Quantium 510
Installation Manual

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Rev - 8
04/2015

Delivering Flexible Solutions

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Tokheim shall not be liable for damage to the product, nor for personal or third party injury, caused by incorrect use of the product or by attempts to maintain or to repair the product by parties other than those fully trained by Tokheim or by its accredited third party representatives.

Tokheim reserves the right to apply changes to this document and the equipment without further notice.

REVISION RECORD

Date	Revision	Page	Reason
13/09/2007	1	All	Original Issue
10/01/2008	2	3,4	Main Contents revised
10/01/2008	2	1-1	Section 1 Contents revised
10/01/2008	2	1-8	New info added for MID
10/01/2008	2	5-1	Section 5 Contents revised
10/01/2008	2	5-6 to 5-24	New info added for earthing; repagination
10/01/2008	2	5-25,5-26	New pages inserted; repagination
10/01/2008	2	6-1	Section 6 Contents revised
10/01/2008	2	6-2 to 6-8	New info added for MID; repagination
24/03/2009	3	All	New Q510 Installation manual to reflect changes to dispenser.
		Chapter	
18/03/2011	4	2.1.1	Changes to zoning diagram height dimensions, to be consistant with Q500T1 drawings.
	4	2.1.1	Change to the Standard Head configuration zoning diagram.
	4	2.1.1	Removal of the Media Head configuration zoning diagram.
	4	2.1.1	Addition of the TQC-VGA & Wincor configuration zoning diagrams.
	4	2.3.2	Separate master connection & satellite connection drawings created. Change to height on connection flange level satellite drawing.
	4	3.1.1 - 3.1.10	Changes to dispenser height dimensions & ground frames to be the same as Q500T1 drawings.
	4	3.1.1	Removal of 2-2 from title.
	4	3.1.5	Addition of the VHS 4-4 and renumbering accordingly
	4	3.1.8	Change to heading, SVHSM 5-5
	4	3.1.10	Addition of Mini-Sat dimensions drawing.
	4	3.1.11	Addition of heights to centre of display drawing.
	4	3.2.1 - 3.2.8	Changes in the "Note" from 5mm to 8mm
	4	3.2.1	Changes to heading, addition of (M)
	4	3.2.2	Changes to heading, addition of (M)
	4	3.2.5	Addition of the VHS 4-4 and renumbering accordingly
	4	3.2.8	Change to heading, addition of HSM 5-8 & SVHSM 5-5
	4	3.2.10	Addition of Mini-Sat dimensions ground plan.
	4	4.7.2	Removal of the Media Head and replaced by TQC-VGA media head.
	4	4.8	Changes to access the cable glands photos & addition of TQC-VGA.
	4	4.8.2	New procedures showing access to Standard Head & TQC-VGA calc head.
	4	4.83	Removal of the Media Head instructions.
	4	5.4.1	New procedures. Wooden transit pallet
	4	5.4.2	New procedures. Metal transport profile
	4	5.4.3	New procedures. Lifting slots & wooden transit pallet
	4	5.4.4	New procedures. Lifting slots & metal transport profile
	4	5.6.4	Media head configuration addition of TQC - VGA.
	4	Back Page	New contacts list

Date	Revision	Chapter	Reason
31/03/2011	5	All	Added Tokheim graphic to bottom of page.
	5	3.2.1 to 3.2.5, 3.2.7 & 3.2.10	Added the dimension 58, edge of driptray to mounting hole, to drawings.
	5	3.2.9	Change of dimension, driptray to mounting hole from 918.5 to 922.5
	5	5.2	Photographs to identitify side a & side b
08/07/2011			
		3 (Rev 5.1)	3.1.11 Added gound frame prt.no. 3.2.11 update to Mini Sat drawing (Bottom view)
		6 (Rev 5.1)	Up rev to 5.1 to include new instructions 6.1.3 on flow rate set up of VR.
22/12/2011		3 (Rev 5.1)	3.2.11 Update to Mini Sat drawing (Top view)
23/01/2012	6	All	
	6	1.5.3	Additional text to highlight care and attention when removing and storing lighter panels and cladding.
	6	1.6	Addition of the Stage II Vapour Recovery system European Directive
08/03/2012	6.1	1.7	Change to text (Meter Calibration)
	6	2.2.3	Addition of models SVHS 3-4 & SVHS 4-6
	6	2.3.3	Update to all VR drawings
	6	3.1.3	Addition of text to SVHS 3-4
	6	3.1.6	Addition of text to SVHS 4-6
	6	3.1.10	Addition of groundframe table
	6	3.1.12	Updated drawing and changed name Display Heights to Dispenser Heights.
	6	3.2.3	Addition of text to SVHS 3-4
	6	3.2.6	Addition of text to SVHS 4-6
	6	5.4.5	Placement procedures for M-SAT dispenser with lifting slots.
08/03/2012	6.1	6.2	Change to text (MID certified dispensers)
	6	Front Cover	Change to front cover
	6	Back Cover	Change to back cover
27/07/2012	6.1	2.3	Change to Note - Tokheim requires rigid pipes for SAT lines
	6.1	5.4.1	New photograph Item 10
	6.1	5.4.2	New photograph Item 9
	6.1	5.4.3	New information. Addition of forklift pitch chart & new dispenser photos.
	6.1	5.4.4	New photographs, Item 5 & Item 10
	6.1	5.4.5	New photographs, Item 4 & Item 9
	6.1	5.4.7	New information. Addition of Using jacking bolts to lower a dispenser.
	6.1	5.5.1	New photographs for suction dispensers pipework.
	6.1	6.3	Important info on removing transport bolts
	6.2		New revision record
06/09/2012	6.3	P2	Revision Record updated
	6.2	P2-29	Section added for VR per Product (Ethanol Split Only)
	6.1	P3-15 to 3-23	VR Per Product (Ethanol Split Only) note added to drawings
	6.1	P3-25	Mini Sat Ground Plan updated
	6.2	P5-28 to 5-31	Drawing updates
07/03/2013	7	3,4,5	Main Contents updated
		2-20	Changes to Note
		3-1	Section 3 Contents updated

Date	Revision	Chapter	Reason
	7	3-14, 3-15	Ground Frame part numbers table added
	7	3-20	Updated 4F2C VHS 4-4 drawing
	7	5-1	Section 5 Contents updated
	7	5-24	New section added, Installation of TQP-HS Pumps
	7	5-26	New section added, Fitting a Risbridger Check Valve
	7	5-27, 5-28	Section 5.6.1 Junction Box Wiring updated
	7	Back Cover	Glossary updated and address change
29/08/2014	7.1	2-21	New Submerged Connection after May 2014 drawing added
		2-24	New Submerged with Nefit Adapt/Shear Valve May 2014
		2-24	Note added regarding model HSM 5-8 dim
		3-23	Note added regarding model SVHSM 5-5 dim
		5-26	Sect 5.5.4 text removed
		6-8	Sect 6.3 text and photo updated for new submerged
		5-22	5.4.8 Leak plate sealing added
		5-28 to 5-29	5.5.6 New Submerged Installation - Manufactured after January 2015 added
13.04.2015	8.0	Section 5.5.5	Revised procedure to warn against strain or twisting VR flexi pipe (ECR2782). Removed unnecessary photo.

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CONTENTS

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SECTION 1 CONTENTS

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 Quantium 510 range of fuel dispensers, with the exception of the LPG version. For information on Quantium LPG dispensers refer to the relevant LPG manual as provided by Tokheim.

All dispensers in the Quantium 510 range use the same standard sub-assemblies and offer a wide range of configurations and includes provision for options such as integrated payment terminal, 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

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. Some cladding and panels can be extremely light, therefore in windy conditions care must be taken when removing and storing.

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

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.

NOTE: - WHEN PRIMING A DISPENSER FROM EMPTY, ON UNITS WITH AIR VENTS TO OUTSIDE OF FRAME, ENSURE THE NOZZLE IS ON LOW FLOW FOR 2 - 3 MINUTES.

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.

Dispensers fitted with a Stage II Vapour Recovery system, are in conformity with the requirements of European Directive 2009/126/EC

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.

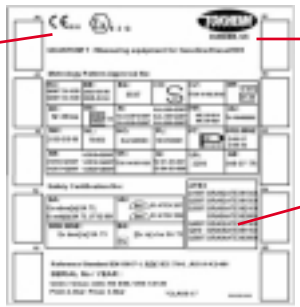
No modification to the dispenser may be performed without express permission from Tokheim and must always use original components or Tokheim retrofit kits. Failure to comply with the above will invalidate product conformance with the relevant European Directives and Tokheim will no longer accept product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



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

If requested by the site owner a calibration check could be performed as part of the commissioning procedure. (refer to section 6).

SECTION 2 CONTENTS

2 SITE PREPARATION

2.1 General

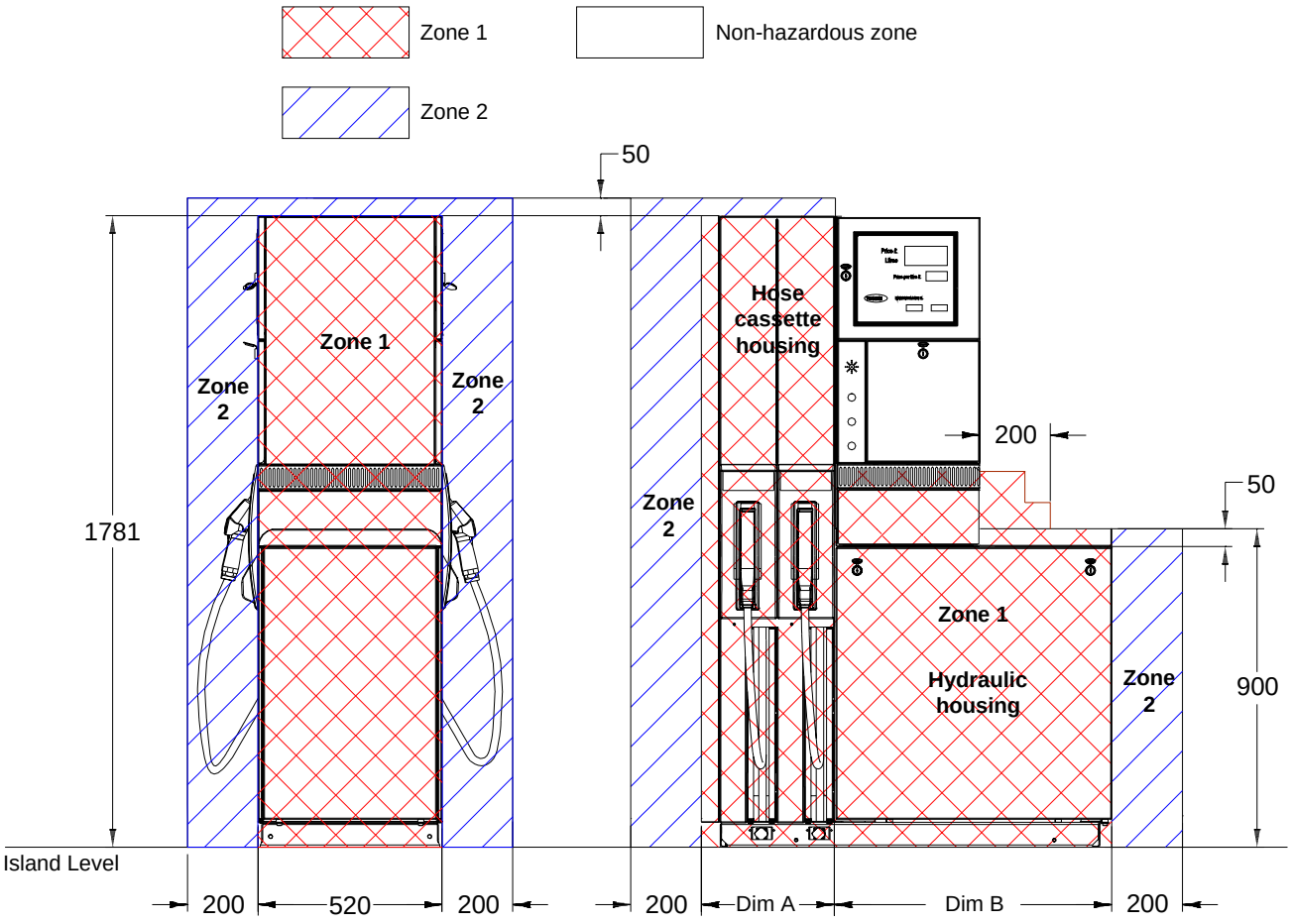
Tokheim dispensers must only be installed on a level island or forecourt surface.

The ground plan will depend on the model ordered. See drawings in Section 3.

2.1.1 ZONING DIAGRAMS

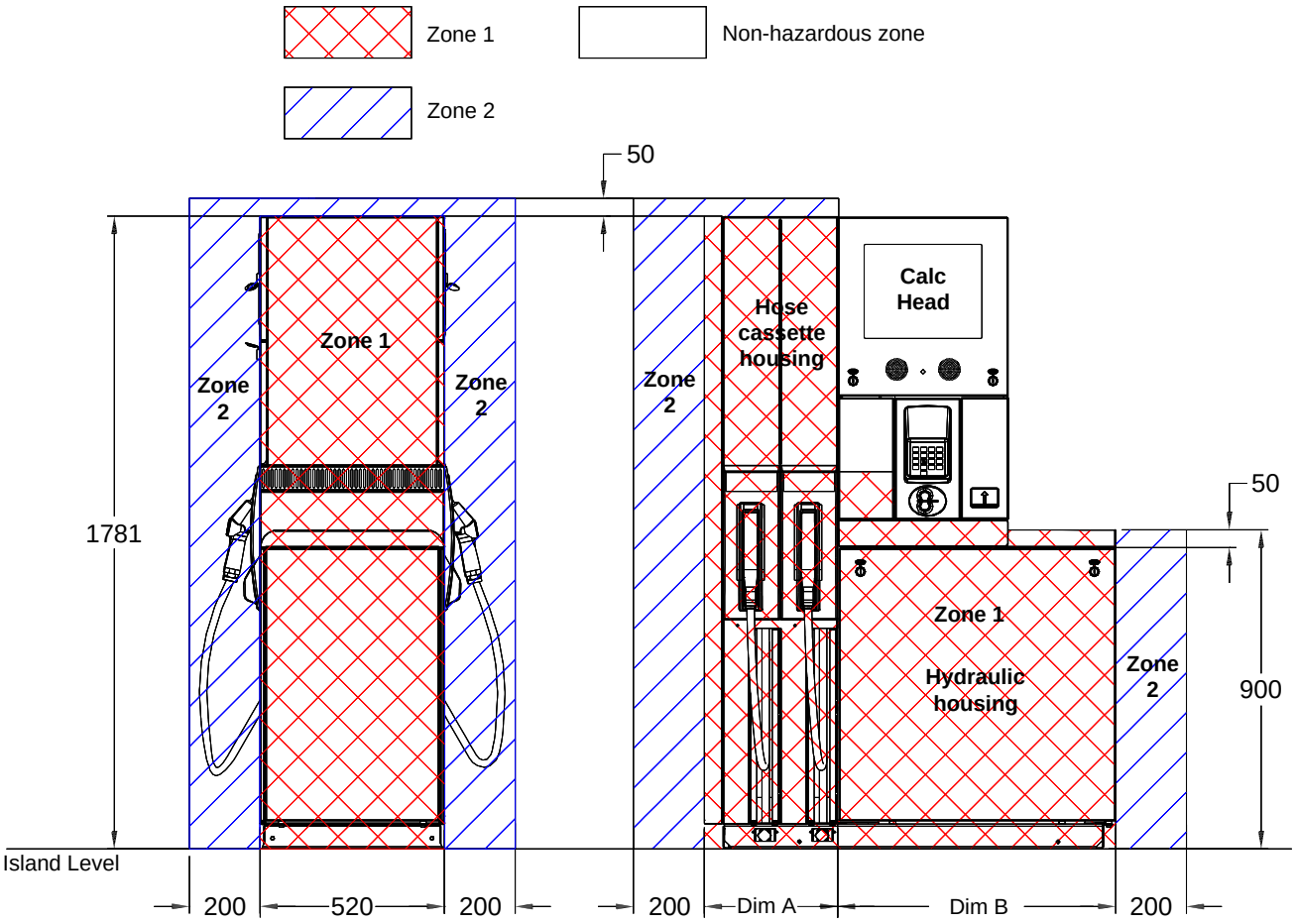
The classification of vapour barriers is indicated in the following diagram. The zone classifications shown are always the highest applicable to that location within the dispenser.

Q510 DISPENSER - STANDARD HEAD CONFIGURATION



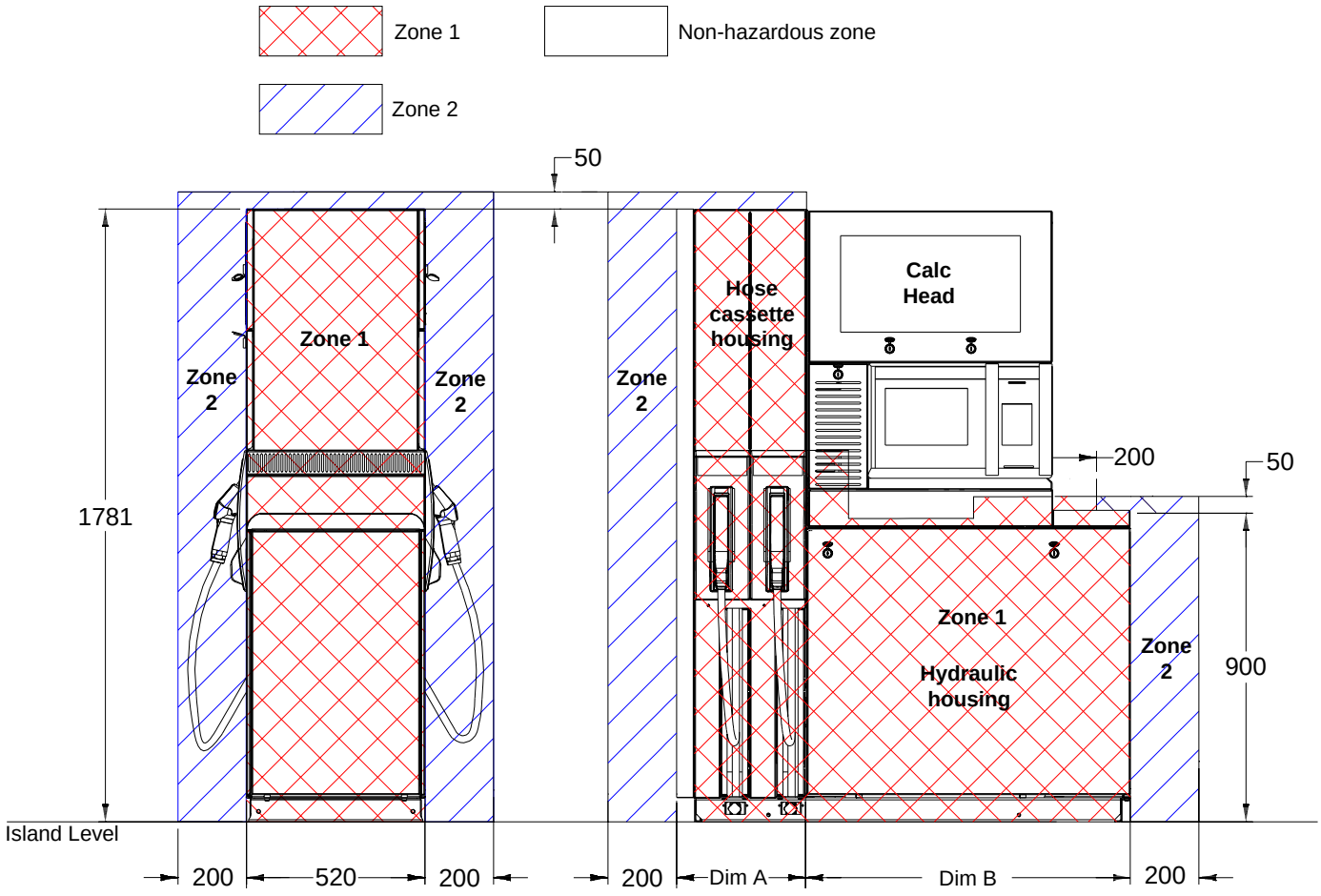
Note:- On this drawing all Zone 2 areas are external of the dispenser.
Zone 1 areas are internal in the dispenser.
Dimensions A and B will depend on dispenser model/number of hoses - refer to Section 3

Q510 DISPENSER - TQC-VGA CONFIGURATION



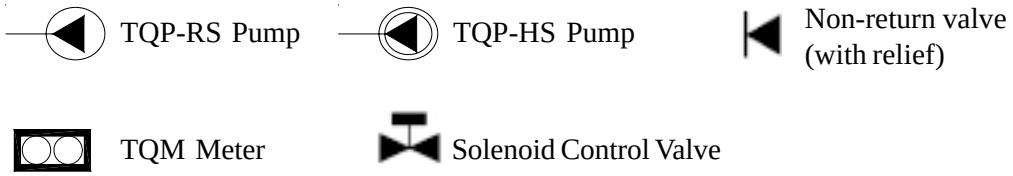
Note:- On this drawing all Zone 2 areas are external of the dispenser.
Zone 1 areas are internal in the dispenser.
Dimensions A and B will depend on dispenser model/number of hoses - refer to Section 3

Q510 DISPENSER - WINCOR CONFIGURATION



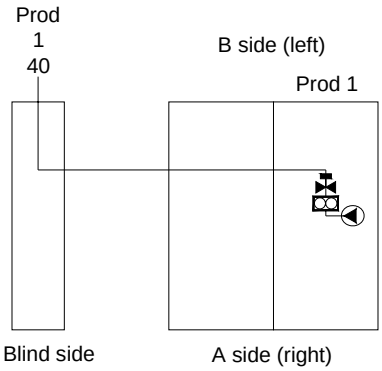
Note:- On this drawing all Zone 2 areas are external of the dispenser.
Zone 1 areas are internal in the dispenser.
Dimensions A and B will depend on dispenser model/number of hoses - refer to Section 3

2.2 Basic Model Schematics



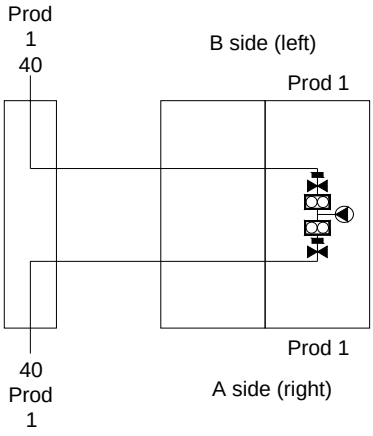
2.2.1 STANDARD SPEED MODELS

Model 1-1

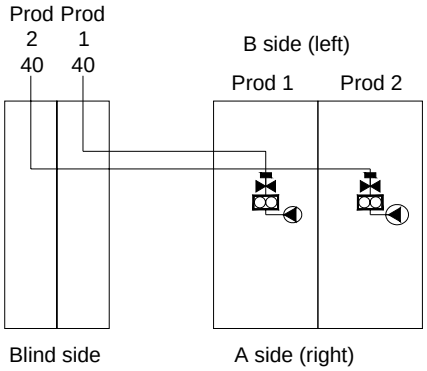


In case of NON-preset with TQP-RS, the valves are not needed.
The valve is needed for Preset or in any case of submerge.
Example shown is B sided (left), A sided (right) is also available.

Model 1-2

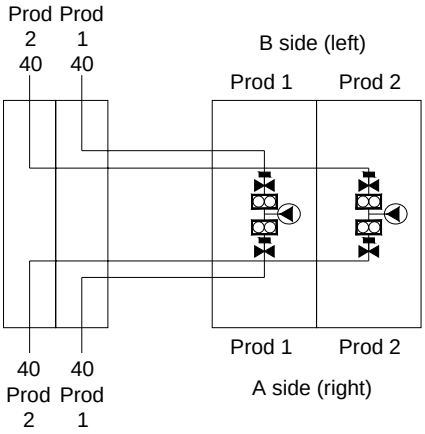


Model 2-2

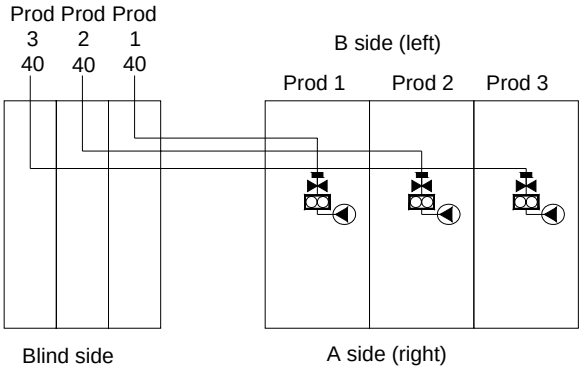


In case of NON-preset with TQP-RS, the valves are not needed.
The valve is needed for Preset or in any case of submerge.
Example shown is B sided (left), A sided (right) is also available.

Model 2-4

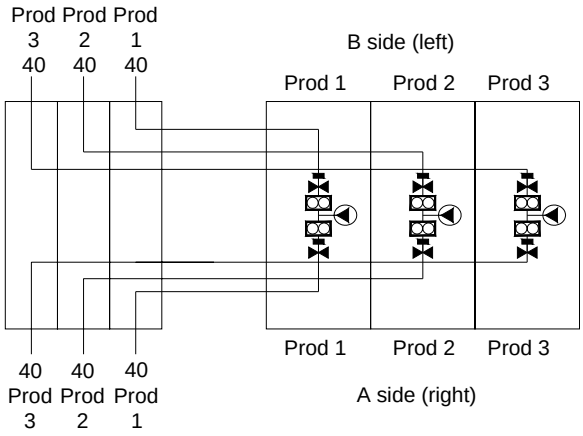


Model 3-3

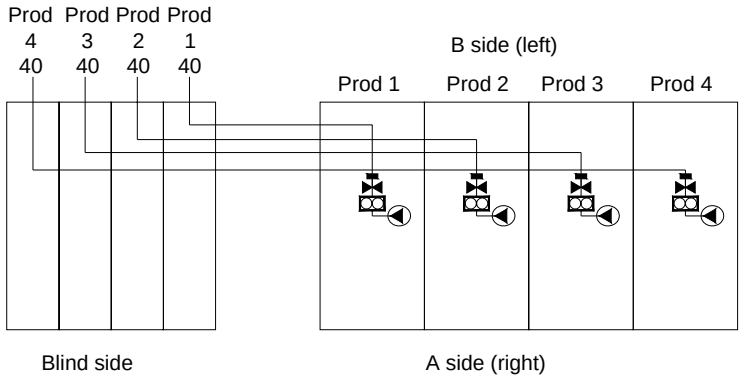


In case of NON-preset with TQP-RS, the valves are not needed.
The valve is needed for Preset or in any case of submerge.
Example shown is B sided (left), A sided (right) is also available.

Model 3-6

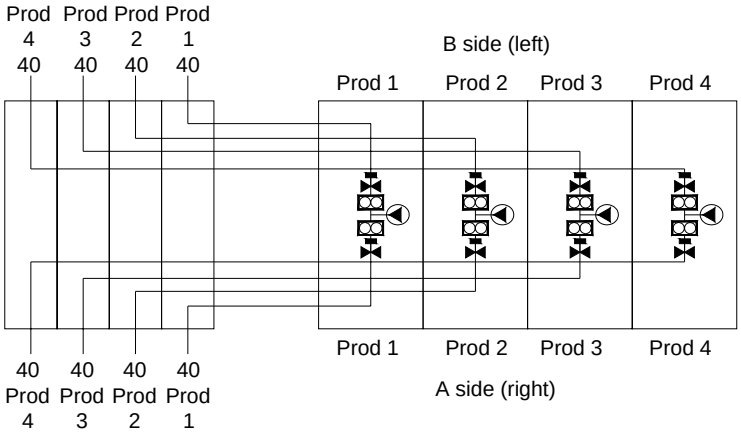


Model 4-4

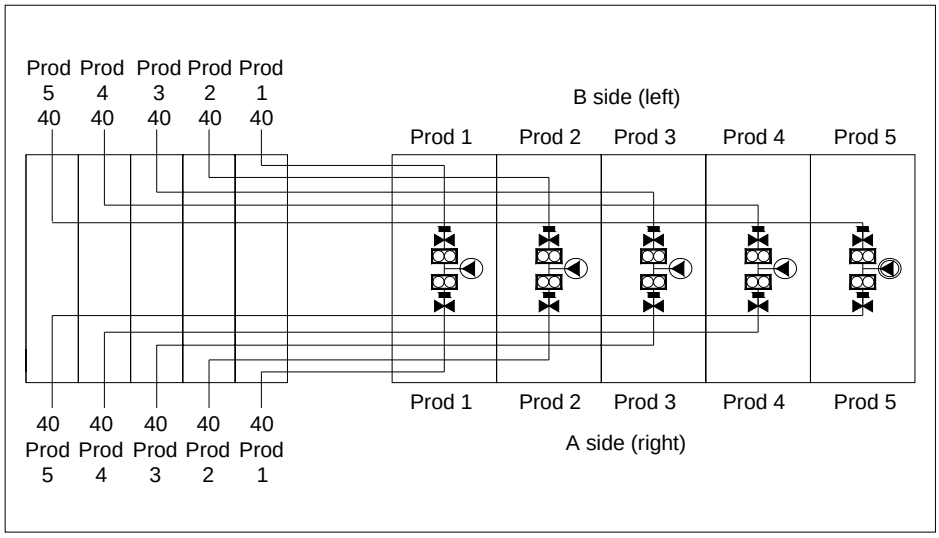


In case of NON-preset with TQP-RS, the valves are not needed.
The valve is needed for Preset or in any case of submerge.
Example shown is B sided (left), A sided (right) is also available.

Model 4-8

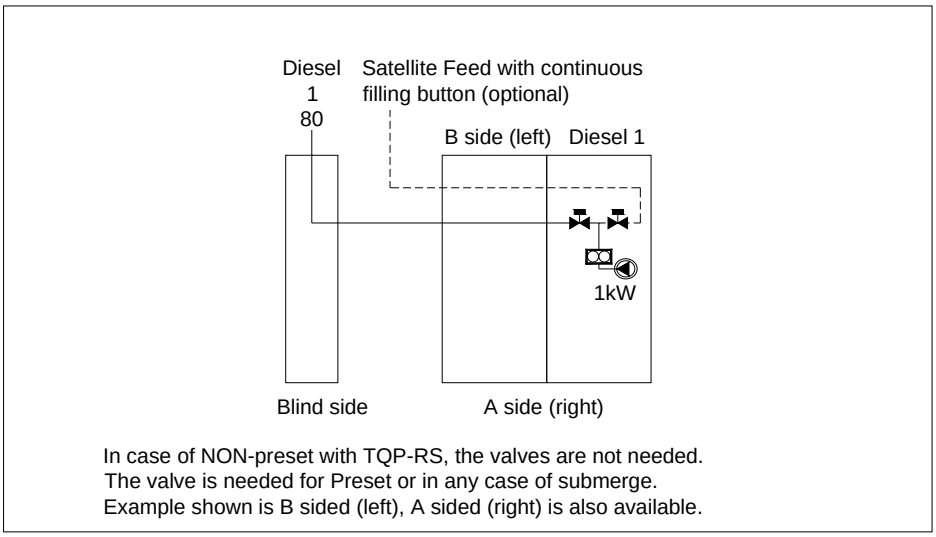


Model 5-10



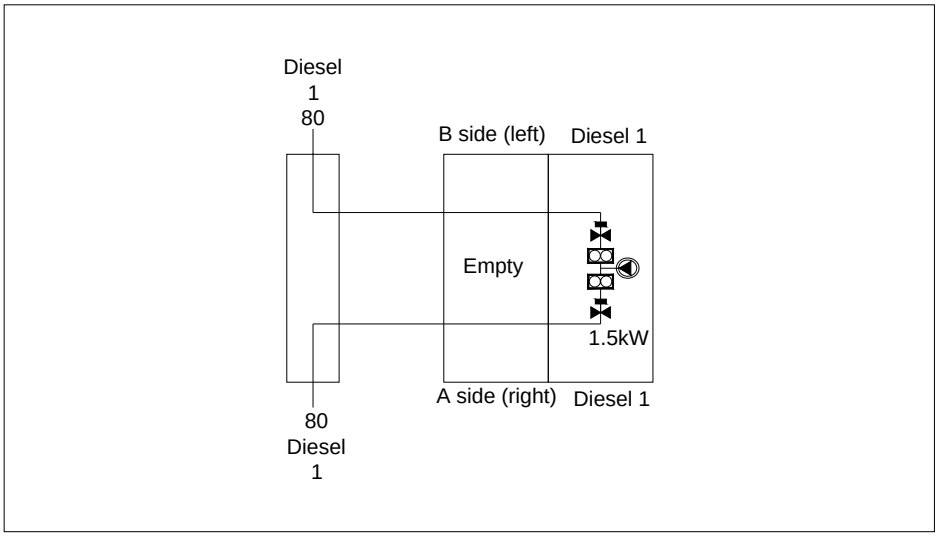
2.2.2 HIGH SPEED DIESEL MODELS

Model HS 1-1

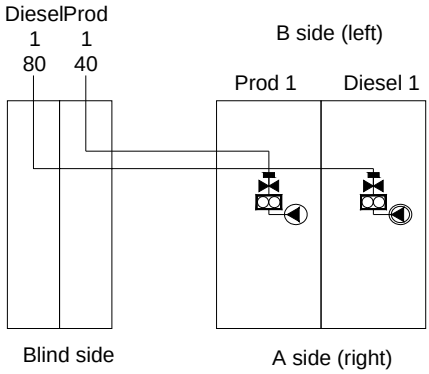


In case of NON-preset with TQP-RS, the valves are not needed.
The valve is needed for Preset or in any case of submerge.
Example shown is B sided (left), A sided (right) is also available.

Model HS 1-2

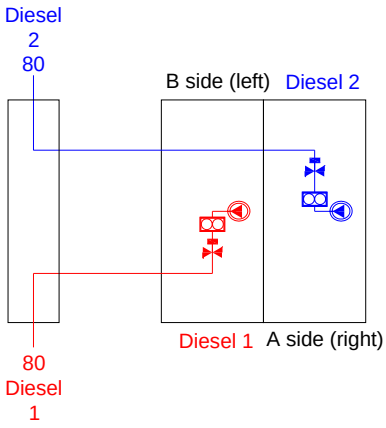


Model HS 2-2



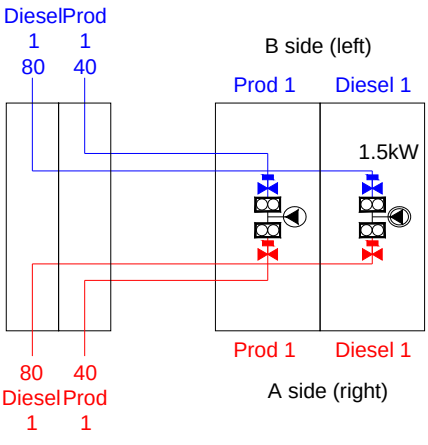
In case of NON-preset with TQP-RS or TQP-HS, the valves are not needed.
The valve is needed for Preset or in any case of submerge.
Example shown is B sided (left), A sided (right) is also available.
HS in first column also available.

Model THS 1-2



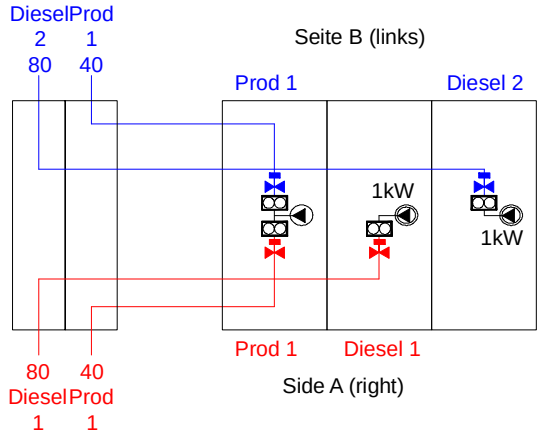
In case of NON-preset with TQP-RS, the valves are not needed.
The valve is needed for Preset or in any case of submerge.

Model HS 2-4



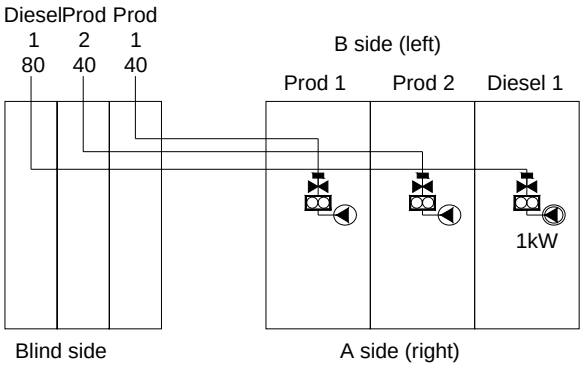
HS in first column also available.

Model THS 3-4



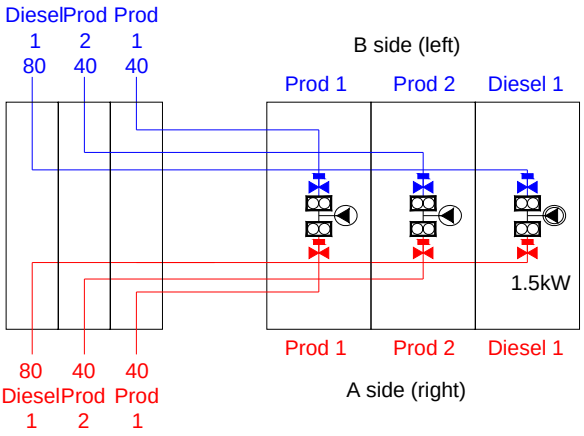
In case of NON-preset with TQP-RS, the valves are not needed.
The valve is needed for Preset or in any case of submerge.

Model HS 3-3



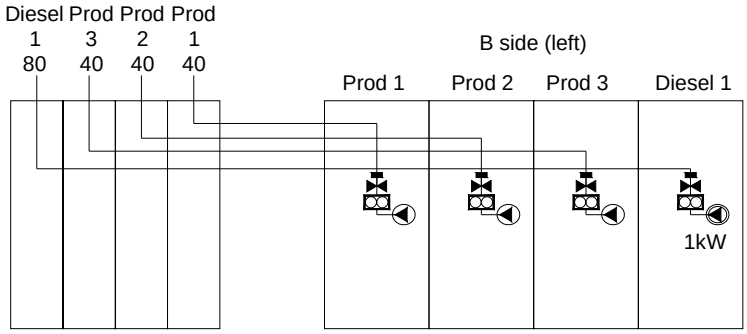
In case of NON-preset with TQP-RS, the valves are not needed.
The valve is needed for Preset or in any case of submerge.
Example shown is B sided (left), A sided (right) is also available.
HS in first column also available.

Model HS 3-6



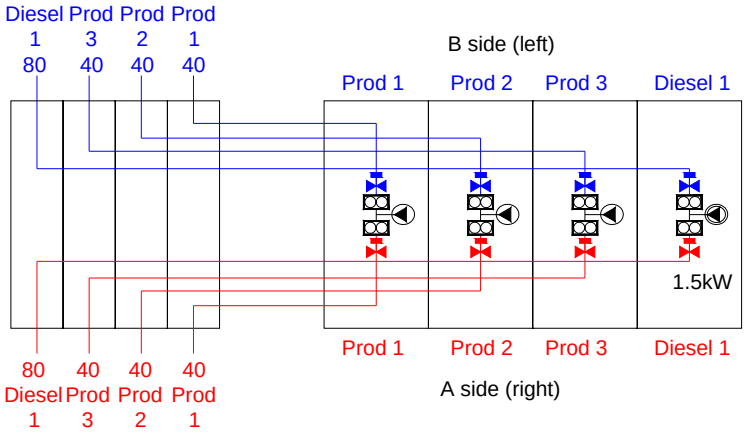
HS in first column also available.

Model HS 4-4



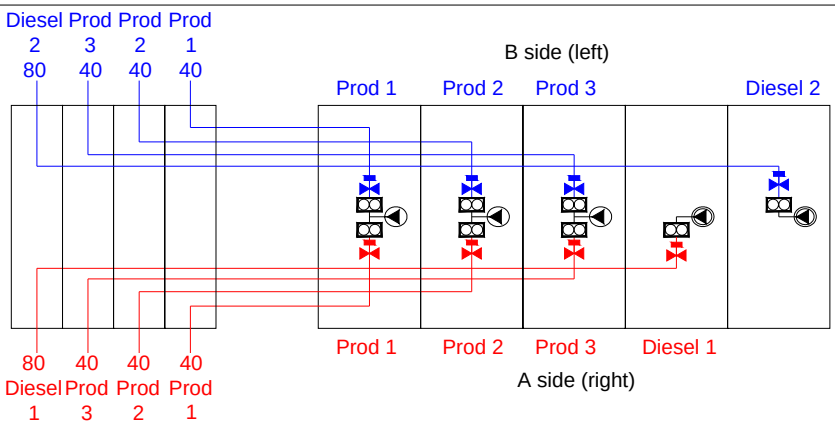
In case of NON-preset with TQP-RS, the valves are not needed.
The valve is needed for Preset or in any case of submerge.
Example shown is B sided (left), A sided (right) is also available.
HS in first column also available.

Model HS 4-8



HS in first column also available.

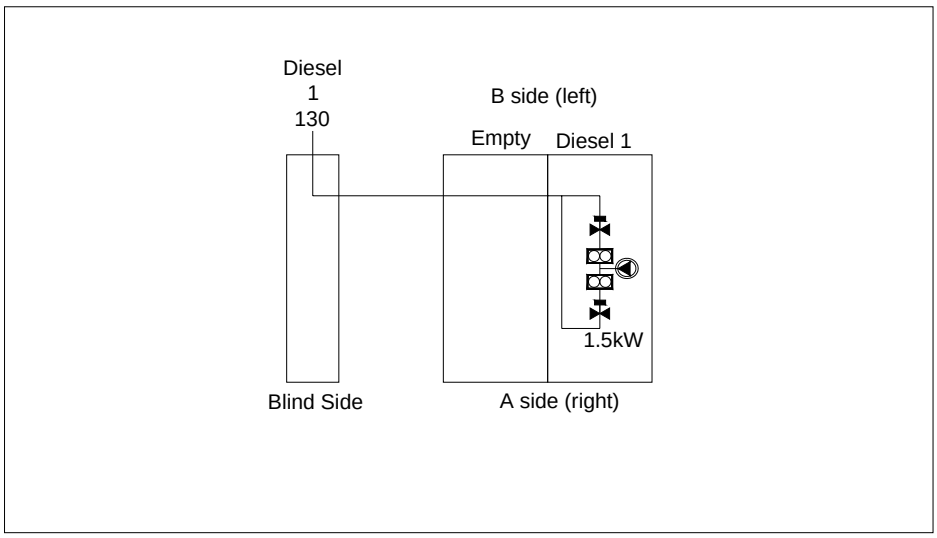
Model THS 5-8



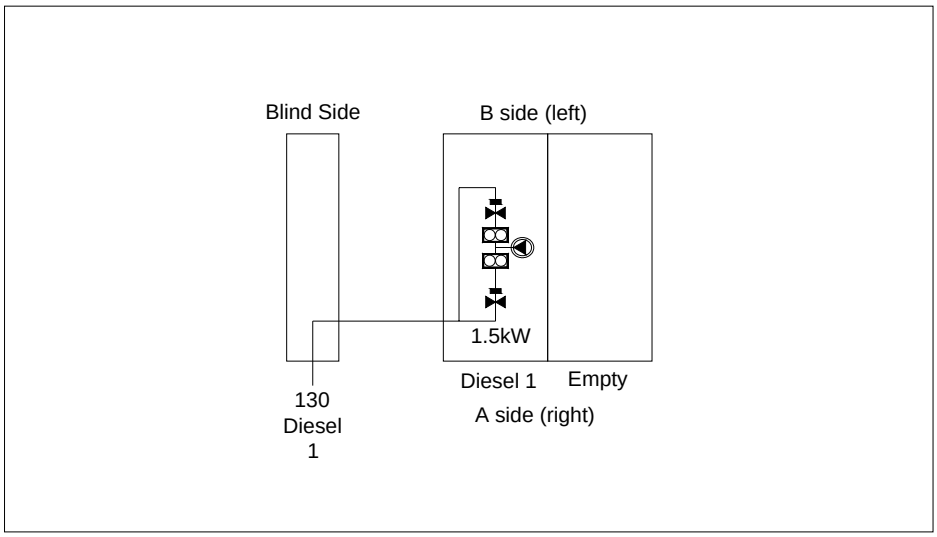
2 x TQP-HS and 3 x TQP-RS or 5 x submerge. In case of NON-preset with TQP-RS or TQP-HS, the valves for the last column are not needed. The valve is needed for Preset or in any case of submerge. HS in first column is also available.

2.2.3 VERY HIGH SPEED DIESEL MODELS

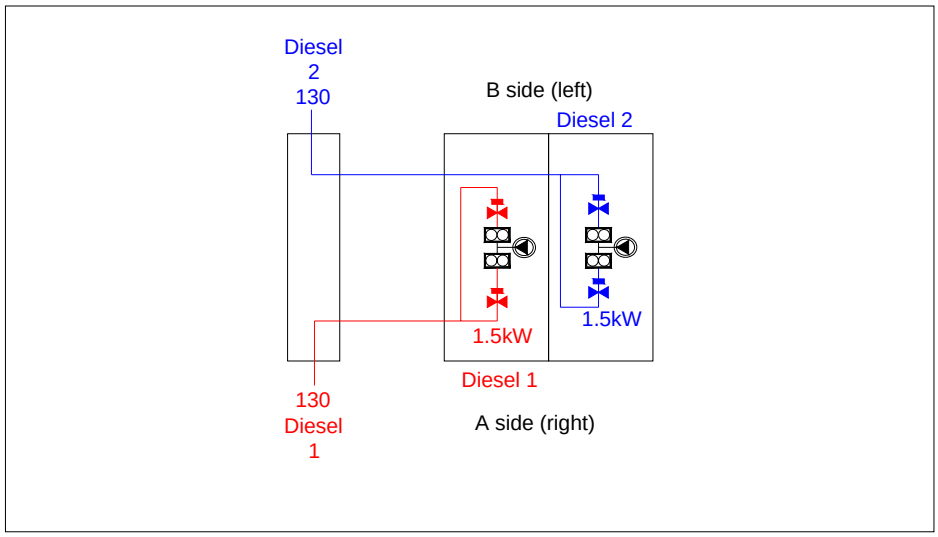
Model VHS 1-1 L



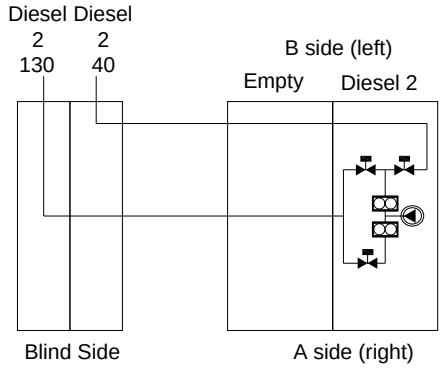
Model VHS 1-1 R



Model VHS 1-2

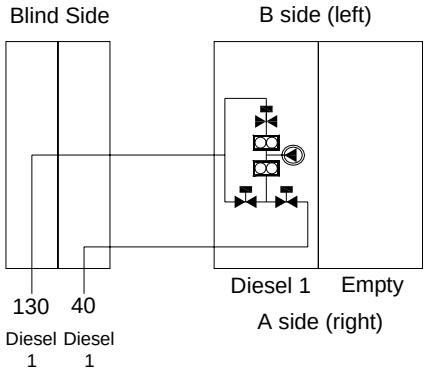


Model VHS 1-2 SS L



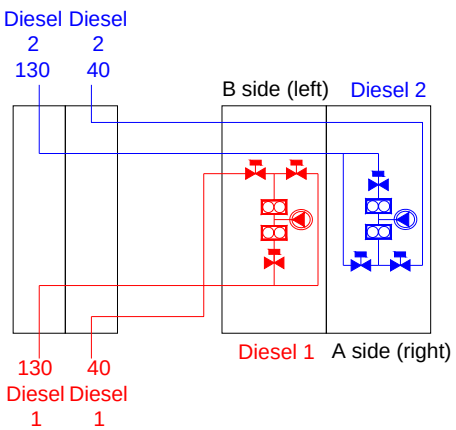
Two diesel nozzles per side connected to one pump.

Model VHS 1-2 SS R



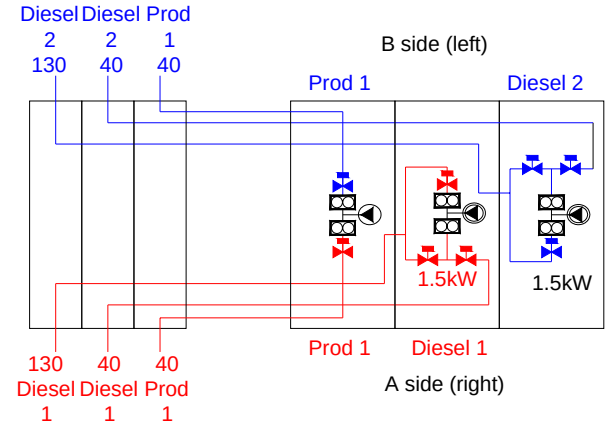
Two diesel nozzles per side connected to one pump.

Model VHS 2-4



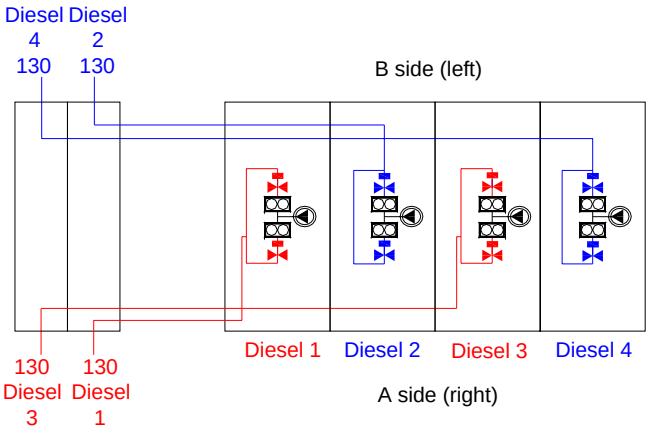
Two diesel nozzles per side connected to one pump.

Model VHS 3-6



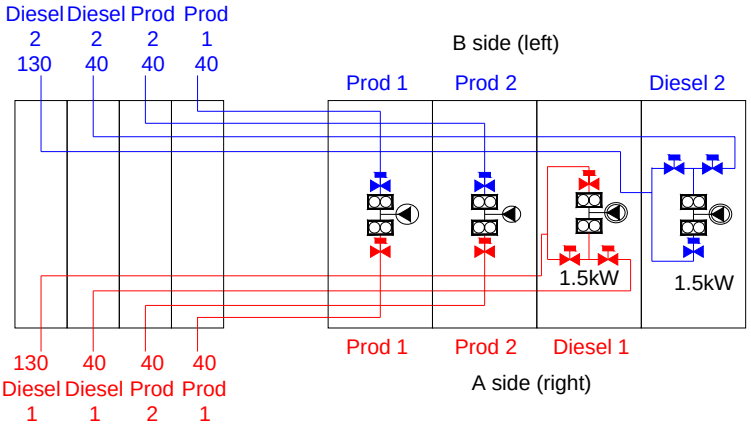
Two diesel nozzles per side connected to one pump.
3rd nozzle from pump 1.

Model VHS 4-4



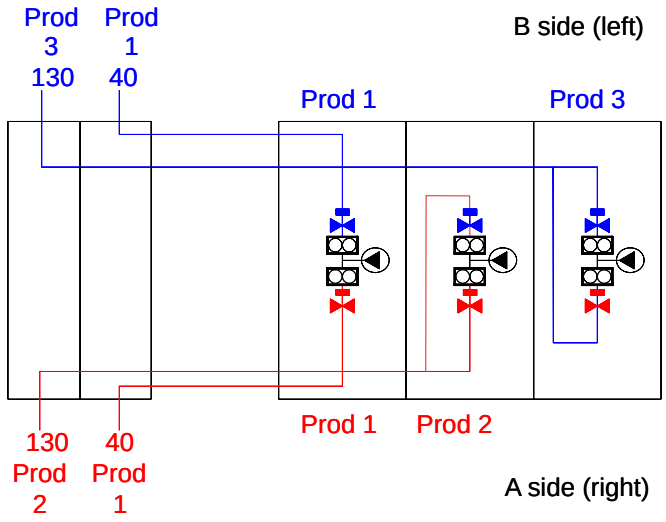
130 for Diesel products 1, 2, 3 and 4.
4 x TQP-HS or 4 x Submerge.
1st and 2nd nozzle from pumps 3 and 1.

Model VHS 4-8



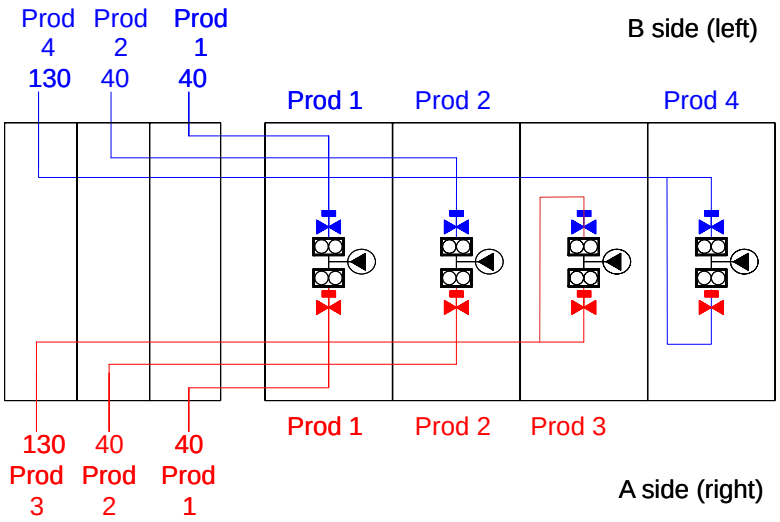
130 and 40 for Diesel, 40 or 35/35 for products 1 and 2.
2 x TQP-HS and 2 x TQP-RS or 4 x Submerge.
2 Diesel nozzles per side connected to 1 pump. 3rd and 4th nozzle from pumps 1 and 2.

Model SVHS 3-4



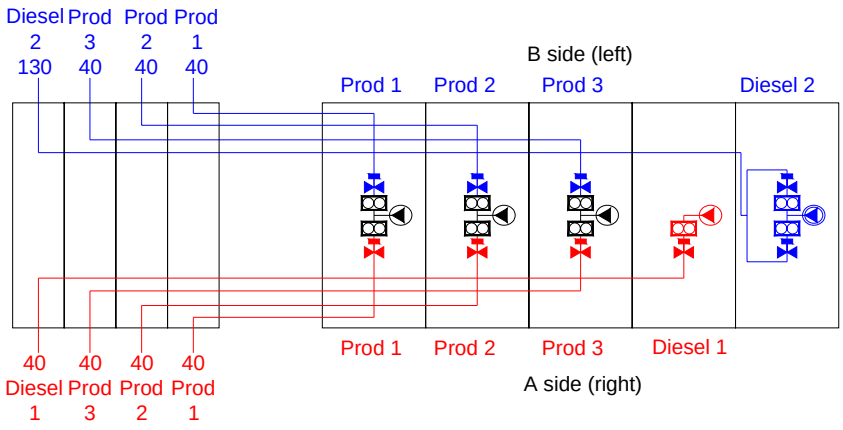
2 x TQP-HS and 1 x TQP-RS or 3 x submerge.
In case of NON-preset with TQP-RS or TQP-HS, the valves for the last column are not needed.
The valve is needed for Preset or in any case of submerge.

Model SVHS 4-6



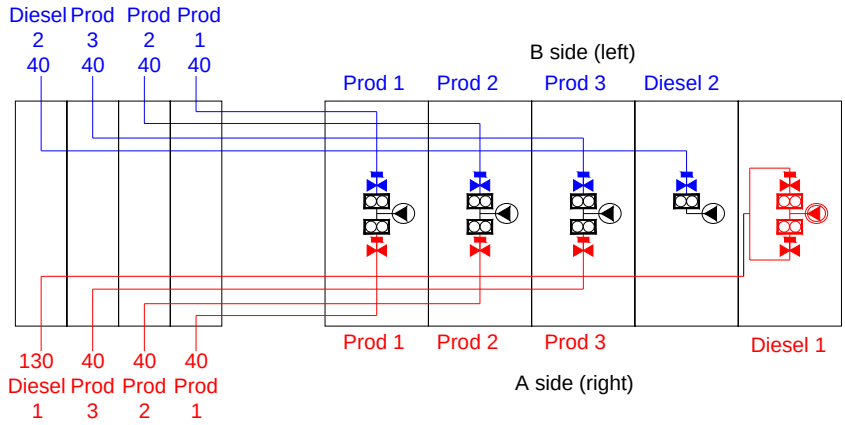
2 x TQP-HS and 2 x TQP-RS or 4 x submerge.
In case of NON-preset with TQP-RS or TQP-HS, the valves for the last column are not needed.
The valve is needed for Preset or in any case of submerge.

Model SVHS 5-8 L



1 x TQP-HS and 4 x TQP-RS or 5 x submerge.
In case of NON-preset with TQP-RS or TQP-HS, the valves for the last column are not needed.
The valve is needed for Preset or in any case of submerge.

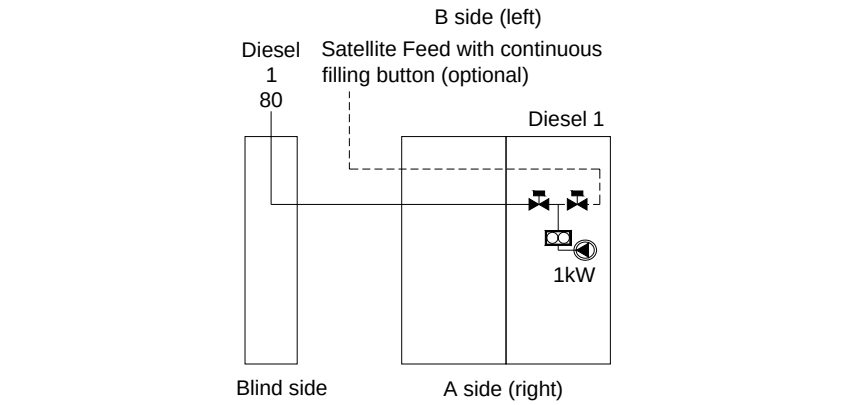
Model SVHS 5-8 R



1 x TQP-HS and 4 x TQP-RS or 5 x submerge.
In case of NON-preset with TQP-RS or TQP-HS, the valves for the last column are not needed.
The valve is needed for Preset or in any case of submerge.

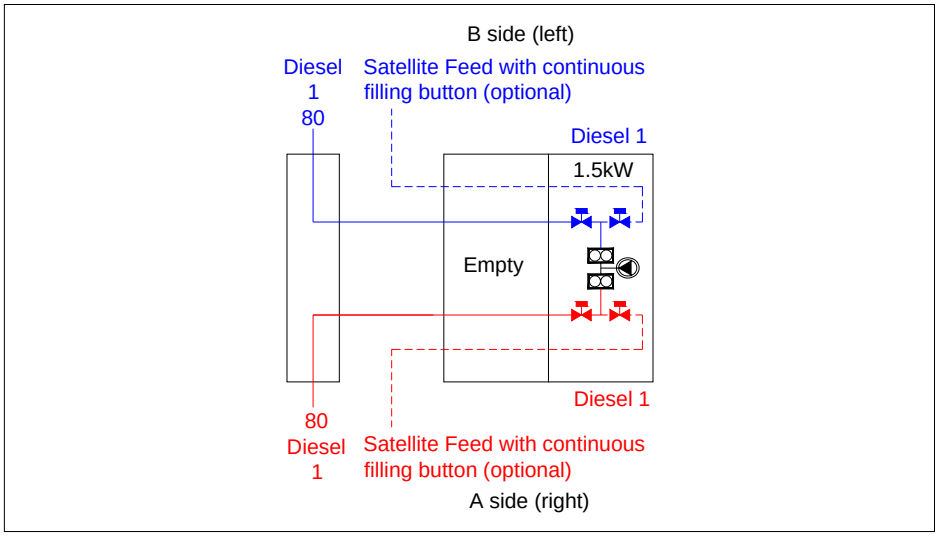
2.2.4 MASTER & SATELLITE MODELS

Model HSM 1-1

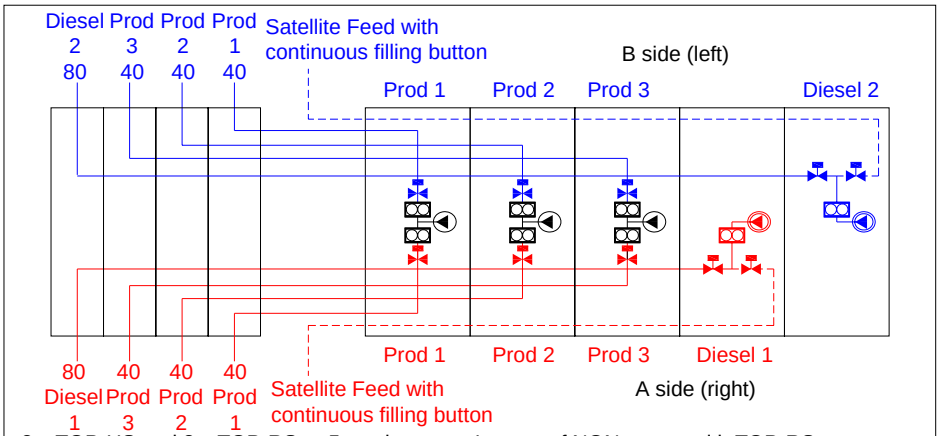


In case of NON-preset with TQP-RS, the valves are not needed.
The valve is needed for Preset or in any case of submerge.
Example shown is B sided (left), A sided (right) is also available.

Model HSM 1-2

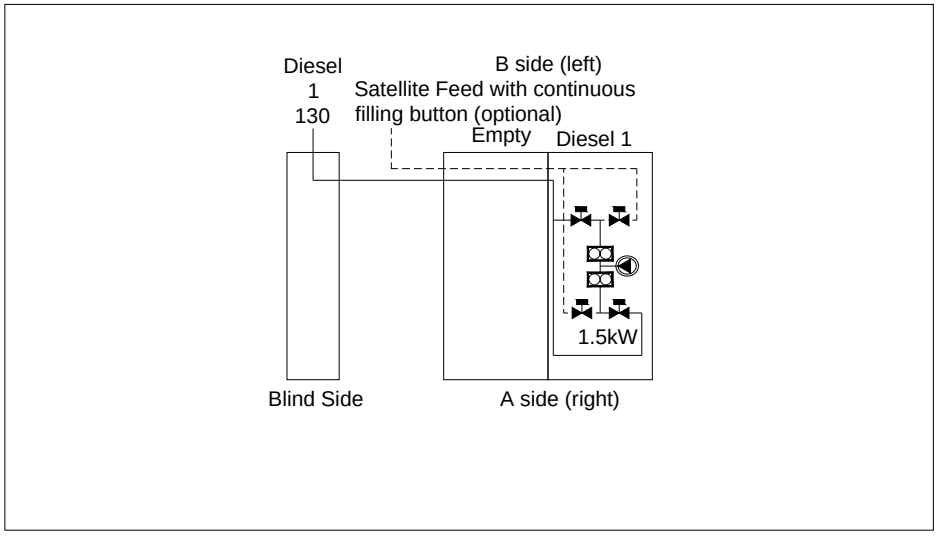


Model HSM 5-8

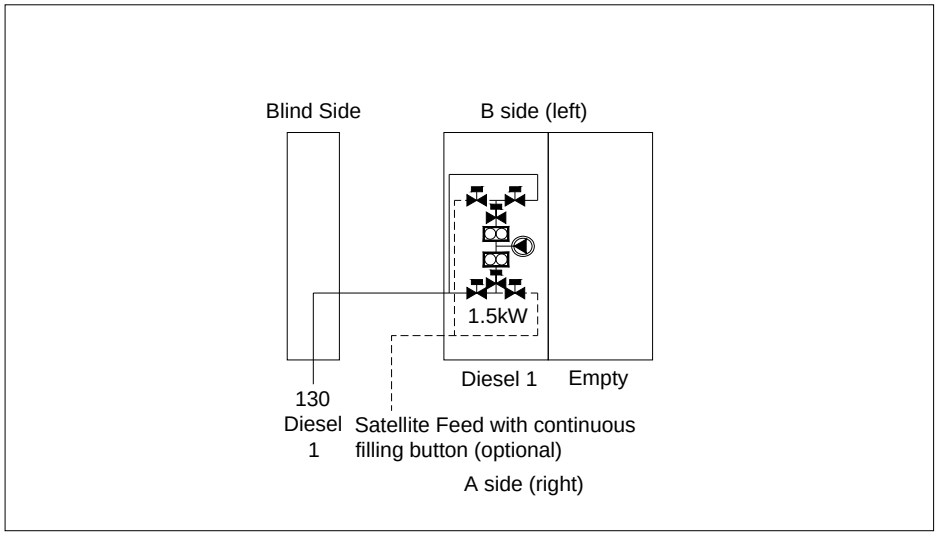


2 x TQP-HS and 3 x TQP-RS or 5 x submerge. In case of NON-preset with TQP-RS or TQP-HS, the valves for the last column are not needed. The valve is needed for Preset or in any case of submerge. Master to feed MSAT only. Example shown is B sided (left), A sided (right) is also available. Double sided Master is not available.

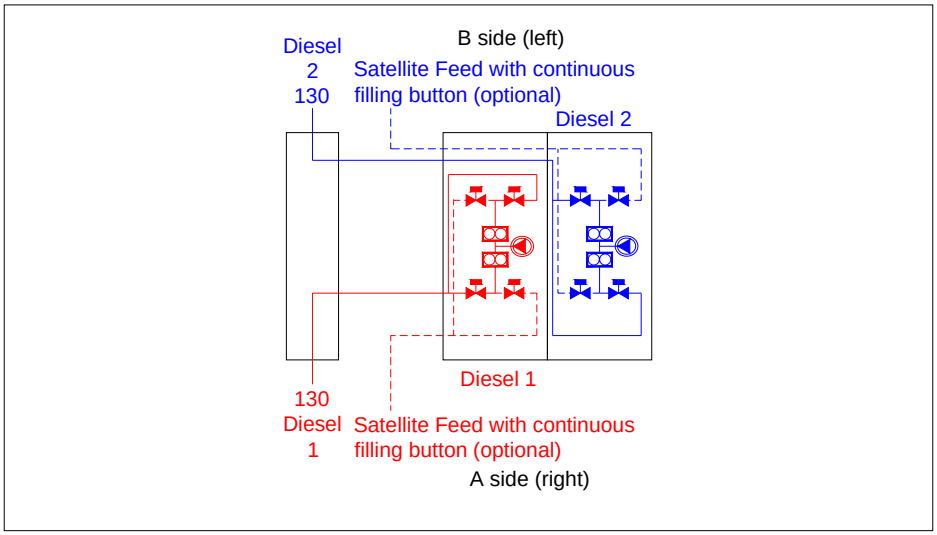
Model VHSM 1-1 L



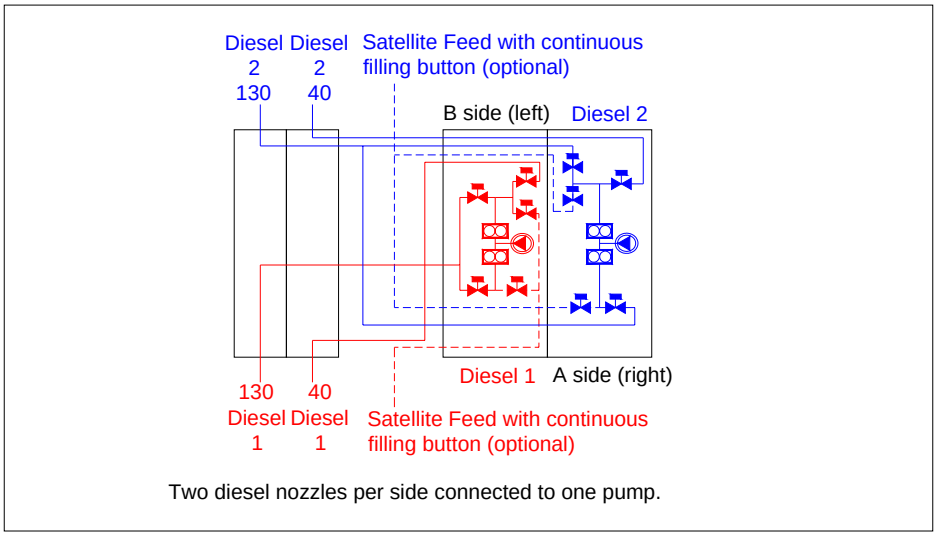
Model VHSM 1-1 R



Model VHSM 1-2

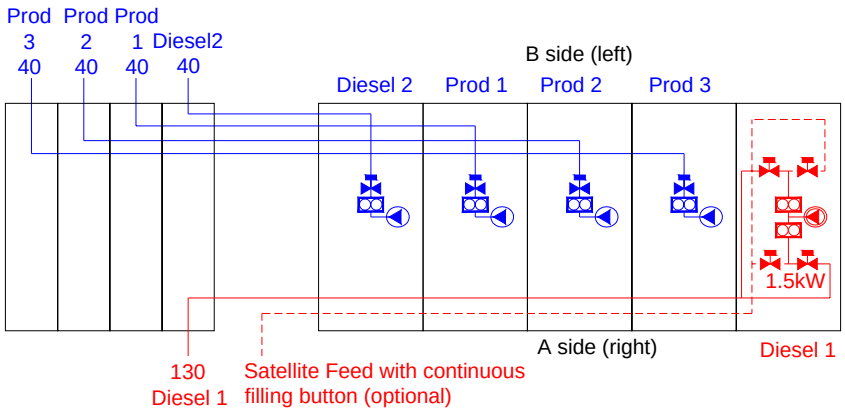


Model VHSM 2-4



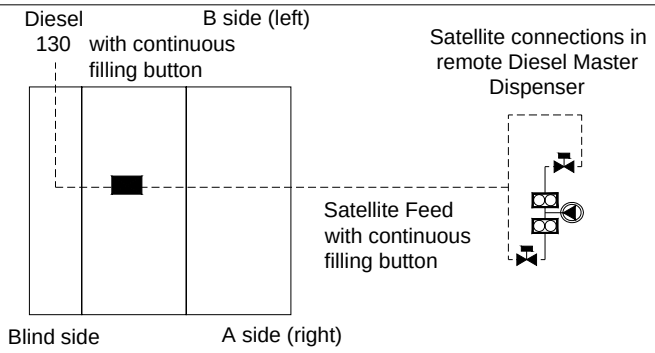
Two diesel nozzles per side connected to one pump.

Model SVHSM 5-5



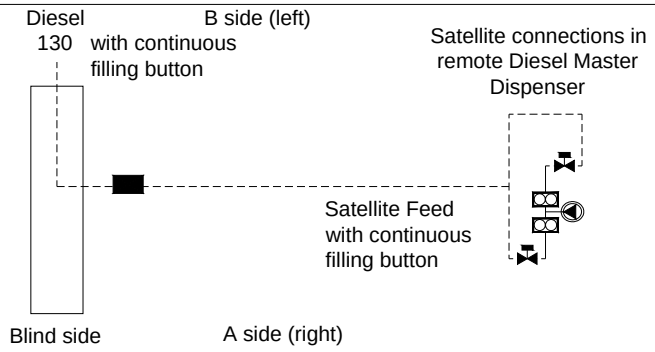
1 x TQP-HS and 4 x TQP-RS or 5 x submerge.
The valve is needed for Preset or in any case of submerge.
Master to feed MSAT only.
Example shown is VHS on A side (right), B side (left) is also available.

Model SAT



Example shown is B sided (left) Satellite dispenser connected to a Master dispenser (TQP-HS or Submerge) with an A sided (right) Satellite connection. A sided (right) satellite dispenser connected to a Master dispenser (TQP-HS or Submerge) with a B sided (left) Satellite connection is also available. Double sided does not exist.
All control valves are in the Master dispenser. The display head is always present and needs connection inside Master.

Model MSAT



Example shown is B sided (left) mini-satellite dispenser is connected to a master dispenser (TQP-HS or Submerge) with an A sided (right) satellite connection. A sided (right) mini-satellite dispenser connected to a master dispenser (TQP-HS or Submerge) with a B sided (left) satellite connection is possible with the same cassette turned 180.
All control valves are in the Master dispenser.
Display is not available.

2.3 Hydraulic Connections

The suction pipes are accessible from Side B of the Dispenser. See section 5.2 for the identification of side B. Different types of hydraulic connection are available depending on the dispenser configuration.

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).

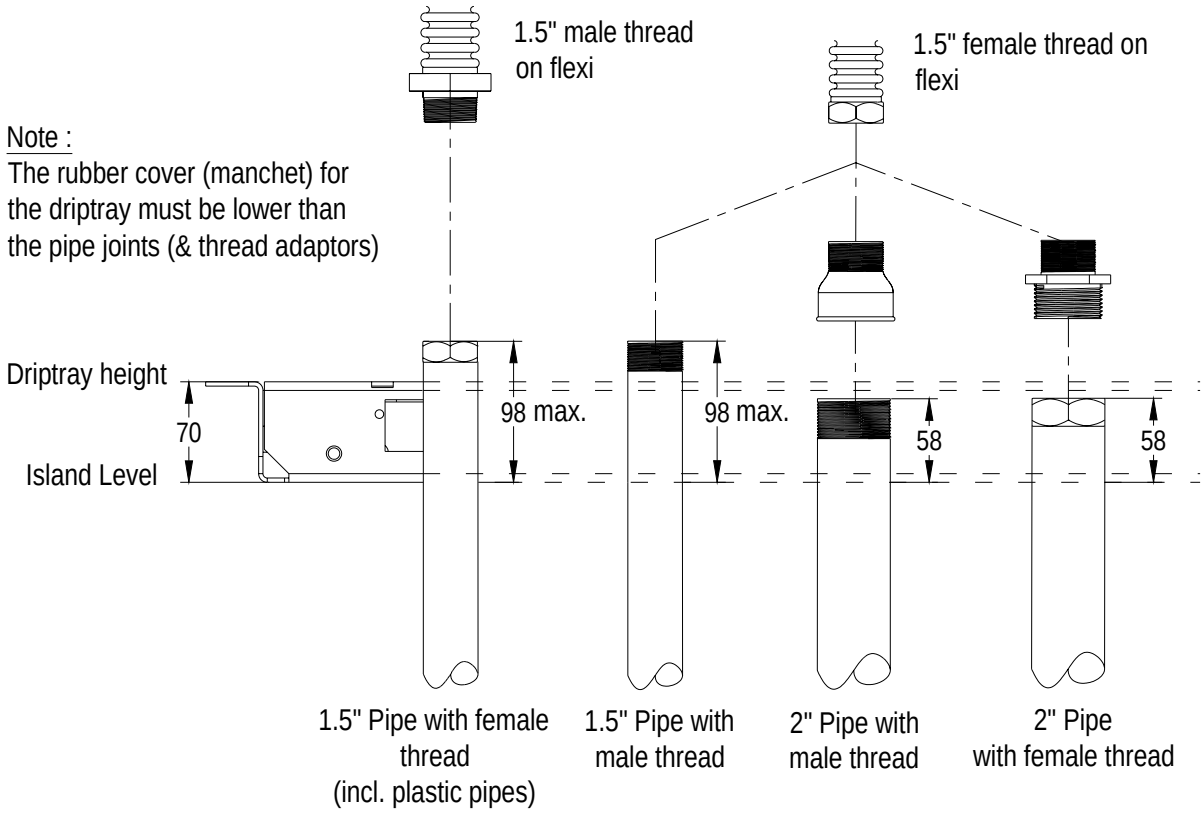
Tokheim requires that rigid pipes must be used for all SAT lines.

Never slacken or remove fixing brackets holding pipework to the dispenser.

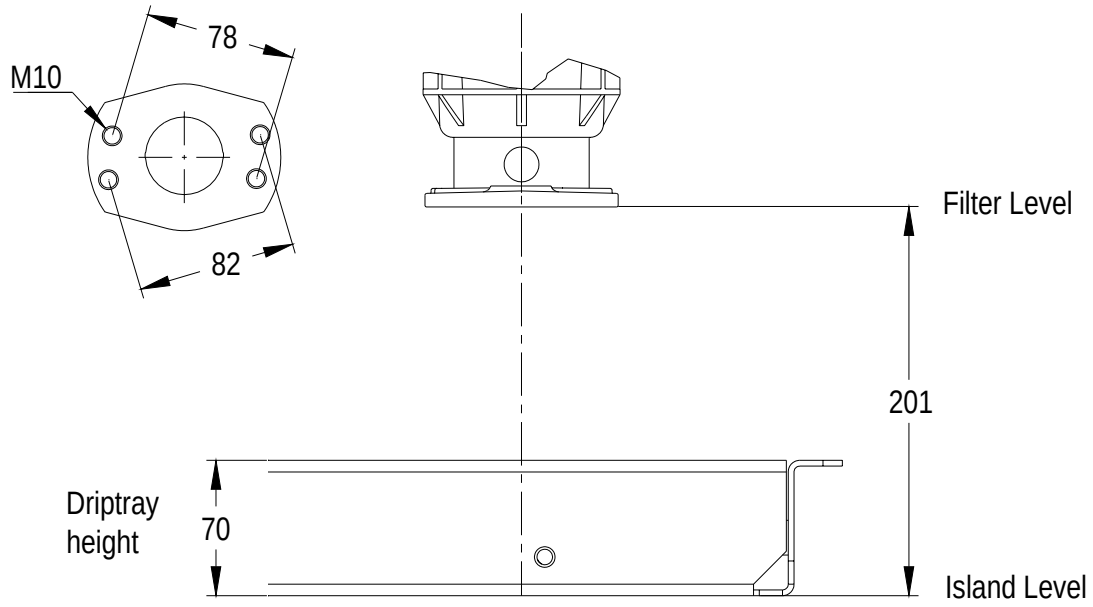
Ensure that no strain is placed on pipework during installation.

2.3.1 SUCTION & SUBMERGED CONNECTIONS

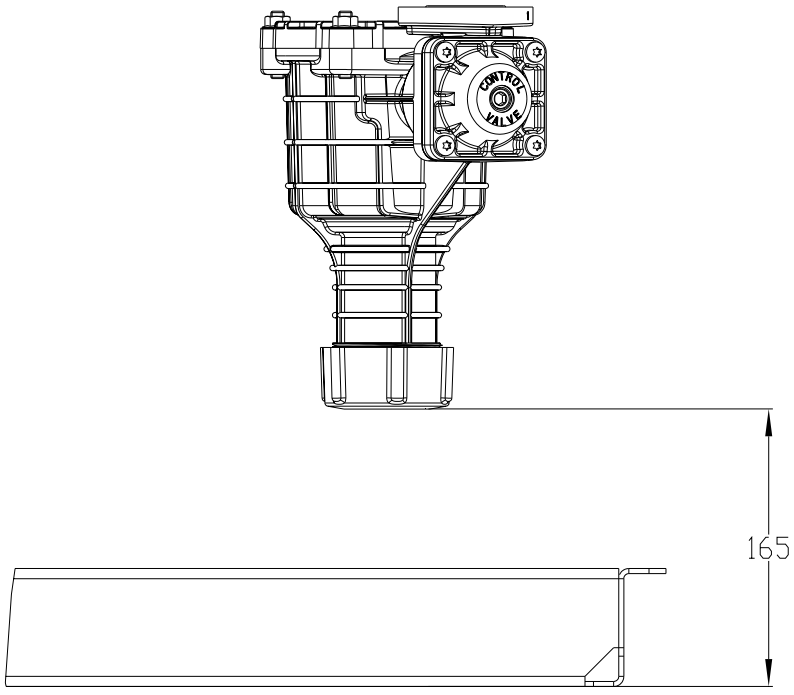
Standard Suction Connection (with & without Filterbox)



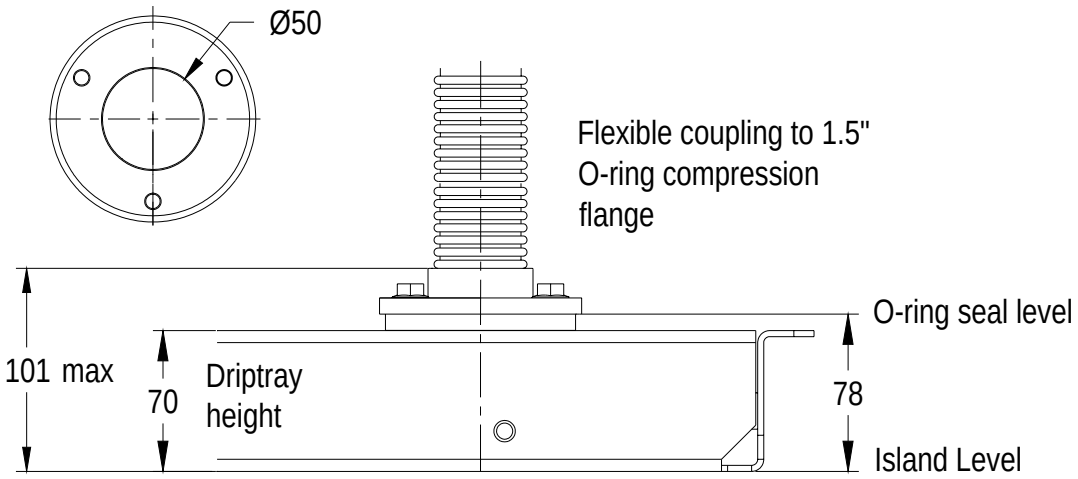
Suction & Submerged Connection (with Filterbox, without Flexible coupling) - Dispensers Manufactured Before June 2014



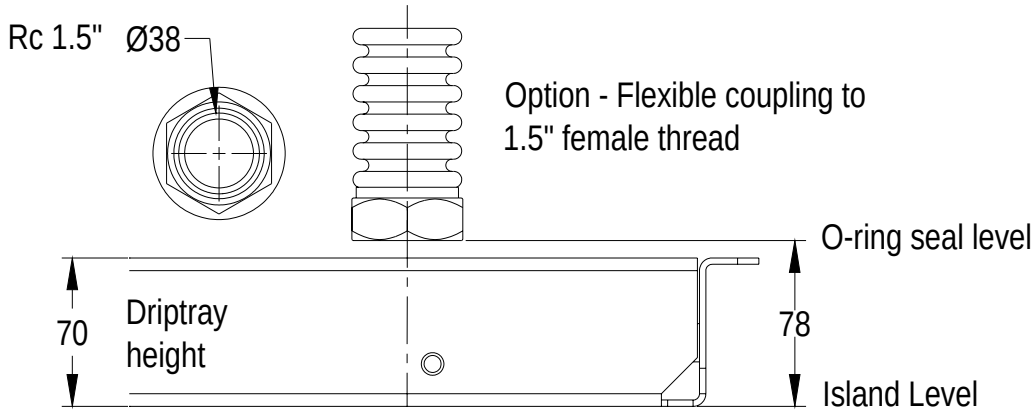
Submerged Connection only (with Filterbox, without Flexible coupling) - Dispensers Manufactured After May 2014



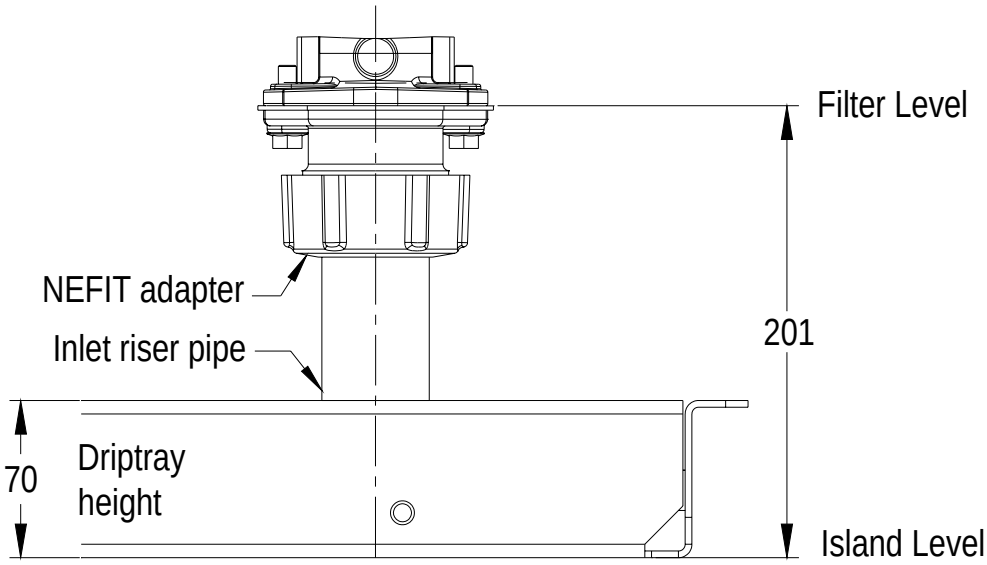
Suction Connection - Flexible Coupling to 1.5” O-ring Compression Flange (with & without Filterbox)



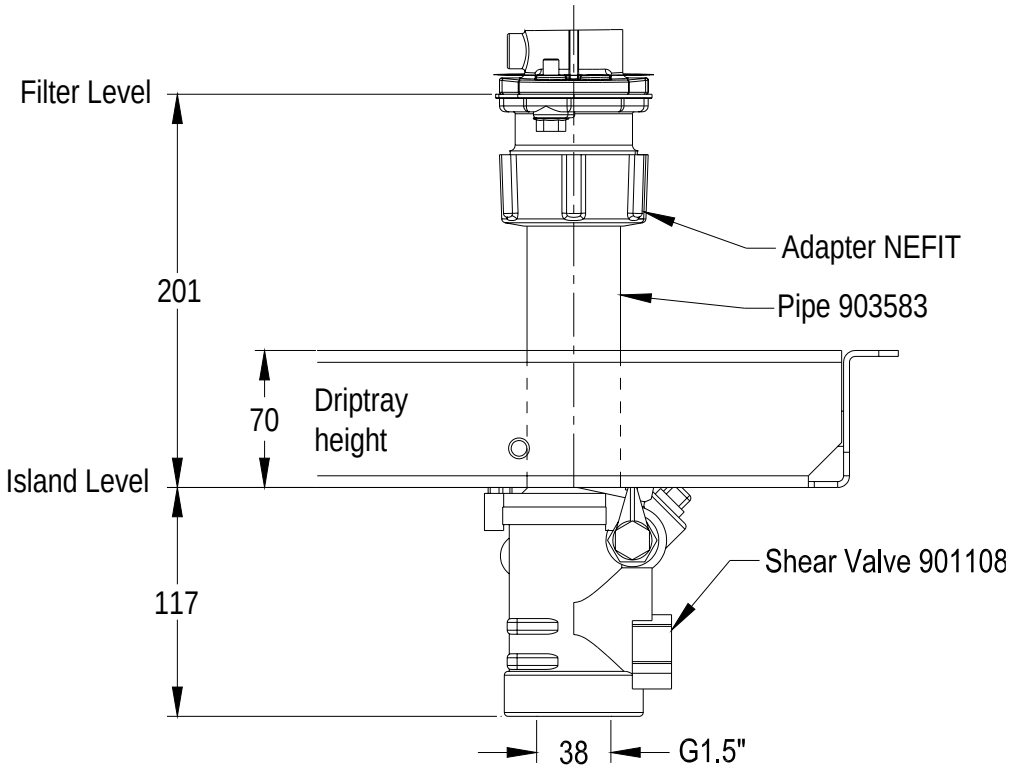
Suction Connection - Flexible Coupling to 1.5” Female Thread (with & without Filterbox)



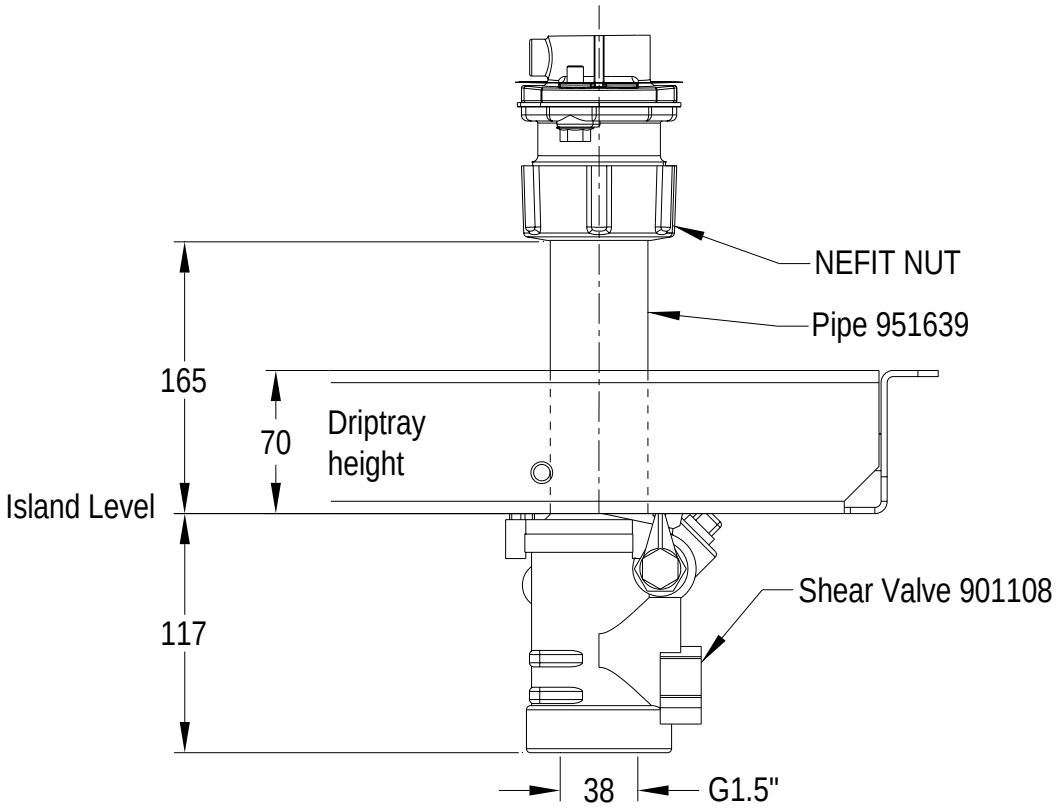
Suction Connection with Nefit Adaptor (Filterbox only)



Submerged Connection with Nefit Adaptor & Shear Valve (Filterbox only) - Dispensers Manufactured Before June 2014

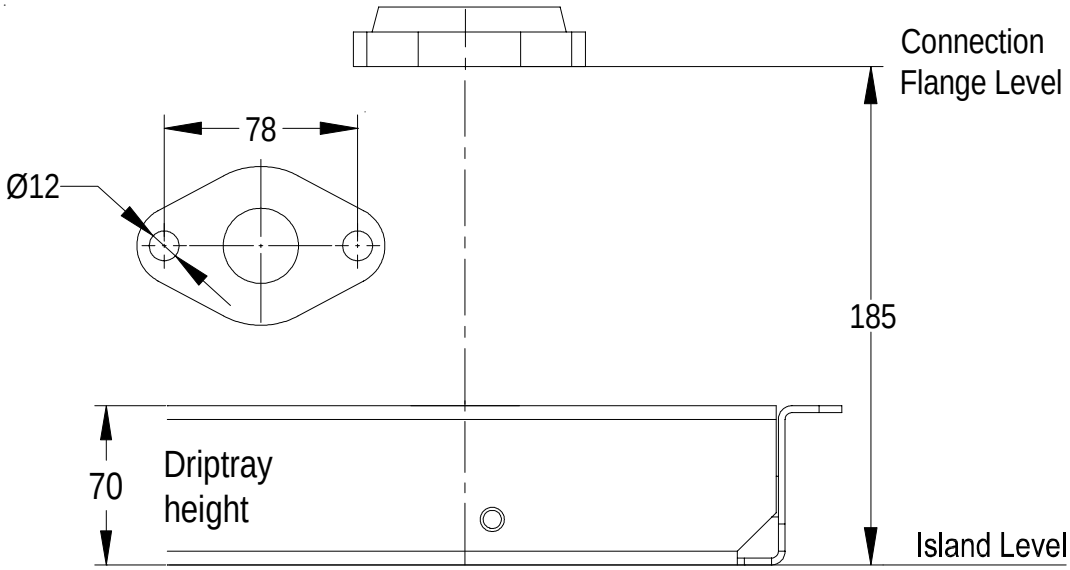


Submerged Connection with Shear Valve (Filterbox only) - Dispensers Manufactured After May 2014



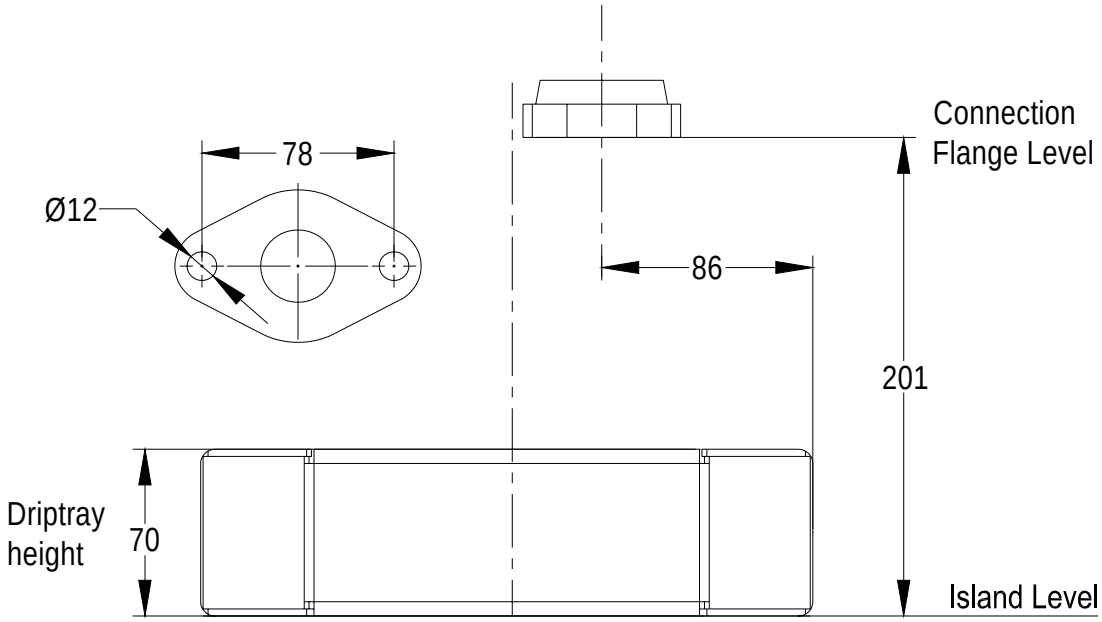
2.3.2 MASTER & SATELLITE CONNECTIONS

Master Connection

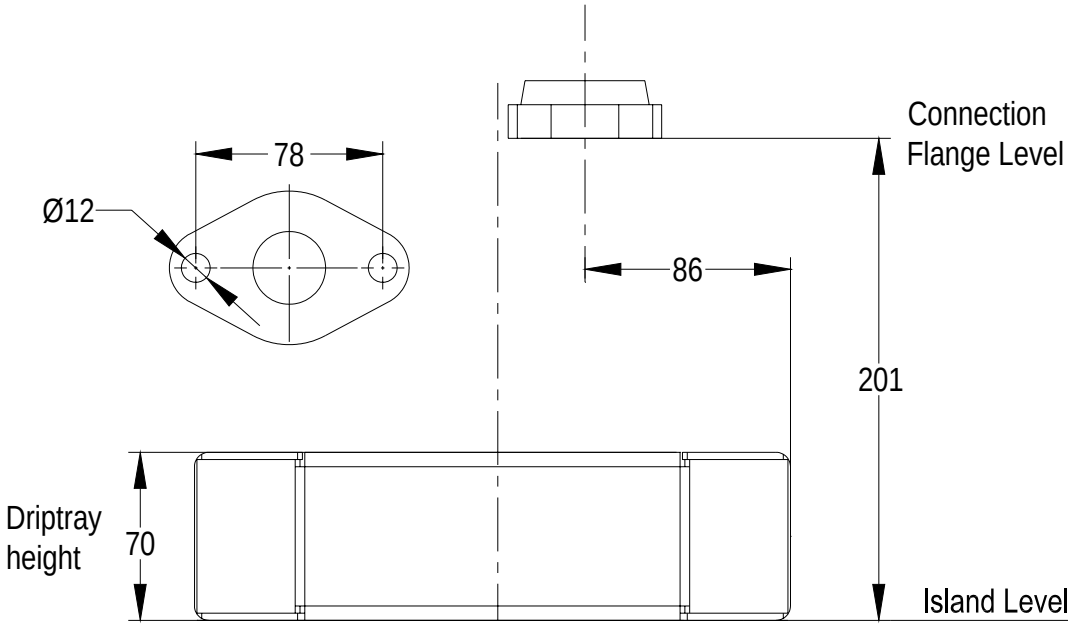


Note: For model HSM5-8, the the height dimension from Island Level to Connection Flange Level should be 85mm.

Satellite Connection

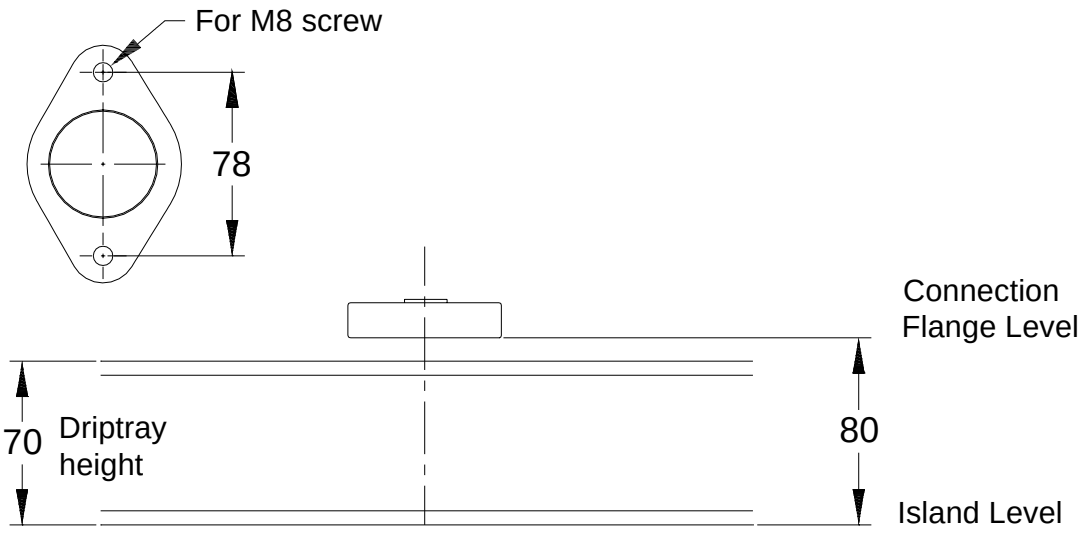


Master to Mini-Satellite Connection

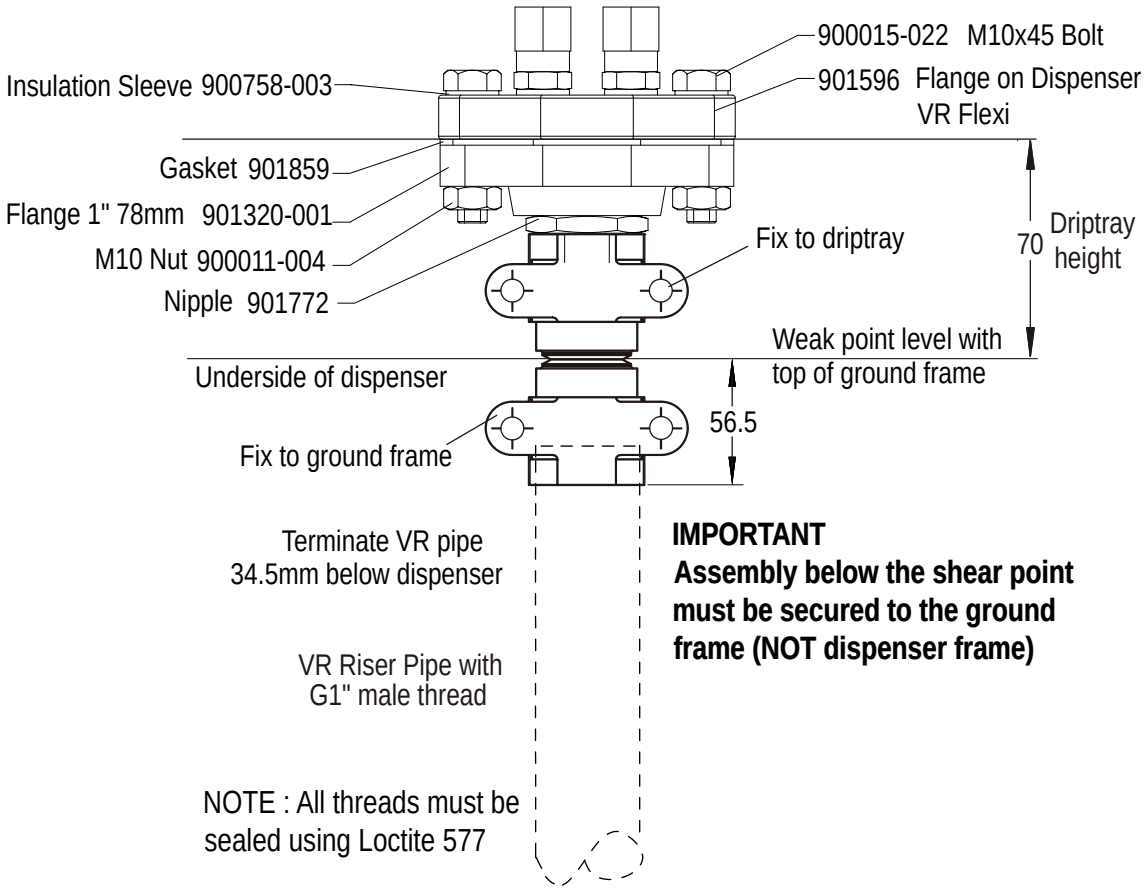


2.3.3 VAPOUR RECOVERY CONNECTIONS

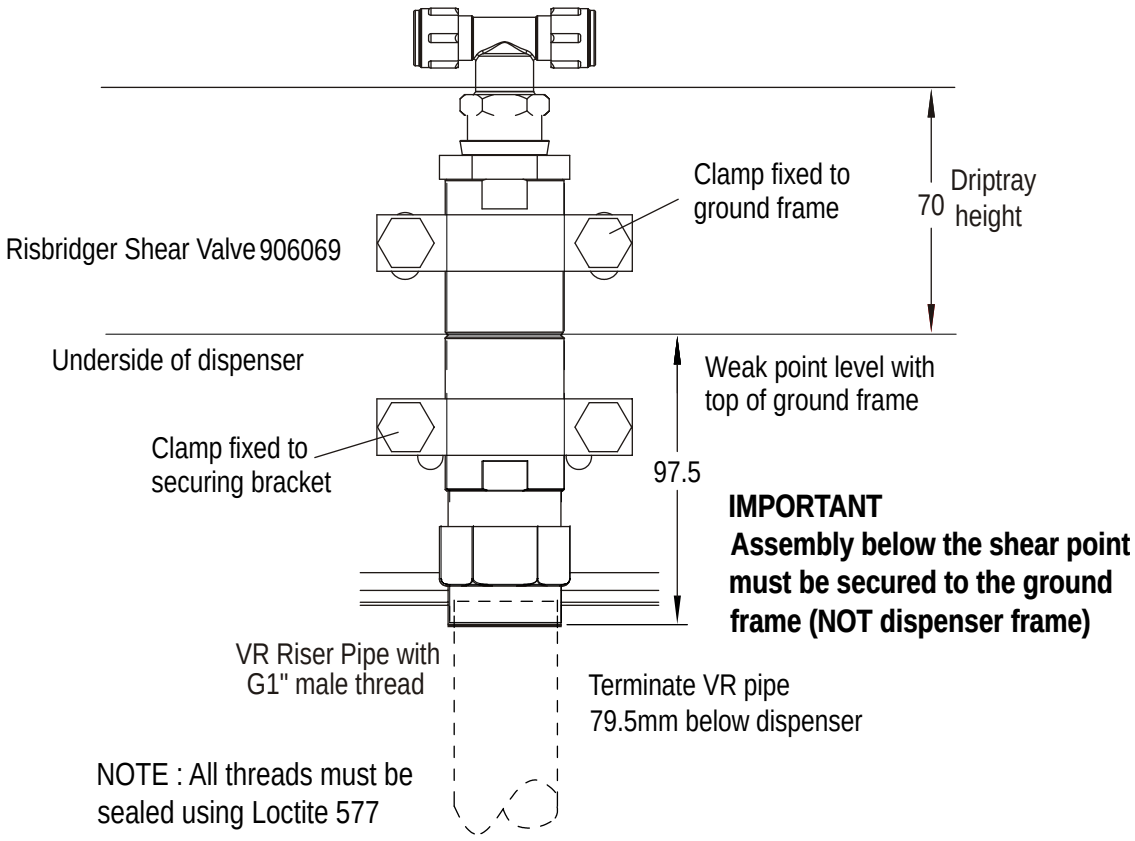
VR Connection - Standard (no shear valve)



VR Connection with OPW Shear Valve (Option)



VR Connection with Risbridger Shear Valve (UK & EIRE) Kit



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:-

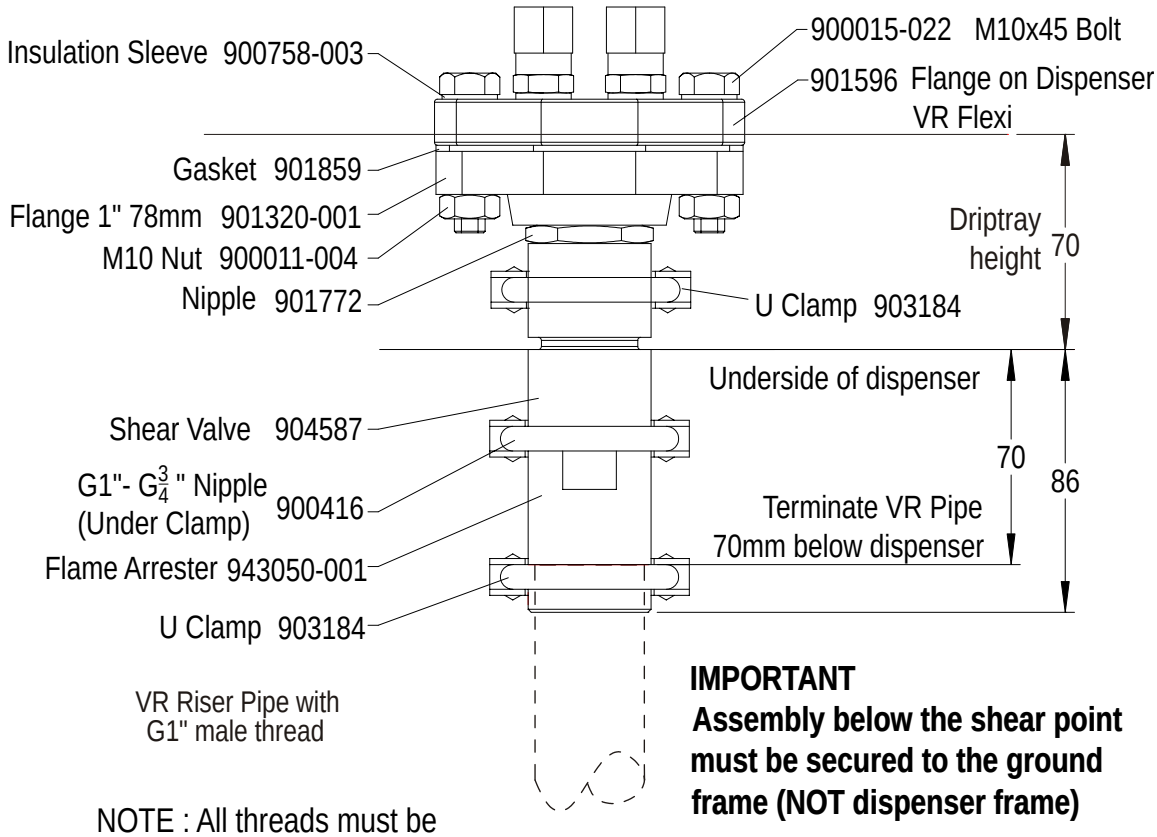
- Deflagration or detonation arrester dependent upon its position relative to the anticipated end of line
- Inline type (unless it can be guaranteed to be at the end of line during maintenance or after a vehicle collision)
- End of line types will need to be suitable for use with burning alcohol
- Arrester 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 fullfil 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

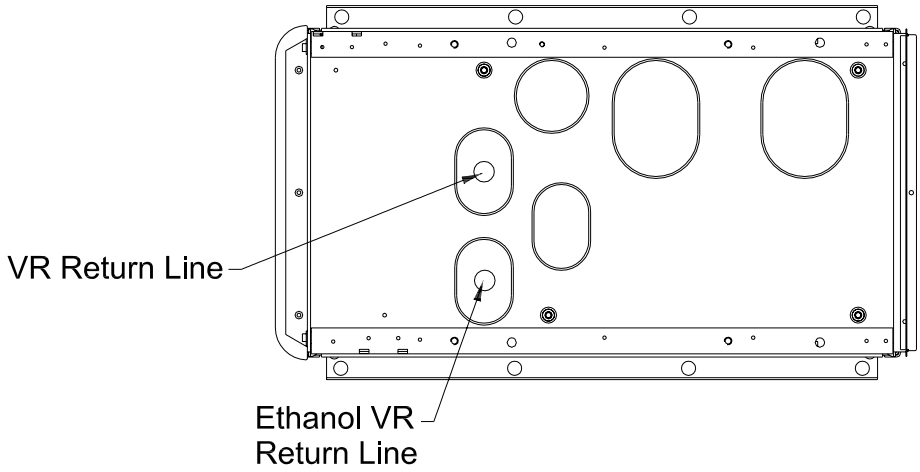
VR Connection with Shear Point & Flame Arrester for Ethanol

Kit 1 - Tokheim Part No 943143-001



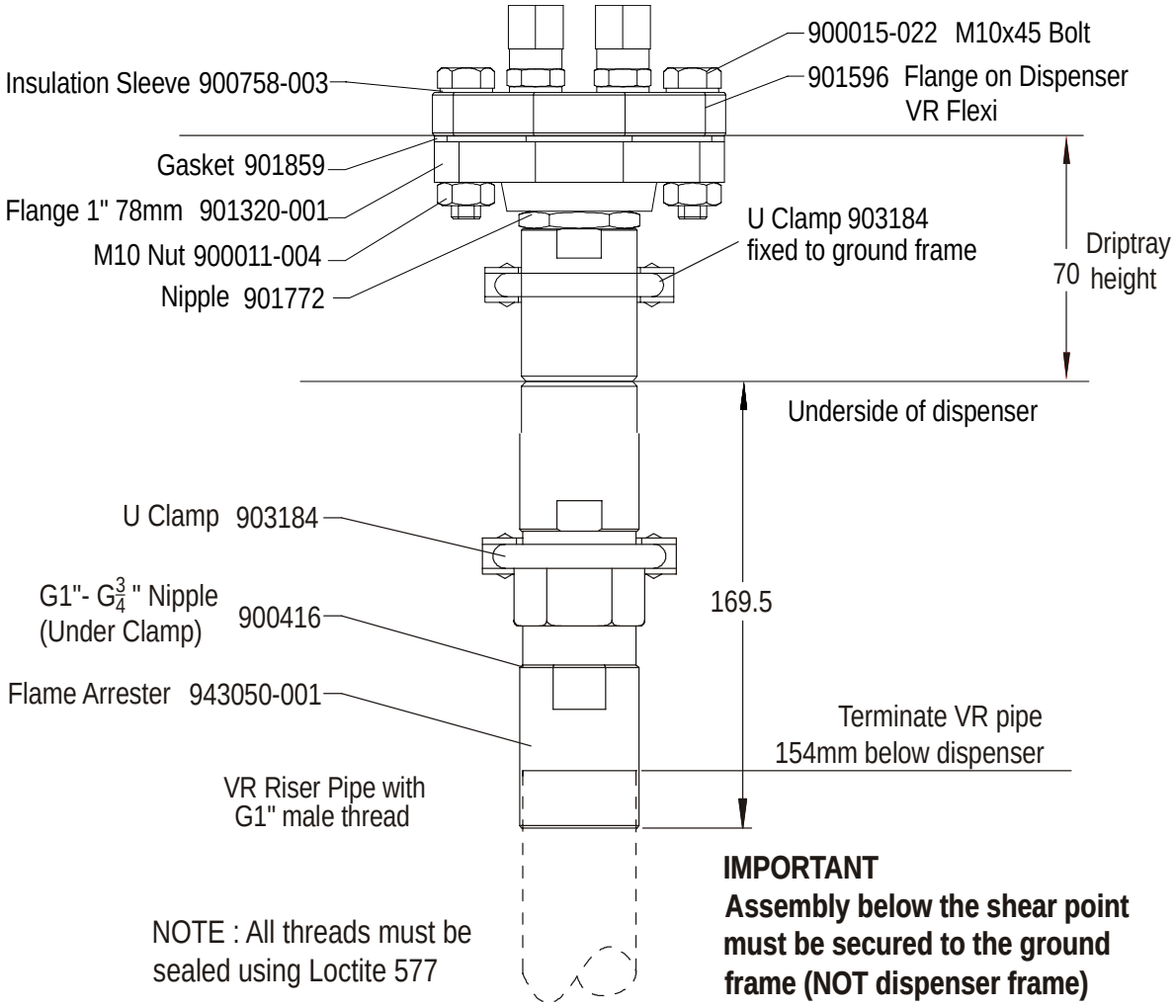
VR Per Product (Ethanol Split Only)

The diagram below shows the positions of the VR Return Line and the Ethanol VR Return Line when the option Vapour Per Product (Ethanol Split Only) is chosen:



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.

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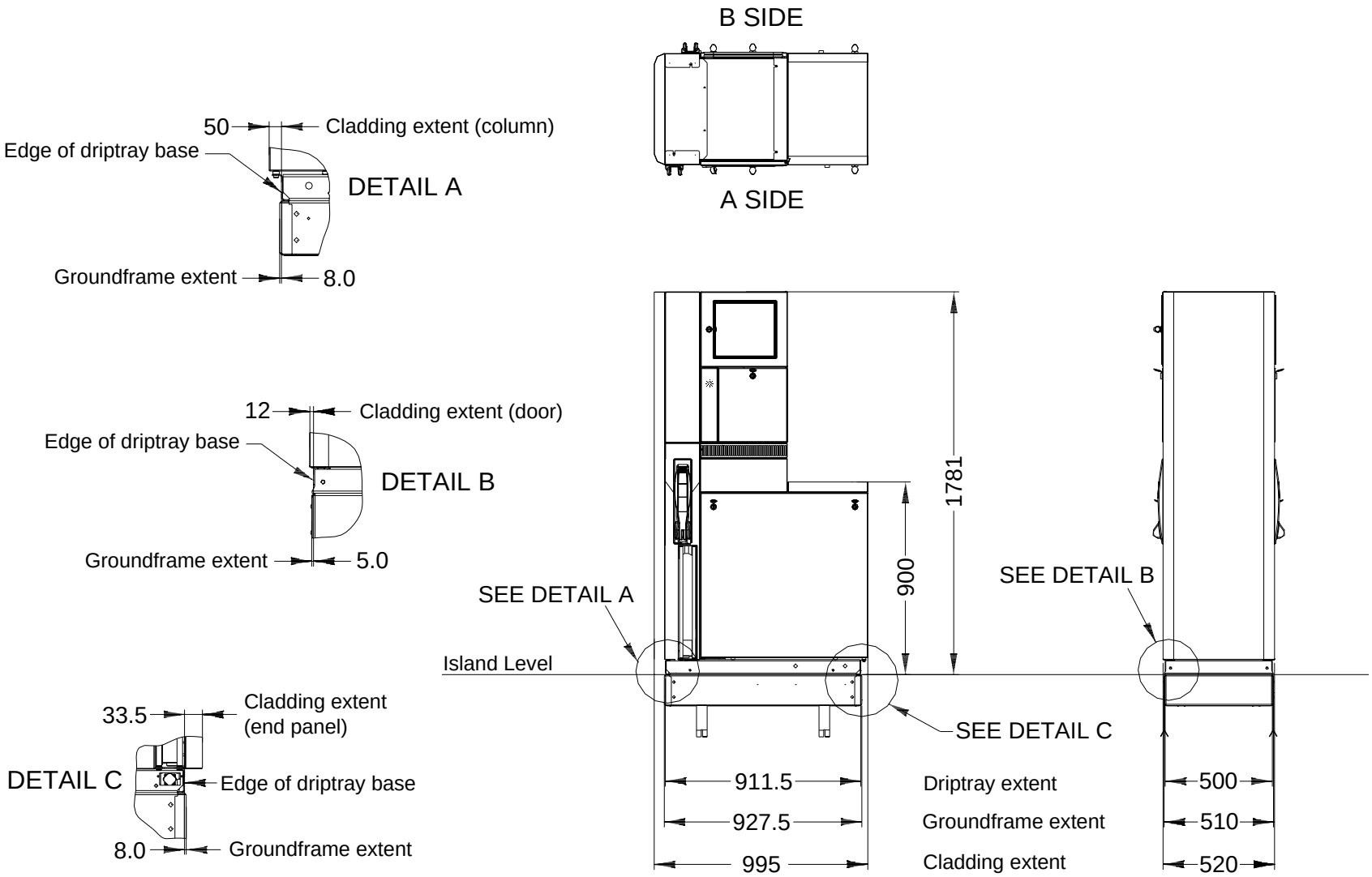
SECTION 3 CONTENTS

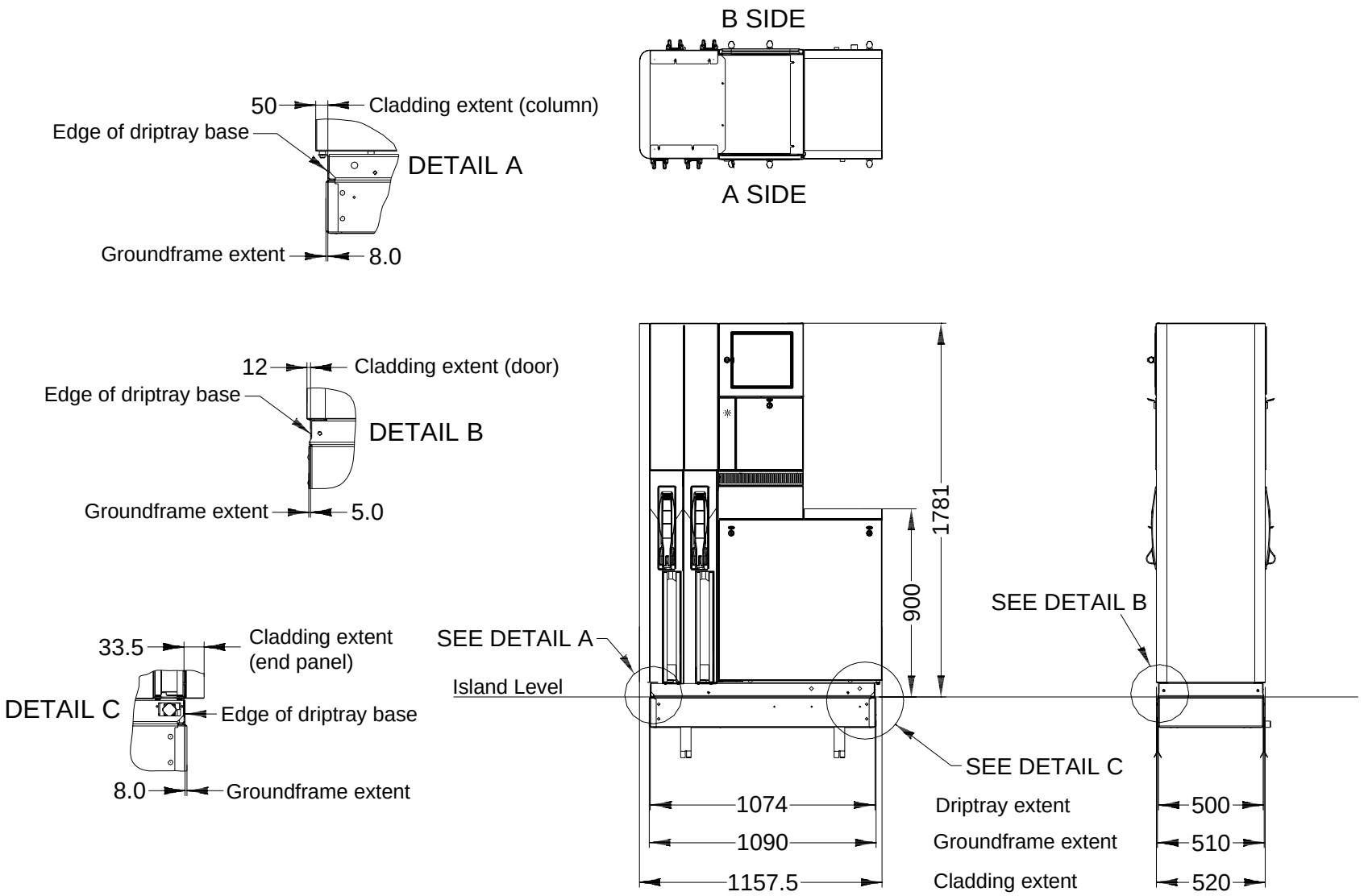
3 DRAWINGS

3.1 Dispenser Dimensions

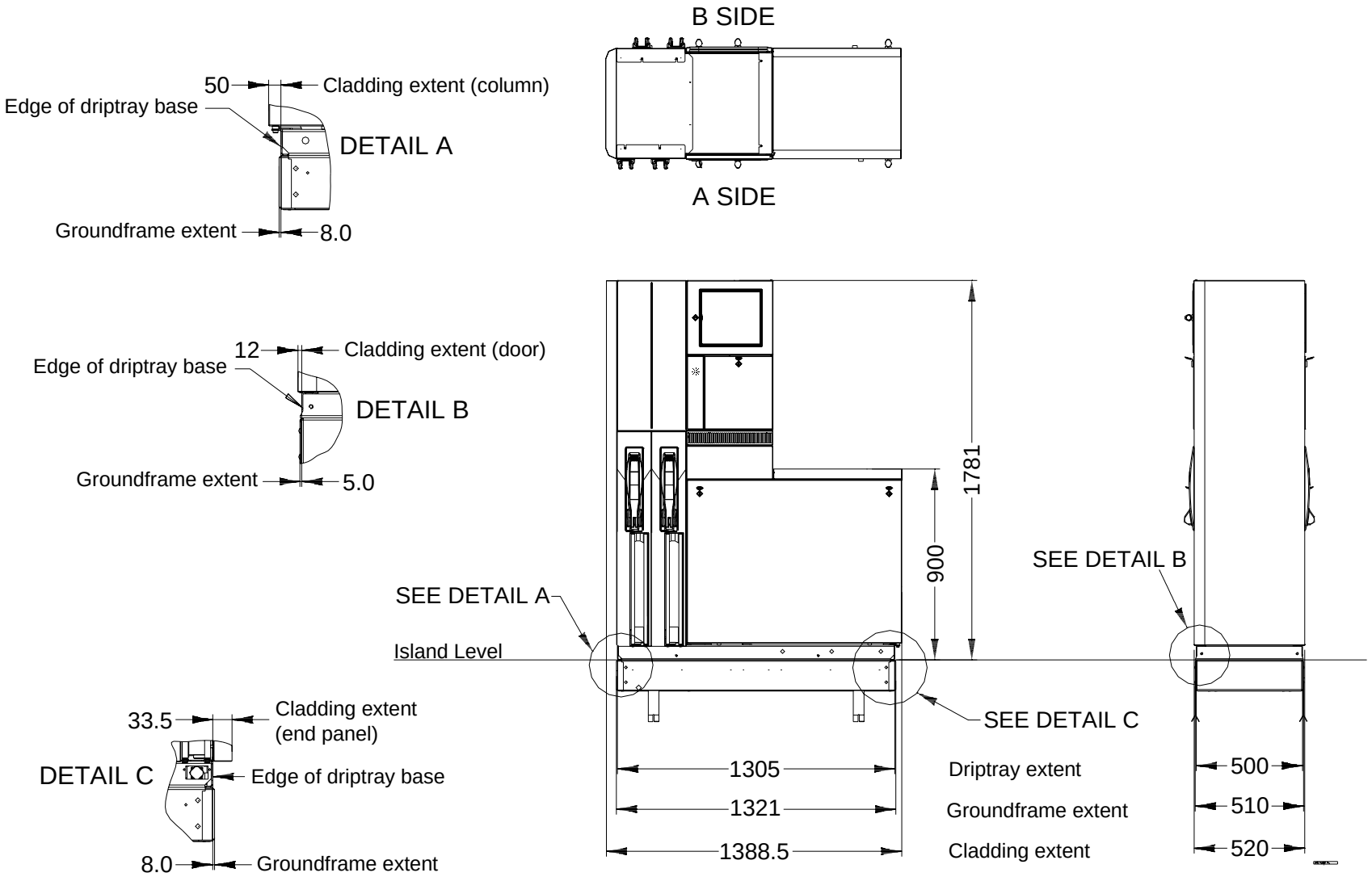
3.1.1 TWO FRAMES & ONE COLUMN MODELS (1-1, 1-2, HS 1-1, HSM 1-1, HS 1-2, HSM 1-2, THS 1-2, VHS 1-1, VHS 1-2, VHSM 1-2)



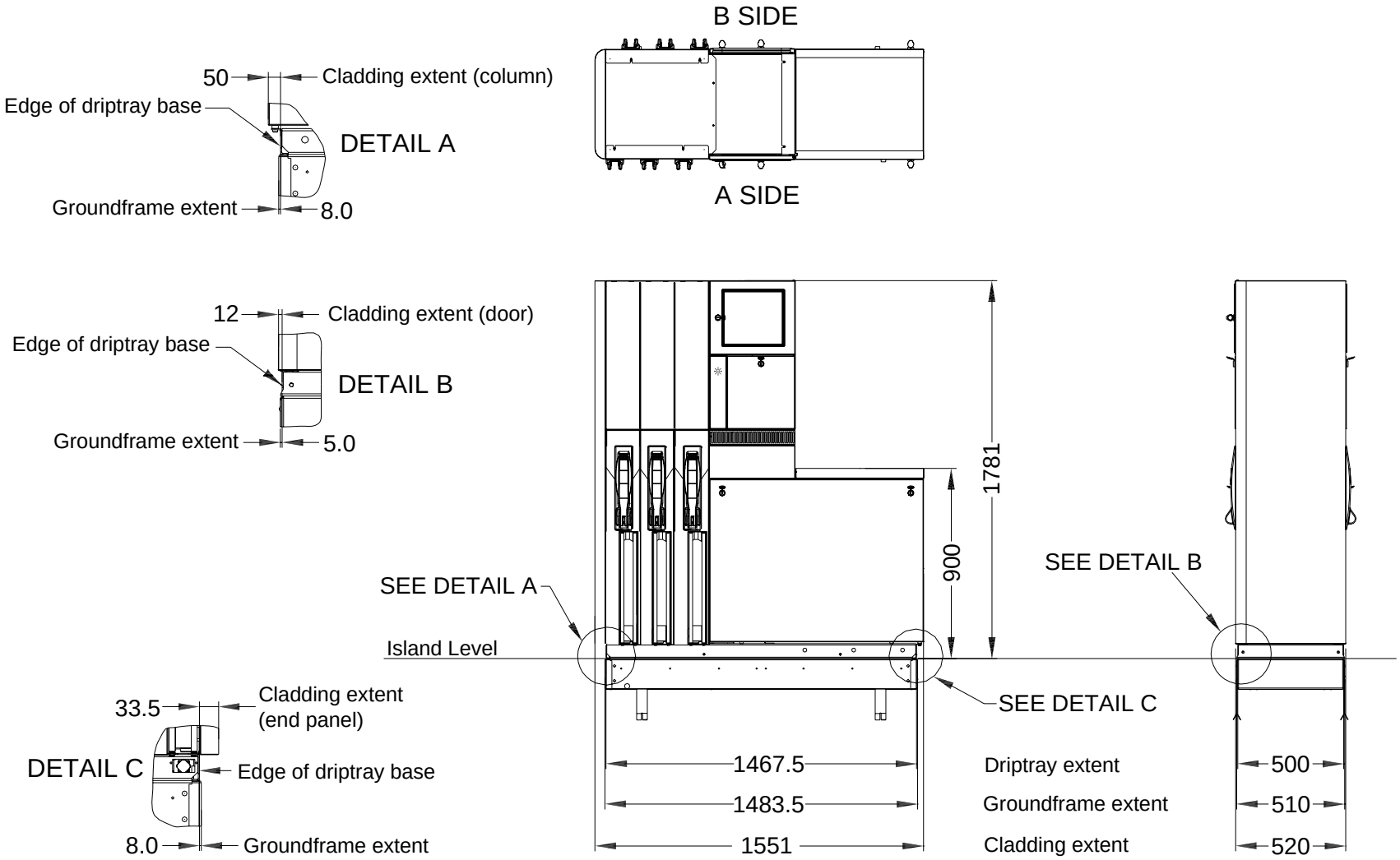
3.1.2 TWO FRAMES & TWO COLUMNS MODELS (2-2, 2-4, HS 2-2, HS 2-4, VHS 1-2 SS, VHS 2-4, VHSM 2-4)



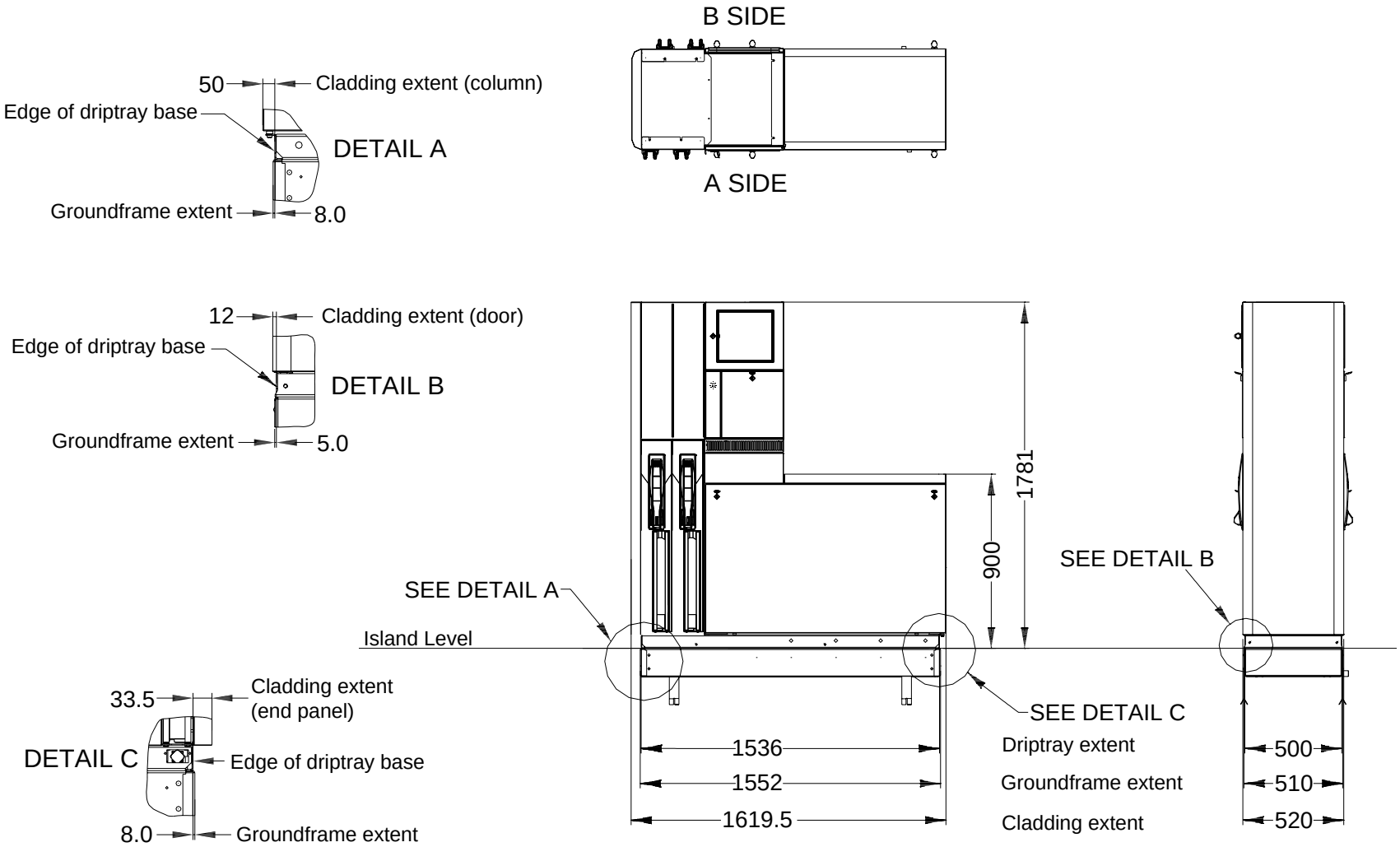
3.1.3 THREE FRAMES & TWO COLUMNS MODELS (THS 3-4, SVHS 3-4)



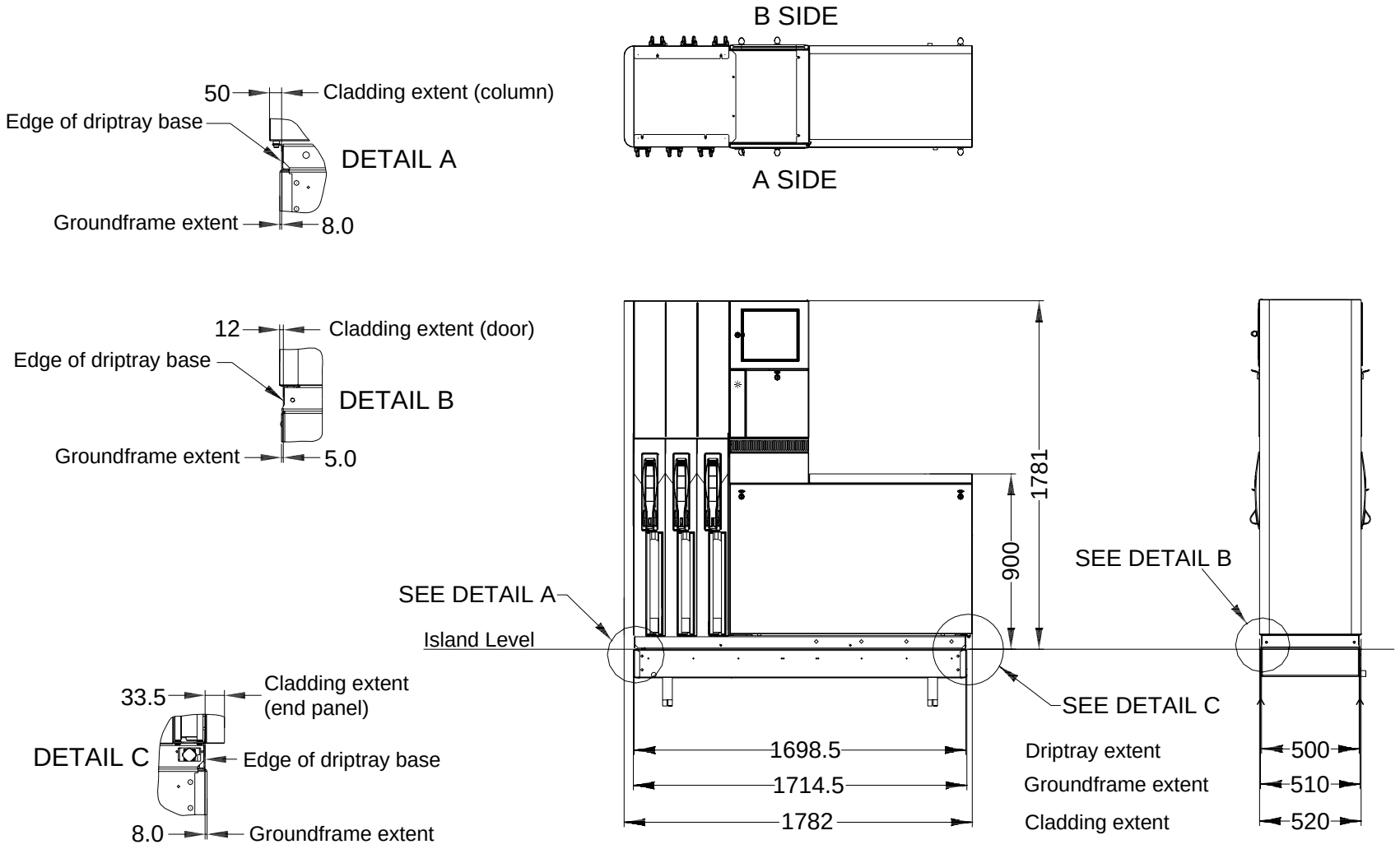
3.1.4 THREE FRAMES & THREE COLUMNS MODELS (3-3, 3-6, HS 3-3, HS 3-6, VHS 3-6)



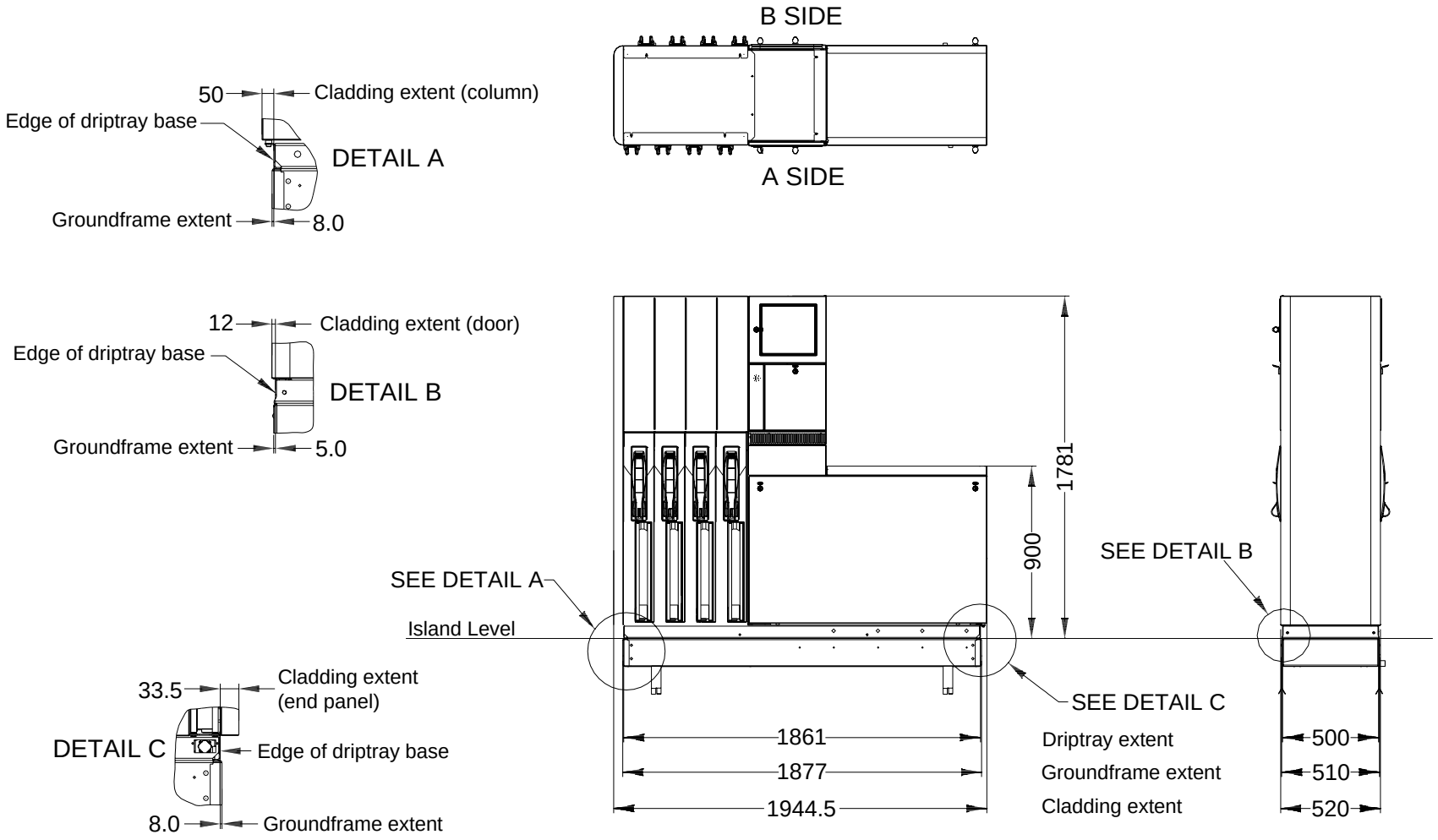
3.1.5 FOUR FRAMES & TWO COLUMNS MODELS (VHS 4-4)



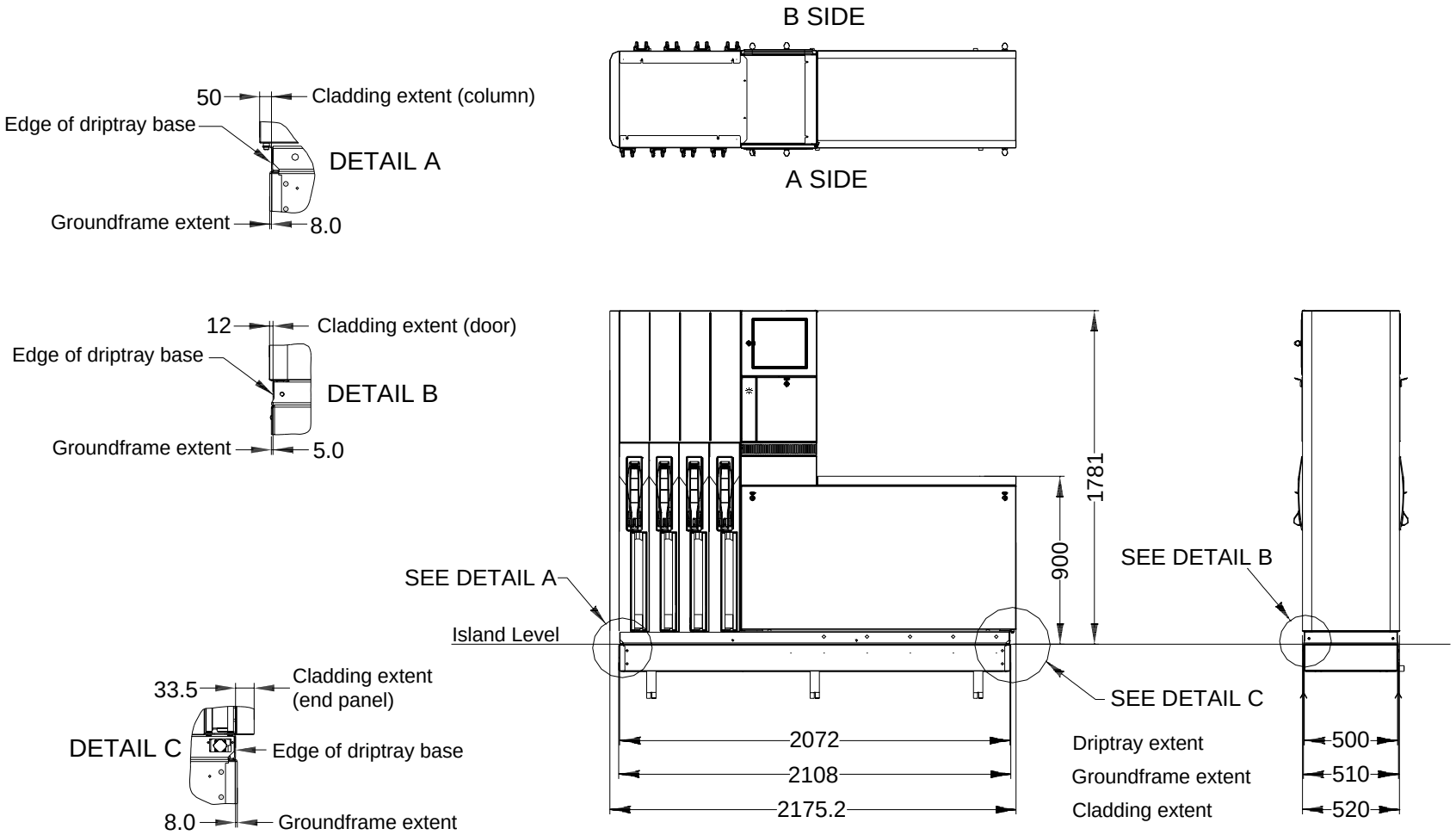
3.1.6 FOUR FRAMES & THREE COLUMNS MODELS (THS 4-6, SVHS 4-6)



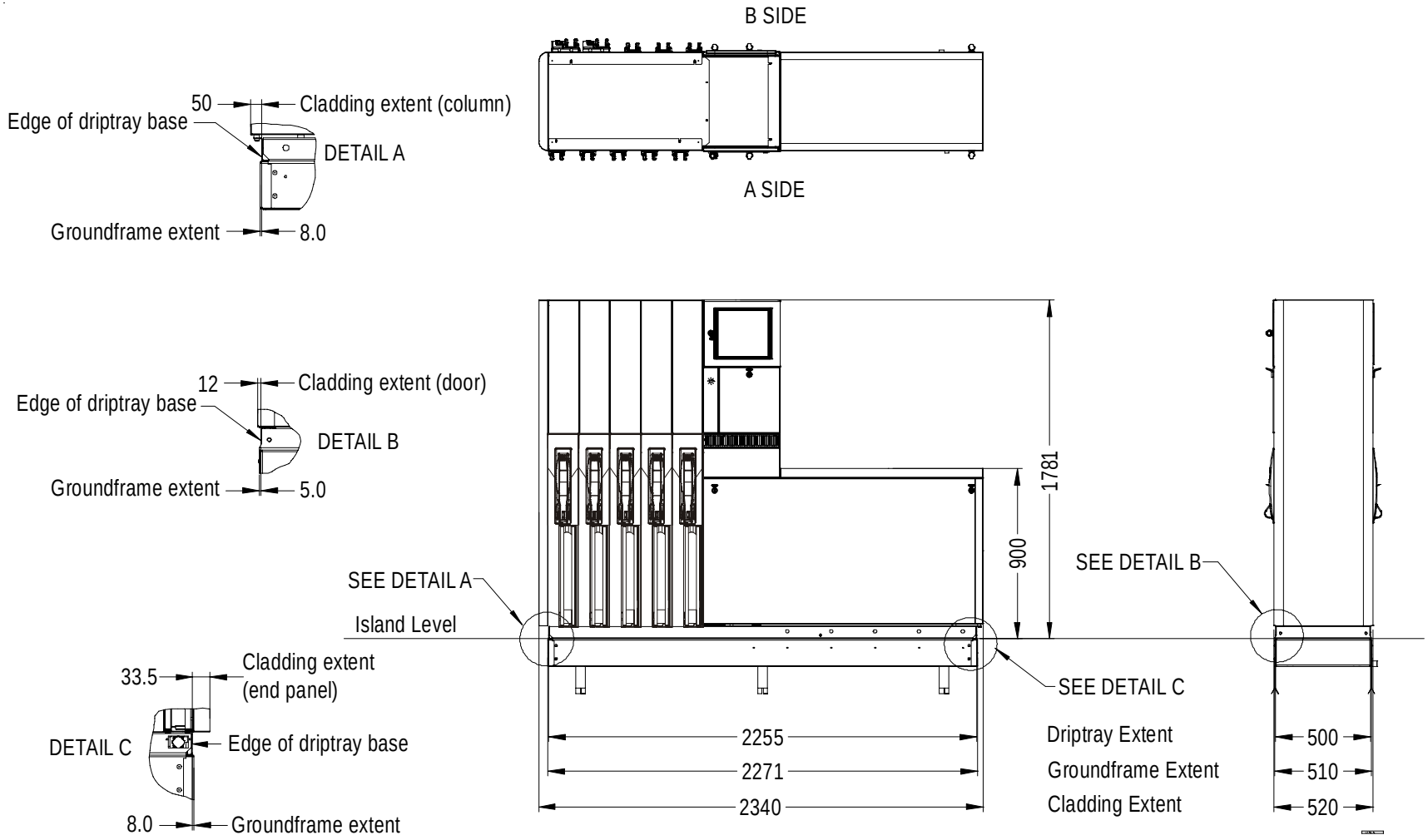
3.1.7 FOUR FRAMES & FOUR COLUMNS MODELS (4-4, 4-8, HS 4-4, HS 4-8, VHS 4-8)



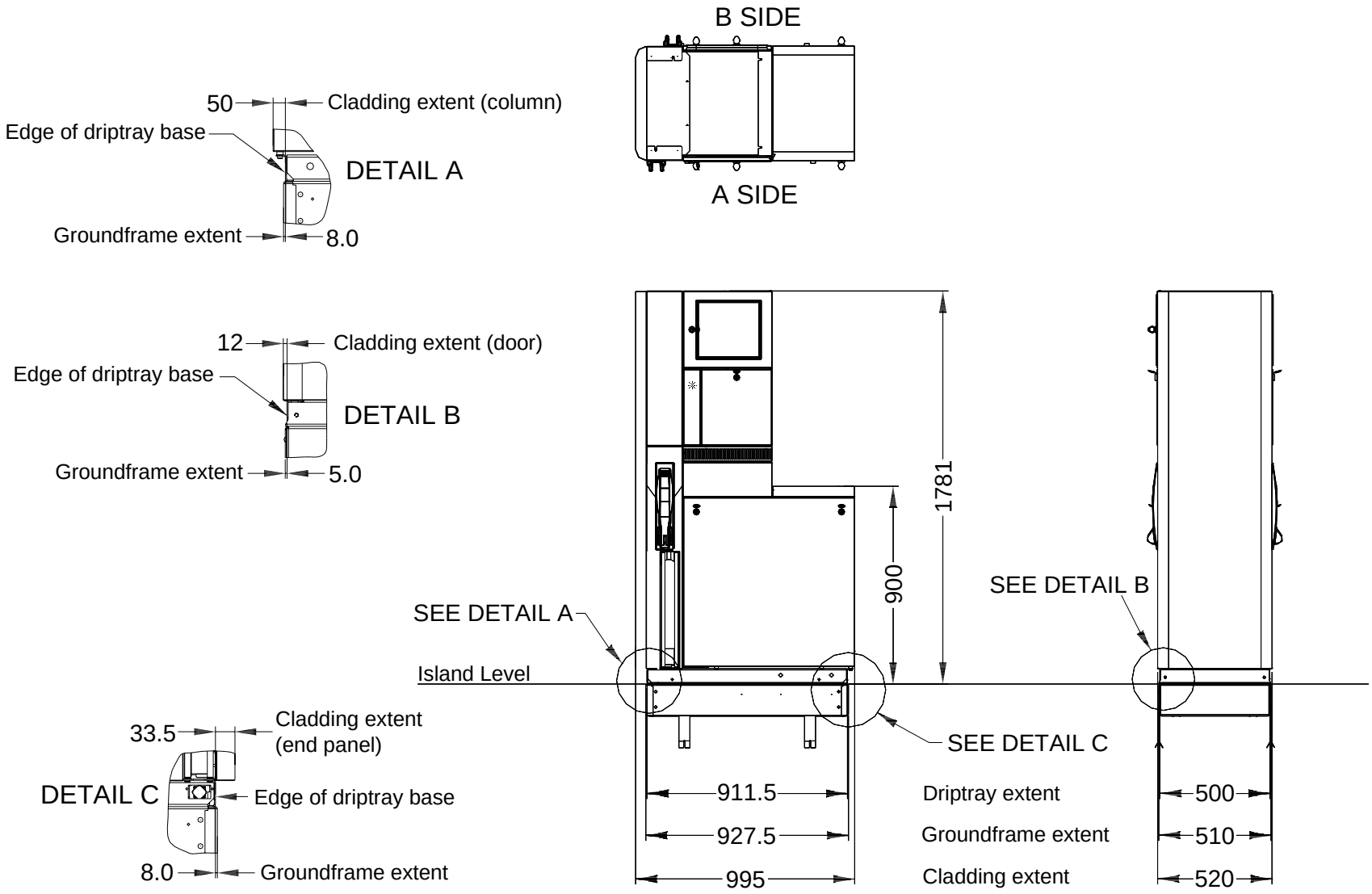
3.1.8 FIVE FRAMES & FOUR COLUMNS MODELS (THS 5-8, HSM 5-8, SVHS 5-8, SVHSM 5-5)



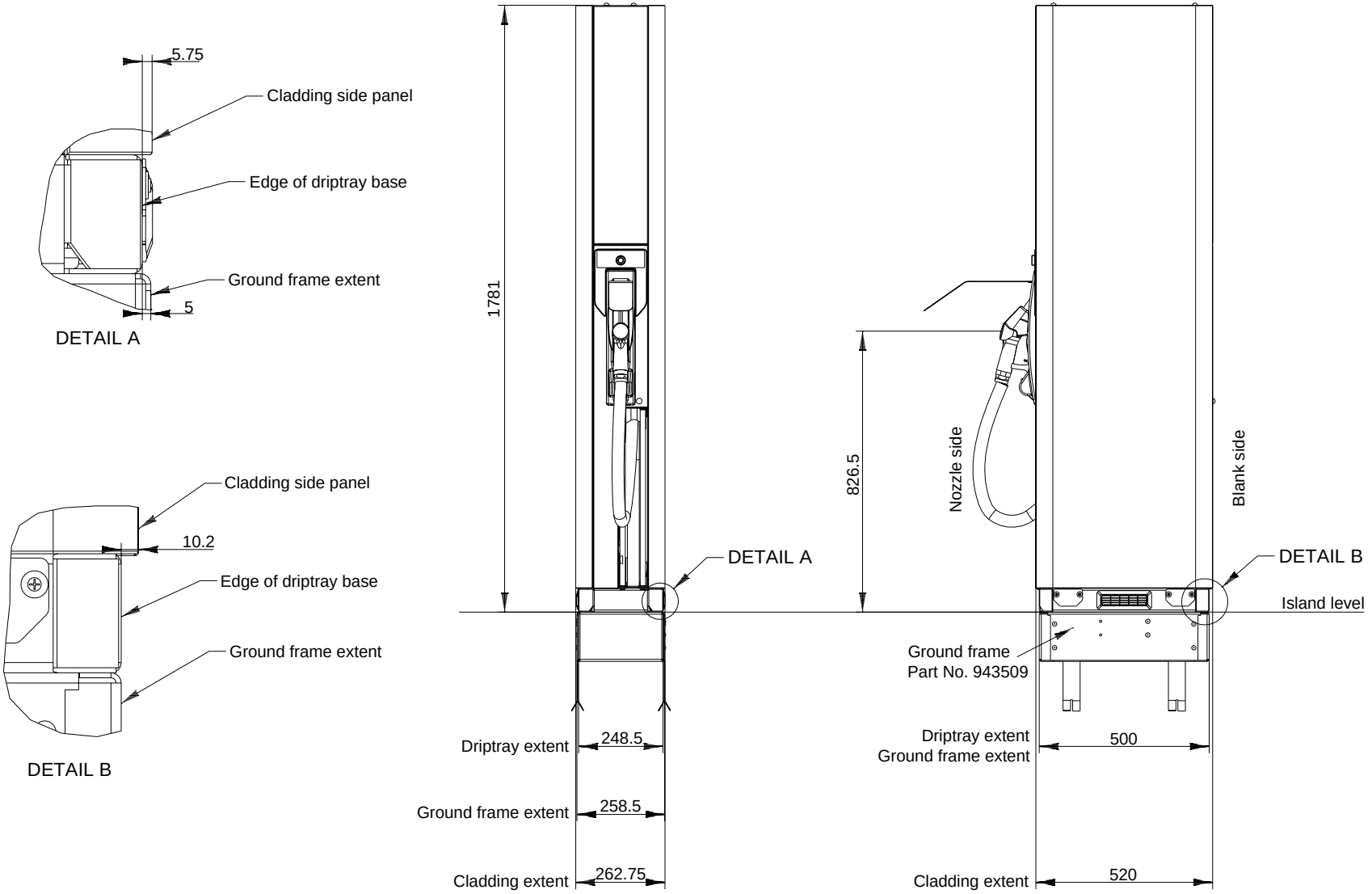
3.1.9 FIVE FRAMES & FIVE COLUMNS MODELS (5-10)



3.1.10 SATELLITE



3.1.11 MINI-SAT



3.2 Dispenser Heights

Standard Head

Media Head

3.3 Ground Frames

MODEL	CONFIGURATION	DRIPTRAY SIZE	GROUND FRAME PART NUMBER	COMMENTS
1-1	SUCTION	2F1C	901110	
1-2		2F1C	901110	
2-2		2F2C	901113	
2-4		2F2C	901113	
3-3		3F3C	901120	
3-6		3F3C	901120	
4-4		4F4C	901124	
4-8		4F4C	901124	
5-5		5F5C	908219	
5-10		5F5C	908219	
HD 2-2		2F2C	901113	
HS 5-8		5F4C	901127	
THS 1-2		2F1C	901110	
THS 2-4		3F2C	901118	
THS 3-6		4F3C	901122	
VHS 1-1		2F1C	901110	
VHS 1-2		2F1C	901110	
VHS 1-2 SS		2F2C	901113	
VHS 2-4		2F2C	901113	
VHS 3-6		3F3C	901120	
VHS 4-4		4F2C	904098	
VHS 4-8		4F4C	901124	
VHSM 1-1		2F1C	901110	
VHSM 1-2		2F1C	901110	
VHSM 4-4		4F2C	904098	
HSM 1-1		2F1C	901110	
HSM 1-2		2F1C	901110	
HSM 5-8		5F4C	901127	
SVHS 3-4		3F2C	901118	
SVHS 4-6		4F3C	901122	
SVHS 5-8		5F4C	901127	
SVHSM 5-5		5F4C	901127	

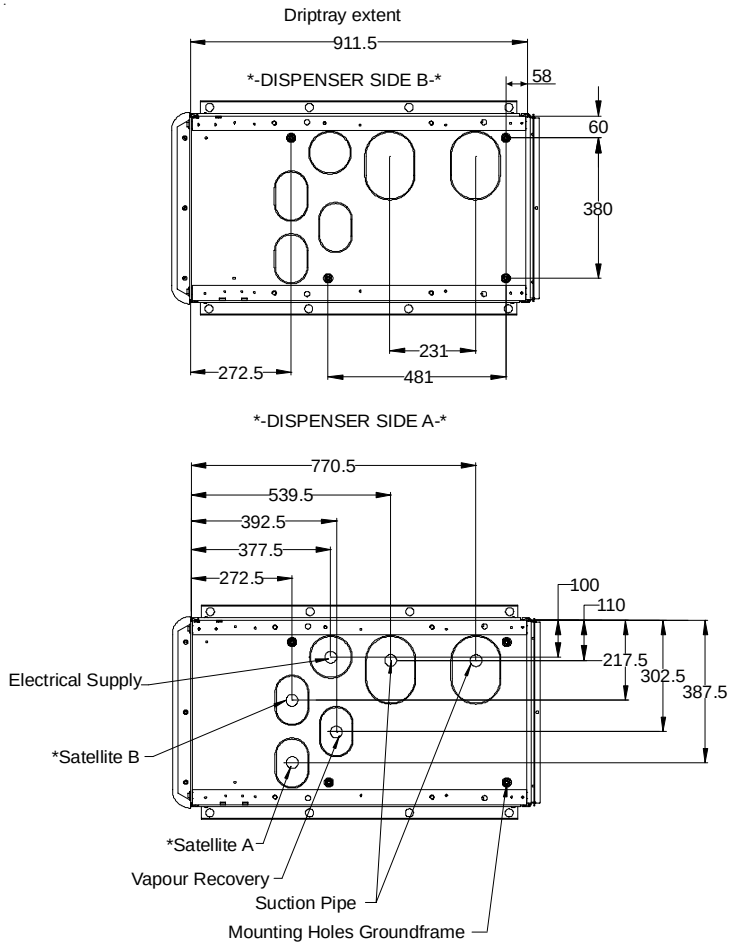
(Cont.)

3.3 Ground Frames (Cont.)

MODEL	CONFIGURATION	DRIPTRAY SIZE	GROUND FRAME PART NUMBER	COMMENTS
SAT	SUBMERGED	2F1C	901110	
MSAT		0F1C	943509	
1-1		2F1C	903575-001	
1-2		2F1C	903575-001	
2-2		2F2C	903575-002	
2-4		2F2C	903575-002	
3-3		3F3C	903575-004	
3-6		3F3C	903575-004	
4-4		4F4C	903575-006	
4-8		4F4C	903575-006	
5-5		5F5C	N.A.	Use 908219 + 5x901072 + 20x900016-004 + 20x900013-003
5-10		5F5C	N.A.	Use 908219 + 5x901072 + 20x900016-004 + 20x900013-003
HD 2-2		2F2C	903575-002	
HS 5-8		5F4C	903575-007	
THS1-2		2F1C	903575-001	
THS 2-4		3F2C	903575-003	
THS 3-6		4F3C	903575-005	
VHS 1-1		2F1C	903575-001	
VHS 1-2		2F1C	903575-001	
VHS 1-2 SS		2F2C	903575-002	
VHS 2-4		2F2C	903575-002	
VHS 3-6		3F3C	903575-004	
VHS 4-4		4F2C	N.A.	Use 904098 + 4x901072 + 16x900016-004 + 16x900013-003
VHS 4-8		4F4C	903575-006	
VHSM 1-1		2F1C	903575-001	
VHSM 1-2		2F1C	903575-001	
VHSM 4-4		4F2C	N.A.	Use 904098 + 4x901072 + 16x900016-004 + 16x900013-003
HSM 1-1		2F1C	903575-001	
HSM 1-2		2F1C	903575-001	

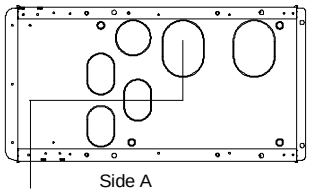
3.4 Ground Plans

3.4.1 TWO FRAMES & ONE COLUMN MODELS (SUCTION & SUBMERGED) (1-1, 1-2, HS(M) 1-1, HS(M) 1-2, THS 1-2, VHS(M)1-1, VHS(M) 1-2)

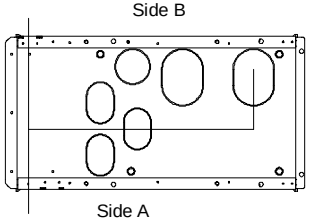


For option VR Per Product (Ethanol Split Only) refer to Page 2-29

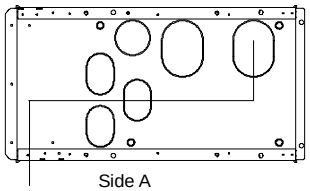
MODELS VHS 1-1R



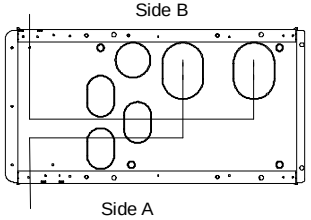
MODELS 1-2, HS 1-2



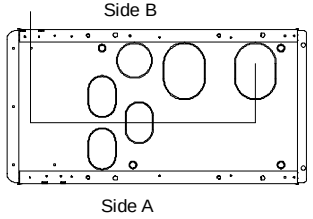
MODELS 1-1R, HS 1-1R



MODELS VHS 1-2, THS 1-2

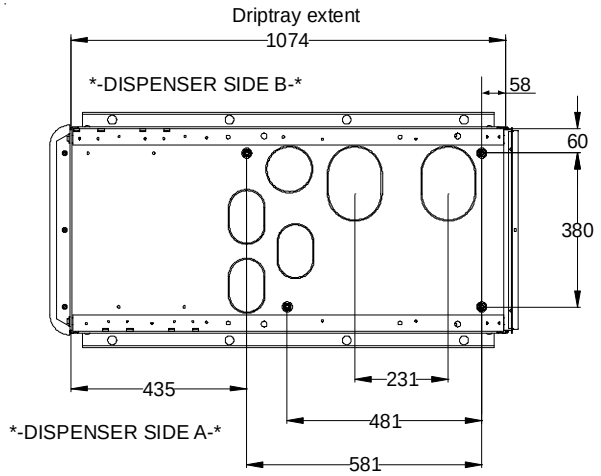


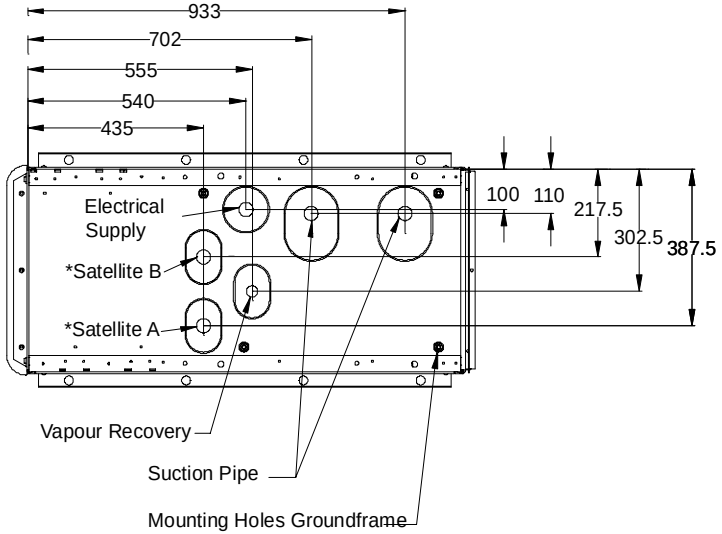
MODELS 1-1L, HS 1-1L, VHS 1-1L,



NOTE : When measuring from the external edge of a factory supplied groundframe, add 8mm to dimensions referenced from edge of driptray base.

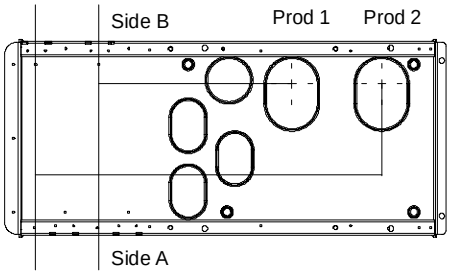
3.4.2 TWO FRAMES & TWO COLUMNS MODELS (SUCTION & SUBMERGED) (2-2, 2-4, HS 2-2, HS 2-4, VHS 1-2 SS, VHS (M)2-4)



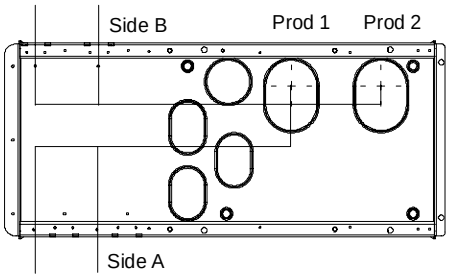


For option VR Per Product (Ethanol Split Only) refer to Page 2-29

MODELS 2-2, 2-4, HS 2-2, HS 2-4

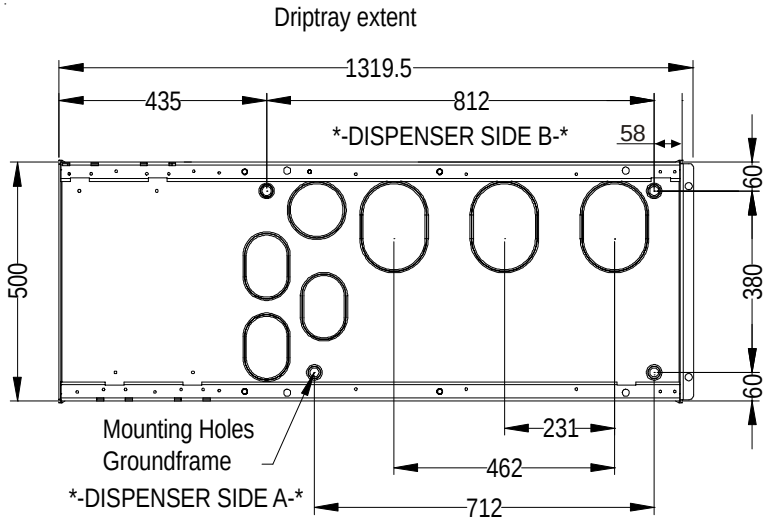


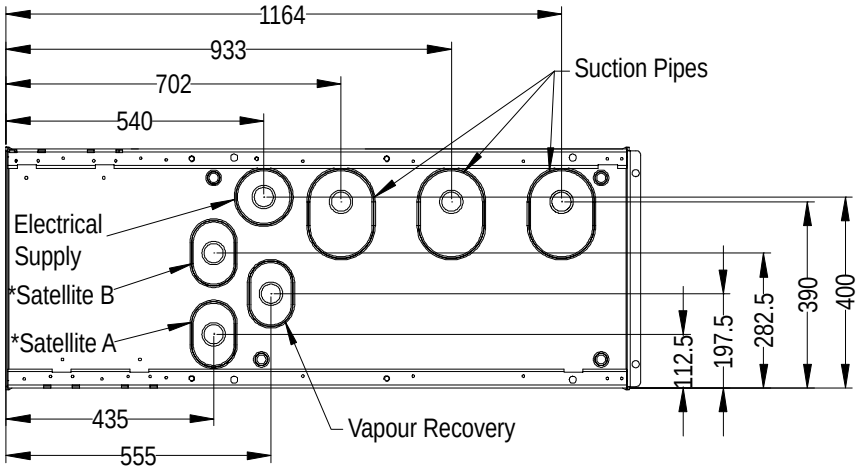
MODEL VHS 1-2 SS, VHS 2-4



NOTE : When measuring from the external edge of a factory supplied groundframe, add 8mm to dimensions referenced from edge of driptray base.

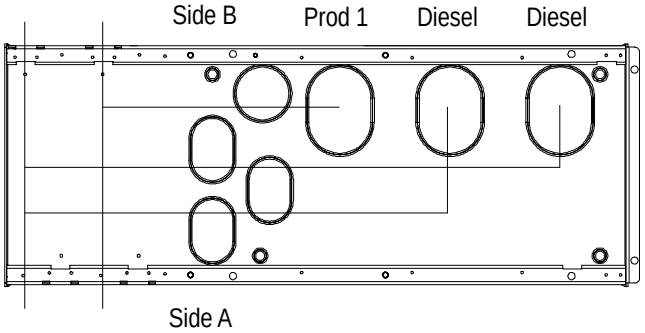
3.4.3 THREE FRAMES & TWO COLUMNS MODELS (SUCTION & SUBMERGED) (THS 3-4, SVHS 3-4)





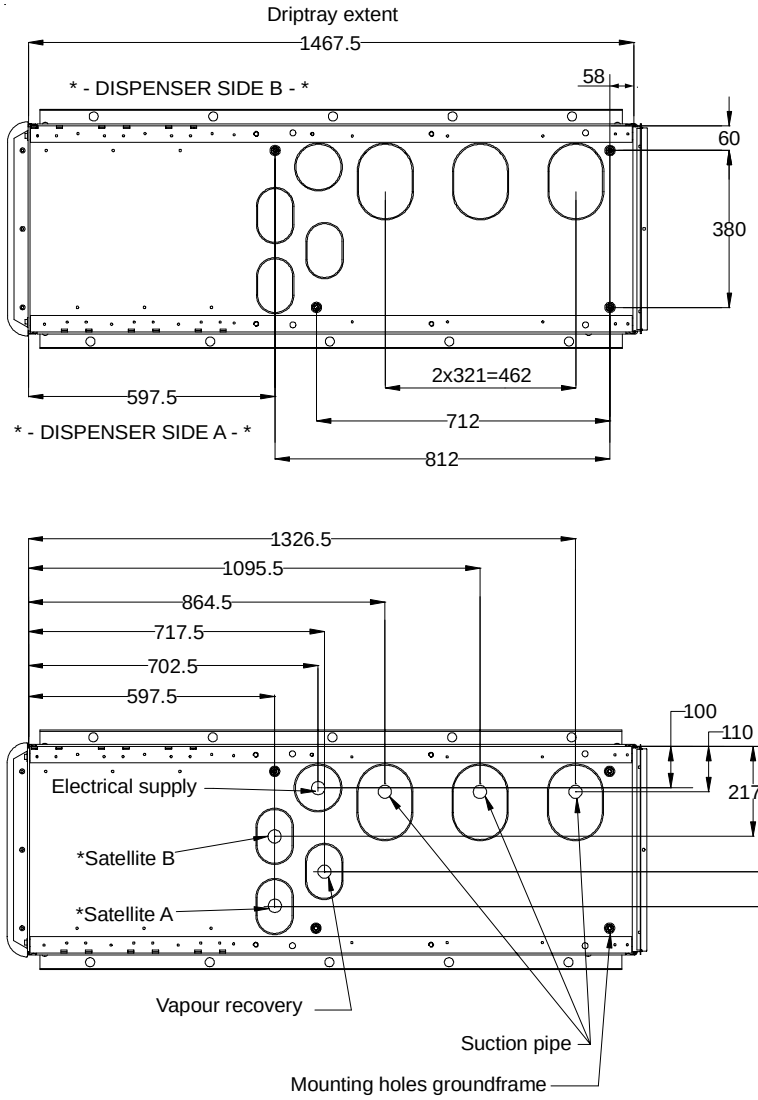
For option VR Per Product (Ethanol Split Only) refer to Page 2-29

MODEL THS 3-4

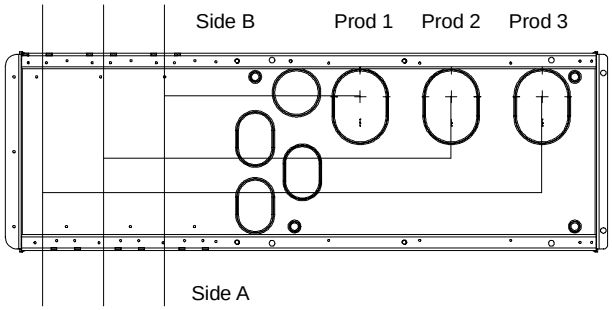


NOTE : When measuring from the external edge of a factory supplied groundframe, add 8mm to dimensions referenced from edge of driptray base.

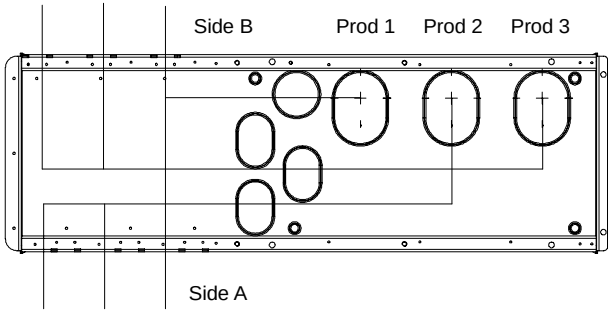
3.4.4 THREE FRAMES & THREE COLUMNS MODELS (SUCTION & SUBMERGED) (3-3, 3-6, HS 3-3, HS 3-6, VHS 3-6)



MODEL 3-3, 3-6, HS 3-3, HS 3-6



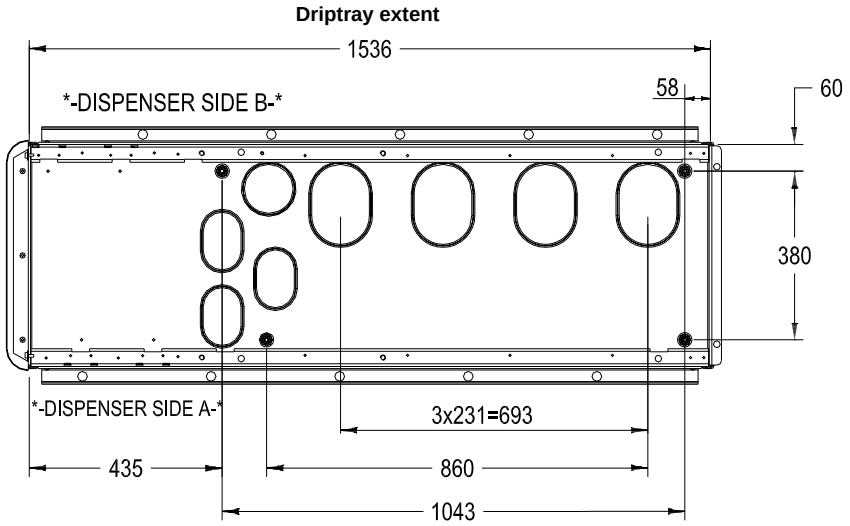
MODEL VHS 3-6

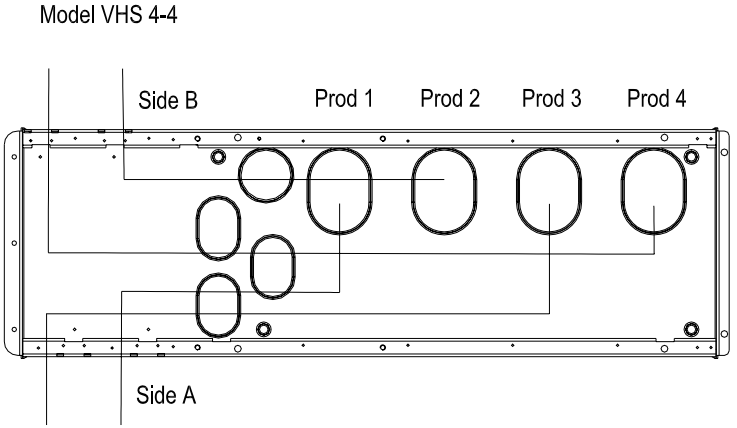


NOTE: When measuring from the external edge of a factory supplied groundframe, add 8mm to dimensions referenced from edge of driptray base.

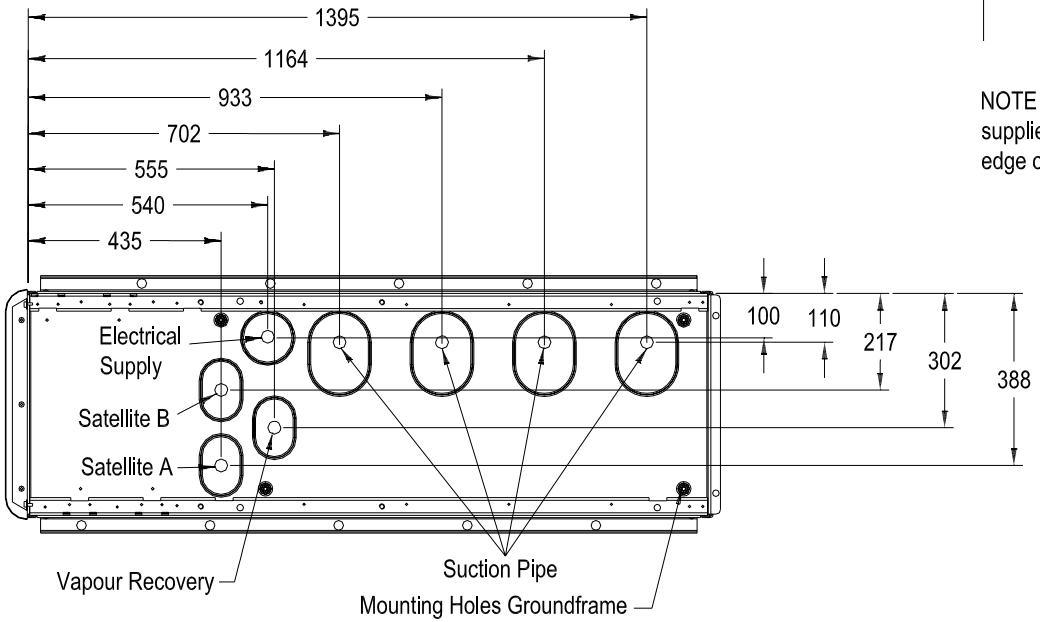
For option VR Per Product (Ethanol Split Only) refer to Page 2-29

3.4.5 FOUR FRAMES & TWO COLUMNS MODELS (SUCTION & SUBMERGED) (VHS 4-4)

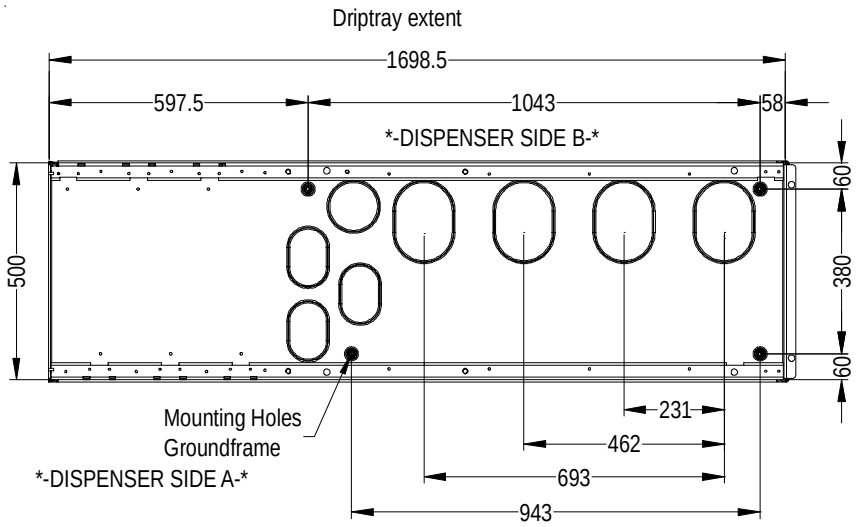


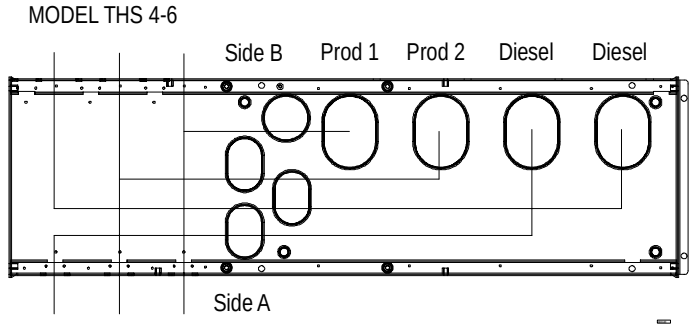


NOTE : When measuring from the external edge of a factory supplied groundframe, add 8mm to dimensions referenced from edge of driptray base.

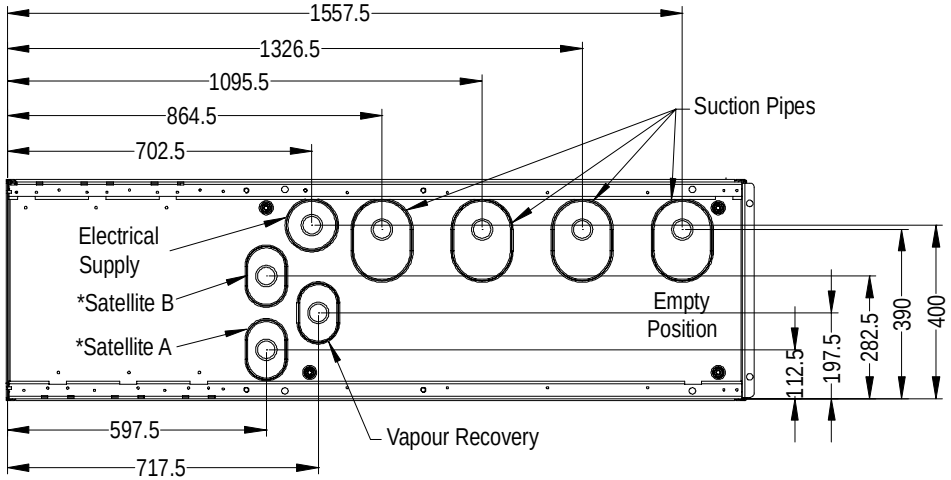


3.4.6 FOUR FRAMES & THREE COLUMNS MODELS (SUCTION & SUBMERGED) (THS 4-6, SVHS 4-6)



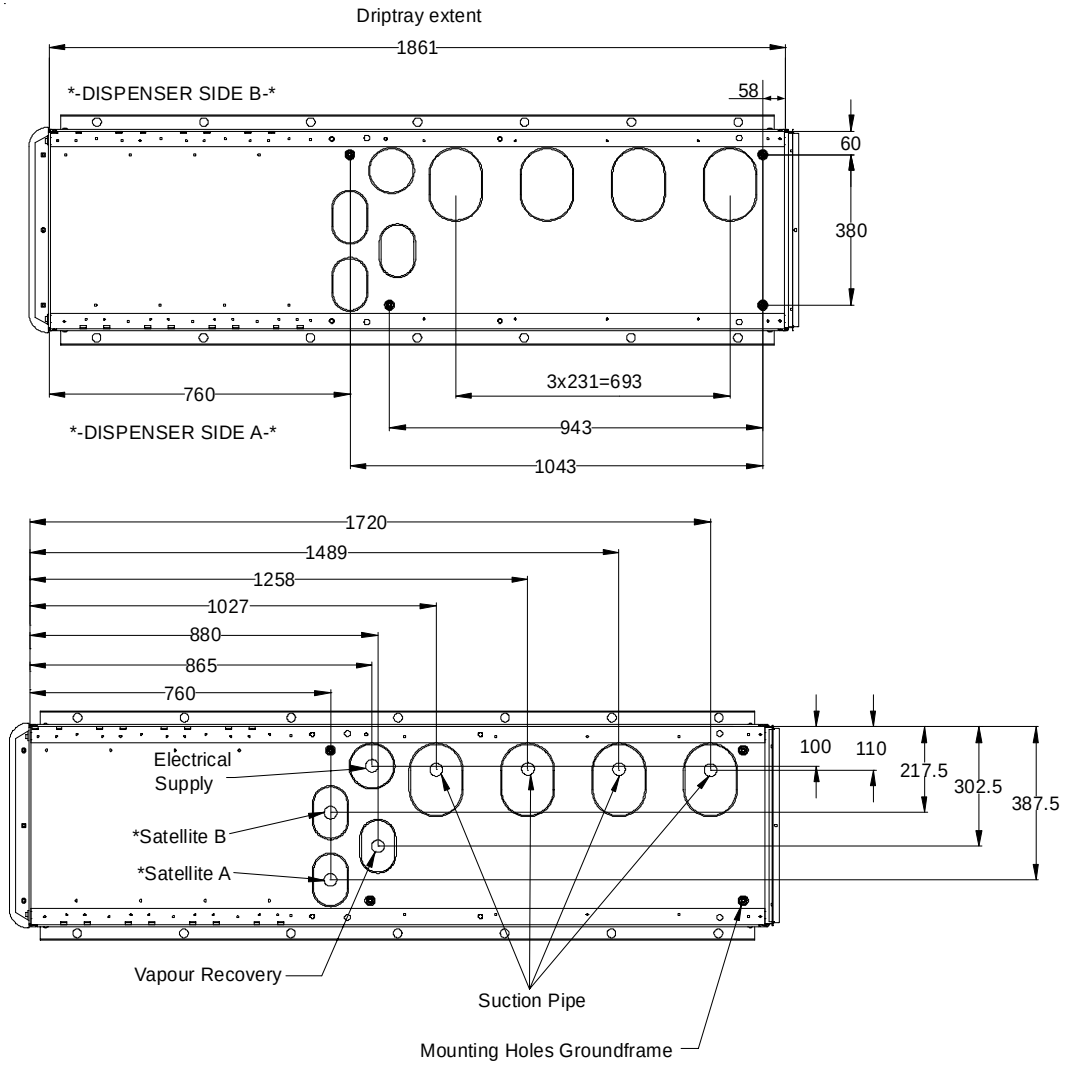


NOTE : When measuring from the external edge of a factory supplied groundframe, add 8mm to dimensions referenced from edge of driptray base.

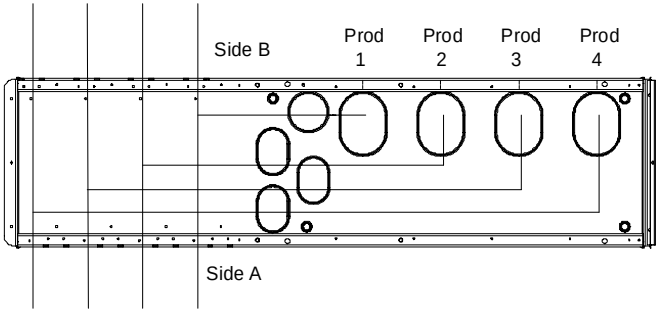


For option VR Per Product (Ethanol Split Only) refer to Page 2-29

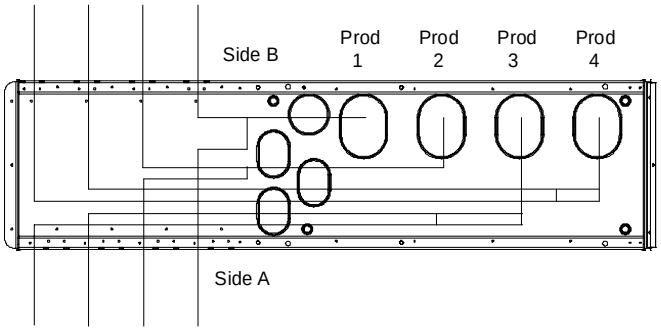
3.4.7 FOUR FRAMES & FOUR COLUMNS MODELS (SUCTION & SUBMERGED) (4-4, 4-8, HS 4-4 , HS 4-8, VHS 4-8)



MODELS 4-4, 4-8, HS 4-4, HS 4-8



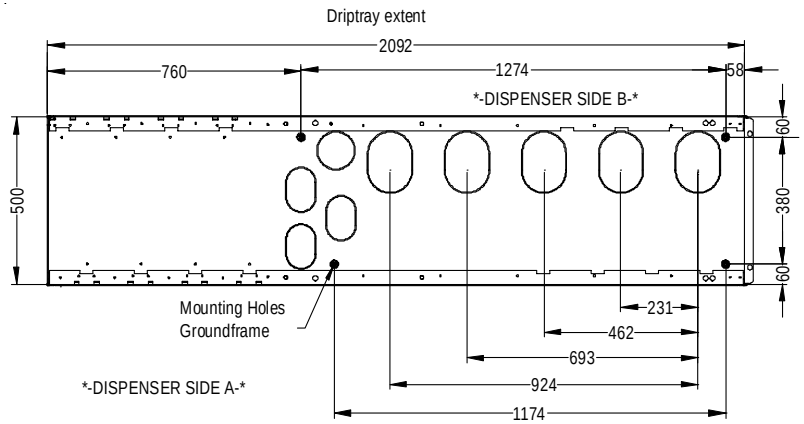
MODEL VHS 4-8

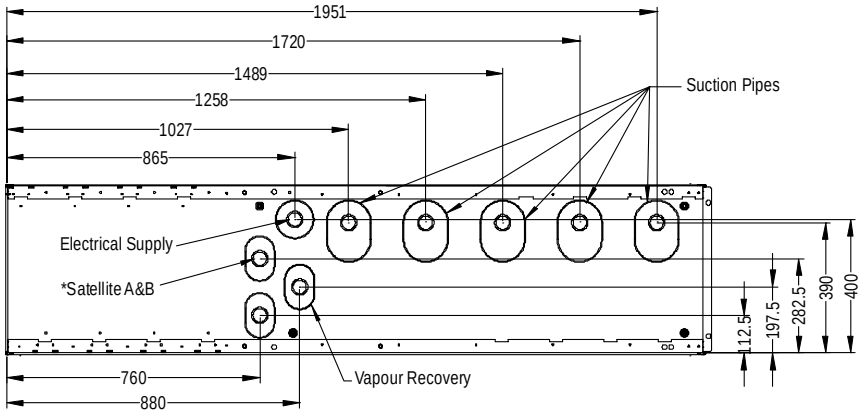


NOTE : When measuring from the external edge of a factory supplied groundframe, add 8mm to dimensions referenced from edge of driptray base.

For option VR Per Product (Ethanol Split Only) refer to Page 2-29

3.4.8 FIVE FRAMES & FOUR COLUMNS MODELS (SUCTION & SUBMERGED) (SVHSM 5-5, HSM 5-8, SVHS 5-8)



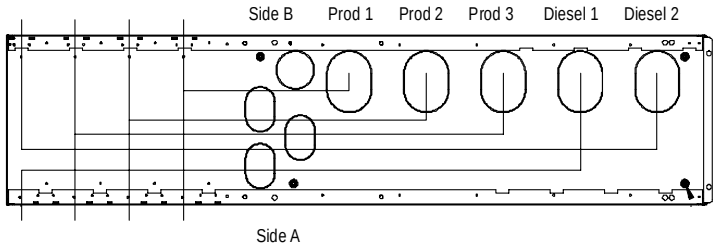


Note 1: the same satellite riser positions are used for A and B side connections.

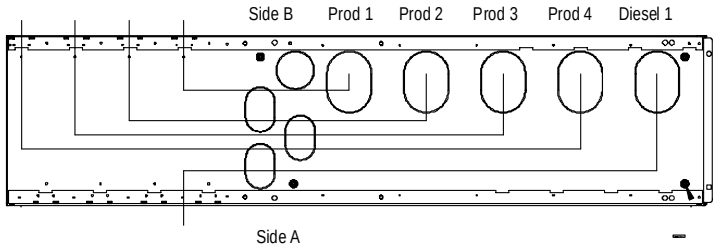
Note 2: For model SVHSM 5-5, the dimension from the outer edge of the driptray, side A, to the middle of the Sat A&B connection should be 321, not 282.5 as stated.

For option VR Per Product (Ethanol Split Only) refer to Page 2-29

MODEL HSM 5-8

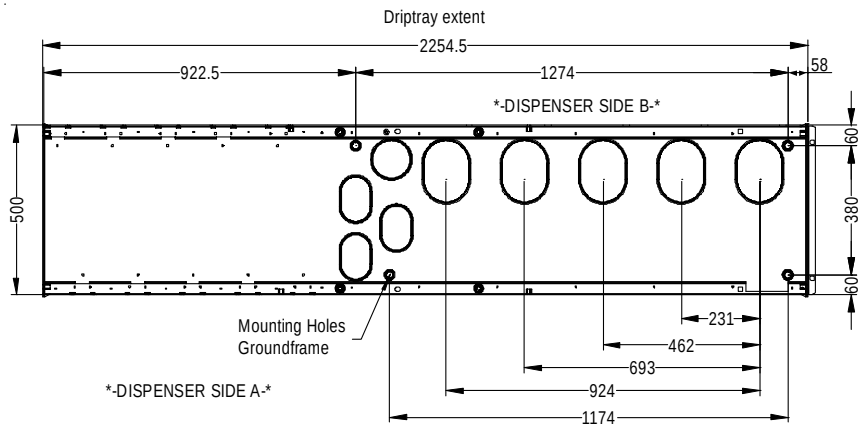


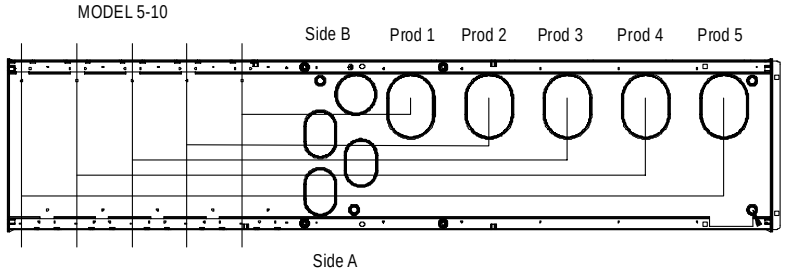
MODELS SVHSM 5-5, SVHS 5-8



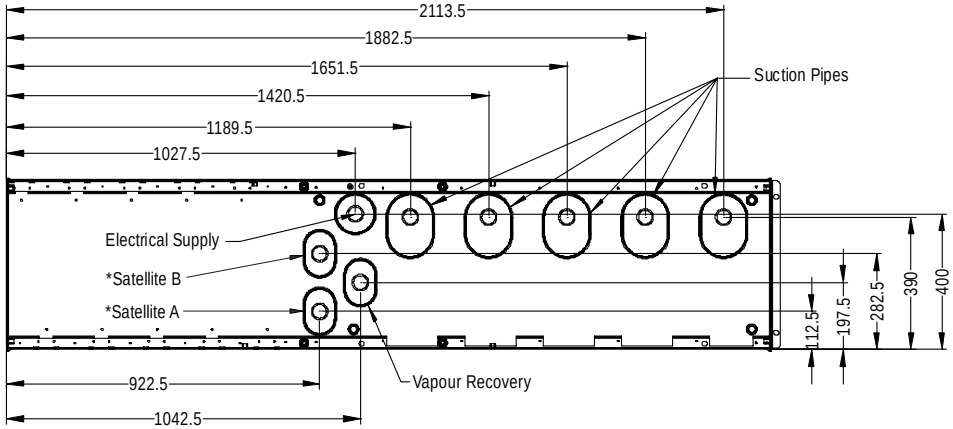
NOTE : When measuring from the external edge of a factory supplied groundframe, add 8mm to dimensions referenced from edge of driptray base.

3.4.9 FIVE FRAMES & FIVE COLUMNS MODELS (SUCTION & SUBMERGED) (5-10)





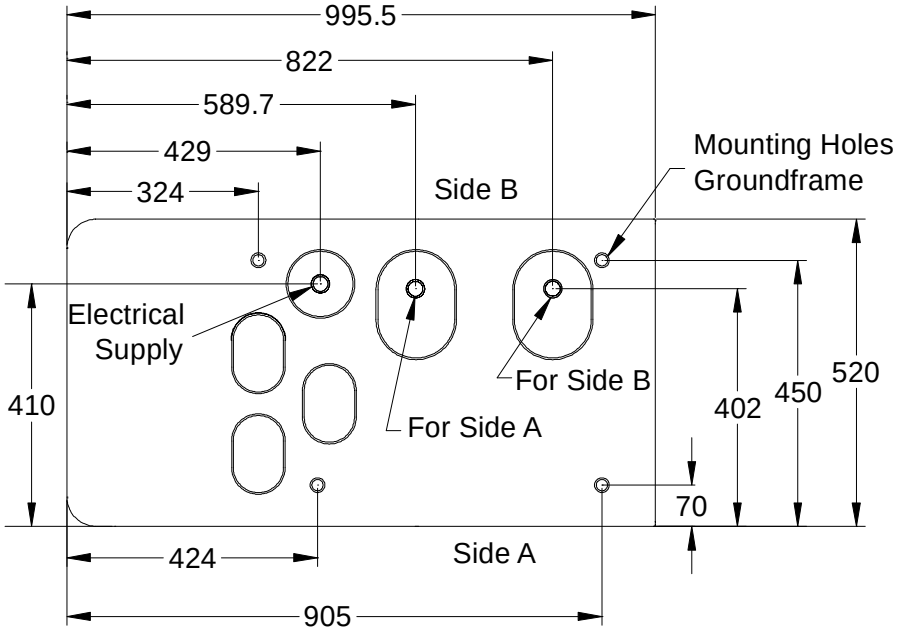
NOTE : When measuring from the external edge of a factory supplied groundframe, add 8mm to dimensions referenced from edge of driptray base.



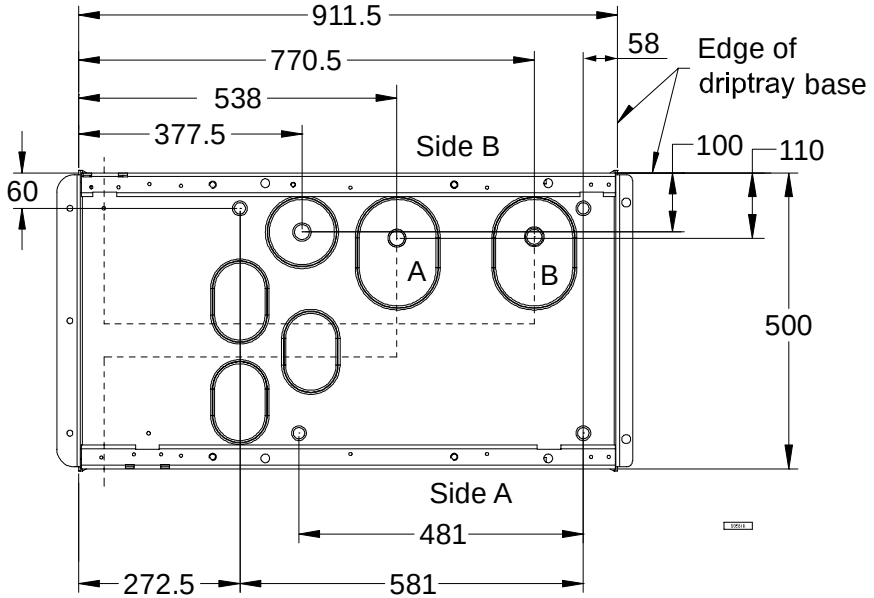
For option VR Per Product (Ethanol Split Only) refer to Page 2-29

3.4.10 SATELLITE (SUCTION & SUBMERGED)

Dimensions shown are from cladding panels

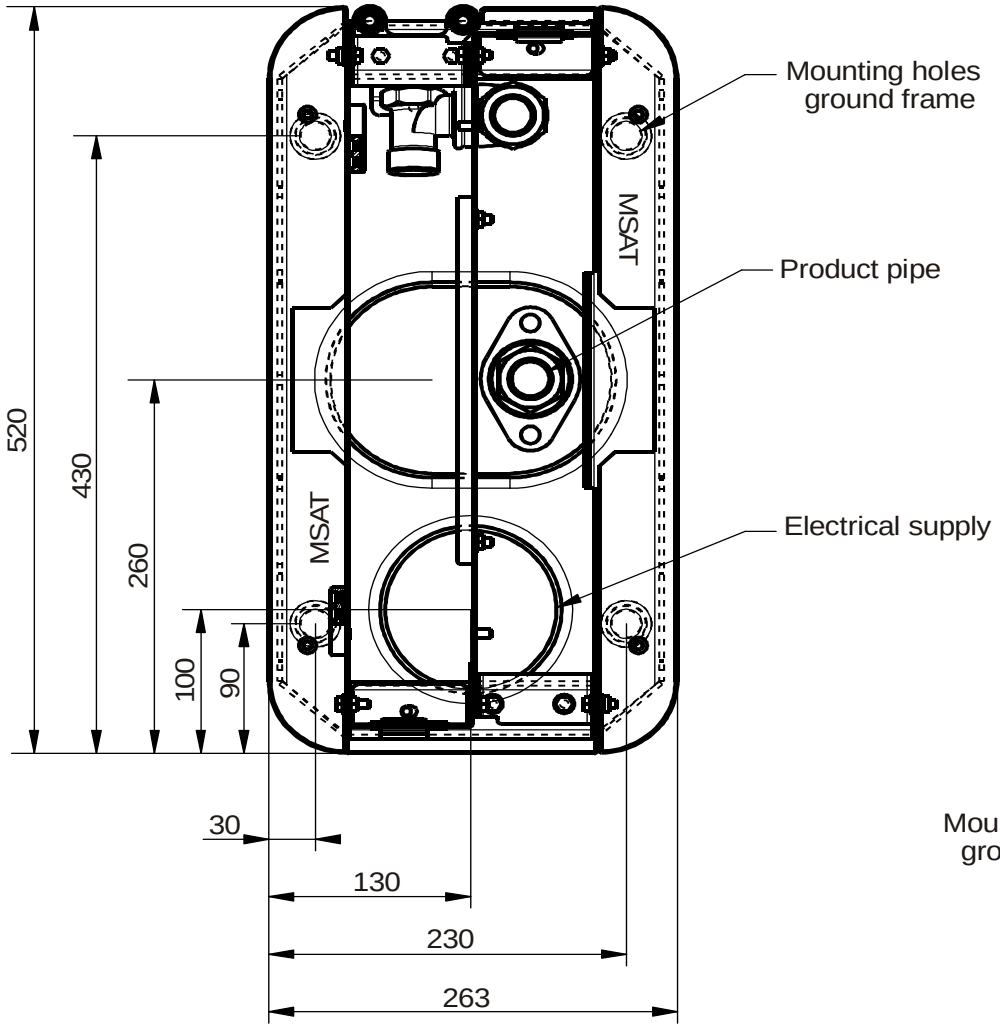


Dimensions shown are from the edge of driptray base

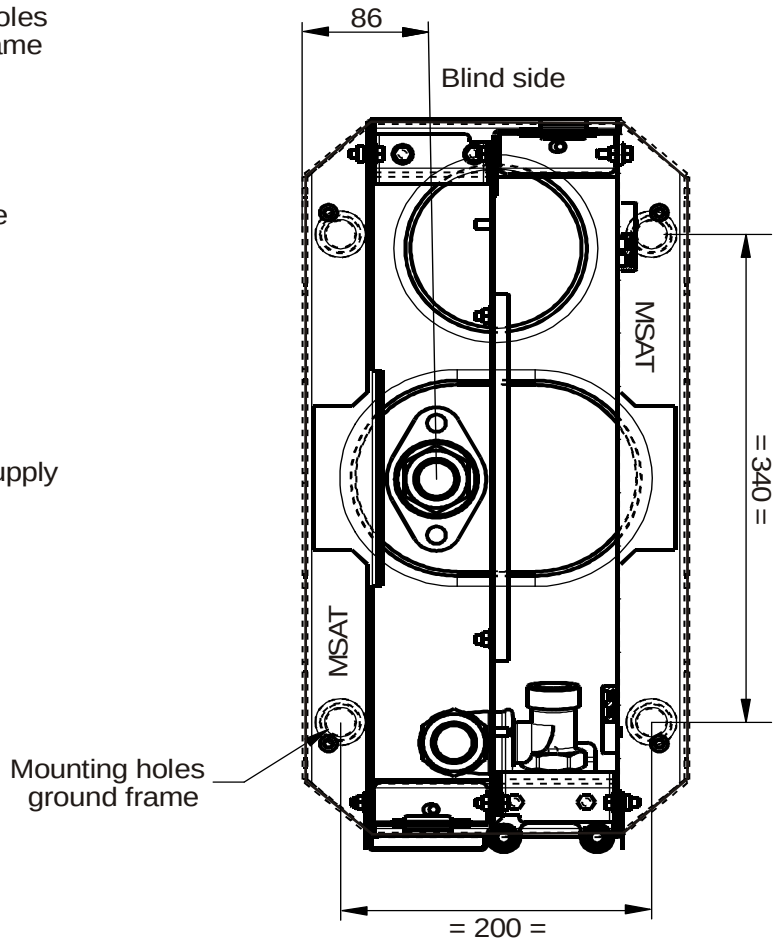


3.4.11 MINI-SAT

Top view
Dimensions shown are from cladding panels
Left Side Nozzle Setup



Top view
Dimensions shown are from driptray
Right Side Nozzle Setup



SECTION 4 CONTENTS

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 your local Tokheim divisional representative. Refer to the back cover of this manual.

4.4 Weights

Approximate weight per dispenser type:-

- One Product Dispenser : 220kg
- Two Product Dispenser : 450kg
- Three Product Dispenser : 650kg
- Four Product Dispenser : 790kg
- Five Product Dispenser : 860kg

please note : the above weights are approximate and will vary according to options fitted.

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 door(s) to allow safe access to the dispenser hydraulics.

1) Locate the keys for the hydraulic door.
2) Simultaneously open both keylocks on the relevant hydraulic door.
3) Disconnect the earth cable from the hydraulic door.
4) Disconnect the retaining cords on the hydraulic door.
5) Lift up the hydraulic door to release the locating pins from the holes in the driptray.
6) Remove the door completely and place in a safe position.
7) Repeat for the opposite side of the dispenser if required.

8) To refit, insert the locating pins on the bottom of the hydraulic door into the designated holes in the driptray.
9) Simultaneously close both keylocks and remove keys for safe keeping.
10) Close the dust caps to prevent water or dirt entering the keylock.

4.7 Access the Calculator Head

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

4.7.1 STANDARD HEAD

- Locate the key for the calculator head door.
- Unlock the calculator head door on the relevant side of the dispenser.
- Carefully open the calculator head door (side hinge).

- Repeat for the opposite side of the dispenser as required.

- To close the calculator head door, ensure all cables remain inside then close and lock the calculator head door. Remove key for safe keeping and close the dust caps.

4.7.2 TQC - VGA MEDIA HEAD

- Locate the keys for the calculator head door.

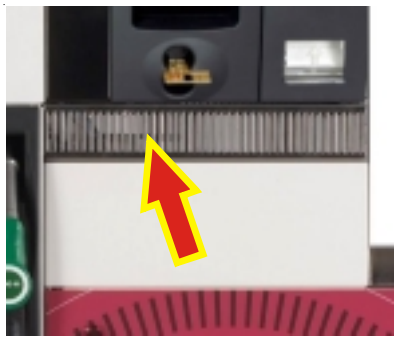
- Simultaneously open both keylocks on the relevant calculator head door.
- Carefully open the calculator head door (top hinge).

- The door is held open by 2 gas struts on either side of the calculator head door.
- Repeat for the opposite side of the dispenser as required.

- To close the calculator head door, pull the front edge of the door downwards ensuring that all cables remain inside the head. Close and lock the calculator head door. Remove keys for safe keeping and close the dust caps.

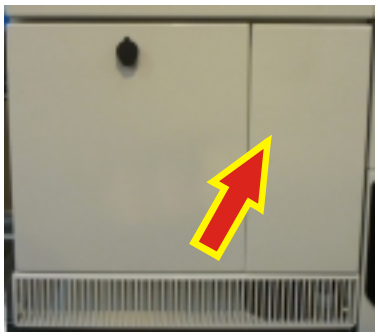
4.8 Access the Cable Glands

The following instructions detail the procedure to be followed to allow safe access to the cable glands. For both standard head and media heads, the DIT must be opened or DIT blind door removed in order to gain access to the cable glands.



STANDARD HEAD - CABLE GLANDS BEHIND VENTED PANEL

MEDIA HEAD - CABLE GLANDS BEHIND VENTED PANEL



TQC - VGA - CABLE GLANDS BEHIND AIR GAP PANEL

4.8.1 REMOVE BLIND DIT DOOR OR OPEN DIT

NO DIT (BLIND DIT DOOR)

- Locate the key for the blind DIT door.
- Unlock the door and disconnect the earth cable.

WARNING : DO NOT DROP.

THE DIT DOOR IS NOT HINGED NOR SECURED BY A RETAINING ROPE.

- Remove the blind DIT door completely and place in a safe position.
- Repeat for the opposite side of the dispenser as required.
- To re-fit, follow the instructions in reverse.

IQ7000 DIT

The IQ7000 is locked with special tubular keys.

- Locate the tubular keys for the IQ7000 DIT.
- Unlock the IQ7000 DIT.
- Carefully slide the IQ7000 drawer open.

- Repeat for the opposite side of the dispenser as required.
- To re-fit, follow the instructions in reverse.

IQ6000 DIT

The IQ6000 DIT is electronically locked and can only be released at the Fuel Point of Sale (POS) in the kiosk.

- Swipe the Maintenance/Service card at the POS or terminal and select the option Maintenance/Service.

Note : A spanner or paper roll on the display indicates the terminal is in Maintenance/Service mode.

- Press first the padlock and then 'Ticket' on the DIT screen to disarm the electronic lock.
- Slide the IQ6000 drawer open.

Note : The red open padlock on the Fuel POS display indicates the drawer is open and unalarmed.

- Repeat for the opposite side of the dispenser as required.

Note : Closing the drawer will re-arm the electronic lock.

- To re-fit, follow the instructions in reverse.

CRYPTO VGA DIT

The Crypto VGA DIT is electronically locked and can only be released at the Fuel Point of Sale (POS) in the kiosk.

- Swipe the Maintenance/Service card at the POS or terminal and select the option Maintenance/Service.

Note : A spanner or paper roll on the display indicates the terminal is in Maintenance/Service mode.

- Press first the padlock and then 'Ticket' on the DIT screen to disarm the electronic lock.
- Carefully slide the Crypto VGA printer unit open.

Note : The red open padlock on the Fuel POS display indicates the drawer is open and unalarmed.

- Disconnect the cables and connectors as required.
- Remove the Crypto VGA printer unit completely and place in a safe position.
- Reach inside the unit and undo the wing nut on the Crypto VGA unit.

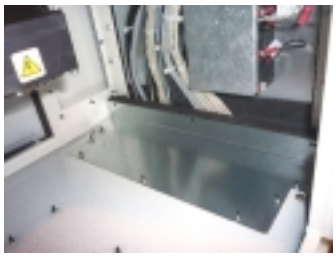
- Carefully slide the Crypto VGA unit open.
- Repeat for opposite side of dispenser as required.

Note : Closing the drawer will re-arm the electronic lock.

4.8.2 STANDARD HEAD & TQC - VGA MEDIA HEAD

Follow instructions in 4.7.2 to access the calculator head and section 4.8.1 to open the DIT or remove the blind DIT door.

1) In the calculator head, use a 7mm nut runner to loosen and remove the small nuts securing the cable retaining plate to the inside of the calc box.



2) Remove the cable retaining plate completely from the dispenser and place in a safe position.

3) To re-fit, replace the cable retaining plate and secure to the inside of the calc box by refitting the nuts.

4) Replace the DIT/blind DIT door according to the instructions in section 4.8.1.

4.9 Access the Junction Box Connections

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

1) Follow the instructions given in section 4.6 to remove the hydraulic door on side B of the dispenser.

2) Locate the junction box on side B of the dispenser.

3) Using a 6mm allen key, loosen and remove the ten bolts on the junction box cover. Remove the junction box cover completely and place in a safe position.

4) Refer to the wiring diagrams in section 5.

5) To re-fit the junction box cover, follow the instructions in reverse.

SECTION 5 CONTENTS

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.

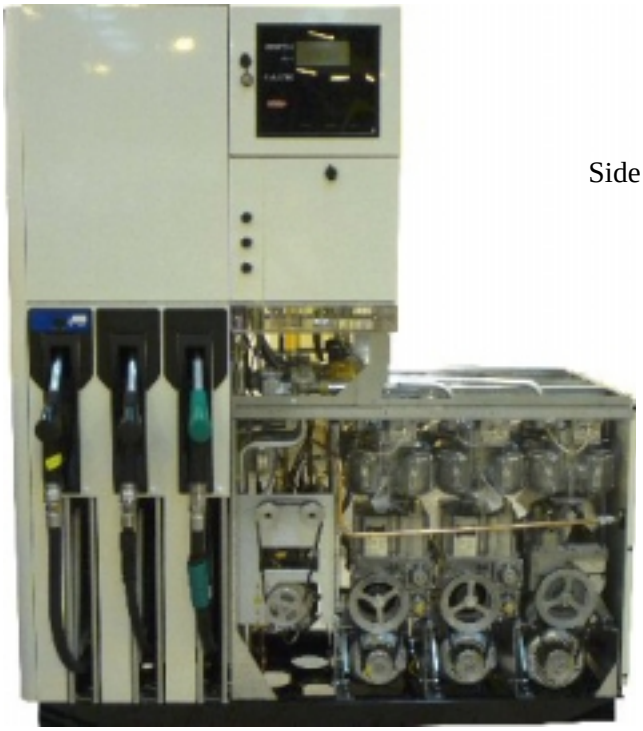
The following checks need to be made before starting the installation :-

- 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 Sides

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

- Side A of the dispenser forms an L shape. With the hydraulic door removed, side A has the pulleys.



Side A

- Side B of the dispenser is the opposite side. With the hydraulic door removed, side B has the fuel inlet connections and access to the junction box.

Side B

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.

5.3 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.

The Quantium 510 Dispenser can be lifted by forklift truck under the wooden pallet or through the metal C-Profiles.

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 arragements 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

Note : Ensure all mounting holes in the ground frame are free from debris

- Fitting of seals for cable, fuel and vapour recovery pipe access
- Sealing of non-used holes

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

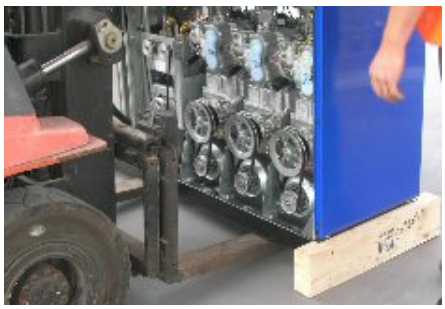
5.4.1 DISPENSER WITHOUT LIFTING SLOTS AND ON WOODEN TRANSIT PALLET

1) Unload the dispenser from the transport truck and place it on even ground. Remove the forklift truck and remove the transport packaging.

2) Re-position the forklift into the wooden transport pallet, raise and move the dispenser close to its forecourt position.

3) Lower the dispenser to about 20mm off the ground. Use a 13mm spanner or socket to loosen and remove the two bolts holding the centre pallet section to the driptray on the front of the dispenser and remove it.

5) With the dispenser stable on the two wooden end blocks, follow the instructions in section 4.6 to access the dispenser hydraulic area and remove the hydraulic doors from both sides of the dispenser.



Position the forks of a suitable forklift under the dispenser driptray.

Note : Do not raise the dispenser off the ground.

6) Protect the dispenser panels with cardboard or other suitable material, then strap the dispenser to the forklift using a ratchet strap or similar to ensure stability and safety.

7) Move the dispenser close to its final position and lower it to the ground resting on the two wooden end blocks.

Note : Do not unstrap or remove the forklift.

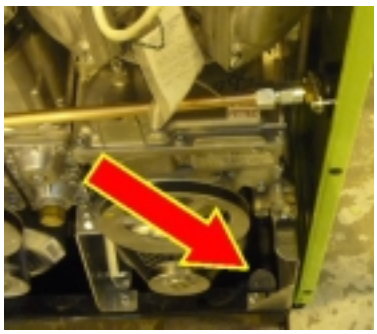
8) Feed the cables up through the electrics hole position in the driptray.

9) Raise the dispenser approximately 20mm off the ground and using a 19mm spanner or socket, loosen and remove the bolts holding the end pallet sections. Remove the wooden end sections from both sides of the dispenser.

10) Carefully position the dispenser over the cradle so that the filter boxes are directly above the fuel supply risers. Lower the dispenser slowly, aligning the mounting holes on the driptray with the mounting holes on the cradle.

11) Use the mounting hole closest to the hydraulic end as a first locating point.

Follow the instructions in section 5.4.8 to secure the dispenser using all 4 mounting holes.



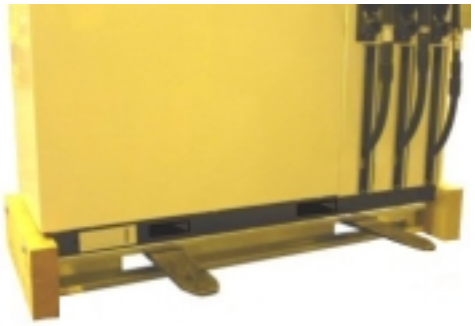
12) With the dispenser now secure, remove the retaining ratchet straps.
Ensure that the area around the dispenser is clear of all personnel, then slowly remove the forklift and move it away from the dispenser.

Dispenser placement is complete.

5.4.2 DISPENSER WITHOUT LIFTING SLOTS AND ON METAL TRANSPORT PROFILE

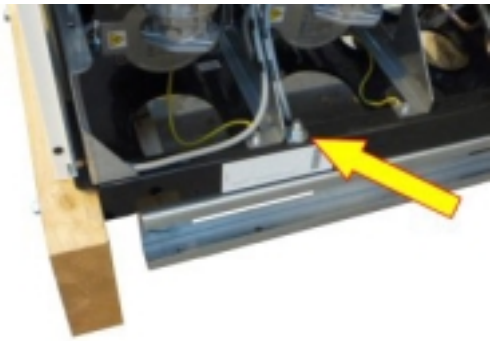
1) Unload the dispenser from the transport truck and place it on even ground. Remove the forklift truck and remove the transport packaging.

2) Raise the dispenser approximately 20mm off the ground and using a 10mm spanner or socket, loosen and remove the bolts on the centre wooden blocks connected to the metal profiles. Remove the wooden blocks, then lower the dispenser onto the ground resting it on the two wooden end blocks.

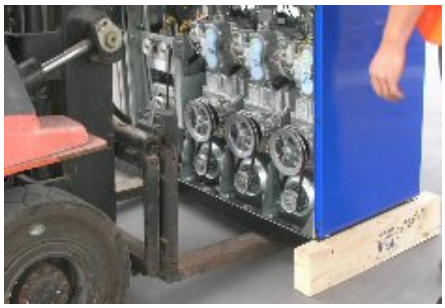


Follow the instructions in section 4.6 to access the dispenser hydraulic area and remove the hydraulic doors from both sides of the dispenser.

3) Locate the 19mm nuts holding the metal profiles to the driptray. Unscrew the nuts, remove the bolts and remove the profiles.



4) With the dispenser stable on the two wooden end blocks. Position the forks of a suitable forklift under the dispenser driptray.



Note : Do not raise the dispenser off the ground.

5) Protect the dispenser panels with cardboard or other suitable material, then strap the dispenser to the forklift using a ratchet strap or similar to ensure stability and safety.

6) Move the dispenser close to its final position and lower it to the ground resting on the two wooden end blocks.

Note : Do not unstrap or remove the forklift.

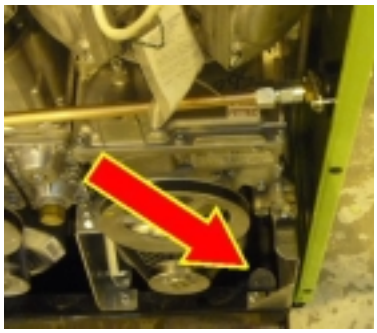
7) Feed the cables up through the electrics hole position in the driptray.

8) Raise the dispenser approximately 20mm off the ground and using a 19mm spanner or socket, loosen and remove the bolts holding the end pallet sections. Remove the wooden end sections from both sides of the dispenser.

9) Carefully position the dispenser over the cradle so that the filter boxes are directly above the fuel supply risers. Lower the dispenser slowly, aligning the mounting holes on the driptray with the mounting holes on the cradle.

10) Use the mounting hole closest to the hydraulic end as a first locating point.

Follow the instructions in section 5.4.8 to secure the dispenser using all 4 mounting holes.



11) With the dispenser now secure, remove the retaining ratchet straps.
Ensure that the area around the dispenser is clear of all personnel, then slowly remove the forklift and move it away from the dispenser.

Dispenser placement is complete.

5.4.3 DISPENSERS WITH LIFTING SLOTS OR BRACKETS, FORKLIFT PITCH CHART

DISPENSER TYPE	DISPENSER MODEL		PITCH (mm)			OPTIONS
			Slot to slot	Slot to bracket	Bracket to bracket	Compatibility with VR per product
Standard	1-1		N/A	715	N/A	
	1-2		N/A	715	N/A	
	2-2		N/A	877,5	N/A	YES
	2-4		N/A	877,5	N/A	YES
	3-3		603	N/A	N/A	#
	3-6		603	N/A	N/A	#
	4-4		603	N/A	N/A	#
	4-8		603	N/A	N/A	#
	5-10		603	N/A	N/A	#
	HS 1-1		N/A	715	N/A	
	HS 1-2		N/A	715	N/A	
	HS 2-2		N/A	877,5	N/A	
	HS 2-4		N/A	877,5	N/A	
	HS 3-3		603	N/A	N/A	
	HS 3-6		603	N/A	N/A	
	HS 4-4		603	N/A	N/A	
	HS 4-8		603	N/A	N/A	
	HS 5-8		603	N/A	N/A	
	HSM 1-1		N/A	715	N/A	
	HSM 1-2		N/A	715	N/A	
	HSM 5-8	#	NO	NO	NO	
	VHS 1-1 LHS		N/A	715	N/A	
	VHS 1-1 RHS		N/A	715	N/A	
	VHS 1-2		N/A	715	N/A	
	VHS 1-2 SS LHS		N/A	877,5	N/A	
	VHS 1-2 SS RHS		N/A	877,5	N/A	
	VHS 2-4		N/A	877,5	N/A	
	VHS 3-6		603	N/A	N/A	
	VHS 4-4		603	N/A	N/A	
	VHS 4-8		603	N/A	N/A	
	VHSM 1-1 L		N/A	715	N/A	
	VHSM 1-1 R		N/A	715	N/A	
	VHSM 1-2		N/A	715	N/A	
	VHSM 2-4		N/A	877,5	N/A	
	SVHS 5-8		603	N/A	N/A	
	SVHSM 5-5	#	NO	NO	NO	
	THS 1-2		N/A	715	N/A	
	THS 2-4		N/A	877,5	N/A	
	THS 3-4		603	N/A	N/A	
	THS 3-6		603	N/A	N/A	
	THS 5-8		603	N/A	N/A	
	SAT		YES	N/A	N/A	
	MiniSAT		N/A	N/A	N/A	
	HD 2-2		N/A	877,5	N/A	
	SVHS 3-4		603	N/A	N/A	
	SVHS 4-6		603	N/A	N/A	
	VHSM 4-4	#	NO	NO	NO	
AdB combo	AdB combo					
	VHS1-1	◘	988	N/A	N/A	
	VHS1-2	◘	988	N/A	N/A	
	VHS2-4	#	NO	NO	NO	
	VHS3-6		941	N/A	N/A	
	VHSM1-1	◘	988	N/A	N/A	
	VHSM1-2	◘	988	N/A	N/A	
LPG Combo	LPG combo					
	2-4	#	NO	NO	NO	NO
	3-6	#	NO	NO	NO	NO
	4-8	#	NO	NO	NO	NO
LPG	1-1	◘	N/A	N/A	1035,5	
	1-2	◘	N/A	N/A	1035,5	
Adblue	1-1		N/A	N/A	742,75	
	1-2		N/A	N/A	742,75	

\# Jacking screws required
◘ OM Forklift or Jacking screws required

Slot to Slot

Slot to Bracket

5.4.4 DISPENSER WITH LIFTING SLOTS AND ON WOODEN TRANSIT PALLET

1) Unload the dispenser from the transport truck and place it on even ground. Remove the forklift truck and remove the transport packaging.

2) Re-position the forklift into the wooden transport pallet, raise and move the dispenser close to its forecourt position.

3) Lower the dispenser to about 20mm off the ground. Use a 13mm spanner or socket to loosen and remove the two bolts holding the centre pallet section to the driptray on the front of the dispenser and remove it.

4) Carefully loosen and remove the 13mm bolts from the centre pallet at the rear of the dispenser, then slide the centre pallet section, still located on the forklift forks, away from the driptray. Lower the dispenser onto the ground resting it on the two wooden end blocks and remove the forklift and the centre pallet section.

5) With the dispenser stable on the two wooden end blocks, follow the instructions in section 4.6 to access the dispenser hydraulic area and remove the hydraulic doors from both sides of the dispenser. Position the forks of a suitable forklift to the lifting slots in the driptray. Carefully insert the forks into the lifting slots.

6) Protect the dispenser panels with cardboard or other suitable material, then strap the dispenser to the forklift using a ratchet strap or similar to ensure stability and safety.

7) Move the dispenser close to its final position and lower it to the ground resting on the two wooden end blocks.

Note : Do not unstrap or remove the forklift.

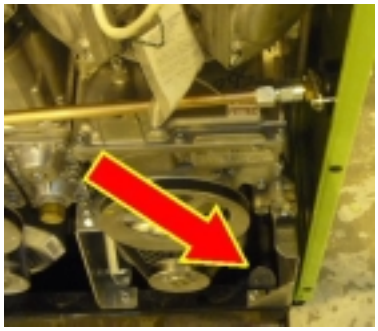
8) Feed the cables up through the electrics hole position in the driptray.

9) Raise the dispenser approximatley 20mm off the ground and using a 19mm spanner or socket, loosen and remove the bolts holding the end pallet sections. Remove the wooden end sections from both sides of the dispenser.

10) Carefully position the dispenser over the cradle so that the filter boxes are directly above the fuel supply risers. Lower the dispenser slowly, aligning the mounting holes on the driptray with the mounting holes on the cradle.

11) Use the mounting hole closest to the hydraulic end as a first locating point.

Follow the instructions in section 5.4.8 to secure the dispenser using all 4 mounting holes.

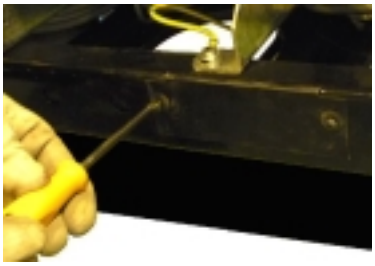


12) With the dispenser now secure, remove the retaining ratchet straps.
Ensure that the area around the dispenser is clear of all personnel, then slowly remove the forklift and move it away from the dispenser.

13) Using a rust preventative fluid, such as Waxoyl professional 120-4 (Black), apply a generous coating to the inside and outside of the forklift slots.

14) Fit the supplied blanking plates to all 4 slots in the driptray and apply a coat of rust preventative around the 4 edges of each blanking plate.

Dispenser placement is complete.



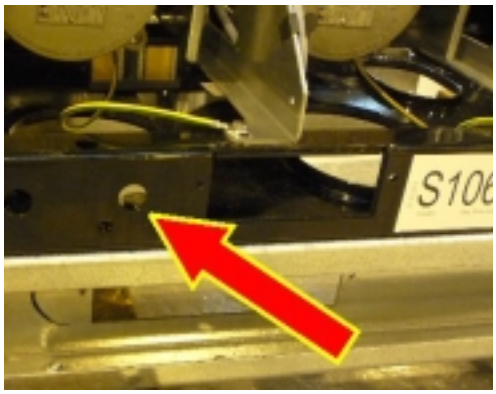
5.4.5 DISPENSER WITH LIFTING SLOTS AND ON METAL TRANSIT PROFILE

1) Unload the dispenser from the transport truck and place it on even ground. Remove the forklift truck and remove the transport packaging.

2) Raise the dispenser approximatley 20mm off the ground and using a 10mm spanner or socket, loosen and remove the bolts on the centre wooden blocks connected to the metal profiles. Remove the wooden blocks, then lower the dispenser onto the ground resting it on the two wooden end blocks.

Follow the instructions in section 4.6 to access the dispenser hydraulic area and remove the hydraulic doors from both sides of the dispenser.

3) Locate the 19mm nuts holding the metal profiles to the driptray. Unscrew the nuts, remove the bolts and remove the profiles.



4) With the dispenser stable on the two wooden end blocks. Position the forks of a suitable forklift to the lifting slots in the driptray. Carefully insert the forks into the lifting slots.

5) Protect the dispenser panels with cardboard or other suitable material, then strap the dispenser to the forklift using a ratchet strap or similar to ensure stability and safety.

6) Move the dispenser close to its final position and lower it to the ground resting on the two wooden end blocks.

Note : Do not unstrap or remove the forklift.

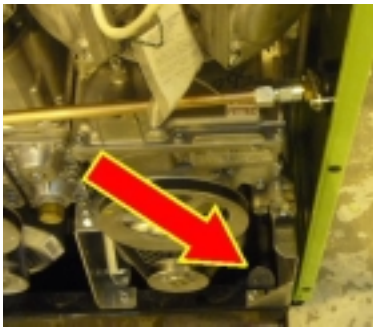
7) Feed the cables up through the electrics hole position in the driptray.

8) Raise the dispenser approximatley 20mm off the ground and using a 19mm spanner or socket, loosen and remove the bolts holding the end pallet sections. Remove the wooden end sections from both sides of the dispenser.

9) Carefully position the dispenser over the cradle so that the filter boxes are directly above the fuel supply risers. Lower the dispenser slowly, aligning the mounting holes on the driptray with the mounting holes on the cradle.

10) Use the mounting hole closest to the hydraulic end as a first locating point.

Follow the instructions in section 5.4.8 to secure the dispenser using all 4 mounting holes.

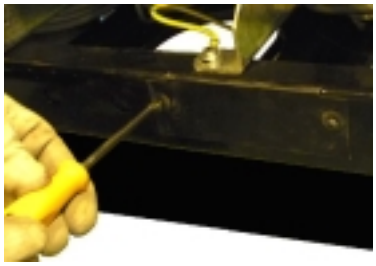


11) With the dispenser now secure, remove the retaining ratchet straps. Ensure that the area around the dispenser is clear of all personnel, then slowly remove the forklift and move it away from the dispenser.

12) Using a rust preventative fluid, such as Waxoyl professional 120-4 (Black), apply a generous coating to the inside and outside of the forklift slots.

13) Fit the supplied blanking plates to all 4 slots in the driptray and apply a coat of rust preventative around the 4 edges of each blanking plate.

Dispenser placement is complete.

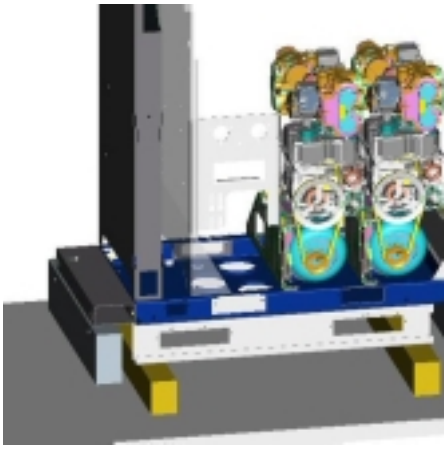


5.4.6 M-SAT DISPENSER WITH LIFTING SLOTS ON METAL PROFILE TRANSPORT PALLET

1) Unload the dispenser from the transport truck and place it on even ground. Remove the forklift truck and remove the transport packaging.

2) Using a 19mm spanner or socket, loosen and remove the bolts holding the end pallet sections. Remove the wooden end sections from both sides of the dispenser.

Follow the instructions in section 4.6 to access the dispenser hydraulic area and remove the hydraulic doors from both sides of the dispenser.



Note : The forklift slot in the lifting bracket is 100mm x 40mm and only a suitable forklift can be used for placement.

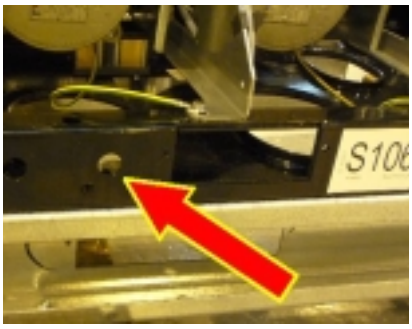
3) With the dispenser stable on the central wooden transport pallet, position the forks of a suitable forklift to the lifting slot in the driptray and lifting bracket located on the hose management side of the dispenser. Carefully insert the forks into the lifting positions.

Note : Do not raise the dispenser.

4) Protect the dispenser panels with cardboard or other suitable material, then strap the dispenser to the forklift using a ratchet strap or similar to ensure stability and safety.

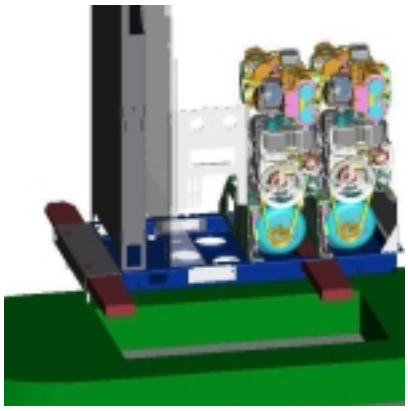
5) Raise the dispenser approximately 20mm off the ground.

   Using a 10mm spanner or socket, loosen and remove the bolts holding the centre wooden blocks connected to the metal profiles. Remove the wooden blocks. Locate the 19mm nuts holding the metal profiles to the driptray. Unscrew the nuts, remove the bolts and remove the metal profiles.



6) Move the dispenser to its final location.

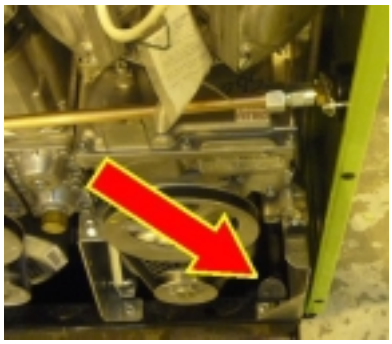
7) Position the dispenser over the cradle so that the filter boxes are directly above the fuel supply risers. Lower the dispenser slowly, to about 150mm above the cradle, aligning the mounting holes on the driptray with the mounting holes on the cradle.



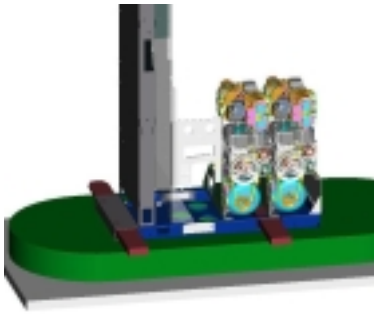
8) Feed the cables up through the electrics hole position in the driptray.

9) Lower the dispenser slowly onto the cradle and use the 2 mounting holes closest to the hydraulic end as a first locating point.

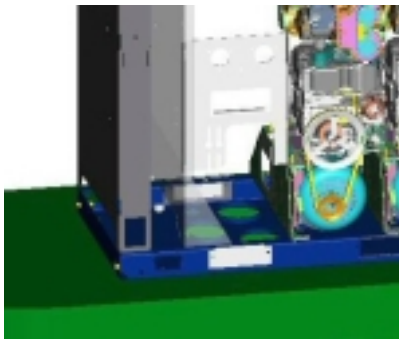
   Follow the instructions in section 5.4.6 to secure the dispenser using all 4 mounting holes.



10) With the dispenser now secure, remove the retaining ratchet straps. Ensure that the area around the dispenser is clear of all personnel, then slowly remove the forklift and move it away from the dispenser.

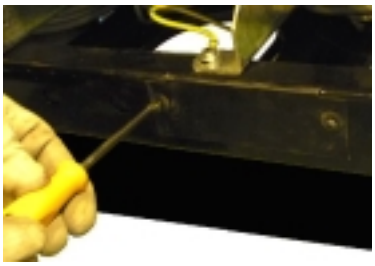


11) Using a 19mm spanner or socket, remove the lifting bracket, located on the hose management side of the dispenser.



12) Using a rust preventative fluid, such as Waxoyl professional 120-4 (Black), apply a generous coating to the inside and outside of the forklift slots.

13) Fit the supplied blanking plates to the two slots in the driptray and apply a coat of rust preventative around the 4 edges of each blanking plate.



Dispenser placement is complete.

5.4.7 USING JACKING BOLTS TO LOWER A DISPENSER

PREPARE THE DISPENSER FOR LIFTING

1) Use a 13mm spanner or socket to loosen and remove the two bolts on the centre pallet section on both sides of the dispenser. Remove both sides of the centre pallet.

2) With the dispenser stable on the two end pallet sections, carefully position the forklift truck to lift the dispenser under the driptray.

   Strap the dispenser to the forklift.

POSITION THE DISPENSER ON THE ISLAND

3) Lift the dispenser and use a 19mm spanner or socket to loosen and remove the two bolts on the end pallet sections on both sides of the dispenser. Remove both end pallet sections.

4) Position the dispenser over the island and feed the cables up through the electrics hole position in the driptray.

5) Carefully position the dispenser so that the filter boxes are directly above the fuel supply risers. Lower the dispenser onto the island.

Note: Do NOT remove the forklift at this point.

6) Align the mounting holes in the dispenser driptray with the corresponding holes in the ground.

7) Using a ratchet and a 19mm socket to turn the 4 jacking screws and slightly lift the dispenser of the island

8) Follow the instructions in section 5.4.8 to secure the dispenser to the ground using the two mounting holes at the opposite side to the forklift.

9) With one side of the dispenser secured, remove the forklift.

10) Fully lower the dispenser onto the island using the jacking screws.

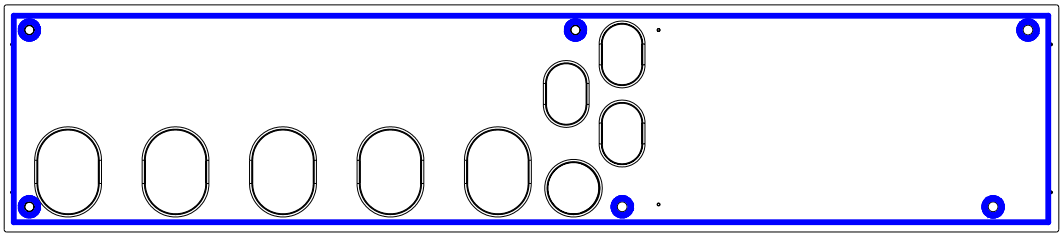
11) Follow the instructions in section 5.4.8 to locate the opposite two bolts into the two remaining holes provided.

Dispenser placement is complete.

5.4.8 LEAK PLATE SEALING

To fulfill to ECN13617-1, it is required to apply sealant between leak-plate and island (or alternatively cradle) or between integrated drip-tray and island (or alternatively cradle) as per instruction hereafter.

Apply suitable fuel resistant sealant on the surface of the leak-plate/integrated drip-tray, apply suitable fuel resistant sealant around fixing holes on the island as per below sketch - sealant represented by blue line.

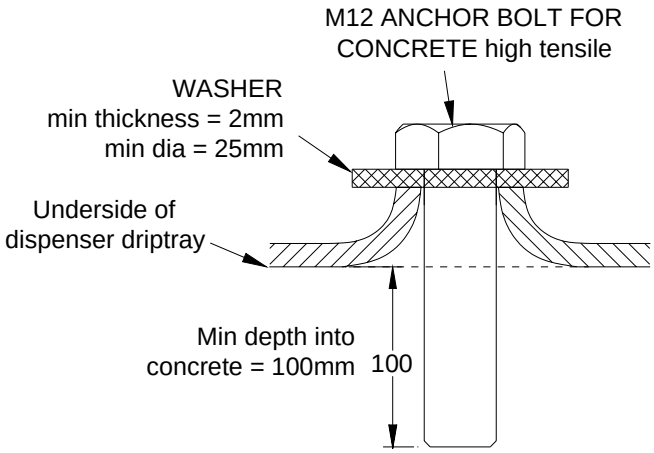


5.4.9 FIXING TO GROUND

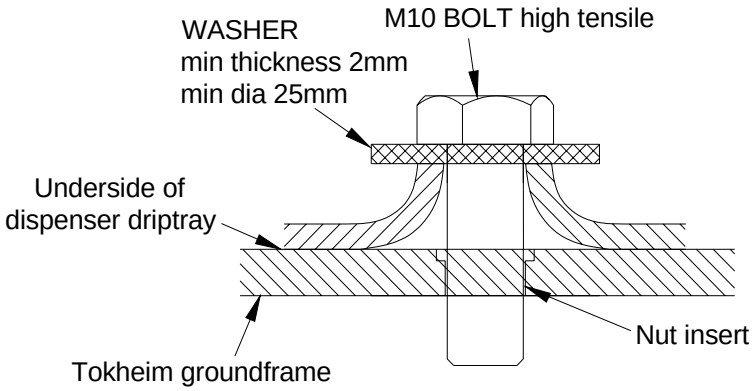
The following information relates to a typical Tokheim dispenser, unmodified by the user, with no additional advertisement boards, canopies or items added to the dispenser. Any such modifications may affect the stability and have warranty/ liability consequences.

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.

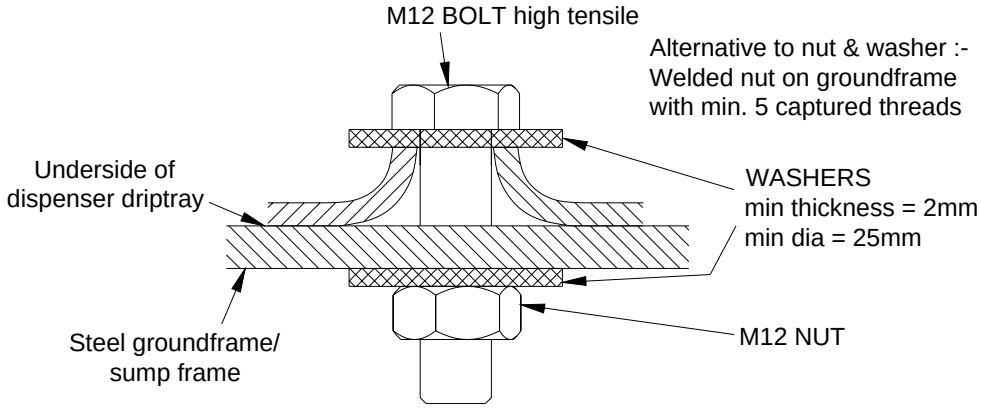
FIXING INTO CONCRETE (NO GROUNDFRAME)



TYPICAL FIXING INTO TOKHEIM GROUNDFRAME



TYPICAL FIXING INTO THIRD PARTY GROUNDFRAME / SUMP FRAME



5.4.10 EARTHING

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

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

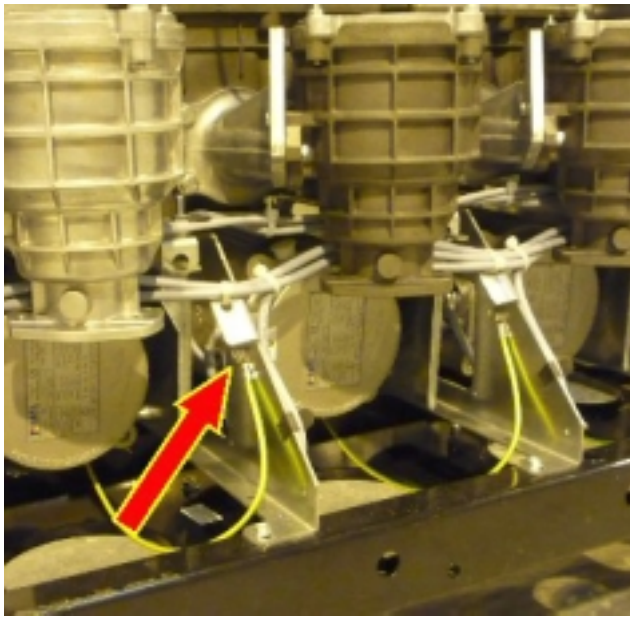
- 6mm^2 earth conductor(s) back to main site earth (up to 85m cable run)
- 10mm^2 earth conductor(s) back to main site earth (85 to 150m cable run)

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 an typical example of an earth connection point on a Q510 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.

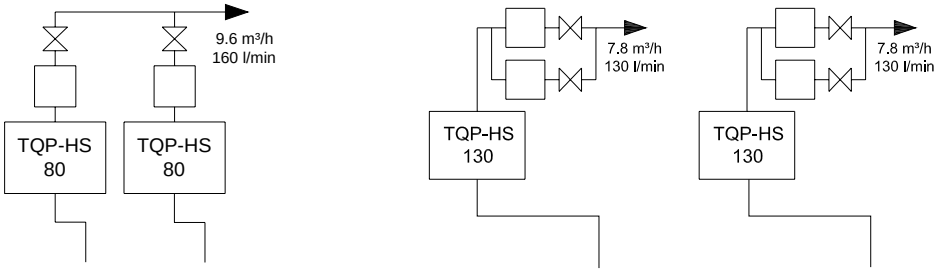
Note : The maximum pressure must not exceed 3.5 bar.

5.5.1 INSTALLATION OF TQP-HS PUMPS

IMPORTANT INFORMATION:

DO NOT INSTALL TQP-HS PUMPS, 80 OR 130 LPM, IN SERIES ON THE SAME SUCTION LINE.

SEPARATE SUCTION LINES ARE REQUIRED, AS EXAMPLES SHOW BELOW:



5.5.2 PIPEWORK - SUCTION DISPENSERS

Connections to the fuel supply pipes and the vapour return lines are accessible from side B 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.

PUMPING UNITS WITH EXTERNAL FILTER BOX

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 driptray.

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.

TQP-RS PUMPS WITH INTERNAL FILTER

1) If the riser pipe is not 1.5” diameter male thread then an adaptor will need to be fitted by the Installer.

2) Fit the female end of the flexible connection to the male thread on the fuel supply pipe in the ground and tighten using a large adjustable spanner.

3) Where fitted, remove the hygiene cover on the inlet connection on the pump.

4) Using a 13mm spanner, fit the two bolts on the flange to secure the flexible connection to the pump.

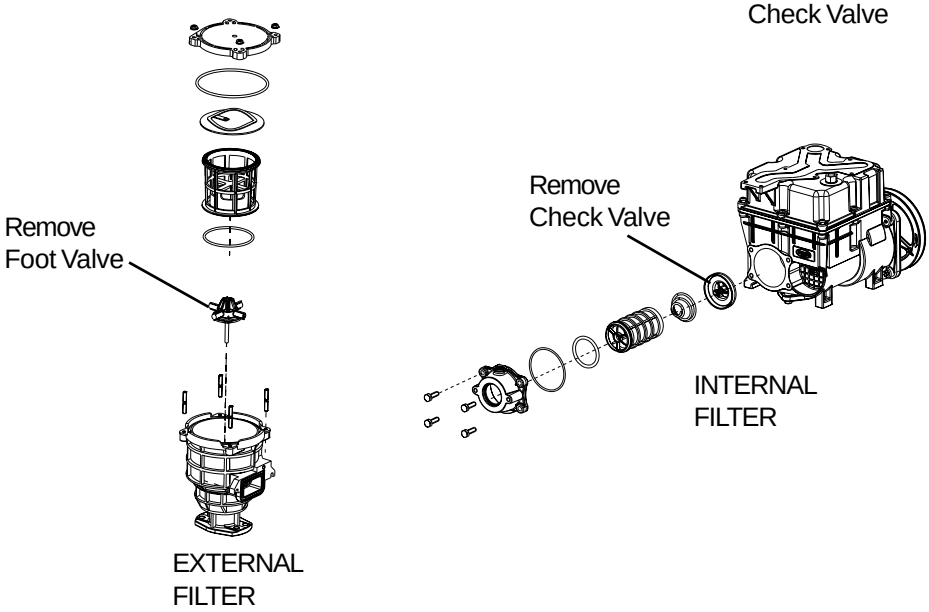
5) Repeat steps 1 to 4 for each hydraulic position.

5.5.3 FITTING A RISBRIDGER CHECK VALVE

Risbridger
Check Valve

If a Risbridger Check Valve has to be fitted to a dispenser :

- remove the check valve - for pumps with internal filters
- remove the foot valve - for pumps with external filters



5.5.4 PIPEWORK - SUBMERGED DISPENSERS

The Installer is responsible for supplying the riser pipe to the heights given in section 2.3 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.
4) Repeat for each hydraulic position as required.

5.5.5 PIPEWORK - VR

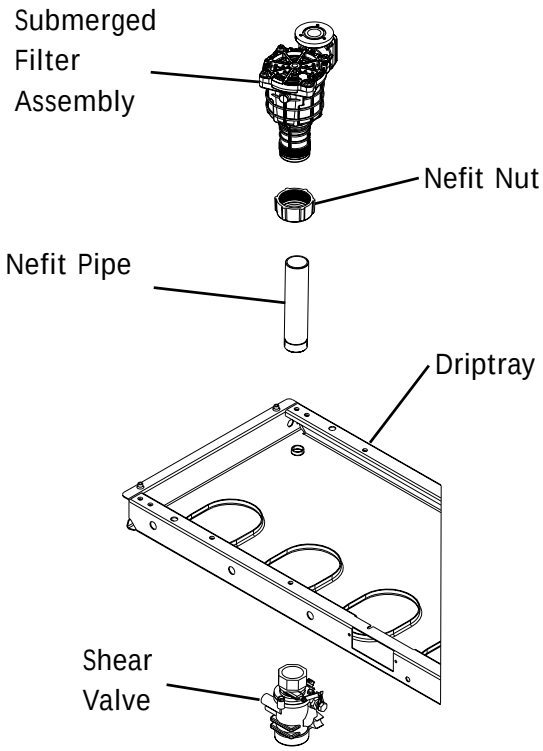
The Installer is responsible for supplying the VR pipe to the heights given in section 2.3.

1) Fit the VR flange and gasket to the VR pipe.
2) As required, fit optional flame arrestor, quick connector and/or shear valve kits to the VR pipe flange, sealing with gaskets, o-rings, dowty seals and washers as supplied.
3) Ensure that the VR flexi pipes are not put under strain, trapped or twisted then connect VR flexi pipe to the VR pipe.

5.5.6 NEW SUBMERGED INSTALLATION - MANUFACTURED AFTER JANUARY 2015

Depending on the dispenser an additional plate at the end of the hydraulic cabinet to balance the dispenser during installation may be required. This is fitted in production on specific configurations only, it is left in place once the dispenser is installed.

Description of Parts

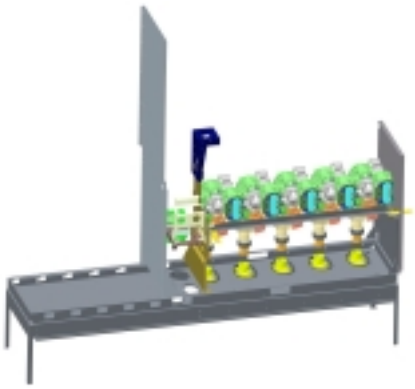


WARNING : BELOW INSTALLATION PROCEDURE MUST BE STRICTLY FOLLOWED WITH THE NEW SUBMERGED.

1) Ensure that the nefit pipe is fully inserted inside the filter pot.

2) Lower the dispenser until it sits on the groundframe.

Note: no risk that the nefit pipes will collide with the shear valves as it is inserted deep enough inside the filter pots



3) Untighten the Nefit nut.
4) Slide down the Nefit pipe.
5) Screw the Nefit pipe into the Shear valve.
6) Tighten the Nefit nut.

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.

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 supply
- One/two cable(s) for dispener communications
- One cable for speaker (optional)
- One ethernet Cat 5 cable per side for OPT communications (optional)
- One ethernet Cat 5 cable per side for Vidium (optional)
- One cable per submerged pump control signals (where applicable)

ELECTRONICS AND LIGHTING PROTECTION

Tokheim recommends 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.

Note : Provision for lighting supply is not required as LED backlighting is standard.

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 will vary according to the number of motors.

5.6.1 JUNCTION BOX WIRING

During the removal or replacement of the M2000T Junction Box cover, the machined flame path of the cover and the junction box should be inspected for damage. If any defects or scratches are found then the junction box and/or cover must be replaced - this is essential for product safety. Once removed, always store the cover in a safe place.

Note : The correct tightening torque for the junction box cover is 18Nm.

Three different sizes of cable gland entries are available from Tokheim for the M2000T Junction Box:-

- For cable sizes 6-11mm
- For cables sizes 10-13mm
- For cable sizes 14-17mm

Ensure that the correct gland size is chosen to suit each installation cable. Failure to do so will compromise product safety.

The special requirements relating to the use of the M2000T Junction box are:-

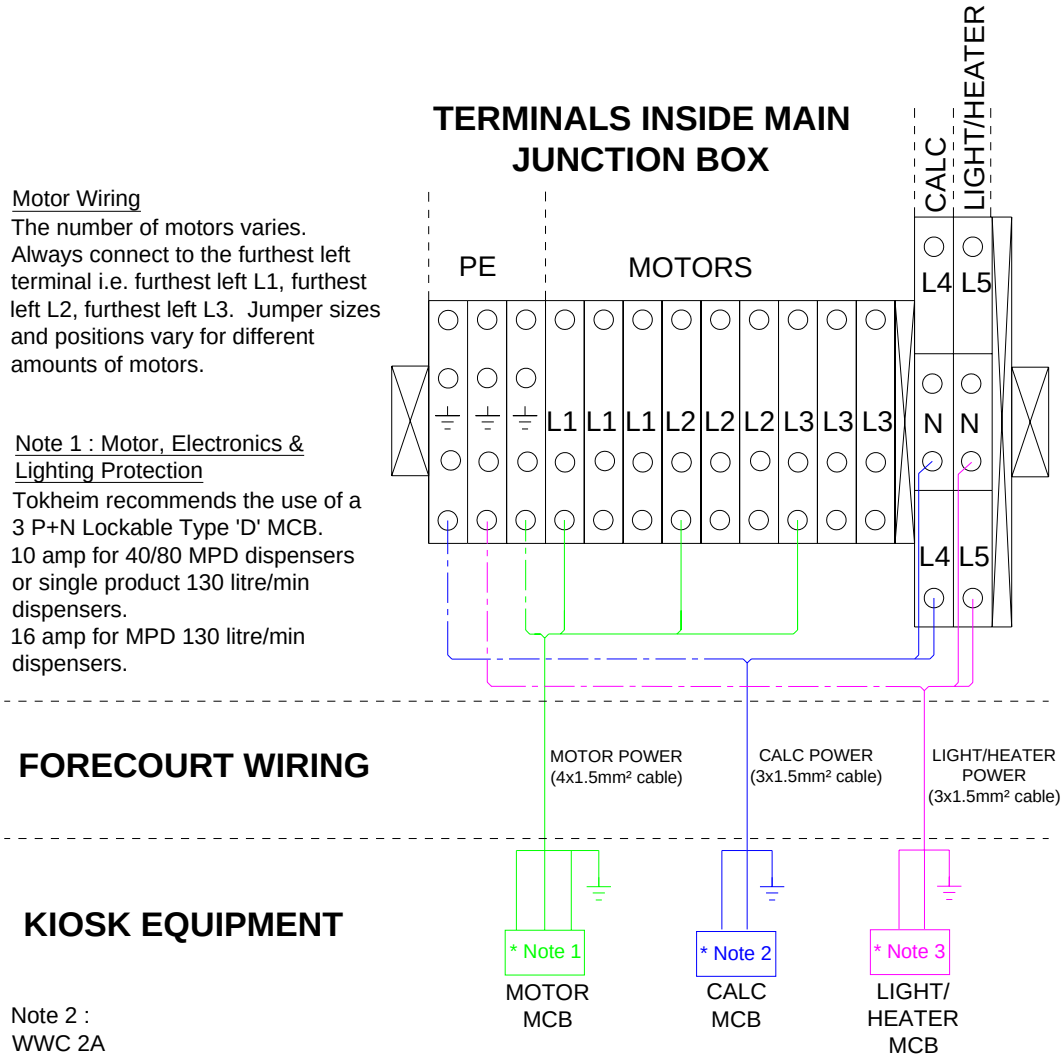
- Gland size 6-11mm must be tightened to a torque of 114Nm
- Gland size 10-13mm must be tightened to a torque of 35Nm
- Gland size 14-17mm must be tightened to a torque of 70Nm
- Ensure that all cables terminating in the M2000T Junction Box are securely fastened to the dispenser frame adjacent to the box.

The wiring in the main junction box will vary according to different models and options. The drawings in this section show the Tokheim recommended installation but differences may exist in the standards relating to installation in different countries and local regions, in which case the local and/or national standards must be employed.

Three Phase Suction

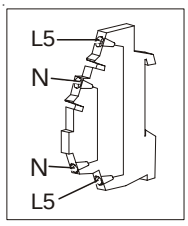
Motor Wiring
The number of motors varies. Always connect to the furthest left terminal i.e. furthest left L1, furthest left L2, furthest left L3. Jumper sizes and positions vary for different amounts of motors.

Note 1 : Motor, Electronics & Lighting Protection
Tokheim recommends the use of a 3 P+N Lockable Type 'D' MCB.
10 amp for 40/80 MPD dispensers or single product 130 litre/min dispensers.
16 amp for MPD 130 litre/min dispensers.

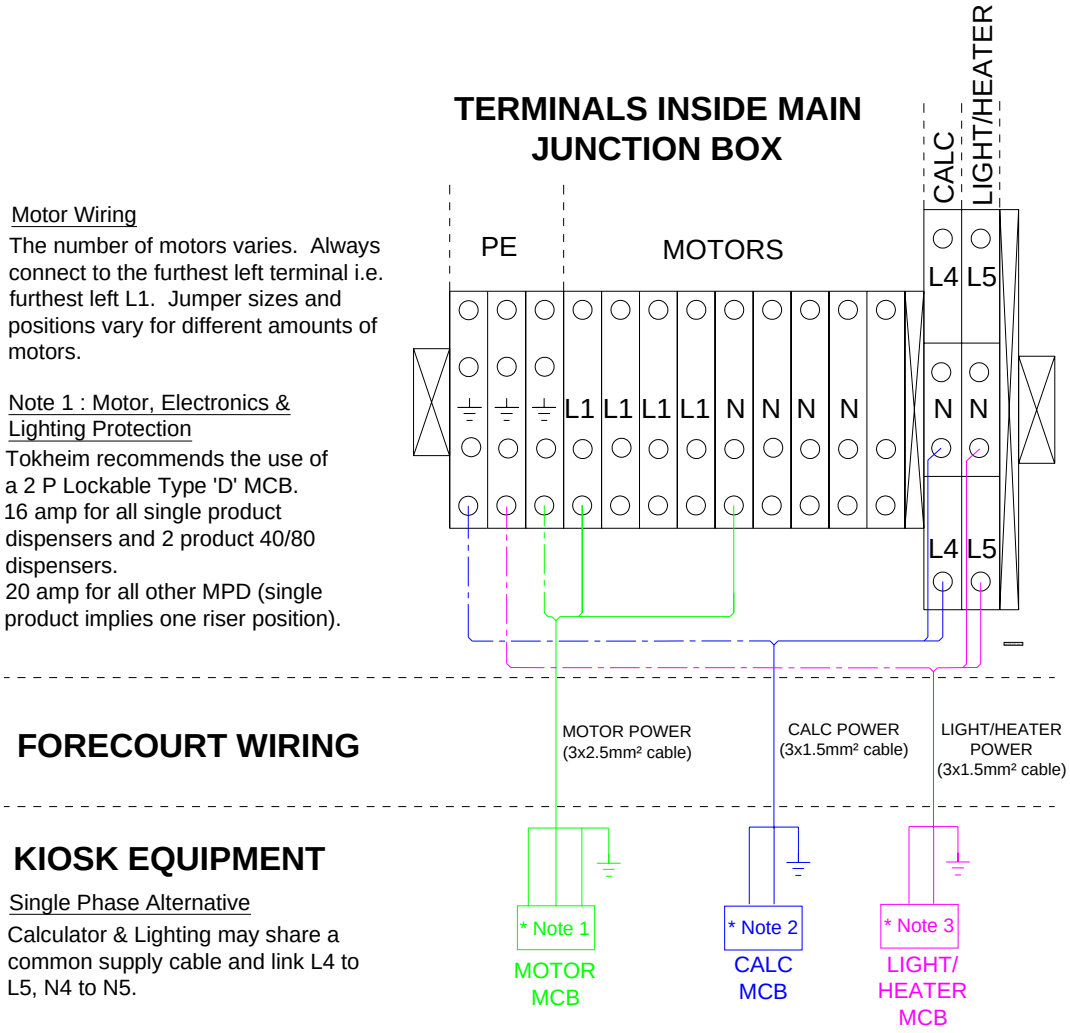


Note 2 :
WWC 2A
TQC 6A
TQC-VGA 6A

Note 3 :
LIGHT 8A
HEATER 8A



Single Phase Suction



Motor Wiring

The number of motors varies. Always connect to the furthest left terminal i.e. furthest left L1. Jumper sizes and positions vary for different amounts of motors.

Note 1 : Motor, Electronics & Lighting Protection

Tokheim recommends the use of a 2 P Lockable Type 'D' MCB.
16 amp for all single product dispensers and 2 product 40/80 dispensers.
20 amp for all other MPD (single product implies one riser position).

Single Phase Alternative

Calculator & Lighting may share a common supply cable and link L4 to L5, N4 to N5.

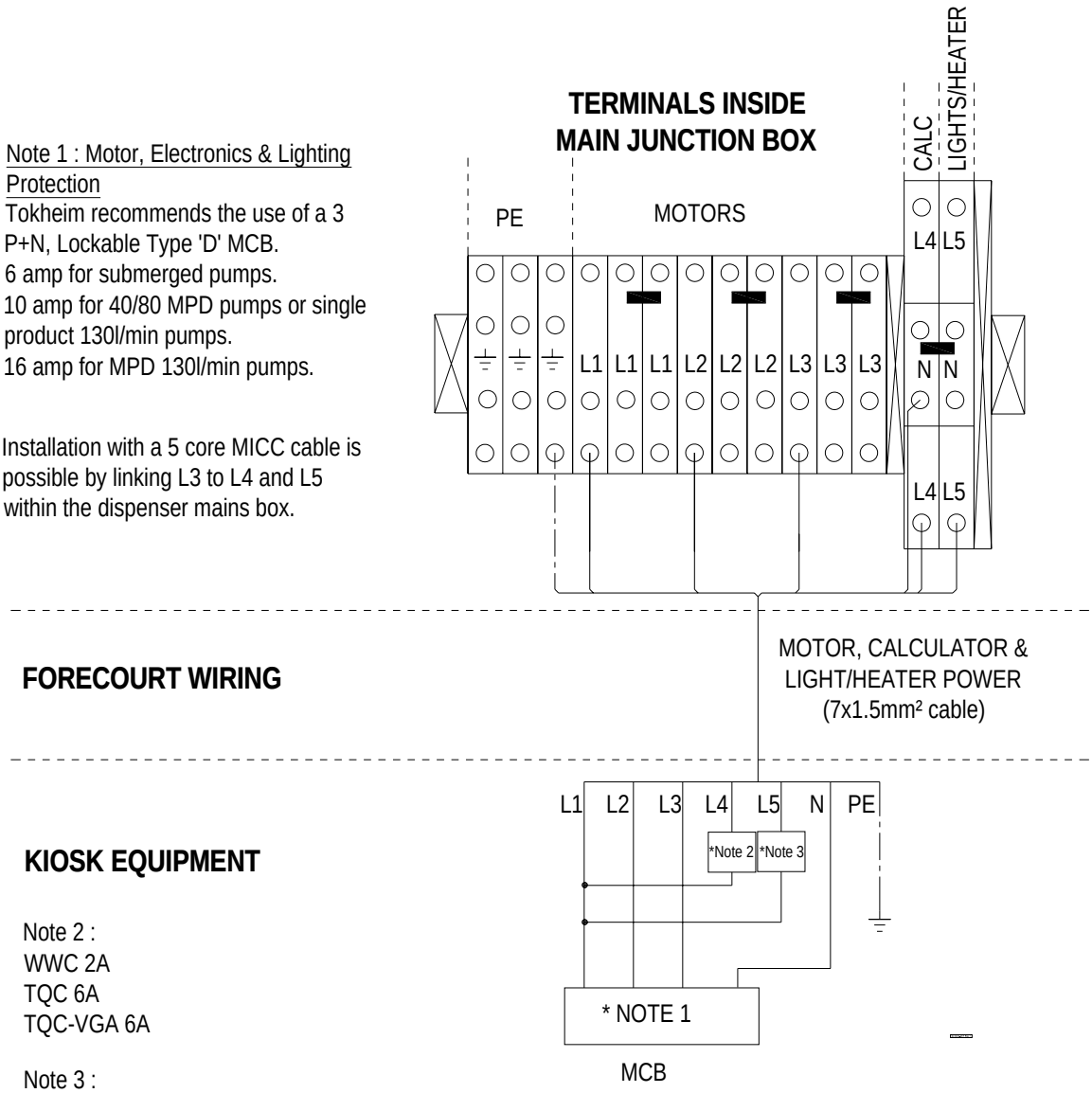
Note 2 :
WWC 2A
TQC 6A
TQC-VGA 6A

Note 3 :
LIGHT 8A
HEATER 8A

Three Phase Suction Alternative

Note 1 : Motor, Electronics & Lighting Protection
Tokheim recommends the use of a 3 P+N, Lockable Type 'D' MCB.
6 amp for submerged pumps.
10 amp for 40/80 MPD pumps or single product 130l/min pumps.
16 amp for MPD 130l/min pumps.

Installation with a 5 core MICC cable is possible by linking L3 to L4 and L5 within the dispenser mains box.



Note 2 :
WWC 2A
TQC 6A
TQC-VGA 6A

Note 3 :
LIGHT 8A
HEATER 8A

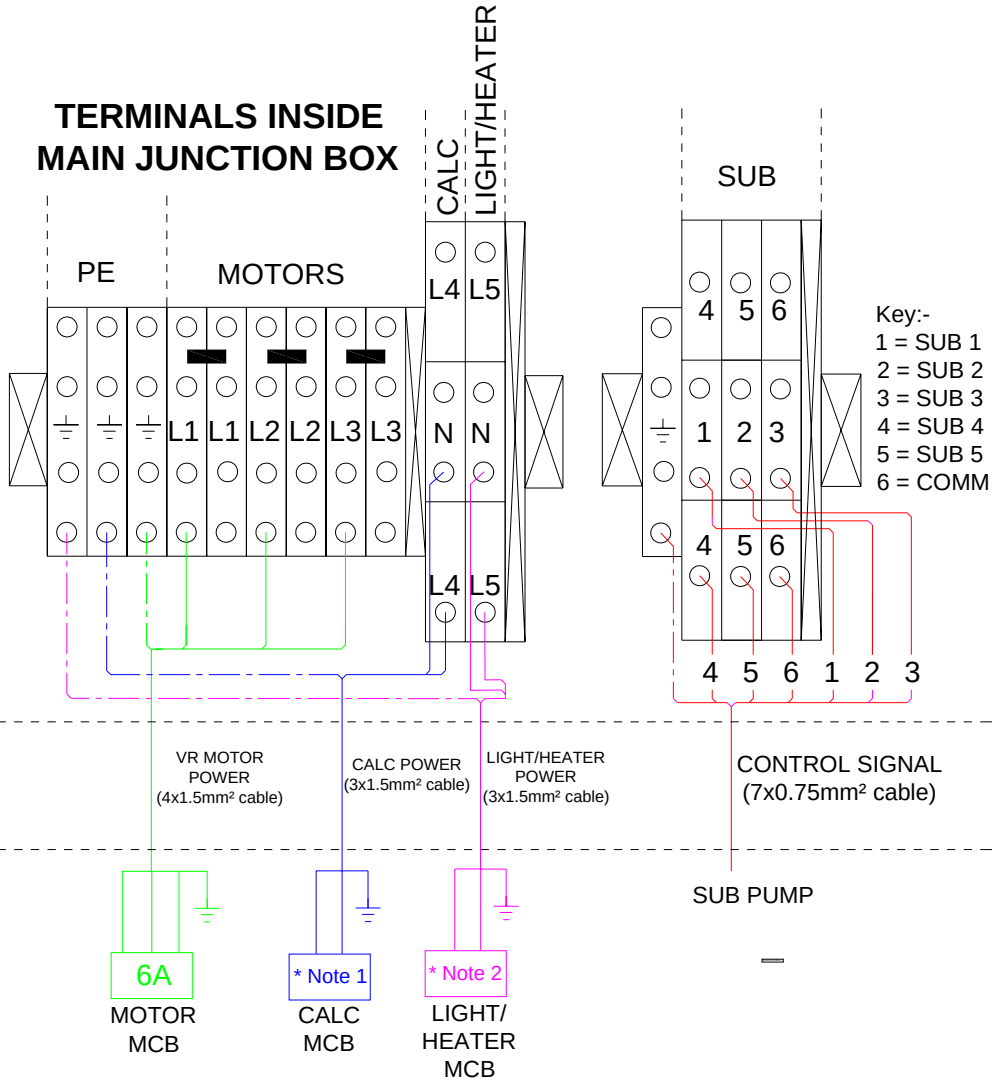
Submerged

Motor Wiring

The number of motors varies. Always connect to the furthest left terminal i.e. furthest left L1, furthest left L2, furthest left L3 etc. Jumper sizes and positions vary for different amounts of motors.

Motor, Electronics & Lighting Protection

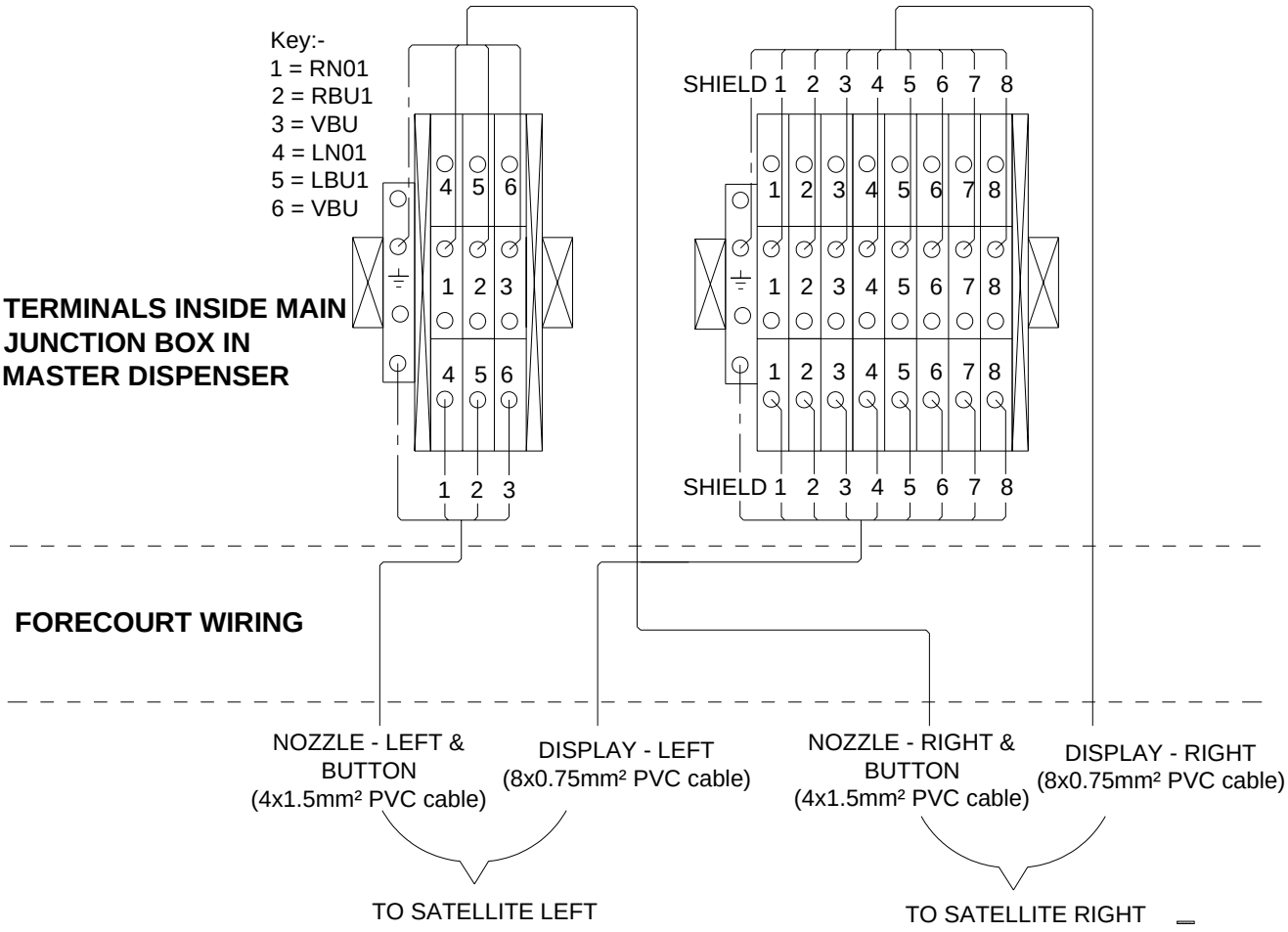
Tokheim recommends the use of a 3 P+N Lockable Type 'D' MCB.
10 amp for 40/80 MPD dispensers or single product 130 litre/min dispensers.
16 amp for MPD 130 litre/min dispensers.



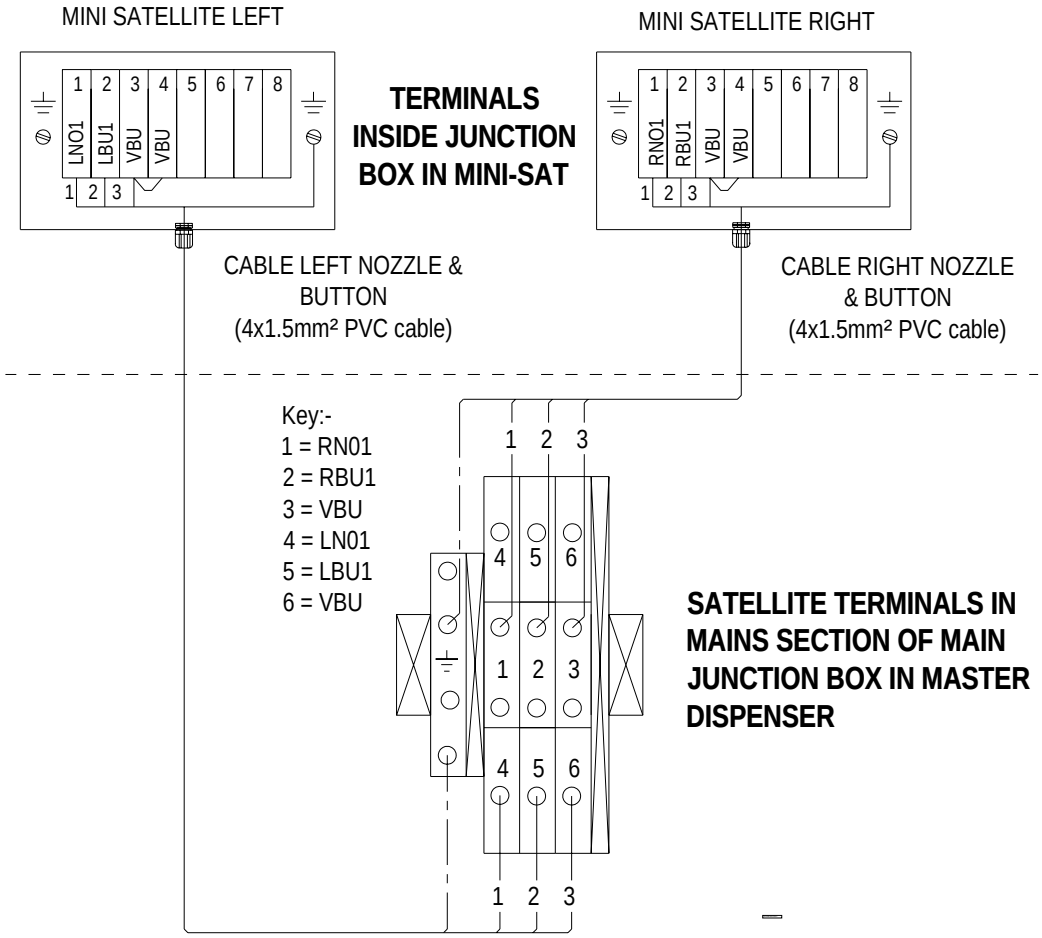
Note 1 :
WWC 2A
TQC 6A
TQC-VGA 6A

Note 2 :
LIGHT 8A
HEATER 8A

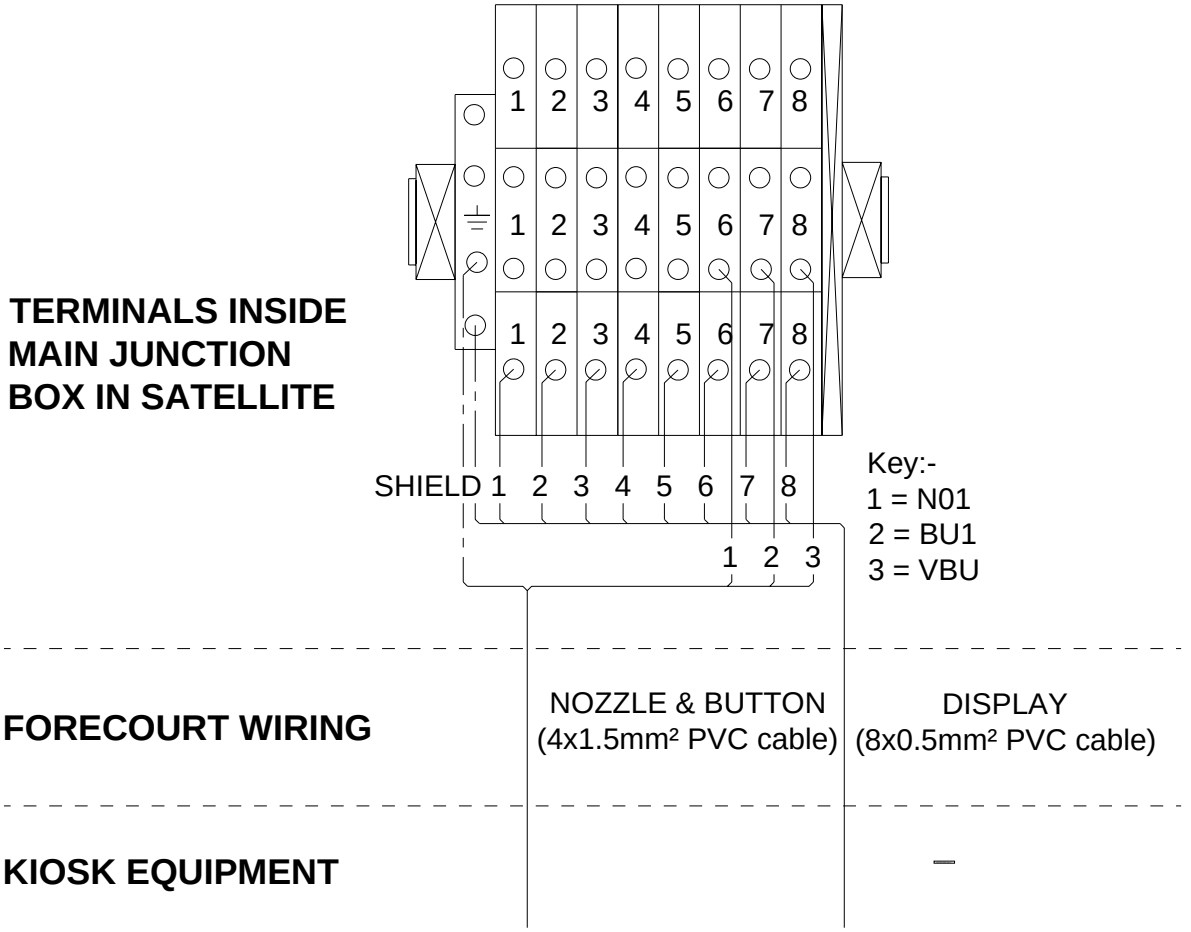
Master for Satellite



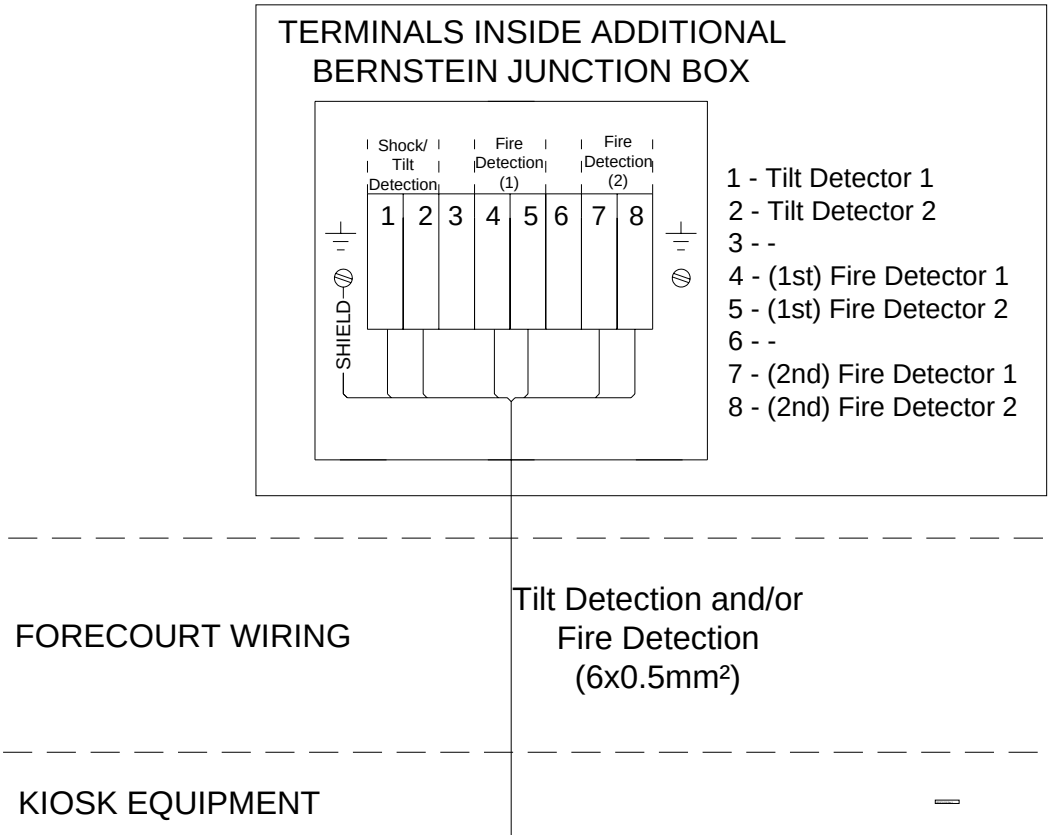
Master for Mini Satellite



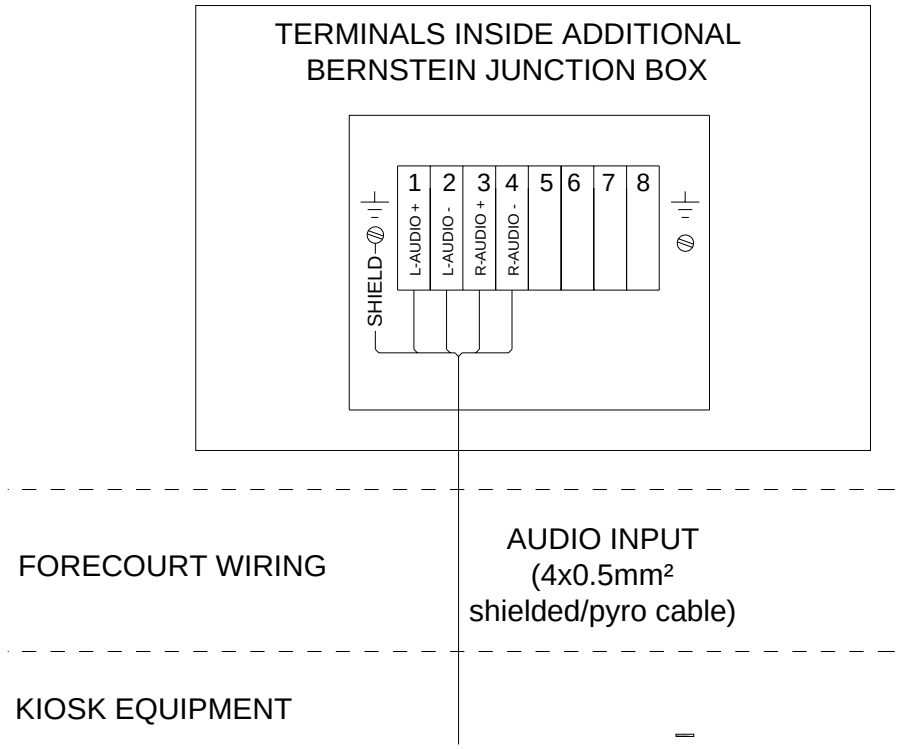
Satellite


TERMINALS INSIDE
MAIN JUNCTION
BOX IN SATELLITE
1 2 3 4 5 6 7 8
1 2 3 4 5 6 7 8
1 2 3 4 5 6 7 8
SHIELD 1 2 3 4 5 6 7 8
1 2 3
Key:-
1 = N01
2 = BU1
3 = VBU
FORECOURT WIRING
NOZZLE & BUTTON
(4x1.5mm² PVC cable)
DISPLAY
(8x0.5mm² PVC cable)
KIOSK EQUIPMENT

Fire & Tilt Detection (in additional Junction Box)



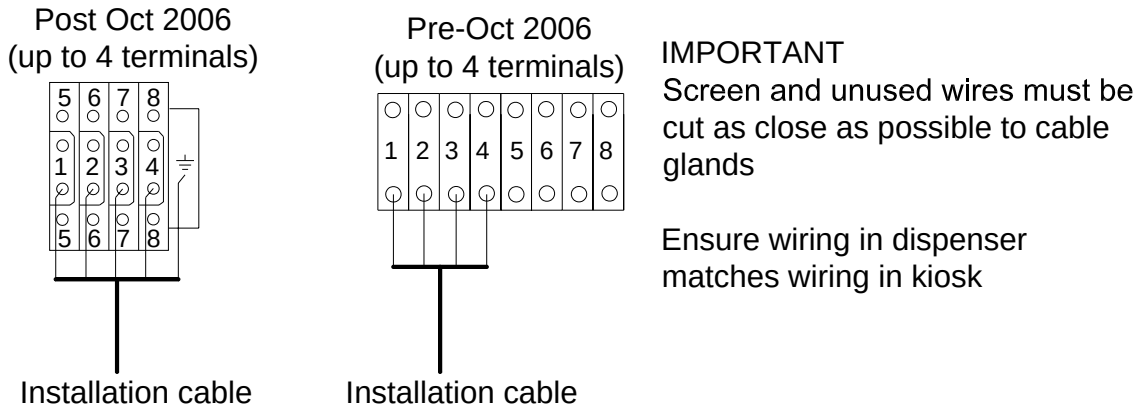
Audio Option (in additional Junction Box)

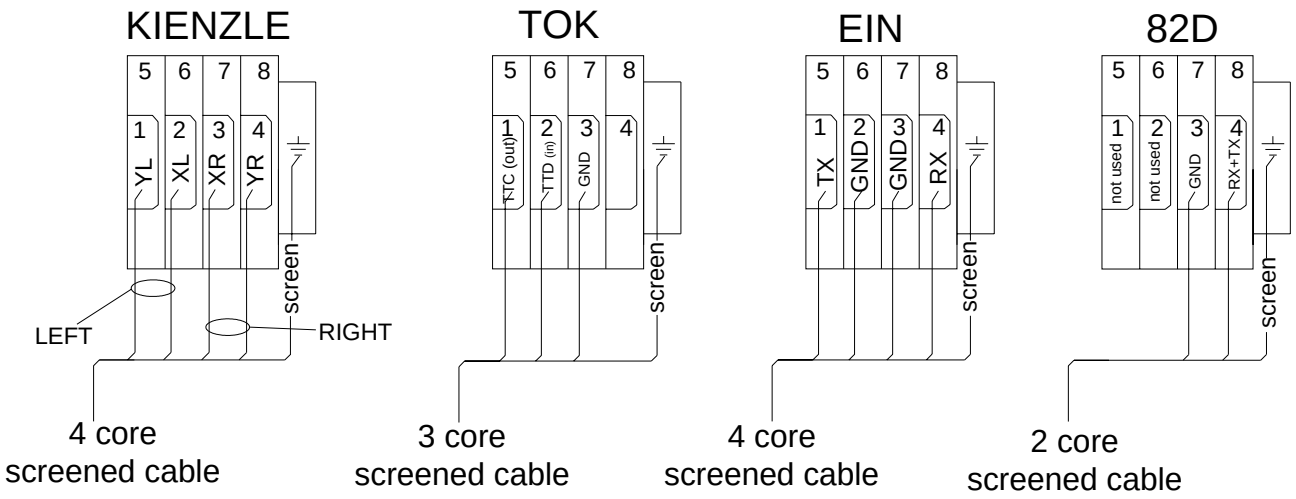


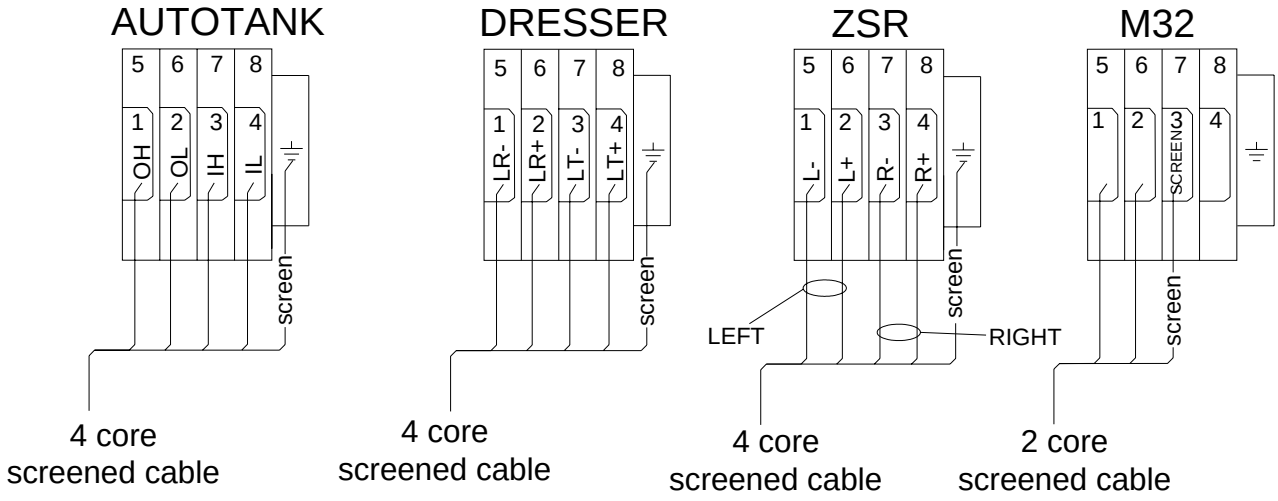
5.6.2 COMMUNICATIONS WIRING IN MAIN JUNCTION BOX

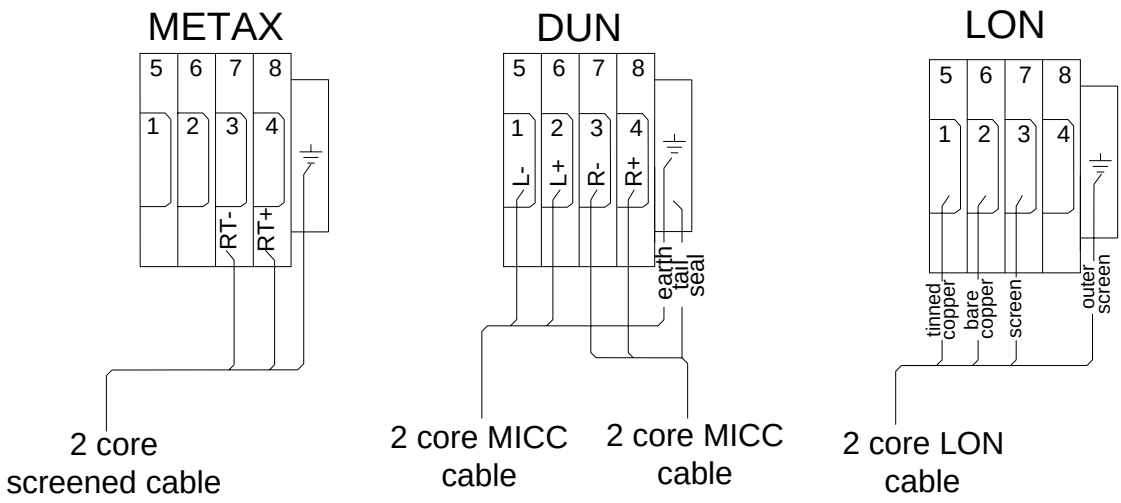
Communications wiring in the main junction box will vary according to the different communication protocols.

UP TO FOUR TERMINAL COMMS

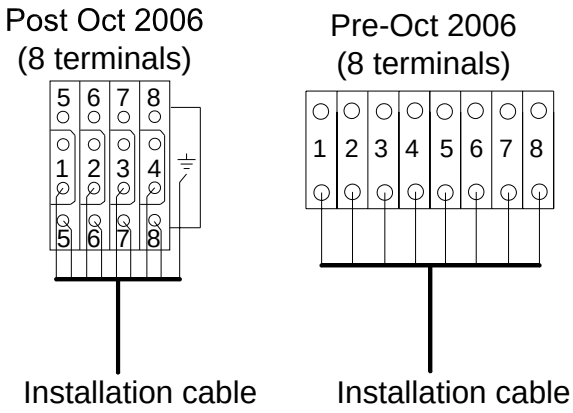






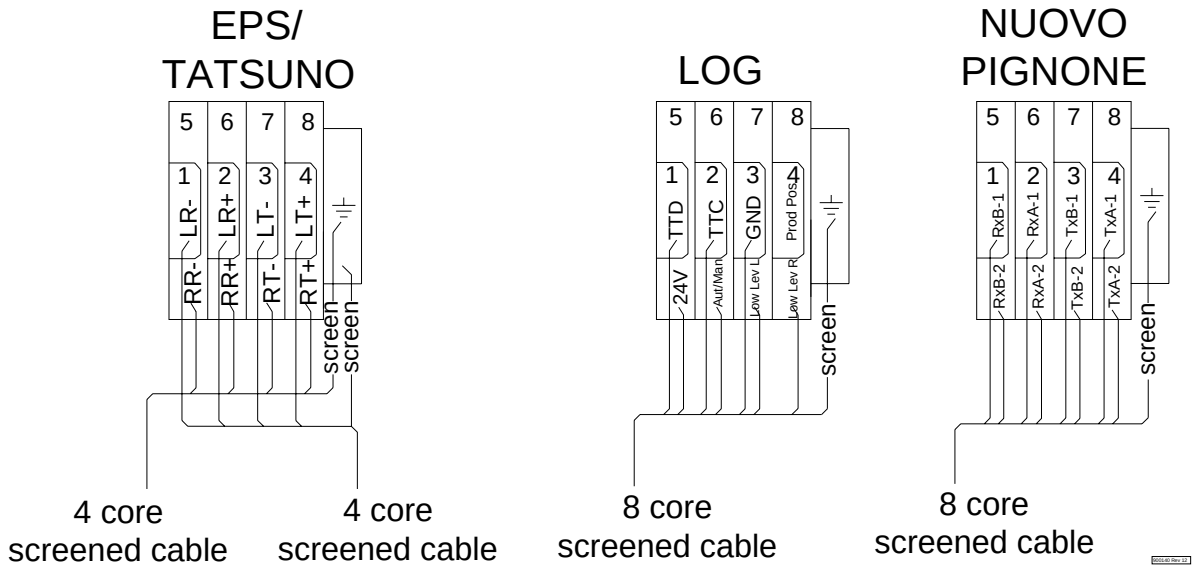


EIGHT TERMINAL COMMS

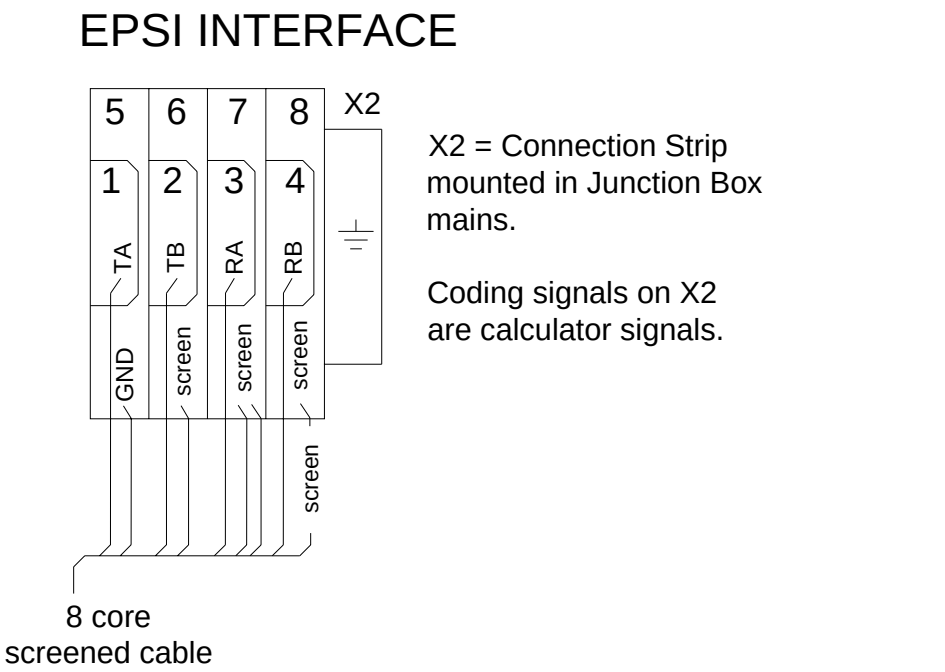


IMPORTANT
Screen and unused wires must be cut as close as possible to cable glands

Ensure wiring in dispenser matches wiring in kiosk

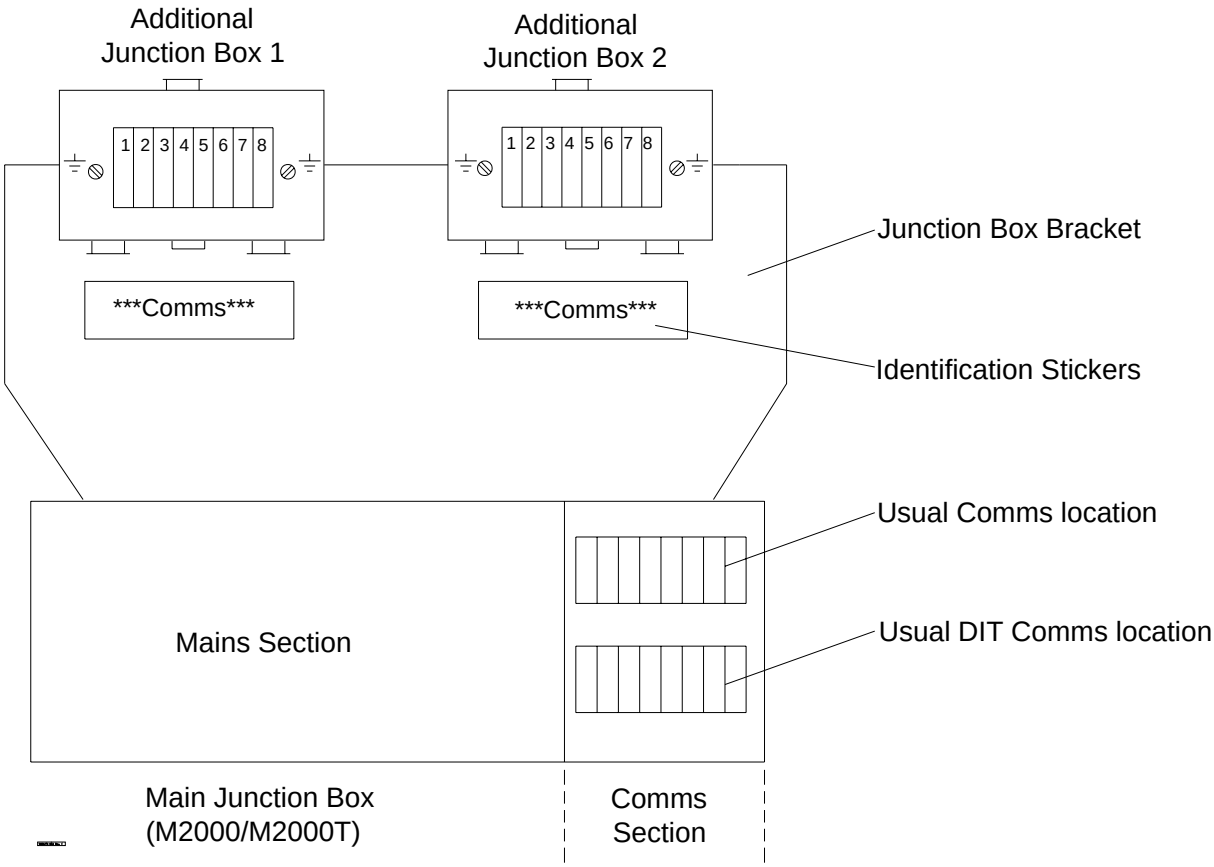


EPSI INTERFACE



5.6.3 SPECIAL DISPENSER CONFIGURATIONS

With certain combinations of options, additional junction boxes may be required.



- Audio option - if the dispenser is fitted with speakers then the audio connections are always housed in Junction Box 1.
- Shock Detection option - if the dispenser is fitted with shock detection then the unit is housed in the Comms section of the Main Junction Box and the dispenser communications are housed as follows:-

Option Combination	Main Junction Box	Additional Junction Box 1	Additional Junction Box 2
Fire/Tilt Detection, non-EPS Comms & DIT	Fire/Tilt Detection, non-EPS Comms & DIT	None	None
Fire/Tilt Detection, EPS Comms & DIT	Fire/Tilt Detection & EPS Comms	DIT Comms	None
Fire/Tilt Detection, EPS Comms, DIT & Audio	Fire/Tilt Detection & EPS Comms	Audio	DIT Comms

- High Speed Single Phase Motors - if the dispenser is fitted with high speed single phase motors then the motor capacitors are housed in the Comms section of the Main Junction Box and the dispenser communications are housed as follows:-

Option Combination	Main Junction Box	Additional Junction Box 1	Additional Junction Box 2
High Speed 1ph motor	Motor Capacitors	Dispenser Comms	None
High Speed 1ph motor & DIT	Motor Capacitors	Dispenser Comms	DIT Comms
High Speed 1ph motor & Audio	Motor Capacitors	Audio	Dispenser Comms
High Speed 1ph motor, DIT & Audio	Not an option	Not an option	Not an option

5.6.4 MEDIA HEAD CONFIGURATION

Refer to separate Technical Manuals for Crypto VGA and Vidium as required.

Note : The information in this section relates to Tokheim's recommended installation but differences may exist in the standards relating to installation in different countries and local regions, in which case the local and/or national standards must be employed.

Prior to the Crypto VGA and/or Vidium unit being connected, the appropriate video and audio source(s) must be made available within the kiosk. The communication cables from the kiosk typically consist of one Cat 5 ethernet cable per dispenser for Crypto VGA and one Cat 5 ethernet cable per dispenser for Vidium *(Note : "event-driven" Vidium would require one Cat 5 cable per side).* These cables should be routed through the dispenser using the designated glands.

Routing of all communication cables should be completed prior to commencing the unit installation.

CRYPTO VGA

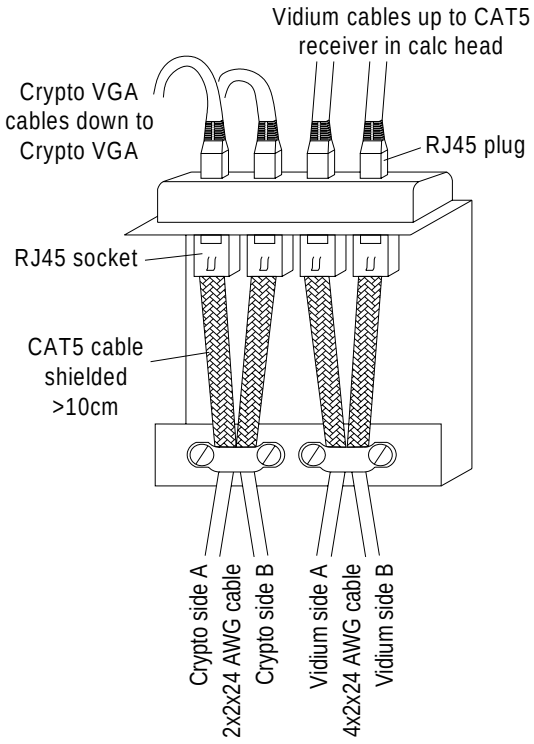
Tokheim recommends the use of an oil resistant certified PUR Cat 5 ethernet installation cable terminated with an RJ45 connector and cable 904094-001 to connect to the Crypto VGA processor.

VIDIUM MULTIMEDIA

Tokheim recommends the use of an oil resistant certified PUR Cat 5 ethernet installation cable terminated with an RJ45 connector and cable 904094-002 to connect to the Vidium Cat 5 Receiver.

TQC-VGA MULTIMEDIA

Tokheim recommends the use of an oil resistant certified PUR Cat 5 ethernet installation cable terminated with an RJ45 connector and cable 904094-002 to connect to the Vidium Cat 5 Receiver.



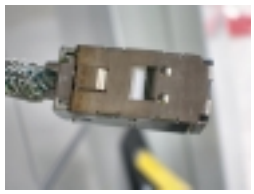
5.6.5 MEDIA HEAD CONNECTIONS

Follow the instructions in section 4.7 to gain access to the cable glands. To connect the the Crypto VGA and/or Vidium:-

INSTRUCTIONS

1) When the recommended Cat 5 ethernet installation cable is used, feed the cable (commonly coloured blue/green) up through the cable glands and into the calculator head.

   IMPORTANT : Keep cable taut to avoid any "antenna" effect.

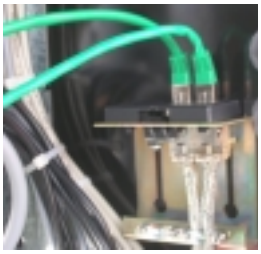


2) Locate the bracket for the Crypto VGA/Vidium connections.

3) Fit a suitable RJ45 connector to the end of the installation cable.

   IMPORTANT : Ensure that the braided shield is stripped down well (at least 10cm).

4) Connect the Crypto VGA and/or Vidium RJ45 socket(s) to the bracket.



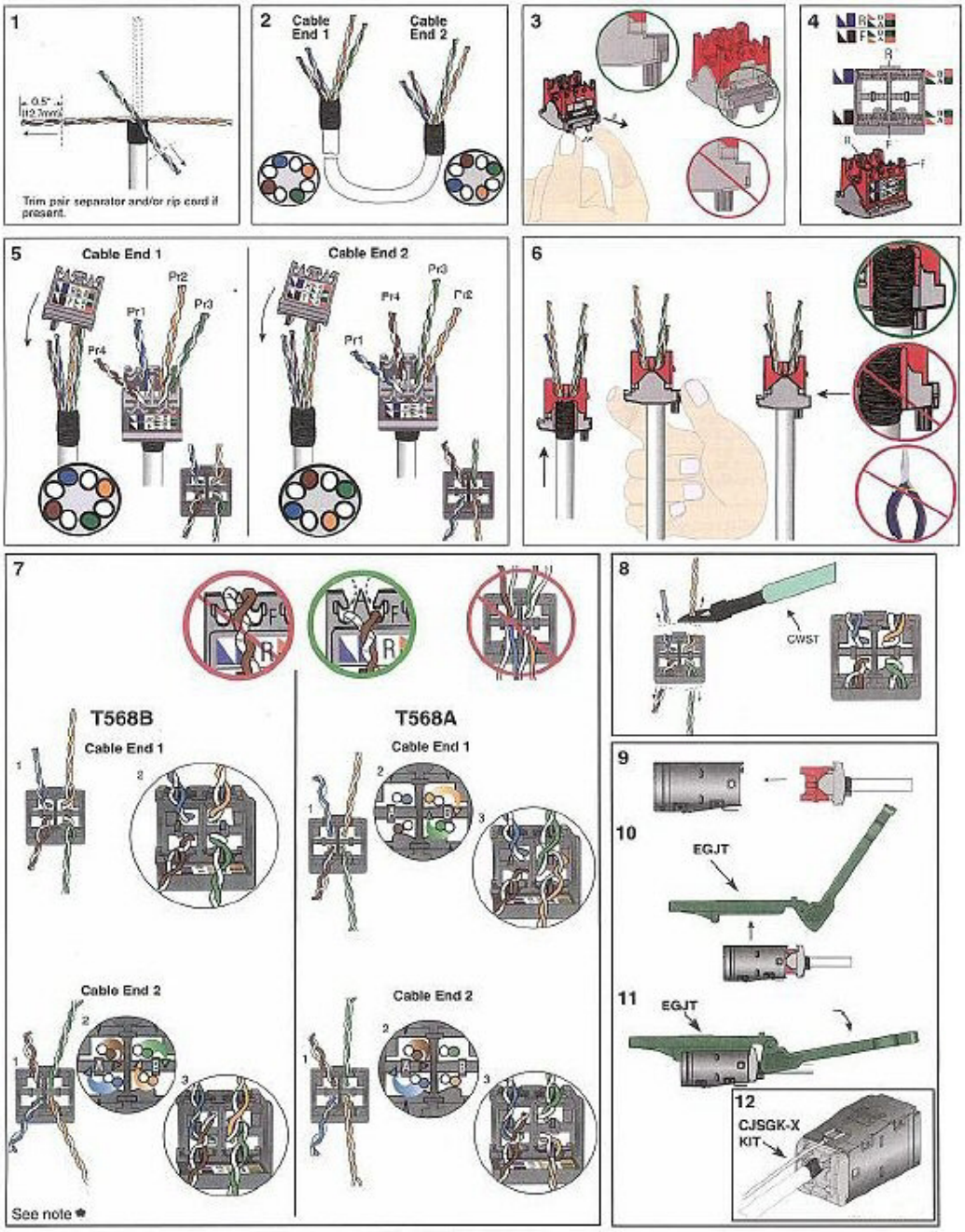
5) Connect the RJ45 plug for the Crypto VGA processor to the RJ45 socket on the installation cable.

6) Program the Crypto as required - refer to separate Crypto VGA User Manual.

7) Where applicable, refer to separate Vidium Manual to test the operation of the Vidium.

   Note : Alternatively 4 core telephone cable can be used across the forecourt in conjunction with a modem interface to the Crypto VGA and a modem at the Fuel POS.

5.6.6 PANDUIT CONNECTOR INSTRUCTIONS



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CONTENTS

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 Testing 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 PROGRAMMING THE DISPENSER

Refer to separate WWC T1 User Manual for more detailed information.

- 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 TESTING THE DISPENSER

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

- Test the flow rates (litres/minute) - refer to the WWC Calculator Manual for more detailed information.

  Note : Flow rates will vary depending on site conditions, and should be adjusted accordingly using the pump bypass.

  For VR nozzles, set the flow rate between 36 and 40 LPM.

- 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.

If requested by the site owner, a calibration check could be performed as part of the commissioning procedure.

If the calibration is outwith legal tolerances, the factory MID verification would be invalidated. The meter should be adjusted by the commissioning engineer (under factory approval) before the dispenser becomes operational.

6.2.1 MECHANICAL CALIBRATION OF THE METER

- Carefully remove the W&M seal on the meter.
- Use a TX30 bit to remove the hexalobular screw on the plastic protective cover on the meter.
- Use a 10mm spanner to calibrate the piston meter by turning **BOTH** adjustment screws.

Note : If the error is greater than 0.05% then balance the error by adjusting both screws equally.

- 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.

Note : each "click" per adjustment screw corresponds to approximately 0.05% or 10ml.

- Re-test the dispenser until calibration is within acceptable tolerance levels.
- Replace the W&M seals to the adjusted meter.

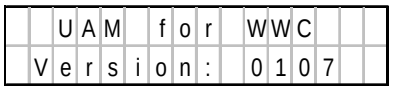
6.2.2 ELECTRONIC CALIBRATION OF THE MPE PULSER

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

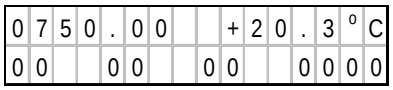
IMPORTANT - To perform EC, the EC function must be turned ON and the TC function must be switched OFF.

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

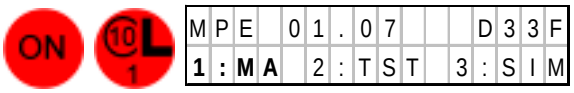
INITIAL SET UP



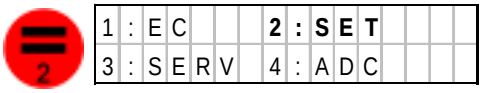
The first screen is displayed for a few seconds. Check the software version is 01.07 or higher.



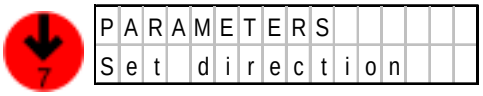
The UAK checks for connected devices then alternately flashes between two delivery messages (displaying raw volume, EC volume, TC volume and density, temperature, hose expansion time, value, suppressed and flow rate).



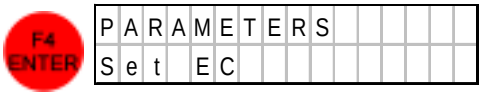
Press ON to start configuration.
A choice of menus is displayed. Press 1 to enter MAINTENANCE menu.



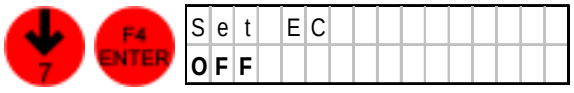
Press 2 to enter SET menu to allow entry of the EC/ TC parameters.



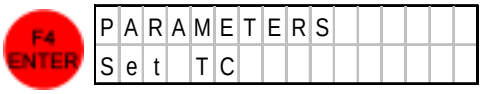
The first parameter, DIRECTION, will set the direction of the rotation for the meters. This is preset in the factory. Press 7 to skip to next function.



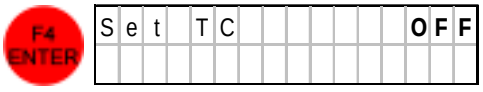
The next parameter, EC, will turn the EC function on or off. Press F4 to enter EC sub menu.



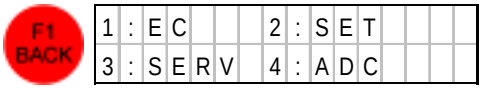
Default OFF is displayed. Press 7 to change to ON. Press F4 to save and continue.



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



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



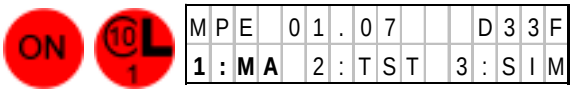
Press F1 to return to MAINTENANCE menu.

TEST FILLING PROCEDURE

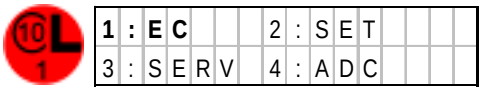
- Do a test filling at maximum flow rate into a W&M calibrated container.
- Stop the delivery manually when the exact nominal volume of the can is displayed on the calculator display.
- Check the volume on the gauge on the calibrated container.
- If the difference between the container volume and the 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

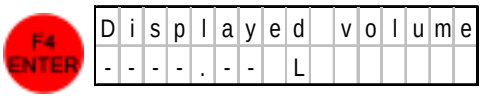
Perform a test filling as described above.



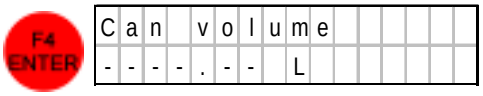
Press ON to start configuration. A choice of menus will be displayed. Press 1 to enter MAINTENANCE menu.



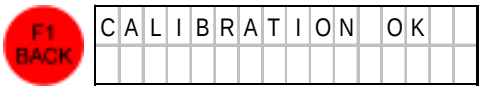
Press 1 to enter EC menu.



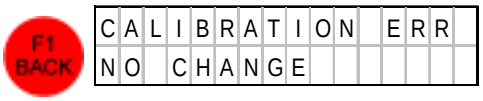
Read the volume displayed on the calculator and enter into the UAK using the numeric keys. Press F4 to save and continue.



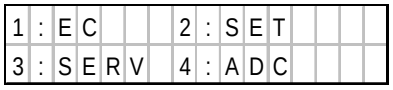
Read the volume displayed on the calibrated container and enter into the UAK using the numeric keys. Press F4 to save and continue.



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.



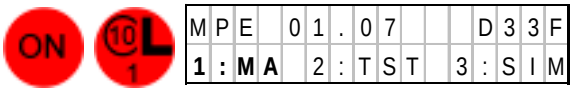
If the difference is outwith the acceptable limit then CALIBRATION ERR is displayed. Manual calibration of the meter should then be performed before attempting electronic calibratation again.



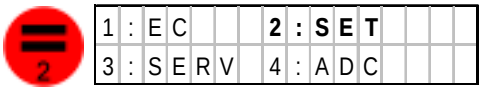
Press F1 to return to MAINTENANCE menu.

6.2.3 TEMPERATURE COMPENSATION FUNCTION

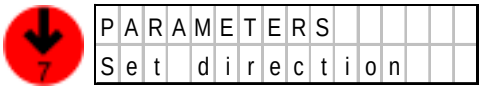
Refer to separate MPE Pulser Manual for more detailed information. To set the temperature compensation (TC) function:-



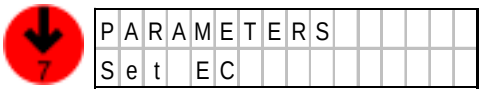
Press ON to start configuration.
A choice of menus will be displayed.
Press 1 to enter MAINTENANCE menu.



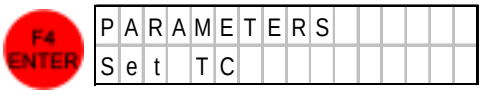
Press 2 to enter SET UP menu.



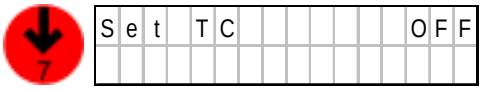
The first parameter, DIRECTION, is displayed. Press 7 to skip to next function.



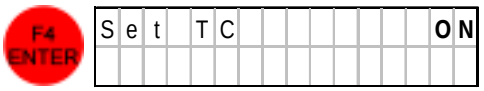
The next parameter, EC, is displayed. Press 7 to skip to next function.



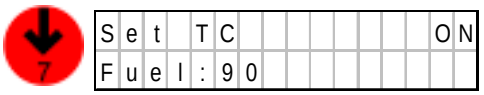
The next parameter, TC, is displayed. Press F4 to enter TC sub menu.



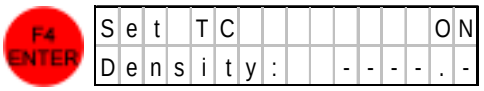
Default OFF is displayed. Press 7 to change to ON. **IMPORTANT : TC must be OFF if EC is to be performed.**



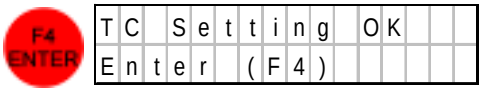
Press F4 to save and continue.



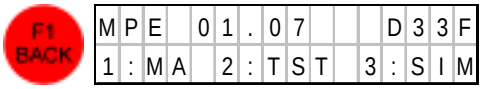
Press 7 to scroll through fuel density options:-
90 = unleaded 90 (750kg/m^3)
95 = unleaded 95 (750kg/m^3)
98 = unleaded 98 (755kg/m^3)
D iesel = diesel (833kg/m^3)
LPG = LPG (537kg/m^3)



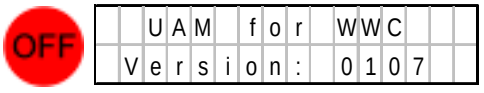
Or enter density value for different fuel type using the numeric keys. Press F4 to save and continue.



Press F4 to continue.



Press F1 several times until the main menu is displayed.

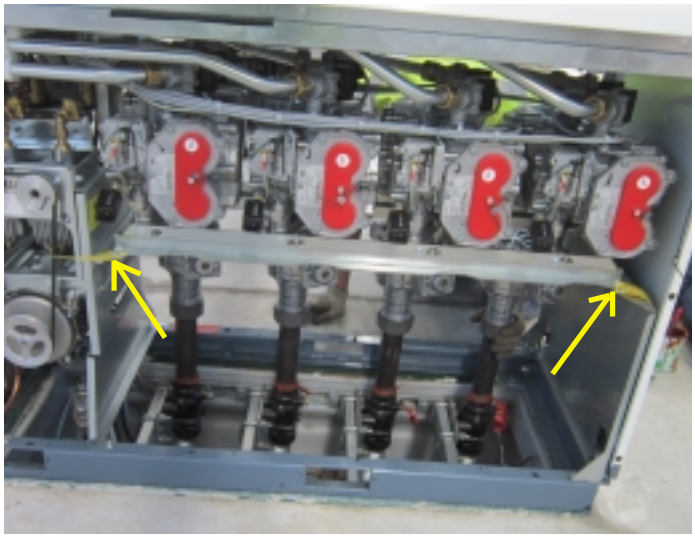


Press OFF to disable the UAK and allow it to be disconnected safely.

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.

Note : Submerged Dispensers: ***Always remove the 4 transport bolts after commissioning.***



6.4 Handing over to the Station Manager

Explain to the Station Manager the working of the dispenser(s) and 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.

GLOSSARY OF TERMS USED IN THIS MANUAL

DIT : DISPENSER INTEGRATED TERMINALS
HBEF : HIGH BLEND ETHANOL FUELS
HOM : HYDRAULIC OPTION MODULE
HS / LS : HIGH SPEED / LOW SPEED
HSM : HIGH SPEED MASTER
MICC : MINERAL INSULATED COPPER CLAD CABLE
MPE-EC : ENHANCED PULSER METER, ELECTRONIC CALIBRATION
MPE-TC : ENHANCED PULSER METER, TEMPERATURE CALIBRATION
OPT : OUTDOOR PAYMENT TERMINALS
POS : POINT OF SALE
TQM : TOKHEIM QUALITY METER
TQP-HS : TOKHEIM QUALITY PUMP - HIGH SPEED
TQP-RS : TOKHEIM QUALITY PUMP - REGULAR SPEED
UAK : USER ACCESS KEYPAD
VHS : VERY HIGH SPEED
VHSM : VERY HIGH SPEED MASTER
VR : VAPOUR RECOVERY
W&M : WEIGHTS AND MEASURES
WWC : WORLD WIDE CALCULATOR

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