

### Assembly and installation instructions of an electrofusion TANK SUMP







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### ASSEMBLY AND INSTALLATION OF A TANK SUMP

### INTRODUCTION AND GENERAL INFORMATION

SMARTFLEX tank sumps, along with pipes, fittings and accessories, form a complete system for secondary containment. These sections contain information about tank sumps and the procedures to ensure their correct installation.

It is important to read this section prior to commencing the installation.

The sumps described in this manual are not watertight, but upon request, a clamping device is available that allows the water tightness of the entire system for applications where high ground water is present. (Model SCLD4536 or Model SCLD5238).

#### **APPLICATIONS** 2

1

SMARTFLEX system provides four tank sump models: S22TS5238, S22TS4536, S22TS5238HBD\* and S22TS4536HBD\*. SMARTFLEX tank sumps must be placed in the space between the containment skirt's upper side and grade. Sumps are very important elements of the system, their function being that of a two-way liquid isolation chamber, thus preventing:

- the entering of ground water and any other external liquid; •
- any leakage of any contained product from the sump into the environment.

All SMARTFLEX sumps are made of HDPE which ensure they are chemically and structurally suitable for buried applications.

\* These tank sumps are designed for high burial depth or ground water conditions or sand backfill.



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### **TRANSPORT AND HANDLING**

When loading the sumps onto a vehicle bed, ensure the latter is perfectly even. Sumps must not protrude excessively from the surface on which they are loaded.

The tank sump is made up by two electro weldable pieces; this optimise transport regarding cost and weight, and guarantee sump integrity during transport and storage. In fact, shipping configuration is extremely compact and robust thanks to the special cardboard packaging. (see figure annexed).

Use cables, ropes or similar equipment to secure the load: take any necessary steps to prevent sump damage during transport. If sumps are loaded/unloaded or maneuvered with cranes or an excavator boom, the sumps must be picked up at their center with the help of a spreader bar of adequate width.

Whenever these operations are undertaken manually, ensure that the sumps do not scrape along the edge of the vehicle bed or against any other hard, sharp object.



	Code	D	L	L,	L <sub>2</sub>	н	H,	H <sub>2</sub>
	S22TS4536 <sup>(1)</sup>	783,4 mm 31"	1143 mm 45"	700 mm 28"	273 mm 11"	990,6 mm 39"	549,6 mm 22"	381 mm 15"
	S22TS5238 <sup>(2)</sup>	958 mm 38"	1306 mm 51"	700 mm 28"	388 mm 15"	1284,3 mm 51"	684,3 mm 27"	500 mm 20"
S	22TS4536HBD (1)(3)	783,4 mm 31"	1143 mm 45"	700 mm 28 "	273 mm 11"	990,6 mm 39"	549,6 mm 22"	381 mm 15"
S	22TS5238HBD (2)(3)	958 mm 38"	1306 mm 51"	700 mm 28"	388 mm 15"	1284,3 mm 51"	684,3 mm 27"	500 mm 20"

<sup>(1)</sup> Adjustable height from min=625mm max=990mm

<sup>(2)</sup> Adjustable height from min=755mm max=1253mm

<sup>(3)</sup> Designed for high burial depth or groundwater conditions or sand backfill.

• For a correct installation it is necessary to use the STSIK tool

#### Note:

One piece sumps in a Heavier Duty construction are also available for Higher water table applications. Please consult your Nupi representative for more information on these.



### 4 INSTRUCTIONS





#### 4.1 ASSEMBLY OF SUMP BASE ON THE COLLAR

• Before beginning the assembly it is necessary to cut the sump's base depending from the dimensions of the collar (positioned on the tank).

Normally, the containment skirt (collar), situated on the tank's upper surface, is angled inwards to create a flange large enough to allow assembly with bolts.

It is necessary to verify the containment skirt's shape, as first step as these can vary in shape (square, rectangular or circular).

#### SQUARE COLLAR:

If the manhole is surrounded by a square shaped skirt (collar), proceed as follows.

• Take particular care to align the sump centrally over the containment skirt, using a tape measure and a suitable mark, then mark the sump's base.



Cut along the line drawn.

• Align the sump centrally over the containment skirt and make at least 8 holes on each side.









• Bolt the sump base to the containment skirt.

Fit a gasket between the sump and the containment skirt in order to ensure that the assembly is watertight. The gasket is not included with the sump.

Use metallic spacers along the skirt's perimeter (normally 4 are used) to achieve a better pressure distribution over the gasket. Due to the variety of possible tank/sump assembly configurations as well as environmental situations, it is advisable to purchase gaskets and spacers according to the specific needs.



#### CIRCULAR COLLAR:

If the containment skirt has a circular shape, the procedure is the same but you must cut the sump's base circularly and the metallic spacers must be shaped to match the containment skirt's shape.

At this point you can install the entry boots, pipe and fittings.



#### 4.2 TANK SUMP ASSEMBLY INSTRUCTIONS



**Note:** As first step, it is necessary to cut out the base of the sump to the correct shape and dimensions so It can be centred on the tank manway collar. Please take Into consideration the direction of the pipework.

Attention: In order to have suitable space necessary to assemble the various components inside the sump, we recommend you to electro-weld the upper section at the completion of the process.



Scrape the surface to be welded with the manual scraper (Model RAM1), then clean all the components involved in the welding process with a clean cloth soaked with a recommended cleaning solvent (Model LID1).

**Note:** The following solvents may be used, Acetone, Isopropyl Alcohol, Trichloroethane and Dichloromethane. The use of other primers or solvents is not allowed.



**Note:** When scraping, a perfectly even surface Is required, please take care to remove any roughness that could cause the weld to be unsuccessful.

Position the upper section of the sump on its base. Please take care not to damage the connectors necessary for the welding process and correctly align the white arrows shown on both components.





Secure the two components together using 12 clamps (8 positioned on the corners and 4 centred on the long sides).

**Note:** If possible, try to attain a constant gap between the clamp and the sump's edge. This Use blocks under the clamps to distribute the pressure load, this will further assist the welding process.



Weld the sump using the specific bar code supplied with every sump, following the instructions shown on the welding machine's display.





During the cooling down time further tighten the clamps to increase the adhesion between the two components.



Wait until the cooling down time shown on the bar code of the sump to elapse, then remove the clamps.

Before positioning the lid on the riser (upper) section of the sump, ensure that the gasket/seal is correctly positioned on the risers lip and is not damaged in any way. This is necessary to obtain an effective seal.

Affix the provided handles to complete the installation.





**Note:** If required, you can trim the riser (upper) section of the sump to the required height. The cut surfaces must be flat and without any sharp or rough edges.



**Note:** If necessary, it is possible to add a mechanical hold down system (Model SCLD). This is commonly used in high water table areas or where increased security is desired. Affix it on to the riser (upper) section of the sump as indicated, tighten the lock screw then stretch the clamps and secure the clips on to the lid's rim.





**Note:** To perform a vacuum test on the lid is necessary to follow these steps:



1. Remove the handle.

2. Drill a 6 mm hole through the base of the handle assembly point on the lid.

3. Screw the quick fit connector (Model SVT6) properly sealed with thread sealant into the handle thread.

4. Connect the specific test tube for the test (Model STT6).

5. Connect the ejector (Model SVE) to the compressor line to generate a vacuum to commence the vacuum test.

6. Connect the test line to the vacuum test unit (Model SVTU) following the specific instructions.

The vacuum test for both tank sumps (Models S22TS4536 and S22TS5238) shall be performed at a Pg = -0.15 bar for 30 minutes (to simulate a burial depth of 1.5 metres).



Note: Once the test is complete it is recommended to replace the handle on the lid, sealing the thread with a thread sealant.





#### 4.3 BACKFILLING PROCEDURES

Correct backfilling procedures are often not followed and should be a fundamental step to ensure a correct installation and support for the sump.

Backfilling material should be round and evenly shaped as sharp objects could penetrate the sump initiating cracks. It is standardized by a number of different organization like in ASTM 2488 and ENV1046.

In any case the material installed around the sump must be compacted to prevent ground movement which could eventually damage the sump and affect the system's stability. Particular care should be

taken when filling the area between the sump's base and the tank's upper surface.

<u>Nupi Specifications:</u> According to mechanical strenght evaluations for the installation of SMARTFLEX sumps NUPI prescribes to use:

 Gs 2 Soil: well graded gravels, gravel-sand mixtures, poorly graded gravel-sand mixtures, coarse grained granular soil predominately sand sized, such as single sized sands; in particular:

- Pea gravel with size diameter between 8-25 mm (1/3"-1")

- **Gs 3 Soil:** mixed grained soils such silty gravel-sand mixtures, silty sands, clayey sands; in particular:
  - Coarse grained sand with low fine fraction



In this case, when backfilling, take care that the material is uniformly distributed and packed around the tank sumps. All sand backfill material shall be clean and free of flowing.

**Attention:** All backfilling materials must be dry and free from snow, ice and debris, the use of different materials from those specified may cause serious damage and/or affect the performance of the Smartflex sump and the warranty.

Furthermore, in case of risk of groundwater presence the maximum burial depth is 1,5 m (59") (2 m for model S22TS5238HBD and S22TS4536HBD), otherwise the maximum burial depth is 3 m (118") (more than 3 m for model S22TS5238HBD and S22TS4536HBD).



#### Items required for the connection of piping to the tank sump



#### **ELECTROFUSION ENTRY BOOT FOR DOUBLE WALL SYSTEM**

Ø mm	Code	Package (pcs)	Notes
32	SEBE32	1	for single wall pipe Ø32mm
40	SEBE40	1	for single wall pipe Ø40mm
50	SEBE50	1	for single wall pipe Ø50mm
63	SEBE63	1	for single wall pipe Ø63mm for double wall pipe Ø50mm
75	SEBE75	1	for double wall pipe Ø63mm
90	SEBE90	1	for single wall pipe Ø90mm
110	SEBE110	1	for single wall pipe Ø110mm
125	SEBE125	1	for double wall pipe with secondary pipe Ø125mm

• For a correct installation it is necessary to use the SEBECOMT tool

#### **ELECTROFUSION ENTRY BOOTS INSTALLATION TOOLS**



	Code	Package (pcs)	Notes
-	SEBECOMT	1	compression tool

#### HOLE SAW AND MANDREL



Ø (mm)	Code	Package (pcs)	Notes
35	STAZ35	1	for saddles reducing to 50 mm
48	STAZ48	1	for saddles reducing to 63 mm
70	STAZ70	1	to install SEB25, SEB32, SEB40 SEBE32, SEBE40
98	STAZ98	1	to install SEB50, SEB63, SEB75, SEB90, SEBE50, SEBE63, SEBE75, SEBE90
140	STAZ140	1	to install SEB110, SEB125 SEBE110, SEBE125 and SCUFV180110
-	SMAN	1	mandrel for hole saws





#### **ENTRY BOOT**



Ø (mm)	Code	Package (pcs)	Notes
25	SEB25	1	
32	SEB32	1	for single wall pipe Ø32mm
40	SEB40	1	for single wall pipe Ø40mm
50	SEB50	1	for single wall pipe Ø50mm
63	SEB63	1	for single wall pipe Ø63 and for double wall pipe Ø50mm for secondary pipe Ø63mm
75	SEB75	1	for double wall pipe Ø63mm for secondary pipe Ø75mm
90	SEB90	1	for single wall pipe Ø90mm
110	SEB110	1	for single wall pipe Ø110mm
125	SEB125	1	for double wall pipe with secondary pipe Ø125mm

#### ENTRY BOOT/TERMINATING FITTING INSTALLATION KIT



Ø (mm)	Code	Package (pcs)	Notes
25 - 180	SSET4	1	

The kit includes:

- nr. 1 template (STEM)
- nr. 1 mandrel (SMAN)
- nr. 3 hole saws (STAZ70, STAZ98, STAZ140)



# Recommended tools and equipment necessary for the assembly

### To perform the vacuum test:



1		Cleaning solvent or primer	7	Drill with 6 mm tip
2		Soft cloth	8	Valve for test tube
3		12 clamps	9	(Model SVT6) Ø 6 Rilsan test tube
	9			(Model STT6)
4	CIE COLOR	4 wood thicknesses	10	Thread sealant
	~		44	(Model SF)
5		Saw (option)		Ljector (Model SVE)
6		Welding unit	12	Vacuum test unit
	*9 💿 💅	(Model SSEL)		





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