

DRAINMASTER DRAIN LINE HOSE SWIVEL

Draining the water from any external floating roof is a key issue in the safety and integrity of the external floating roof tank. A well functioning drain system will drain all water on the roof and will not build up any sediment inside. The submerged placement of seals and connections provides an extra challenge for any drain design. The CTS Drainmaster system is a very reliable way to deal with these challenging conditions. Consisting of a reinforced composite hose fitted in a metallic pivoting joint it represents the ideal long-lasting swivel for this application.

CTS is able to design, manufacture, supply and install tank drain lines with the Drainmaster or with high quality swivels. Both designs guarantees a long service life. This complete system includes all connections and pipe work and is ready to be installed.



CTS Drainmaster swivels ready for shipping.

Features

- Drainmaster hose swivels can be supplied in 3", 4" 6", 8", 10" and 12"
- Flange dimensions and materials can be supplied in all international standards
- Designed for submerged service in aggressive environments
- Maintenance free
- Service life in well in excess of 20 years
- Easy installation
- Suitable for 100% aromatics
- No interference with objects in the tank or roof legs
- No sediment built up as the drain line arrangement has a continuous slope
- No tank modifications required
- Suitable for use as foam delivery system
- Develops minimal lateral forces on floating roof
- Can be installed with a rotation stop for a defined angle

DRAINMASTER DRAIN LINE HOSE SWIVEL

Specifications

Hose:

Inner wire	SS316 (1.4401)
Lining	Polypropylene (PP)
Outer cover	Hostaflon (PTFE with PE added for maximum tightness)
Outer wire	SS316 (1.4401)
Operating pressure	max. 14 bar
Vacuum	Suitable for vacuum up to -0.85 bar
Temperature range	-20°C up to +100°C

Pivot frame:

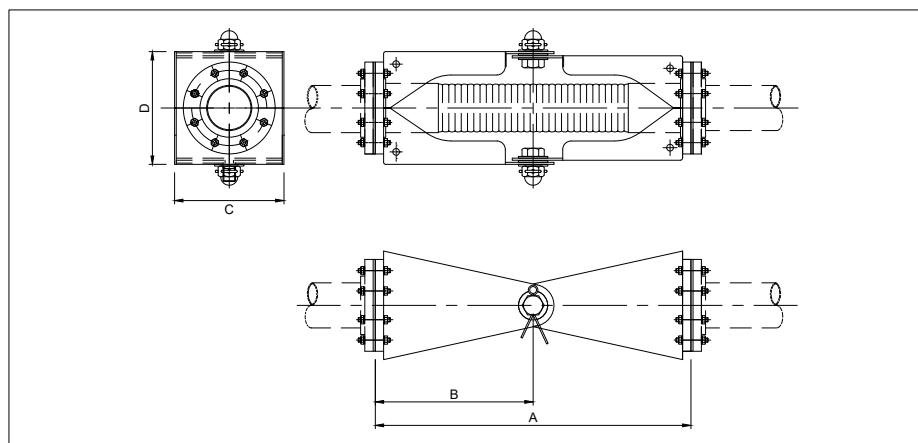
CS (non-treated, galvanised or painted), SS304L (1.4304), SS316L (1.4404), other materials are available upon request

Construction

The hose of the CTS Drainmaster is constructed from layers of fabric, reinforced with a stainless steel inner and outer helix and swaged to carbon steel tailpieces with flanges. The selected fabric materials consist

of various layers of elastomeric materials, that are especially selected for submerged use without product permeation through the fabrics. These special fabric materials make the pivot suitable for the most aggressive products like MTBE and

100% aromatics. Our extensive experience with composition of hoses ensures a long term performance of our Drainmaster system. The protecting flexible joint is executed with maintenance free bearings and eliminates stresses and strains on the hose. It can be fabricated from different grades of stainless steel and carbon steel.



Drainmaster drain line hose swivel technical drawing.

Safety and certifications

The Drainmaster composite hoses comply with international standards such as EN 13765:2003 and IMO IBC code. Although Drainmasters are rainwater drains experiencing low pressures when in use, the integrity of the assembly is checked by testing to 10 bar with water. Full and detailed test- and 3.1 material certificates are supplied as a standard.

PRODUCT DATA

Drainmaster drain line hose swivel

Internal diameter	A	B	C	D	Weight
inches	mm	mm	mm	mm	kg
3	620	310	230	195	35
4	750	375	270	235	47.5
6	950	475	365	310	85
8	1,300	650	430	385	135

All our product information and specifications are drafted with extreme care but can be subject to change. We reserve the right to change product specifications.

Your Distributor:

CTS Netherlands B.V.

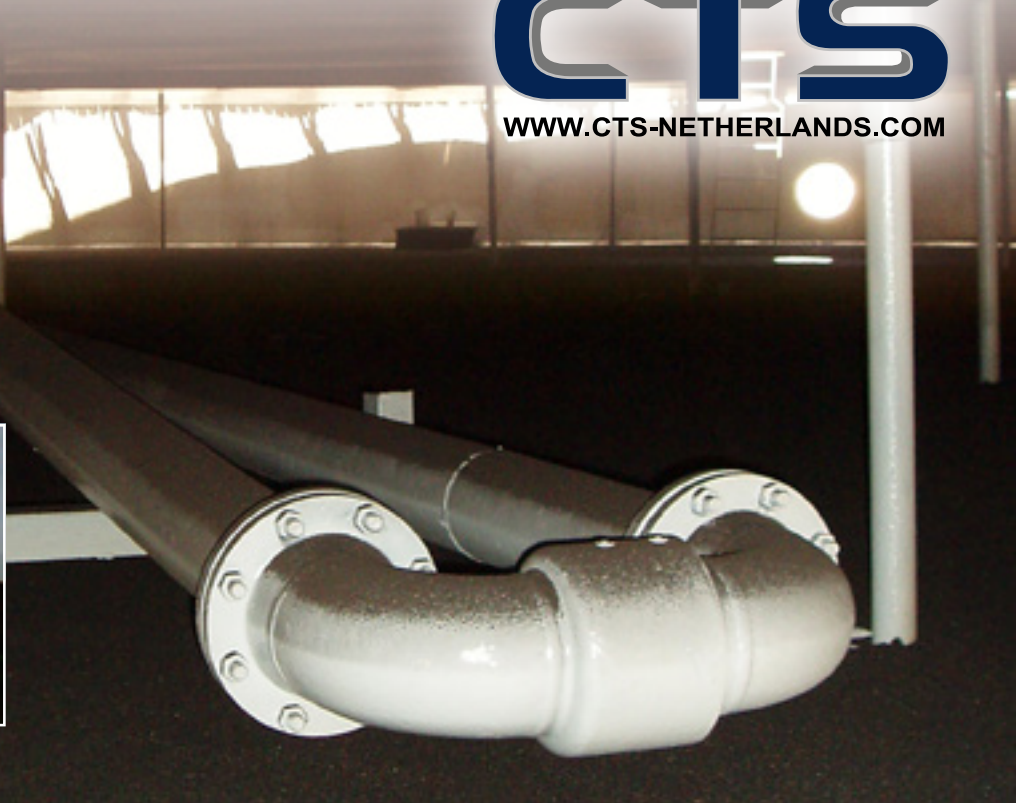
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DRAIN PIPE SWIVELS FOR EXTERNAL FLOATING ROOF TANKS

Draining rain water from an external floating roof is one of the most important aspects of long term maintenance. A tank drain can only be replaced when the tank is out of service and the consequences of a malfunctioning tank drain could be significant. To ensure proper draining of rainwater and a long service life CTS has developed a tank drain pipe system with high quality swivels for this application. The swivel design guarantees a long service life, therefore eliminating much of the potential problems. The CTS drain pipe system is a complete system, including the connections, all important swivels and the pipe work. It is ready to be installed by a (contractor) crew. All our swivels are extensively tested prior to shipment, to ensure their performance and guarantee a long-term adequate performance of any drain system.



Coated carbon steel drain line arrangement.

Safety

Although the swivels are rainwater drains experiencing low pressures when in use, the integrity of the swivels is checked after assembly by testing to 10 bar with water. Test and material certificates are supplied as a standard.

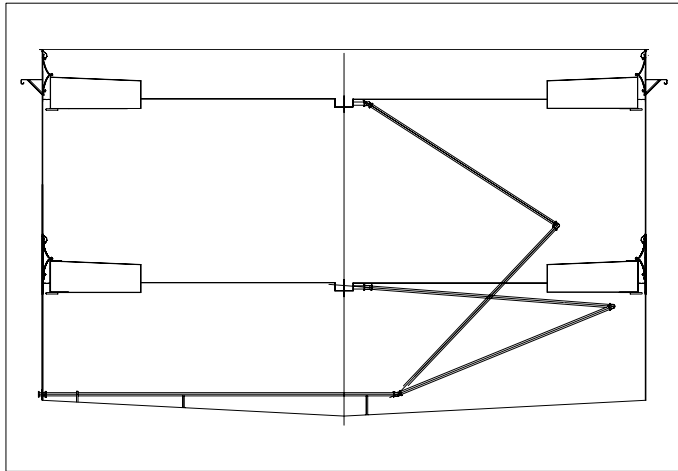
Features

- Drain systems designed for immersion inside storage tanks to drain rainwater from a floating roof
- Pressure tested and certified, before shipping and, if required, after installation
- Delivered with 3.1 material certificates
- Able to deal with 100% aromatics
- High quality U-shape swivels friction free design
- Special swivel design for submerged use
- Continuous slope, no trapping of liquids
- Fast and easy installation
- Long service life
- Fast delivery

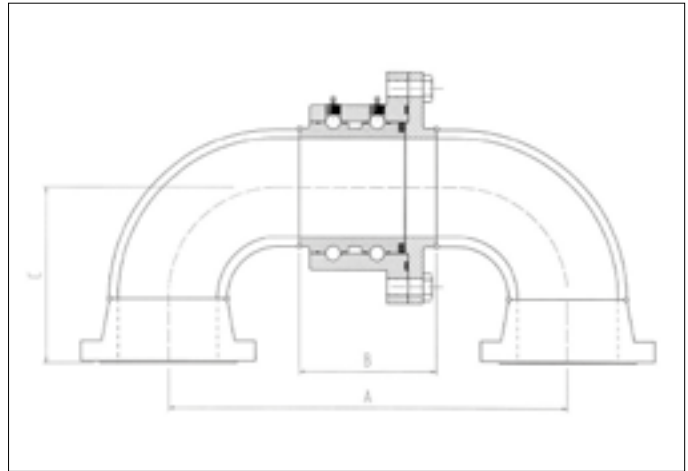
DRAIN PIPE SWIVELS

Construction

Pipes and flanges	SS, CS or aluminium
Swivels	SS316Ti (1.4571), CS or aluminium
Swivel seals	PTFE medium sealing with scraper



Drain line arrangement, typical.



Drain line swivel, cross section.

CTS Drain pipe system for External Floating Roof Tanks

The CTS Drain pipe systems are fully customer designed for each specific tank. CTS is able to measure the system on site in existing tanks or determine the system based on drawings.

PRODUCT DATA

Bore size	Size A	Size B
inches	mm	mm
3	248	114
4	324	146
6	384	178
8	533	241
10	667	305
12	800	356

Dimensions will change when using other materials and connections.

Flange connections: Generally steel ASA150 lbs R/F flanges are supplied. Other flanged drillings and material types are available.

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TANK DRAIN HOSES FOR EXTERNAL FLOATING ROOF TANKS

Draining rain water from an external floating roof is important to make sure the external floating roof will not built too much water on top, which could even cause sinking of the roof. CTS has developed an excellent solution by introducing tank drain hoses for this application. The major advantage of a hose is that it does have a minimum number of connections, therefore eliminating much of the potential problems with other drain systems. As the CTS drain hose is a complete system, including the connections, the lead ballast cable and the hose suspension system, it can easily be installed by any local (tank contractor) crew. Each hose is individually pressure tested prior to shipment, to ensure its performance. As a result of the flexible nature of the drain hose, it will even be able to deal with frozen rain water inside.

Safety

Although these hoses are rainwater drains experiencing low pressures when in use, the integrity of the hose assemblies is checked, after ballasting, by testing to 10 bar with water. We recommend not to use the hose beyond 5 bar. Full and detailed test and material certificates are supplied as a standard. All hoses are supplied electrically continuous.

Identification

A longitudinal white stripe is permanently branded on the cover of each hose to ensure correct hose alignment during installation, avoiding hose twisting and/or kinking.

Features

- Hose is specifically designed for immersion inside storage tanks to drain rainwater from a floating roof
- Suitable for 100% aromatics or corrosive liquids with specially compounded covers
- No moving parts
- Will tolerate rain water freezing inside
- Continuous slope, no trapping of liquids
- Fast and easy installation
- Can be equipped with spark-free flanges
- Lengths up to 40m in one piece available
- Fast delivery
- Pressure tested and certified before shipping and if required after installation
- Leg protectors as an option

TANK DRAIN HOSES

Construction

Lining	Nitrile (NBR) or Neoprene (CR)												
Reinforcement	Textile cord with a high tensile wire helix against collapsing												
Cover	Smooth wrapped finish in the following materials:												
	<table border="0"> <tr> <td>Specification</td> <td>Rubber quality</td> <td>Content</td> </tr> <tr> <td>CTS604</td> <td>Nitrile</td> <td>Aromatic content up to 50%</td> </tr> <tr> <td>CTS608</td> <td>PVC/Nitrile</td> <td>Aromatic content up to 70%</td> </tr> <tr> <td>CTS603</td> <td>Viton®</td> <td>Aromatic content up to 100%</td> </tr> </table>	Specification	Rubber quality	Content	CTS604	Nitrile	Aromatic content up to 50%	CTS608	PVC/Nitrile	Aromatic content up to 70%	CTS603	Viton®	Aromatic content up to 100%
Specification	Rubber quality	Content											
CTS604	Nitrile	Aromatic content up to 50%											
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CTS603	Viton®	Aromatic content up to 100%											
Flanges	Mild steel nipples with fixed ASA150 R/F Other flanges, including bronze and swivels, and material types on request												
Ballast connection	Stainless steel threaded section welded to the hose nipple												
Lead ballast	Each hose assembly incorporates a permanently attached lead covered stainless steel cable to prevent the hose from floating in the stored product. The ballast is secured with two threaded stainless steel nuts retaining the cable loop which is itself secured with two stainless steel U type clamps with double nuts. Clamps and chains for roof attachment are supplied as well.												

PRODUCT DATA

Bore size	Nominal inner diameter	Nominal outer diameter	Nom weight incl. ballast cable	Min. bend radius
inches	mm	mm	kg/m	mm
3	76	97	9.8	460
4	102	125	12.5	610
6	152	183	26.2	915

Other sizes on request.



Drain hose artist impression.



CTS tank drain hose at centre sump.



Leg protector.

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