OPERATIONS MANUAL

Commissioning, Operating & Maintenance Guidelines

BLOC, GRANDE, HEDRA
AND FIREGUARD®
DOUBLE-WALLED TANKS

UNITY
FUEL SOLUTIONS

BETTER FUEL LOGISTICS. TOGETHER.

VERSION 4.0 | 06 / 2025

Customer:	
Tank Size:	
Tank ID Number:	
Dispatch Date:	

UNITY FUEL PRODUCTS ARE **BACKED BY CONFIDENCE**

Unity Fuel Solutions Inc. (UFS) warrant any structural component on all double walled tanks manuafctured, sold and distributed by UFS or an authorised reseller for the duration of 10 years after the date of sale. All other components of the tanks are warranted for 24 months after the date of sale. Any claim made for warranty must be inspected and reviewed by an authorized representative of UFS, before any claim will be processed. Final approval of the claim is to be given by an executive member from within Unity Fuel Solutions Inc.

Signed:

Date:

OPERATIONS MANUAL: BLOC AND GRANDE DOUBLE WALLED TANKS			**Documentation: UFS-OMM**
Amendments	**Details**	**Date**	**Signature / Intials**
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SECTION 1 - OVERVIEW

Introduction

To obtain the most from your purchase, please read this manual thoroughly before installing or filling your Unity storage tank.

Unity Fuel Solutions Inc. (UFS) is a manufacturer and supplier of portable, double walled, hydrocarbon storage tanks along with a range of dispensing equipment options. Storage solutions include UL142, ULC601, UN approved, UL2085, ULC655, JIG4 (aviation) approved, and more.

The UFS range of tanks is designed around ISO dimensional requirements of shipping containers. Portability is the key design feature of all Unity tanks, so they can be easily and economically transported by rail, road or sea.

The design of the UFS range of tanks includes double wall tanks that can be situated onsite, within nominated separation distances and without the need for an external dyke to be constructed. The responsibility to check with all local codes, guidelines and regulations still falls on the party utilizing the UFS product. In the event an issue arises from a product, Unity shall provide documentation and support of all approvals and solutions, but is absolved from any responsibility further from the point of sale.

For up-to-date information regarding Unity Fuel Solutions products, please refer to our website:

www.unityfuel.com

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General Information

UFS Tanks are of double walled and do not require a separate spill containment dyke, designed in accordance with the ISO dimensional requirements for shipping containers for ease of transport and handling. Portability is the key design feature of all UFS tanks.

The main features are:

- Tanks are designed and manufactured in compliance with UL142, ULC601, UL2085 and ULC655. Tanks are suitable for Flammable and Combustible Liquids. All required ventilation is provided with every tank delivered. Purchasers accept the responsibility of checking with local government authority having jurisdiction (AHJ) if further measures are required for ventilation.
- The tanks are made up of an internal fuel storage tank (rectangular design), this internal tank is surrounded by an external tank (or skin) providing the double walled, self-bunded functionality of the design.
- All tanks are designed with a domed or convex roof and raised edges on the manway access points to prevent water ingress and pooling.
- Venting is fitted to the primary and secondary compartment as per NFPA 30, UL, ULC requirements.
- Provisions have been made for relief of any pressure in the interstitial space.
- The tank fill point is located on the front of the tank. There is a fill pipe riser that runs up to above the maximum liquid level. This arrangement ensures a no splash-filling environment. A containment sump/dyke area is provided for any overflow at the fill point.
- An overflow protection valve is installed in the fill pipe of the tank and calibrated to prevent the tank from being filled more than 95% of its capacity. (GRANDE models only). Regardless of model, by industry practice there is to be an attendant present during the ENTIRE filling process to ensure the chance of spill, or pressurized filling.
- Two dipsticks are provided with each tank, one for dipping the main (product) compartment, the other is provided to monitor the interstitial space between the inner and outer wall for leakage.
- The high flow dispensing connection on the GRANDE tanks is provided with internal anti syphon protection.
- A permanent ladder and platform are provided for ease of access for tank inspection and maintenance. This ladder is collapsed into the side of the tank for transportation purposes only to remain within the designated ISO container footprint (GRANDE model only).
- A filter can be fitted to the vent pipe to assist with the prevention of ingress of dust, water or humidity into the main containment area, therefore preventing the possible contamination of product stored. Ask your distributor about options.

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SECTION 2 – NORTH AMERICAN STANDARDS

State/Territory/Local Government Requirements

Before commissioning or filling any UFS product- it is the end user's responsibility to check with all state, territory and local government codes in the authority having jurisdiction (AHJ). Some states require a license or registration to store and/or sell fuel. Please ensure to check with your state/territory or local government authority having jurisdiction (AHJ). UFS shall provide any required BASIC drawings or consultative support to aid in acquiring the appropriate paperwork for commission of product.

Environmental Heritage and Protection Requirements

In some states or territories, the Environmental Heritage and Protection Authority may require licensing and/or approval of bulk fuel or lubricants storages and may require the installation of water run off protection devices. Please check with your individual state/territory's DERM office for specific requirements.

Compliance to NFPA30, UL142, ULC601 & the National Fire Code of Canada

NFPA30/UL142/ULC601/NFCC – These documents address the storage and handling of flammable and combustible liquids and set the North American standard defining the design, operation and maintenance of flammable and combustible liquid storages. The United Nations' Recommendation on the Transport of Dangerous Goods is the globally recognized standard for the transportation of Intermediate Bulk Containers (IBC) while full (Bloc 1000-6000).

Any installation must conform to state/territory or local government authority having jurisdiction (AHJ), which takes precedence.

However, where state/territory or local government authority requirements are lacking or unclear, NFPA30/UL142 should be used to define installation requirements. Note separation and clearance requirements should be adhered to. Should UL2085 or ULC655 be required, Unity is able to provide the requested product to adhere to these guidelines.

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SECTION 3 – LIFTING, UNLOADING AND PLACEMENT OF TANKS

Tanks are supplied with crane lifting points located at the top for Bloc/Hedra Tanks and top/bottom for containerised tanks. Note: Containerised tanks have shipping container twist-lock points- these are to be used to secure the tanks in place whether on site or the transportation vessel.

IMPORTANT NOTES:

- BLOC 1000 to 8000 must be lifted as per certification. Ask your local Unity representative for a copy.
- Only competent persons with suitable and certified lifting equipment should be used to carry out any tank unloading or lifting.
- BLOC Tanks can be mounted to vehicles if required. It is recommended to have a flexible style mounting to allow for vehicle movements. Please consult with a structural engineer for further advice.

Approximate EMPTY tank weights are listed below for reference:

BLOC RANGE

MODEL	SFL (US Gallons)	CAPACITY (US Gallons)	LENGTH (IN)	WIDTH (IN)	HEIGHT (IN)	TARE WEIGHT (LBS)	BAFFLED
BLOC 1000	264	306	73.39	43.31	51.54	1,953	YES
BLOC 2000	499	528	89.53	54.88	51.54	2,450	YES
BLOC 2500	660	709	89.53	65.91	51.54	2,874	YES
BLOC 4500	1,189	1,268	109.21	89.53	51.54	4,016	YES
BLOC 6000	1,585	1,638	140.71	89.53	51.54	4,889	YES
BLOC 8000	2,113	2,224	191.89	89.53	51.54	6,123	YES
BLOC 10000	2,641	2,905	238.51	96	50.99	9,810	YES
BLOC 13000	3,434	3,540	238.51	96	54.91	9,810	YES

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HEDRA RANGE

MODEL	SFL (US Gallons)	CAPACITY (US Gallons)	LENGTH (IN)	WIDTH (IN)	HEIGHT (IN)	TARE WEIGHT (LBS)	BAFFLED
HEDRA 1000	276	290	54.09	42.76	50	1,448	YES
HEDRA 2000	541	570	90.31	42.76	50	2,197	YES
HEDRA 3000	805	853	90.31	60.86	50	2,668	YES
HEDRA 4000	1,122	1,175	90.31	82.04	50	3,225	YES
HEDRA 5000	1,360	1,431	98.27	90.31	50	3,645	YES
HEDRA 6000	1,632	1,717	116.77	90.31	50	4,134	YES
HEDRA 8000	2,179	2,298	154.17	90.31	50	5,309	YES
HEDRA 10000	2,734	2,879	191.61	90.31	50	6,142	YES

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GRANDE RANGE

MODEL	CAPACITY (US Gallons)	SFL (US Gallons)	LENGTH (IN)	WIDTH (IN)	HEIGHT (IN)	TARE WEIGHT (LBS)	PUMP BAY
Grande 16	4,111	4,623	158	96	114	13,625	Yes
Grande 20 (NPB)	4,465	4,700	118	96	114	11,039	No
Grande 23 (NPB)	5,944	6,261	158	96	114	13,933	No
Grande 30	7,753	8,163	239	96	114	17,593	Yes
Grande 38 (NPB)	9,315	9,806	239	96	114	17,637	No
Grande 40 (NPB)	11,624	12,258	239	96	138	20,283	No
Grande 45	11,941	12,575	480	96	102	27,007	Yes
Grande 55 (FL)	13,869	14,529	480	96	102	27,117	Yes
Grande 55	15,282	16,088	480	96	102	28,219	Yes
Grande 68	17,322	18,233	480	96	114	30,975	Yes
Grande 75 (NPB)	18,946	19,942	480	96	114	30,909	No
Grande 80	20,814	21,910	576	96	114	35,605	Yes
Grande 82	21,583	22,745	480	96	140	35,384	Yes
Grande 89 (NPB)	23,591	24,832	480	96	140	35,605	No
Grande 90 (NPB)	22,637	23,828	576	96	114	36,046	No
Grande 90	23,200	24,423	576	96	126	38,030	Yes
Grande 100 (NPB)	25,271	26,602	576	96	126	38,471	No
Grande 100	25,674	27,025	576	96	140	41,006	Yes
Grande 110 (NPB)	28,319	29,812	576	96	140	41,667	No
Grande 11	28,319	29,812	624	96	140	44,296	Yes

NOTE: Grande Tanks are supplied with pump bay by default. Tanks with no pump bay (NPB) will be annotated diferently. (NPB) denotes 'No Pump Bay' supplied with tank.

**GRANDE 55 (FL) Flammable liquid storage tank. Max. capacity shall not exceed 55,000 L.*

Grande Aviation & Fireguard Tanks Dimensions are provided upon request.

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Mounting of the Tank

All fuel and lubricant storage installations are required to be located and installed in accordance with local regulations and adhere to any regulations set by the CFR49 and NFPA — in particular NFPA30 the Flammable and Combustible Liquids Code.

The tanks must be installed on a compact, flat level area. The site must have adequate drainage and withstand the capacity of the weight of the tanks (including total safe fill of product) and associated equipment.

Tank Foundation Slab

It is important that the tank be placed on a level, stable base. Clients should determine their own requirements based on local conditions.

NOTE. A Unity Fuel Solutions 'Tank Slab Foundation Guide' is available on request to assist with site preparations.

Tank Protection

The installed tank must be protected from vehicular collision by adequate barriers or bollards. UFS is able to provide solutions to aid in the placement, siting, and commissioning of all products to ensure a safe operating environment.

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Electrical and Earthing

The tank should be connected to the site electrical system (when required) by a suitably qualified Electrician using only adequately rated components to individual State/Territory requirement and in accordance with North American standards and regulations.

It is recommended that UFS Tanks be correctly earthed as per specific requirements for product stored. For Example : CFR-SS 229.83: requires all tanks containing flammable liquids to have lightning protection, earthing requirements when connected to live circuits or genset power, or when storing class 1 liquids. Check with local qualified Electrican for confirmation.

An earth lug is located on all Unity tanks.

When the product receipt or load out is to occur at night, a suitable lighting system should ideally be utilised.

Water Testing

Double walled tanks are not immune to water ingress or condensation. UFS tanks recommends weekly water dips. For compatible fuels, UFS recommends using water finding pastes. Please refer to UFS' Water Dipping and Removal Procedure.

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SECTION 4 - INSTALLATION REQUIREMENTS

Installing Tank Vents

All UFS Grande Tanks come standard with 6” to 10” Emergency Vents (EV) with one for the primary tank and the other for the secondary containment. EV’s are supplied lose for transport and are required to be fitted prior to the tanks first fill.

Please see the diagram below which shows each correct port to install both units.

Figure 1: Emergency vents

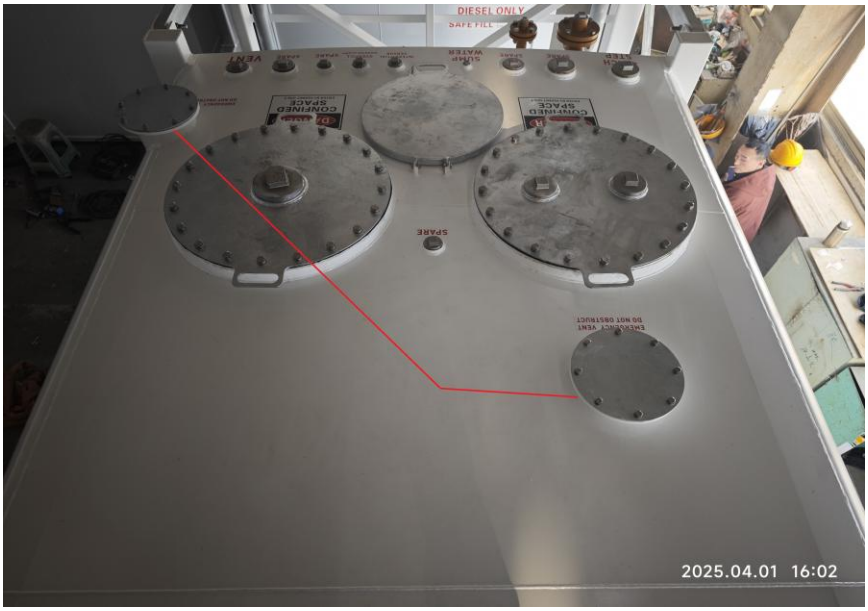

Figure 2: Emergency vent locations

The tank updraft vent (or multiple vents for a multi compartment unit) should be fitted as soon as possible after delivery of the tank, **but in any case, it is essential** that the updraft vent(s) be fitted prior to the first delivery of product into the tank unit. The tanks shall vent freely to the atmosphere, <u>all UFS products are NOT designed as pressure vessels.</u>

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Figure 3: Updraft Vent

The updraft vent supplied with the tank will generally be secured in the front bunded pump bay area screwed into a spare 2” or 3” NPT female housing.

Galvanised vent pipe and updraft vent inside pump bay

Figure 4: Grande Pump Bay

Main tank vent

The vent with vent stack should be screwed into the 2” or 3” NPT female housing, located on top of the tank, marked ‘VENT’.

Thread tape or other suitable thread sealant should be used when mounting the air vent to the tank unit.

Be cautious of utilizing thread lock for temporary applications. UFS is exempt of fault should damage occur after using thread lock style products on any NPT threading.

Figure 3: Top of Grande tank

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Tank Inlet or Fill

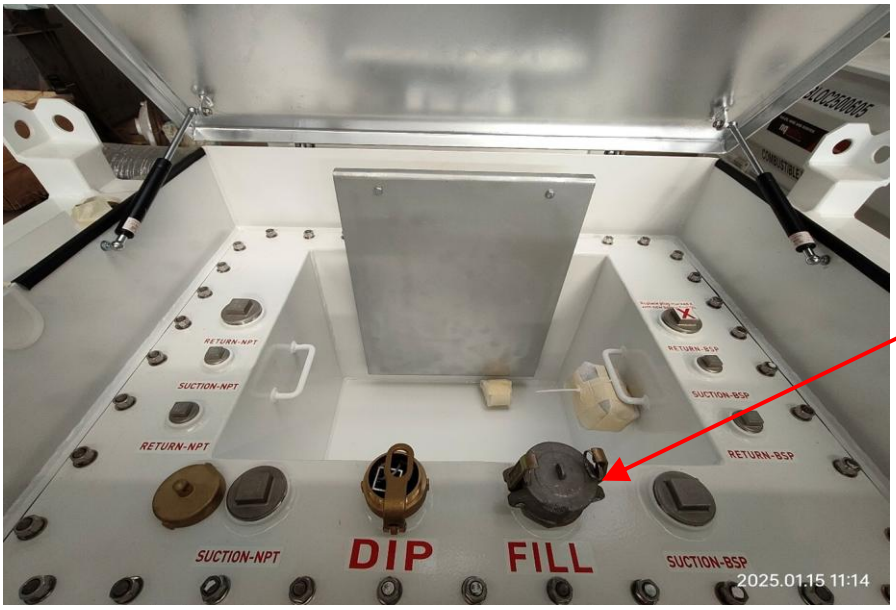
The standard UFS fill fitting is a 1.5” and/or 3” on GRANDE & FIREGUARD (FGT) and 2” on BLOC, HEDRA & FGC with male camlock fitting located at the front of the tank, or on the right hand side (GRANDE & FIREGUARD). (Note that some tanks may be configured differently to suit customer requirements).

Some UFS tanks are set up with a tanker unloading pump, whereas others utilise the delivery truck‘s pump.

In either case, the tank inlet pipework should include a check (one-way) valve to prevent any backflow on completion of delivery and a fire safe flanged isolation valve (Grande & Fireguard (FGT) Models only).

All UFS Grande and Fireguard (FGT) tanks include an internal overfill protection float valve on the tank inlet line which will limit the flow into the tank in the event that the tank level increases to more than 95% of the tank‘s safe fill capacity.

Figure 4: 3” Grande Fill Point



2” fill point, Bloc Tank

Figure 5: 2" Bloc Fill Point

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Tank Outlet: Priming and Dispensing

The Grande & Fireguard (FGT) Tanks main outlet is a 3” ANSI 150 flanged fitting located at the front of the tank, on the left hand side. Other spare ‘Suction’ ports are also installed including provisions for submersible turbines. (Note: some tanks may be configured differently to suit customer requirements). The Bloc, Hedra and Fireguard (FGC) Tanks main suctions outlets are located under the hatch with other spares located externally.

All UFS Grande and Fireguard (FGT) tanks include an anti-syphon valve (Foot valve) fitted internally on the tank outlet line, to prevent the contents of the tank from syphoning out should there be a leak or break in the outlet pipework or equipment. The valve relies on outlet pump suction to open it. These valves are located on the main 3” Suction line and 2” Suction line.

Priming: Various pumping arrangements are available depending on customer requirements. Some setups may require priming of the suction line. This is particularly required for the Grande and Fireguard (FGT) tank range. Where the pump system has been connected to the 3” suction outlet (Pictured) on a Grande Tank the line may need to be primed. The 3” pipe spool blanking flange on the top of the tank is to be removed (Pictured). Where possible it is recommended to fill the pump side of the pipe spool first. This way confirmation can be made that no leaks are found to the next Isolation point. Once confirmed continue to fill both spools to the top of the flange. Replace gasket and blanking flange. Ensure bolts are anti seized and tighten nuts in alternating fashion. The tank is now primed and ready for dispensing.

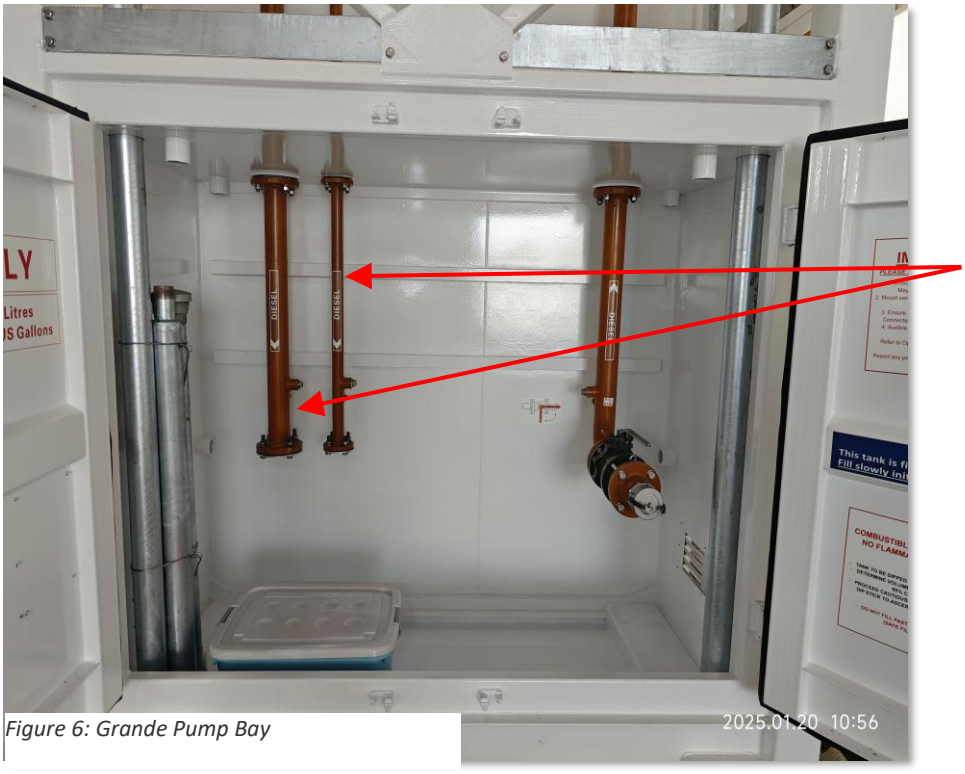

Figure 6: Grande Pump Bay

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Figure 7: 1.5" & 3" Priming Point (Brown pipework)

Note: The tank suction pipes are positioned to draw product from close to the bottom of the tank, but are designed to leave a quantity of product in the tank normally consisting of small amounts of sediment/water thus preventing it from being discharged from the normal outlet. When no further product can be pumped out of the tank, some product will remain. To completely empty a tank, utilise hose or suction spear through a "Spare" port on the tank. Tilt tank if possible towards this port.

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Hose Mast Assembly

Pending the fit out, each standard UFS GRANDE Tank includes dual hose high mast assemblies for prevention of fuel hoses dragging and dropping on the ground when refuelling. Hose mast systems include a mast top, stainless braded wire rope, and balancing weights with a mast top swivel pulley head.

NOTE. Due to transport regulations, high mast assemblies can only be fitted to the tank once on site. A step-by-step guide to install is available on the next page.

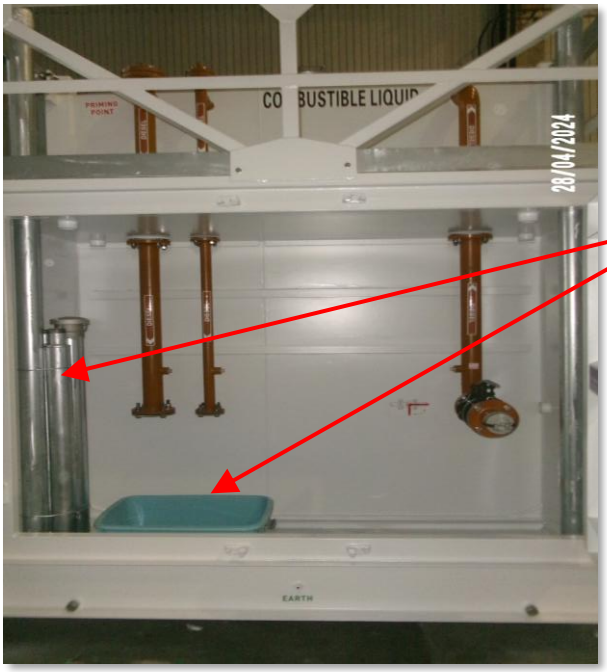

Figure 8: Grande Tank Pump Bay

Figure 9: High Mast Hose System Components

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Figure 10: High Mast set-up

Dual High Mast Hose Set-up:

1. Layout hose and measure it to ensure it will not touch the ground.
2. Fit hose to correct outlet on pump bay.
3. Unpack high mast kit supplied in pump bay, and unscrew 2” pipe from ceiling.
4. Connect two weights together using supplied bolts.
5. Feed the wire through the weights using the D shackle & tension it.
6. Cut the wire at 5-6m from the D shackle.
7. Fit the black 2” swivel/pulley to the lose 2” pipe.

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8. Holster the nozzle leaving the reminder on the hose loose on the ground.
9. Safely take remaining parts to the top of the pump bay.
10. Remove the red cap from the external 2” pipe.
11. Safely lower the weights into the external 2” pipe.
12. Thread the wire through the 2” loose pipe & swivel.
13. Secure the loose 2” pipe to the external pipe.
14. Roughly measure up the hose in relation to the hose bun, ensuring that it is at least 4” / 100mm off the ground. Note* when the hose is filled with fuel, it will drop further.
15. Secure the hose inside the bund.

UFS Recommends:

- ***Dual hose high mast set up*** is completed by two people to ensure it’s completed safely.
- All threads be secured using thread tape or sealant.

Monitoring of Interstitial Space

Unity Fuel Solution tanks have an interstitial space between the inner and outer tank wall. The interstitial space is the gap between the primary and secondary containment skins and is the unit’s inherent protection against leaks from the inner tank.

Should the contents of the primary containment leak into the secondary containment space, the tank will no longer be considered a self-contained tank, and rectification will be required to restore the integrity of the tank.

The interstitial space is monitored by using a dipstick to check for any sign of product.

If product is detected, it is likely that a leak has occurred in the internal tank and should be investigated immediately.

Figure 11: Interstitial port

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Electronic Overfill Protection

In addition to a mechanical overfill protection device, UFS Grande and Fireguard (FGT) tanks come with an electronic overfill protection/alarm system which will sound an alarm if the tank is fill past 95% of the tank‘s ultimate capacity. (For Setup on Bloc, Hedra and Fireguard (FGC) Ranges use Grande Setup, Step 8).

NOTE: The alarm does NOT shut off product delivery. Its sole purpose is to prompt the operator into action and shut off product delivery to prevent overfilling.

An internal battery powers the standard units. The unit should be tested monthly and the battery should be changed every 3 months.

Refer to high-level alarm installation specifications for more details.

Figure 12:Electronic Overfill Protection Alarm and Probe

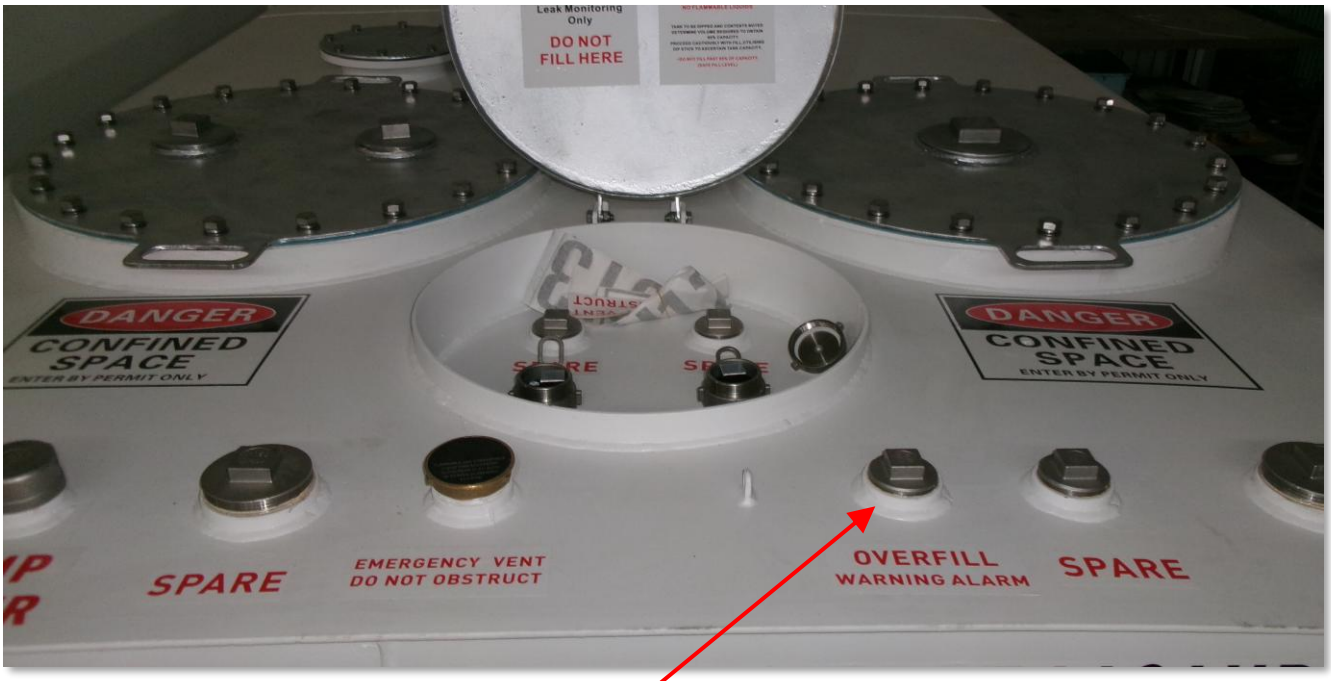

Figure 13: Top of Grande Tank

Port for ‘Electronic Overfill Protection Alarm’

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Tank Internal Fittings

NOTE: While the tanks are fitted with a manhole and access panels, the inside of the tank is considered a CONFINED SPACE. Under no circumstances should any person enter the tank without appropriate permits, isolations and training.

There are 2 types of valves installed inside the tanks.

- Hydraulic Overfill Protection

All UFS Grande/FGT tanks include an internal overfill protection valve on the tank inlet line which will limit the flow into the tank in the event that the tank level increases to more than 95% of the tank‘s safe fill capacity.

Should any problems be encountered with the overfill valve, contact UFS.

Figure 14: Hydraulic overfill protection valve

NOTE. The overfill valve is designed to prevent over-filling during product delivery but does not shut off supply from delivery truck. It should never be relied upon to prevent overfilling in a continuous feed situation, and should the line be pressurized during the filling process the deliverer is to be held responsible for relieving.

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- Anti-Syphon Valve

All UFS Grande/FGT tanks include an anti-syphon valve (or valves) fitted internally on the tank outlet line, to prevent the contents of the tank from syphoning out should there be a leak or break in the outlet pipework or equipment. The valve relies on outlet pump suction to open it.

Note: The anti-syphon valve is designed to protect against accidental syphoning of product in the event of a downstream equipment failure. It should not be used as the only or primary method of preventing product release from the tank. It should be used in conjunction with other manual or automated valves.

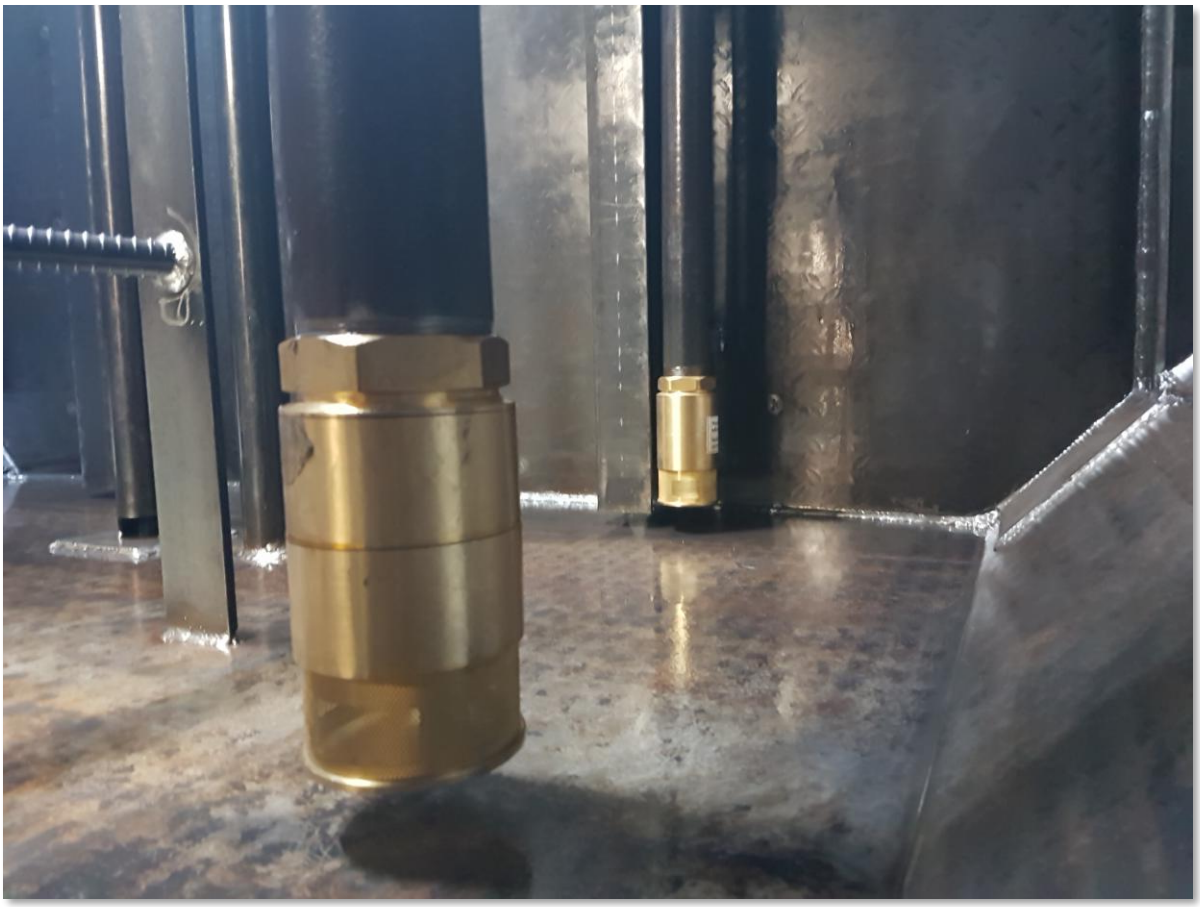

Figure 15: UFS - Anti Syphon Valve located within the tank module.

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SECTION 5 – BLOC/HEDRA TANK SET-UP PROCEDURES

The following procedures and actions need to be performed before any UFS Bloc or Hedra tank can be put into service. Ensure all steps are followed, and any irregularities discovered are rectified.

Figure 16: Bloc Double Walled Tank

Figure 17: Hedra Double Walled Tank

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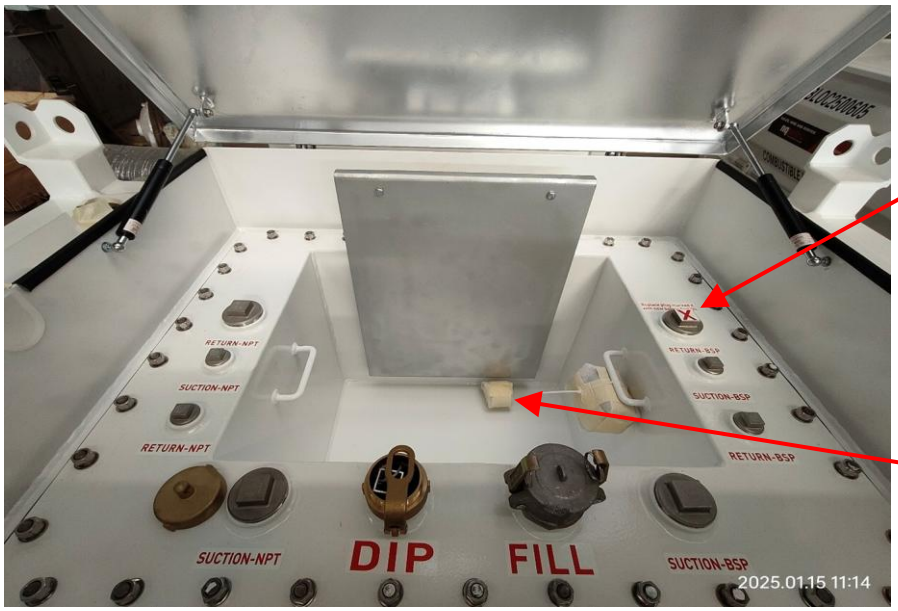
Note: For Flammable tanks. We recommend comissioning by Certified Petroleum Equipment Technicians.

1. Check tank upon arrival to site to ensure no damage has been caused during transit. Ensure to check the underside if possible. Advise your tank distributor of any damage that you may have concerns with - please include pictures if possible.
2. Confirm tank is placed on a firm level surface and installed as per NFPA30, CFR49 – the "Flammable and Combustible Liquids Code", National Fire Code of Canada, or equivalent local government authority having jurisdiction (AHJ) regulations.
3. Open tank hatch. The transport plug marked 'X' is to be removed from it's port and replaced with spare plug located inside the pump bay when setting up the tank for first fill (Bloc tanks only).



Transport plug (marked X) to be removed and replaced with spare plug when setting up the tank for first fill.

Spare plug

Figure 18: Remove and replace transport plug

4. Remove vent joiner (if available, tanks larger then 660G will not require a joiner).
5. Remove the vent pipe that is along the sides of the tank.

Figure 19: Vent pipes secured to tank

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6. For 265 Gal/1000L and 660 Gal/2500L join the two lengths using the joiner supplied.

Figure 20: Vent pipe coupling

7. Screw onto the pipe the free vent or pressure vacuum vent (flammable liquids).

Figure 21: Tank Free Vent

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8. Remove the S/S plug from the “Free vent socket”. The pipe and the vent are to be lifted Upright to screw into this socket (some extra assistance may be required for this). Taking care to ensure vent is free of confinement.

Figure 22: Free vent port/socket located on top of Bloc tank

9. For gasoline setups, an emergency vent is to be checked to ensure free to move (up and down) and Transport Packaging is removed.

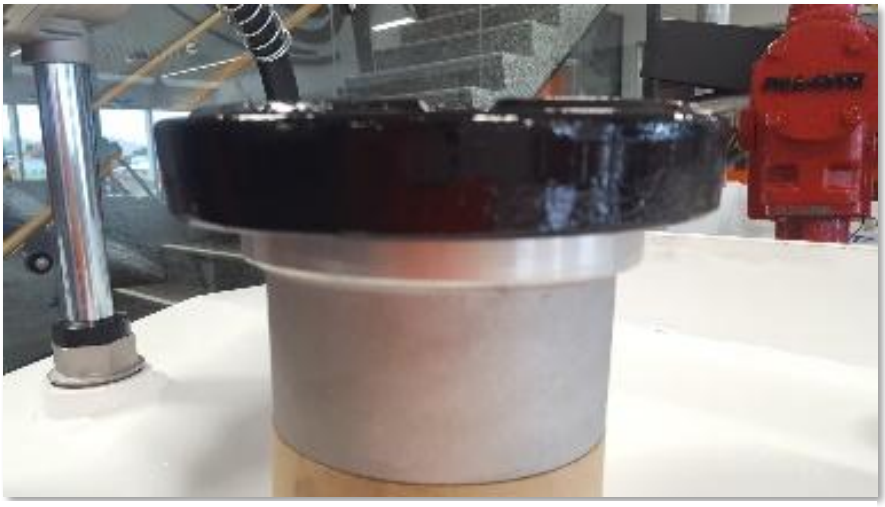

Figure 23: Emergency vent

Install power to pump. For gasoline, you must meet with North American standards for appropriate hazardous area standards, recommended to use a certified Petroleum Equipment Installer.

10. Finalize the storage tank install with appropriate signage and other safety equipment in the area. Fire extinguishers, spill kits, fencing etc.

*** Tank can now be filled ***

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SECTION 6 - GRANDE TANK SET-UP PROCEDURES

The following procedures and actions need to be performed before an UFS GRANDE or FGT tank can be put into service. Ensure all steps are followed, and any irregularities discovered are rectified.

Figure 24: Grande Aboveground Double Walled Storage Tank

Note: For Flammable tanks. We recommend comissioning by Qualified PEI.

1. Check tank upon arrival to site to ensure no damage has been caused during transit. Ensure to check the underside if possible. Advise your tank distributor of any damage that you may have concerns with.
2. Confirm tank is installed as per NFPA30, CFR49 – the “Flammable and Combustible Liquids Code”, National Fire Code of Canada, or equivalent code.

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3. Remove the two bolts at the base of the gantry access ladder. Fold out ladder and lock in to place.

Figure 25: Base of access ladder

4. Climb ladder and remove the bolts from cross beam. Beam should now be able to be lifted to allow access to the ganrty. UFS recommend cross beam be placed back down while on the service platform.

Figure 26: Top of access ladder

5. Confirm with Distributor: Tank equipment may have been stored inside the tank for transport. Check inside tank by removing manway hatch and remove items for fitting.

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6. Open pump bay and inspect. Advise your tank distributor of any damage that you may have concerns with. At the back of the pump bay a vent pipe will be supplied. Remove this vent pipe by unscrewing from wall mounted socket.

Figure 27: Grande pump bay

7. Climb back up to the gantry to mount the vent pipe. Remove the 2" or 3" S/S plug from the "Free vent socket" . Apply an amount of pink thread tape to the vent pipe base. The pipe and the vent are to be lifted upright to screw into this socket. Taking care to ensure vent is free of confinement. (Page 14)

Figure 28: Free Vent port/socket

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8. Install the High Level Alarm to socket marked “Overfill Warning Alarm” on top of the tank . Test after installation by pressing the test button on front panel. (Page 21)
9. At the top of the tank, open the hatch to inspect dipping point. Remove dipstick fully to inspect it is correctly label to the size of the tank.

Figure 29: Dip point inside hatch

10. Ensure the tank is correctly earthed. An earth lug is located at either end of the tank.

Figure 30:Earthing connection

11. Complete any additional works for the tanks Application. Connect to onsite pipework or power if needed.
12. Finalize the storage tank install with appropriate signage and other safety equipment in the area. Fire extinguishers, spill kits, fencing etc.

*** Tank can now be filled ***

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SECTION 7 - RECEIPT OF PRODUCT

(NOTE: Ensure tank setup procedure has been completed)

Receiving Product Ex-Bulk Delivery Vehicle

Generally, an oil company delivery vehicle will carry out bulk deliveries with an appropriately trained and qualified driver.

Normal traffic should keep clear of the tanker whilst it is unloading, allowing the tanker to exit in a forward direction in an emergency without obstruction.

The UFS tank(s) contents must be manually dipped to confirm there is adequate ullage for the tanker to safely discharge into the facilities. Each UFS tank includes an electronic High Level alarm, which will go into alarm if the tank exceeds it's maximum safe full level.

NOTE. The alarm does NOT shut off product delivery. Its sole purpose is to prompt the operator into action and shut off product delivery to prevent overfilling

SECTION 8 – TANK DIPPING PROCEDURE

Tank dipping is essential for stock control and reconciliation, product transfers and loss control including early recognition of possible leakage.

Personal Protective Equipment for handling bulk product, i.e. safety footwear, eye protection and PVC gloves are to be worn while dipping tanks.

To obtain comparable dips for stock recording purposes, it is important the dips are taken using a consistent procedure.

Dipping Procedure Example:

1. Confirm Tank Ladder is in locked position. (Never assume ladder is locked into position).
2. Climb Ladder to access dip point location. Be sure to maintain 3 points of contact while climbing ladder.
3. Open the dip cap from the upwind side and raise the dipstick to a height where the product level can be seen.
4. Note the approximate level of the product.
5. Wipe down the dipstick with an absorbent rag.

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6. Return the dipstick to the tank, lowering it rapidly to a point 2-4 inches from the bottom and then slowly until the stick gently touches the bottom of the tank.
7. Pause with the stick in contact with the bottom of the tank and raise it quickly to where the liquid level can be read.
8. Record the reading.
9. Repeat the above twice more, to obtain 3 readings.
10. Take the average of the three readings as the dip for the tank.
11. Return the dipstick to the tank as per step 6.
12. Reverse steps 1, 2& 3.

SECTION 9 – GENERAL INSPECTION AND MAINTENANCE

Pipework Systems Inspection & Testing

Regular inspection and testing of pipework is required to ensure its integrity. Testing is suggested as per schedule below. It's ultimately the end user's responsibility to ensure compliance to local regulatory bodies.

With the products being handled, internal corrosion should be minimal. However, general external pipework inspections should be carried out monthly to inspect for leaks, particularly from joints, seals valves and fittings.

Should you have a corrosive product such as biodiesel or other corrosive chemical, all liability falls onto the end user to follow proper storage procedure of said product. If UFS is aiding in solution design, it is REQUIRED to disclose the fluid being stored so that UFS may provide the correct storage material.

Periodic pressure testing of lines should not be necessary if regular external inspections are carried out.

Any underground sections of line need to be tested at least annually.

Paint Protection

All UFS Tanks are painted with 3 coats externally and a coat of anti-rust oil on the internal tank surfaces.

UFS encourages monthly inspections and any signs of deterioration, scratches or dents must be repaired and touched up to prevent further deterioration. Please note: Tanks which are located close to salt water must repair paint damage when first noticed, without prompt repair further paint damage will occur.

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Tank Inspection Schedule

Part of Tank	Minimum standard type of Inspection	Purpose	Maximum intervals between Inspections
Tank Externals	Visual	To ensure no visual evidence of abnormal stress, leaking or other malfunctions	Monthly
Tank shell and internals	Visual plus non-destructive testing as required	To prove the integrity of the tank	10 Years
Tank Supports	Physical	To ensure no evidence of abnormal corrosion or stresses	Yearly
Tank Grounding	Physical	To ensure earth integrity	12 Monthly
Tank Valves	Physical	To ensure that fittings are free of leaks and operating correctly	Monthly
	Remove and Full Test		10 Years
Tank Vents	Visual	To ensure that fittings are free of leaks or blockages and operating correctly	Monthly
	Remove and Full Test		10 Years
Other Fittings	Visual	To ensure that fittings are sound and operating correctly	Quarterly
Foundations	Physical	To ensure foundation has not subsided and placed tank at risk	12 Monthly
Walkways and Ladders	Visual	To ensure they are sound	Yearly
Welds and Paint Work	Visual	To ensure no visual evidence of abnormal stress, deterioration, leaking or other malfunctions	Monthly
Pump Bay	Visual	Check Pump Bay is free of product and water. Doors secure and water tight.	Weekly

* The frequency of testing may need to be varied according to the type of service, and non-destructive examination may be waived if visual inspection indicates that such testing is not necessary.

Notes: Visual inspection refers to a visual examination of the tank parts while physical inspection refers to visual inspection and appropriate tests to confirm the function and condition of the parts and identify any weakness, deterioration or faults.

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SECTION 10 – WARRANTY

Unity Fuel Solutions (UFS) warrants the UFS range of double walled tanks for a period of 10 years for its structural integrity and 2 years for the paint work and fittings, and Fireguard Tanks for a period of 25 years for its structural integrity, 5 years for the paint work and 2 years for fittings, from date of delivery to client or client's site location, provided that:

1. The tanks were installed and operated in accordance with their design and are used according to its normal operating conditions.
2. The tanks receive maintenance and protection by suitably qualified personnel.
3. The tanks were not subject to negligence, accidents, or any form of misuse.
4. Any modifications done without proper consultation with UFS will void this warranty.
5. UFS's warranty exclusively covers the bare tank only and does not include additional ancillary parts such as dispensing equipment, loading pumps, Automatic tank gauging, fuel management systems, etc.
6. UFS's warranty covers parts only. Labour and travel costs are not included unless approved by a UFS Representative.

For any claims for warranty, the faulty item shall be inspected by an UFS or its accredited representative prior to any approval of claim or replacement of the equipment.

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SECTION 11 – DISCLAIMER

Unity Fuel Solutions manufactures fuel storage tanks in compliance with UL142 and other approved standards, depending on the tank model. These include:

- **UL142:2021** (Steel Aboveground Tanks for Flammable and Combustible Liquids).
- **ULC601:2021** (Standard for Shop Fabricated Aboveground Tanks for Flammable and Combustible Liquids).
- **UL2085:2010** (Standard for Protected Aboveground Tanks for Flammable and Combustible Liquids).
- **ULC655:2024** (Standard for Aboveground Protected Tank Assemblies for Flammable and Combustible Liquids)
- **NFPA30:2024** (Flammable and Combustible Liquids Code).
- **NFC:2020** (The National Fire Code of Canada).
- **JIG4:2021** (Aviation Fuel Quality Control & Operating Standards for Smaller Airports).

Important Notice:

1. **Compliance Responsibility**
    - While our tanks are designed and constructed to meet relevant standards, full system compliance depends on correct installation, site-specific conditions, and integration with ancillary equipment (e.g., pumps, piping, venting, and spill containment).
    - The client is responsible for ensuring:
        - Installation adheres to NFPA30, NFC or equivalent standard and all applicable local government authority having jurisdiction (AHJ) regulations.
        - Site-specific risks (e.g., fire protection, bunding, separation distances) are addressed by a qualified engineer or installer.
2. **Third-Party Components**
    - Pumps, valves, and other non-manufactured components must be selected and installed in compliance with NFPA and manufacturer specifications (including NFPA70 – National Electrical Code).
3. **Liability Limitation**
    - Unity Fuel Solutions (Fuel Equipment Specialists Pty. Ltd.) disclaims liability for:
        - Non-compliant installation, modification, or misuse of the tank system.
        - Damages arising from improper site preparation, maintenance, or failure to adhere to operational guidelines provided in this manual.
4. **Professional Certification**
    - We strongly recommend that the final installation be inspected and certified by a licensed professional to verify compliance with all relevant standards and regulations.

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By proceeding with installation, the client acknowledges acceptance of these terms.

For further guidance, refer to:

- NFPA30:2024 (Flammable and Combustible Liquids Code)
- NFC:2020 (The National Fire Code of Canada)
- Local government authority having jurisdiction (AHJ)
- Local workplace health and safety (WHS) or environmental authority requirements.

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SECTION 12 - NOTES

Warning

At all times, safety must be considered an important factor in the installation, servicing and operation.

NOTES:

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