7  
Case Postale 50  
1762 Givisiez  
☎ +41 (0)26 460 51 11  
☎ +41 (0)26 460 51 12  
✉ user@givisiez.tokheim.com

**GB United Kingdom**  
Unit 1, Baker Road  
West Pitkerro Industrial Estate  
Dundee DD5 3RT  
Scotland  
☎ +44 (0)1382 483500  
☎ +44 (0)1382 731835  
✉ service@tokheimuk.com

#### MIDDLE EAST, SOUTH & CENTRAL AMERICA

**F Export Division**  
ZAC Paris Nord 2  
B.P. 40027 Tremblay-en-France  
95912 Roissy C.D.G. Cedex  
France  
☎ +33 (0)1 49 90 77 56  
☎ +33 (0)1 49 90 77 93  
✉ marcom@tremblay.tokheim.com

**RFC AFRICA Cameroon**  
Socatam S.A.  
BP 3941  
Douala  
☎ +237 40 57 86  
☎ +237 40 57 88  
✉ socatam.douala@camnet.cm

**MA Morocco**  
Matam S.A.  
209 Bid Moulay Ismail  
Route de Rabat  
Casablanca  
☎ +212 22 40 40 24  
☎ +212 22 40 40 21  
✉ matam@wanadoo.net.ma

**SN Senegal**  
Cosetam S.A.  
Quartier de Bel Air  
Route des Hydrocarbures  
BP 1237  
Dakar  
☎ +221 832 23 71  
☎ +221 832 68 34  
✉ cosetam@ns.arc.sn

**ZA South Africa**  
Tokheim South Africa Ltd  
Stand 110, Precision Road  
Kya Sand  
Randburg  
☎ +27 11 462 2105  
☎ +27 11 462 1942  
✉ tokheimsales@tokheim.co.za

**TN Tunisia**  
Cottam SARL  
116 Ave de l'Union du Maghreb Arabe  
BP 117  
La Soukra  
2036 Tunis  
☎ +216 175 95 50  
☎ +216 175 95 30  
✉ cottam@cottam.com.tn

**AE ASIA**  
Tokheim  
PO Box 16869  
JAFZ  
Dubai, UAE  
☎ +971 4 881 3305  
☎ +971 4 881 4463  
✉ tokheim@emirates.net.ae

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