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Instruction Manual

Toftejorg™ SaniMidget Retractor

- Covering**
- **Standard Machines**
 - **Machines delivered with ATEX Certification in accordance with Directive 94/9/EC**

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Introduction

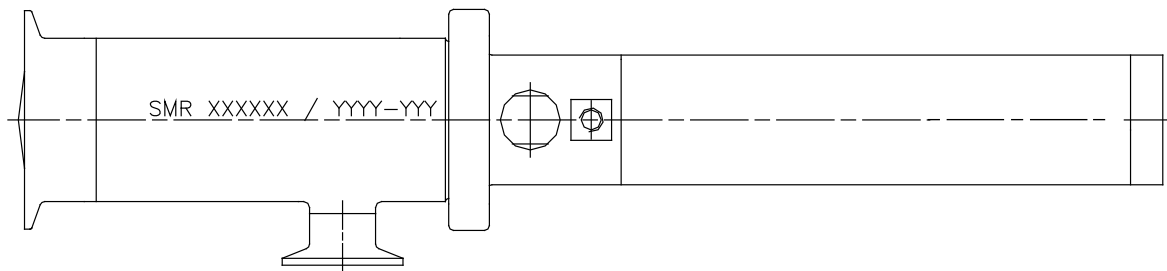
This manual has been prepared as a guide for installation and for the persons who will be operating and maintaining your tank cleaning machine.

The key to long life for your tank cleaning machine is a carefully planned system for preventive maintenance; you must appreciate that a tank cleaning machine which has a rough and dirty job to do will need more frequent attention than one working under ideal conditions.

Note: Get the best and most economical performance from your tank cleaning machine. Insufficient preventive maintenance means poor performance, unscheduled stops, shorter lifetime and extra costs. Good preventive maintenance on the contrary means good performance, no unscheduled stops and superior total economy.

The information in this manual is simple to follow, but should you require further assistance, our Customer Service department and worldwide net of distributors will be pleased to help you. Please quote the type, article and serial numbers with all of your enquiries; this will help us to help you.

The article number and serial number are placed on the front of the tank cleaning machine, SMR XXXXXX / YYY-YYY (article number/serial number).



Warning: Before installing the machine and setting it into operation carefully read the General Installation Instructions (page 12) and the Safety Precautions (page 13) and take all necessary precautions according to your application and local regulations.



Note: The illustrations and specifications contained in this manual were effective at the date of printing. However, as continuous improvements are our policy, we reserve the right to alter or modify any unit specification on any product without prior notice or any obligation.

Intended Use

It is to be verified by the end-user:

- that the tank cleaning machine is in conformity with respect to tank, vessel or container size in which it will be used.
- that the construction materials (both metallic and non-metallic) are compatible with product, flushing media, cleaning media, temperatures and pressure under the intended use.

Patents and trademarks

This Instruction Manual is published by Alfa Laval Kolding A/S without any warranty. Improvements and changes to this Instruction Manual may at any time be made by Alfa Laval Kolding A/S without prior notice. Such changes will, however, be incorporated in new editions of this Instruction Manual.

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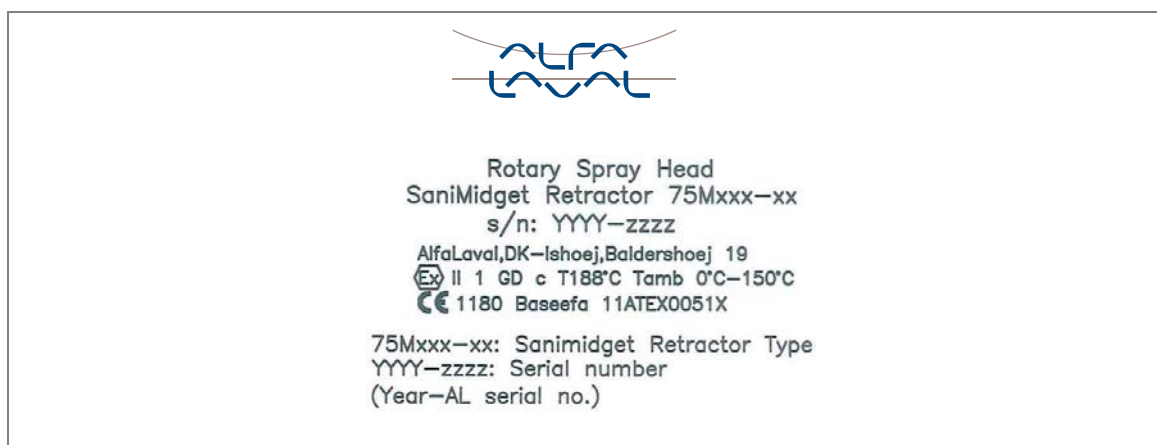
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If ordered with ATEX certificate: ATEX Marking

The Toftejorg SaniMidget Retractor is certified as category I components. The certification is carried out by the certified body Baseefa, who has issued the certificate no. [11ATEX0051X](#). The marking on the ATEX certified Toftejorg SaniMidget Retractor is as follows:



Changes to the machine are not allowed without approval by the person responsible for the ATEX certification at Alfa Laval Tank Equipment. If changes are made – or spare parts other than Alfa Laval original spare parts are used - the EC Type Examination certification (the ATEX Directive) is no longer valid.

Important ATEX information:



Also see page 17 regarding special conditions for repair of ATEX certified machines.

General Description

The Toftejorg SaniMidget Retractor is a tank cleaning machine intended for industrial use in closed tanks for processing storage. There is a broad range of application area within pharmaceutical, food and chemical industries.

The Toftejorg SaniMidget Retractor is a sanitary cleaning device of the rotating fan jets type for permanent installation that provides a 270° Up cleaning pattern. During the process, the cleaner head is not extended into the process but completely sealed off from the product area and is therefore not in contact with the product. The cleaner head is automatically extended when cleaning starts and is automatically retracted when cleaning is completed. The machine is designed in such a way that it is completely self-cleaning. If Installed according to drawing on page 12, the Toftejorg SaniMidget Retractor is completely self-draining in the shown positions. All products contacts surfaces are AISI 316L stainless steel or FDA approved polymer materials.

No open thread or screws in the product areas.

The cleaning device is lubricated by the cleaning media. No oil, grease or other lubricants are used.

The Toftejorg SaniMidget Retractor is available in media driven or pneumatic driven versions which means extended by media or pneumatic.

The Toftejorg SaniMidget Retractor is designed for use in pharmaceutical, biotechnological, food and dairy processing applications. Process equipment with moving internals, and in processes where permanently installed cleaner heads may have an undesired influence on the process or product.

It may be used in storage tanks, reactors, mixing tanks, spray dryers and other process equipment with a volume ranging from 0.1-10m³ (27-2,700 US gallons). For larger volumes, multiple Toftejorg SaniMidget Retractors may be applied.

Application assistance and optimal position recommendation is available

For use in explosive hazard zones both types can be used, provided they are installed according to the safety instructions in local regulations.

Quality system

The Toftejorg SaniMidget Retractor is designed in accordance with the 3A Sanitary Standards No. 78-00 as well as the guidelines of the European Hygienic Design Group (EHEDG) and thus complies with requirements to design, materials, finish and documentation. It is produced according to Alfa Laval Tank Equipment's ISO 9001 international Standard certified quality system. All parts are made from certified material and all non-metal parts are made from FDA-approved materials, 21 CFR § 177

General Description (continued)

Functioning

The Toftejorg SaniMidget Retractor consists of 2 main parts: The drive unit and the base housing. The base housing includes the piston with the cleaner head.

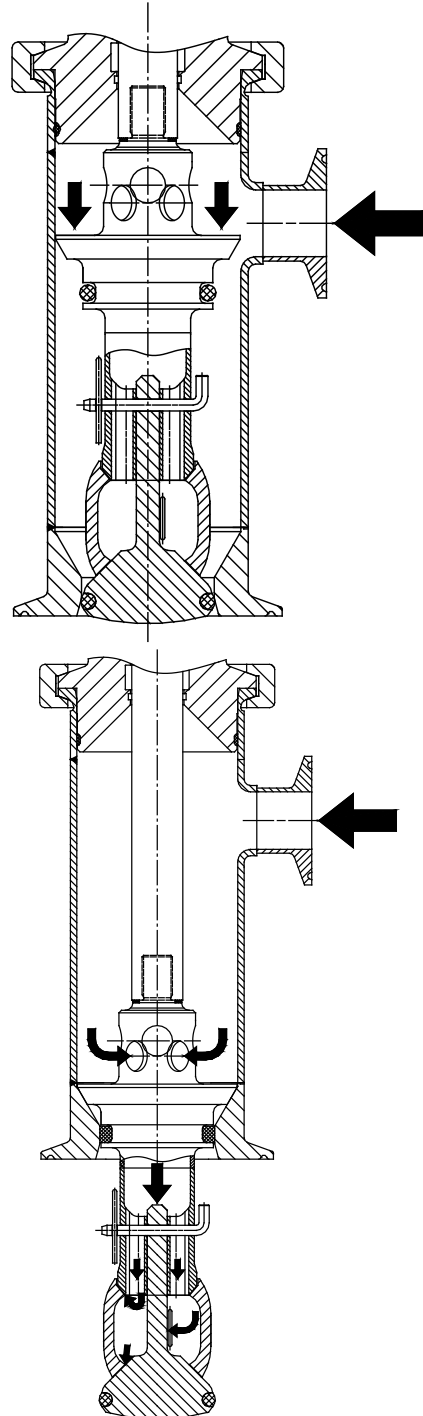
Media driven

In the cleaning media operated version the cleaner head extends from the pressure of the cleaning media and is retracted by a spring.

The cleaning media is directed through the 1" tri-clamp inlet connection into the housing. The liquid pressures the piston, which moves forward to extended position. At the same time the liquid passes through drillings in the piston to the cleaner head and out through the slots. When cleaning is completed the machine is automatically retracted by an integrated spring system. For total drain of the machine the retraction of the cleaner head can be delayed by adjusting the evacuation of air behind the piston. Use a screwdriver and adjust the needle valve on the rear part of the machine to correct position.

Pneumatic driven

In the pneumatic operated version, the cleaner head is extended and retracted by an integrated pneumatic cylinder. The cleaner head is extended when air is applied to the pneumatic cylinder, which must be done before cleaning media supply has started. It is retracted to its initial position when cleaning is completed by diverting the air pressure from the pneumatic cylinder. The pneumatic cylinder can remain extended during a draining phase without media supply.



**ATEX
Warning:**



The piston speed at the tank cleaning machine must be regulated by adjusting the throttle valve, supplied by the customer, to a stroke time at min. 0.5 sec.

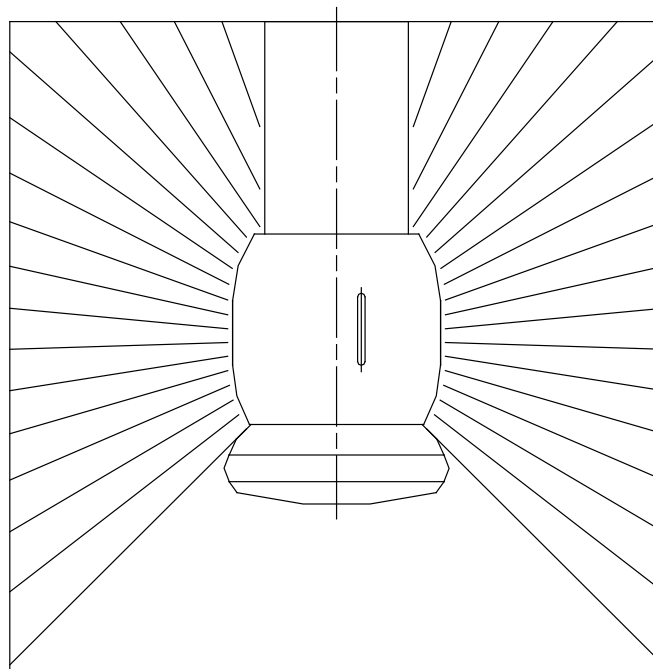
General Description (continued)

Functioning

In both media and pneumatic driven Toftejorg SaniMidget Retractor versions, the cleaner head starts rotating with fan jets due to the flow of the cleaning fluid. It projects a swirling pattern of media through the tank or vessel which generates a vibrating impact and cascading flow coverage of the total internal surface of the tank or vessel.

When the cleaning media pressure is shut off, the cleaning media is completely drained through the cleaner head or the 1" tri clamp connection depending on the mounting position of the Toftejorg SaniMidget Retractor

Spray Pattern
270°



General Description (continued)

Standard configurations, ordering key tables

Toftejorg SaniMidget Retractor

	Media driven	Pneumatic driven	Pneumatic driven spring return					
	TE75M0	TE75M1	TE75M2	X	X	-	X	X
Tank connection welding DIN11.850	-	-	-	0		-		
Tank connection welding 3"ISO/US	-	-	-	1		-		
Tank connection clamp DN80 DIN11.866	-	-	-	2		-		
Tank connection clamp 3"ISO 2852	-	-	-	3		-		
Stroke length 100	-	-	-		0	-		
Stroke length 150	-	-	-		1	-		
Stroke length 250	-	-	-		2	-		
ATEX certificate	-	-	-			-	7	
ATEX + 3.1 certificate	-	-	-			-	8	
Standard O-ring EPDM	-	-	-			-		0
Optional O-ring Viton	-	-	-			-		1
Optional O-ring Perflour	-	-	-			-		2

Example: Type Toftejorg SaniMidget Retractor Pneumatic driven, tank connection welding DIN11.850, stroke length 150 with ATEX certificate and Perflour o-rings : Article no. TE75M101-72.

Available add-ons

- ATEX, category 1 for installation in zone 0/20
- TE75MXXX-7X ATEX
- TE75MXXX-8X ATEX + 3.1 certificate

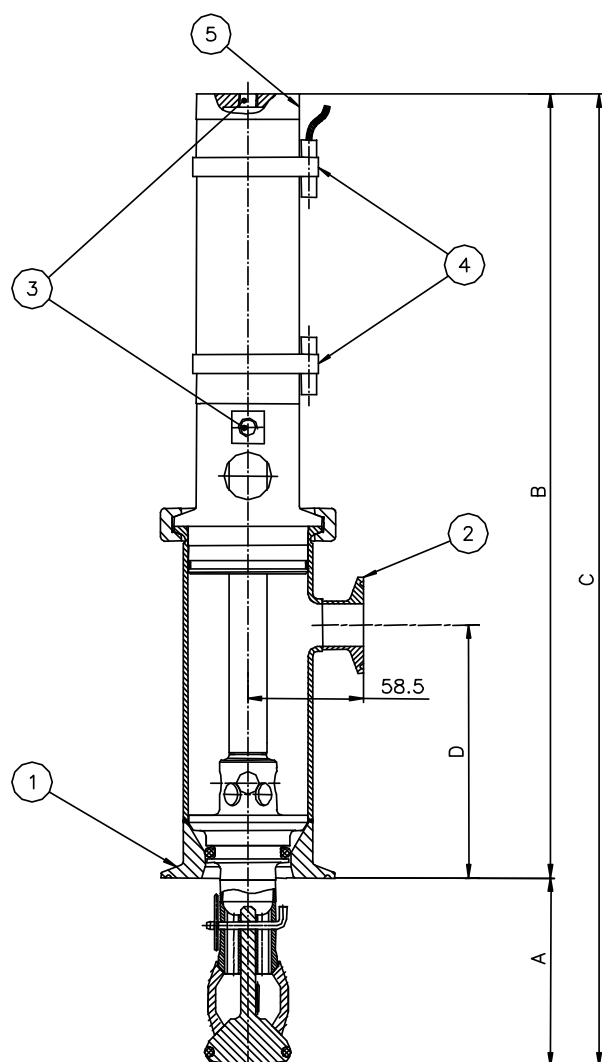
Explanation to Add-ons

ATEX, category 1 for installation in zone 0/20 in accordance with Directive 94/9/EC

Technical Data

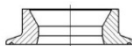
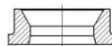
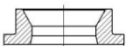
Weight of machine	: See table below
Working pressure	: 2-5 bar (29 – 73 psi)
Recommended pressure	: 2-4 bar (29 –58 psi)
Max. working temperature	: 95° C (203° F)
Max. sterilisation temperature	: 121° C (250° F)
Max. tank temperature	: 150° C (304° F)
Effective cleaning radius	:
Materials, products area	: AISI 316L, PEEK, Sealing: EPDM
Materials, non products area	: AISI 304, POM, Sealing: NBR
	: Polymers FDA-approved 21 CFR § 177
Ambient temperature	: 0° - 150°C
Surface finish	: Product contacts surfaces: Ra=0.8 µm – except weldings
	: Self-lubricant with the cleaning media

Principal Dimensions in mm



Connections

1 Tank connection

TANK CONNECTION		
Clamp	Welded	Welded
		
3" Clamp ISO 2852	3" ISO 2037/US	DN80 DIN 11.850

2 Inlet connection, cleaning media

1" Clamp ISO 2852

3 Air supply – pneumatic driven only

ISO 228-G 1/8

4 Option

Magnetic sensor

5 Adjustable valve – media driven only

Pneumatic version

Dimensions (mm)

Stroke	A	B	C	D	Weight
100	100	410	510	133	5.0 kg (11.0 lbs)
150	150	510	660	183	5.5 kg (12.1 lbs)
250	250	710	960	283	6.4 kg (14.1 lbs)

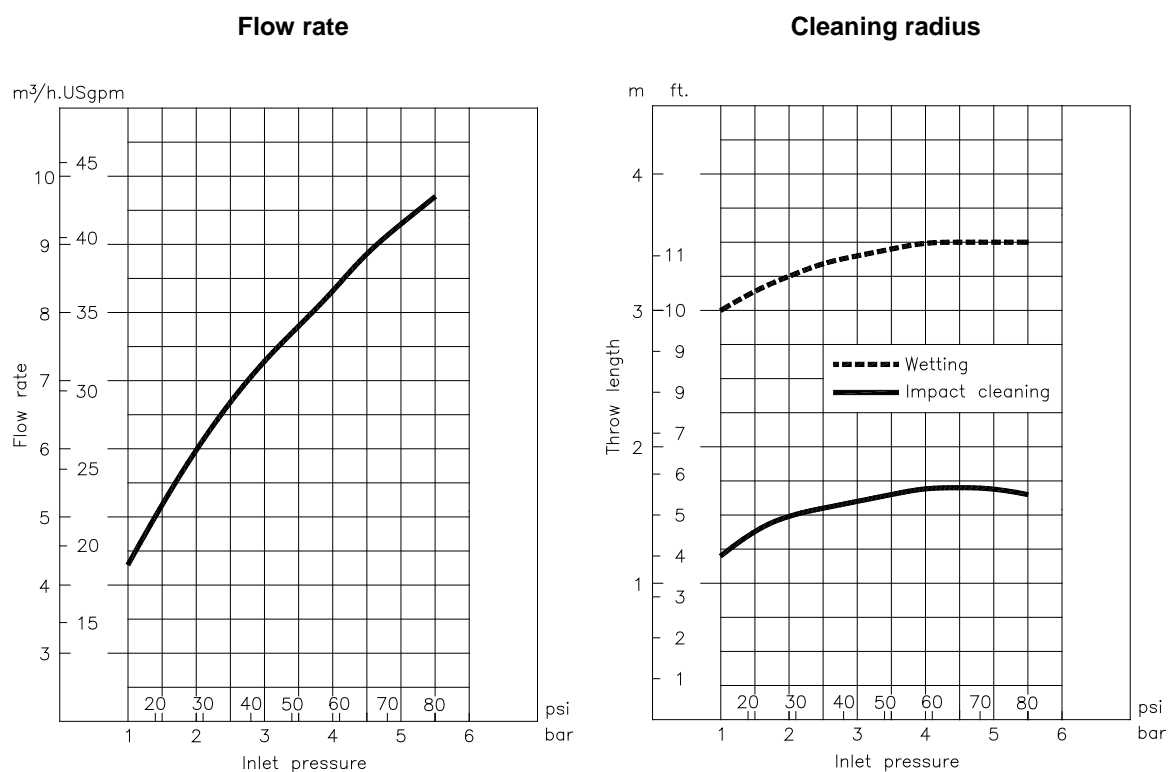
Media driven

Dimensions (mm)

Stroke	A	B	C	D	Weight
100	100	491	591	133	5.6 kg (12.4 lbs)
150	150	621	771	183	6.3 kg (13.9 lbs)
250	250	869	1119	283	7.4 kg (16.3 lbs)

Technical Data (continued)

Performance Data for Toftejorg SaniMidget Retractor



Note: The inlet pressure has been taken immediately before the machine inlet. In order to achieve the performance indicated in the curves, the pressure drop in the supply lines between pump and machine must be taken in consideration.

Performance Data for Toftejorg SaniMidget Retractor Pneumatic driven

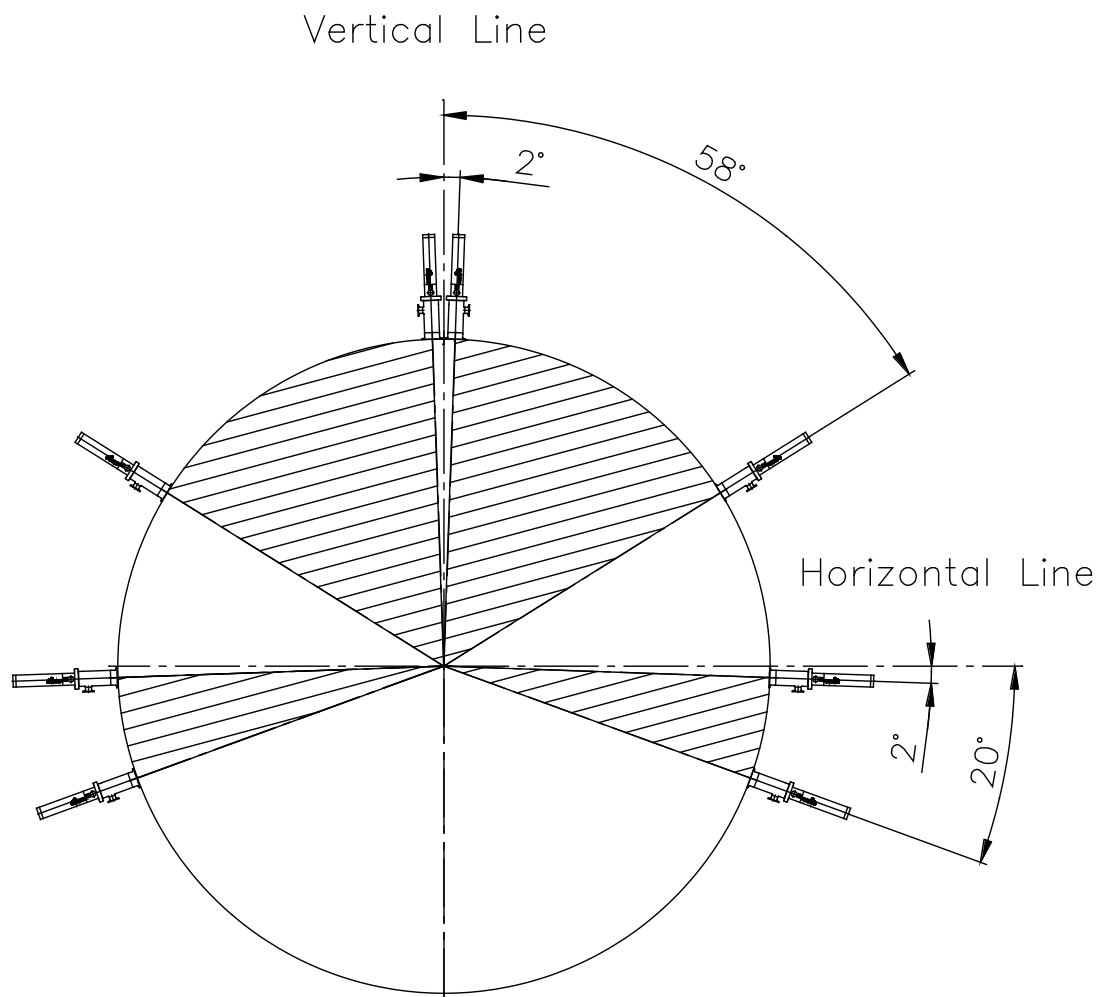
Air supply pressure	:	2-5 bar (29-75 psi)
Air quality	:	Clean filtered max. 40 µm
		Dry, dew point max. 5°C
		Non-lubricated possible

Installation and Normal Operation

General Safety and Installation Instructions

The Toftejorg SaniMidget Retractor is designed for installation according to the orientations shown below.

The Toftejorg SaniMidget Retractor is self-cleaning and self-draining when positioned in recommended positions, which is from 2 degrees to 58 degrees below vertical line and from 2 degrees to 20 degrees below horizontal line.



Hatched area = selfdraining positions

Installation and Normal Operation (continued)

General Safety and Installation Instructions

It is recommended to install a filter with mesh size 250 µm (0.01") in the supply line in order to avoid particles, scale etc. from clogging the inside of the cleaner. It is essential to avoid fine solid particles, such as fine sand, in the cleaning fluid as they will increase wear considerably, and may cause slower rotation speed or stoppage. This is particularly important in case of recirculation.

Before installation, all supply lines and valves must be thoroughly flushed to remove remains of welding electrodes, grinding dust, scale and other foreign matter.

During handling and installation handle the machine with care in order not to damage the fine surface of the machine.

The Toftejorg SaniMidget Retractor machine has been tested at the factory before shipping, in accordance with the Test Specifications.

The Toftejorg SaniMidget Retractor is intended for use inside a tank only, and must not be operated in open air or when the tank is open.

Note: The machine shall be installed in accordance with national regulations for safety and other relevant regulations and standards.

Precautions shall be made to prevent starting of the cleaning operation, while personnel are inside the tank or otherwise can be hit by jets from the nozzles.

In EU-countries the complete system must fulfil the EU-Machine Directive and depending on application, the EU-Pressure Equipment Directive, the EU-ATEX Directive and other relevant Directives and shall be CE-marked before it is set into operation.

Warning:



If the machine is used in potential explosive atmospheres, tapes or joint sealing compounds which are electrical insulators must not be used on threads or joints, unless an electrical connection is otherwise established to ensure an effective earthing. In addition, connecting pipe work, must be electrically conductive and earthed to the tank structure. The resistance between the nozzles and the tank structure should not exceed 20,000 Ohm. This is essential to avoid the build-up of static electricity on the machine.

For further information see DS/CLC/TR 50404:2003 Safety of Machinery, guidance and recommendations for the avoidance of hazards due to static electricity.

Electrical equipment such as magnetic valves and electric actuators must not be installed in Ex-zones without type approval and marking, corresponding to the EX-class in question.

Installation and Normal Operation (continued)

Normal Operation

Cleaning Media

Use only media compatible with Stainless Steel AISI 316L, PEEK and EPDM. Please note that PEEK is not resistant to concentrated sulfuric acid. Normal detergents, moderate solutions of acids and alkalis are acceptable. Aggressive chemicals, excessive concentrations of chemicals at elevated temperatures, as well as certain solvents hydrochlorides should be avoided. If you are in doubt, contact your local Alfa Laval Tank Equipment sales office.

Temperature

In accordance with the ATEX specifications regarding special conditions for safe use, see page 16.

The machine is designed to operate with cleaning media at temperatures up to 95°C (203°F). However, it stands temperatures up to 150 °C (304 °F) inside the tank, and it is possible to steam the tank through the machines, 121°C (250°F) at steam sterilisation.

**ATEX
Warning:**



Tanks with capacities greater than 100 m³ that could contain a flammable atmosphere should not be steam cleaned, as steam issuing from a nozzle could contain charged droplets.

Tanks smaller than this may be steam cleaned providing that: the steam nozzles and other metal parts of the system are reliably earthed and grounded to the tank structure.

**ATEX
Warning:**



In potentially explosive atmospheres, the temperature must not exceed the maximum surface temperature according to the temperature class for the combustible gas or liquid.

Installation and Normal Operation (continued)

Pressure

Please make sure that the connections are correctly mounted before opening of the washing valve. Put on pressure gradually in order to avoid hydraulic shocks, which might stress mechanical parts in the Toftejorg SaniMidget Retractor cleaner. Max. pressure is 5.0 bar.

ATEX Warning: If steam cleaning is done through the machine, the steam pressure must not cause the machine to rotate.



ATEX Warning: If the machine is drained using compressed air, then the compressed air pressure must not cause the machine to rotate.



After-Use Cleaning

After use flush the machine with fresh water. Cleaning media should never be allowed to dry or set-up in the system due to possible "salting out" or "scaling" of the cleaning media. If cleaning media contains volatile chloride solvents, it is recommended not to flush with water after use, as this might create hydrochloric acid.

Warning: Hot chemicals and steam under pressure may be used for cleaning and sterilising. Protect against scalding and burning. Never tamper with or try to open clamps or other connections while system is in operation. Make sure that system is de-pressurised and drained before disassembly.



Installation and Normal Operation (continued)

Special Conditions for Safe Use in accordance with the ATEX Certification, Directive 94/9/EC

**ATEX
Warning:**

The unit may be operated, in a hazardous area, only when filled with the process fluid.



**ATEX
Warning:**

The maximum permitted flush or cleaning fluid temperature is 95°C, with an ambient temperature range of 0°C to 150°C.



**ATEX
Warning:**

The maximum permitted flush or cleaning fluid pressure difference across the machine is 3 bar.



**ATEX
Warning:**

The unit must not be operated in a vessel having an enclosed volume of greater than 100m³.



**ATEX
Warning:**

The unit must be effectively earthed at all times when in use.



In addition to the above mentioned precautions relating to the ATEX guidelines Directive 94/9/EC of March 23 1994, the Safety Precautions on page 12-13 must be observed.

Maintenance and repair

Service and Repair of ATEX Approved Machines

In order to ensure compliance with the ATEX regulations for service and repair in accordance with EN 60079-19, all service and repair of ATEX approved machines should be performed by Alfa Laval Tank Equipment, Ishoej, Denmark.

Warning: ATEX requirements regarding repair of ATEX approved machines according to EN 60079-19.



A tag with the following labelling information must be attached to the machine:

- Repair symbol
- Alfa Laval logo and address
- Repair number
- Date of repair
- Machine serial number

The tag must be laminated and attached to the machine using a cable tie.

If a customer wishes to carry out service or repair himself, it is the responsibility of the repair shop to ensure that the ATEX requirements are met in any way possible. After performing service or repair, the repair shop thus carries the full responsibility for the ATEX approval of the machine.

Recommended Service Intervals

Inspection every 500 working hours. After 2000 working hours: inspection every 200 hours.

A service consists of:

0. At a pressure of 0.3 bar open a hatch in the tank to verify rotation and liquid fans are emerging from all slots. *ATTENTION: Use only pure water at normal temperature for safety reasons.*

If needed proceed to 1).

1. Un-install the machine
2. Visual inspection for foreign objects. Remove any objects and clean before rotation verification.
3. Rotation verification by hand for free rotation.
4. Reinstall machine
5. Fill in the Service Log

Maintenance and repair (continued)

Preventive Maintenance

In order to keep your tank cleaning machine servicing you as an efficient tool in your tank cleaning operations, it is essential that you maintain its high performance by following a simple preventive maintenance programme, which will help keep your tank cleaning machine in good condition.

Good maintenance is careful and regular attention!

The following recommended preventive maintenance is based on tank cleaning machines working in average conditions. However, you will appreciate that a tank cleaning machine, which has a rough and dirty job to do, will need more frequent attention than one working in ideal conditions. We trust that you will adjust your maintenance programme to suit.

Caution:



Handle machine with care. Take proper action to protect fine surfaces from being damaged.

Always use only proper tools. Use Alfa Laval Tank Equipment standard tool kit. Never force or hammer components together or apart. Always perform all assembly/disassembly steps in the order described in this manual.

Never assemble components without previous cleaning. This is especially important at all mating surfaces.

Work in a clear well-lighted work area.

Every 100 working hours

Inspect the piston, cleaner head and o-rings:

Disassembly

Disassemble machine as described on the following pages.

1. Clean material build-up and deposits from internal parts with water or suitable chemical cleaner, possibly Scotch-brite, S-Ultrafine.
2. Dismount the 1"Clamp ring, inlet connection and Gasket.
3. Dismount the 2 1/2"Clamp ring.
4. Lift up the part.
5. Remove the rear part with the piston and cleaner head.
6. Remove the clip and take off the pin from the valve and piston. The cleaner head is free from the piston.

Maintenance and repair (continued)

Check/Inspection

1. Check the cleaner head for wear and remove possible particles. Look for any damage of the slide bearings of the cleaner head and on the valve and piston. Replace new parts and cleaner head if necessary.
2. Check o-ring on valve and piston for wear and replace if necessary.

Reassembly

Reassembly is carried out in the opposite order.

Rear part Media driven

Alfa Laval Tank Equipment do not recommend or support disassembly of the rear part in the field. Please return the machine to us for disassembly.

Rear Part Pneumatic driven

Alfa Laval Tank Equipment do not recommend or support disassembly of the rear part in the field. Please return the machine to us for disassembly.

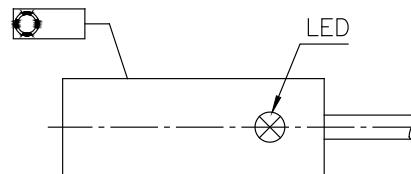
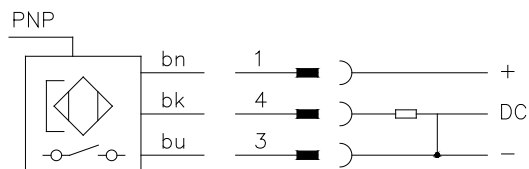
Magnetic Cylinder Sensor

Electrical and Mechanical Data

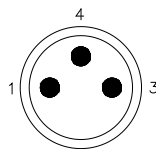
Operating voltage U_b	: 10 - 30 V DC	Wire-break protection	: Yes
Ripple U_{pp}	: $\leq 10\%$ of U_b	Reverse polarity protection	: Yes
Voltage drop U_d (at I_a max.)	: $\leq 1,5$ V	Enclosure rating to EN 60529	: IP 67
Continuous current I_a	: ≤ 300 mA	Ambient temperature T_a	: -25 - + 75°C
Hysteresis H	: ≤ 1.0 mm	Housing material	: Aluminium, plastic
Power consumption (without load)	: ≤ 10 mA	Connection table	: PUR-PVC, 3x0.25 mm ²
Time delay before availability t_v	: ≤ 2 ms	Power-up pulse suppression	: Yes
Repeatability R (U_b and T_a constant)	: ≤ 0.1 mm	Short-circuit protection (pulsed)	: Yes
EMC	: to EN 60 947-5-2	Shock and vibration stress	: 30 g. 11 ms 10 to 55 Hz. 1 mm

- High response sensitivity ≥ 3 mT
- Frontal sensing face
- No secondary switching ranges
- High repeat accuracy
- Actuating speed ≤ 5 m/s
- Short-circuit protection (pulsed)
- Solid aluminium housing
- Enclosure rating IP 67
- LED status indicator

Connection diagram

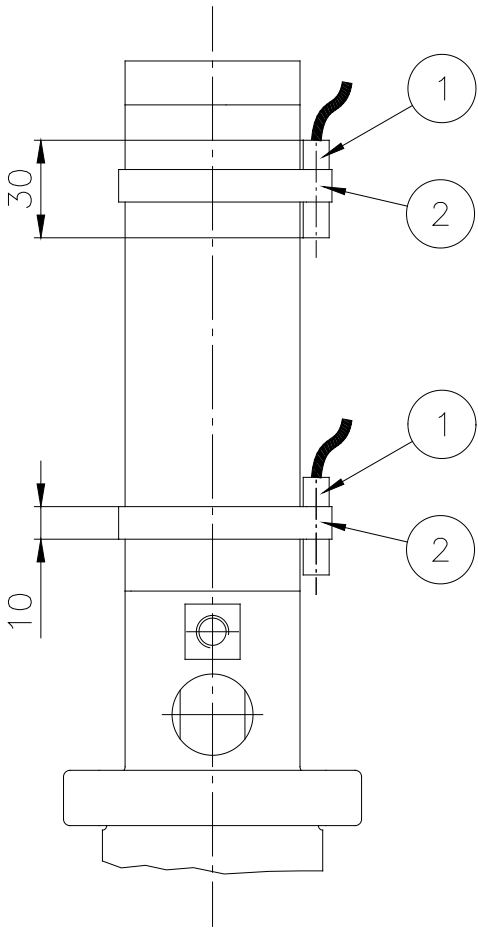


Wire colour	Contact	Assignment
bn brown	1	+ V DC
bk black	4	NO
bu blue	3	- V DC



Magnetic Cylinder Sensor (continued)

Dimensional drawing



Reference List of Parts, Magnetic Cylinder Sensor, with 2 m Cable

Pos.	Ref. no.	No/ Unit	Description	Material
1	TE51V556	2	Sensor	Aluminium, plastic
2	TE51V558	2	Mounting ring f. sensor	Plastic

Reference List of Parts, Magnetic Cylinder Sensor, with 10 m Cable

Pos.	Ref. no.	No/ Unit	Description	Material
1	TE51V557	2	Sensor	Aluminium, plastic
2	TE51V558	2	Mounting ring f. sensor	Plastic

Toftejorg SaniMidget Retractor, Media Driven

Reference List of Parts

Art. no. TE75M000_032

Pos		Ref. no.	No/ Unit	Description	Material	Remarks
1		TE75M502	1	Valve	Stainless steel	Spare part
2		TE75M533	1	Cleaner head	Polymer	Wear part
3		TE52D549	1	Spring pin	Stainless steel	Spare part
4		TE75M529	1	Lock-pin	Stainless steel	Spare part
5	<input type="checkbox"/>	See table*	1	Front tube, complete	Assy	
6	<input type="checkbox"/>	TE75M310	1	Piston, complete, stroke length = 100	Assy	Spare part
	<input type="checkbox"/>	TE75M310-15	1	Piston, complete, stroke length = 150	Assy	Spare part
	<input type="checkbox"/>	TE75M310-25	1	Piston, complete, stroke length = 250	Assy	Spare part
7		TE51S126	1	Clamp ring	Stainless steel	Spare part
8	<input type="checkbox"/>	TE75M300	1	Cylinder, compl., stroke length = 100	Assy - EPDM	Spare part
	<input type="checkbox"/>	TE75M300-15	1	Cylinder, compl., stroke length = 150	Assy - EPDM	Spare part
	<input type="checkbox"/>	TE75M300-25	1	Cylinder, compl., stroke length = 250	Assy - EPDM	Spare part
	<input type="checkbox"/>	TE75M300-00-1	1	Cylinder, compl., stroke length = 100	Assy – Viton	Spare part
	<input type="checkbox"/>	TE75M300-15-1	1	Cylinder, compl., stroke length = 150	Assy – Viton	Spare part
	<input type="checkbox"/>	TE75M300-25-1	1	Cylinder, compl., stroke length = 250	Assy - Viton	Spare part
	<input type="checkbox"/>	TE75M300-00-2	1	Cylinder, compl., stroke length = 100	Assy – Perflour	Spare part
	<input type="checkbox"/>	TE75M300-15-2	1	Cylinder, compl., stroke length = 150	Assy – Perflour	Spare part
	<input type="checkbox"/>	TE75M300-25-2	1	Cylinder, compl., stroke length = 250	Assy – Perflour	Spare part
9	<input type="checkbox"/>	TE51T166	2	O-ring	EPDM	Wear part
	<input type="checkbox"/>	TE51T167	2	O-ring	Viton	Wear part
	<input type="checkbox"/>	TE51T168	2	O-ring	Perflour	Wear part
10	<input type="checkbox"/>	TE51T169	1	O-ring	EPDM	Wear part
	<input type="checkbox"/>	TE51T170	1	O-ring	Viton	Wear part
	<input type="checkbox"/>	TE51T171	1	O-ring	Perflour	Wear part
11		TE75M508	1	Gasket	Polymer	Spare part

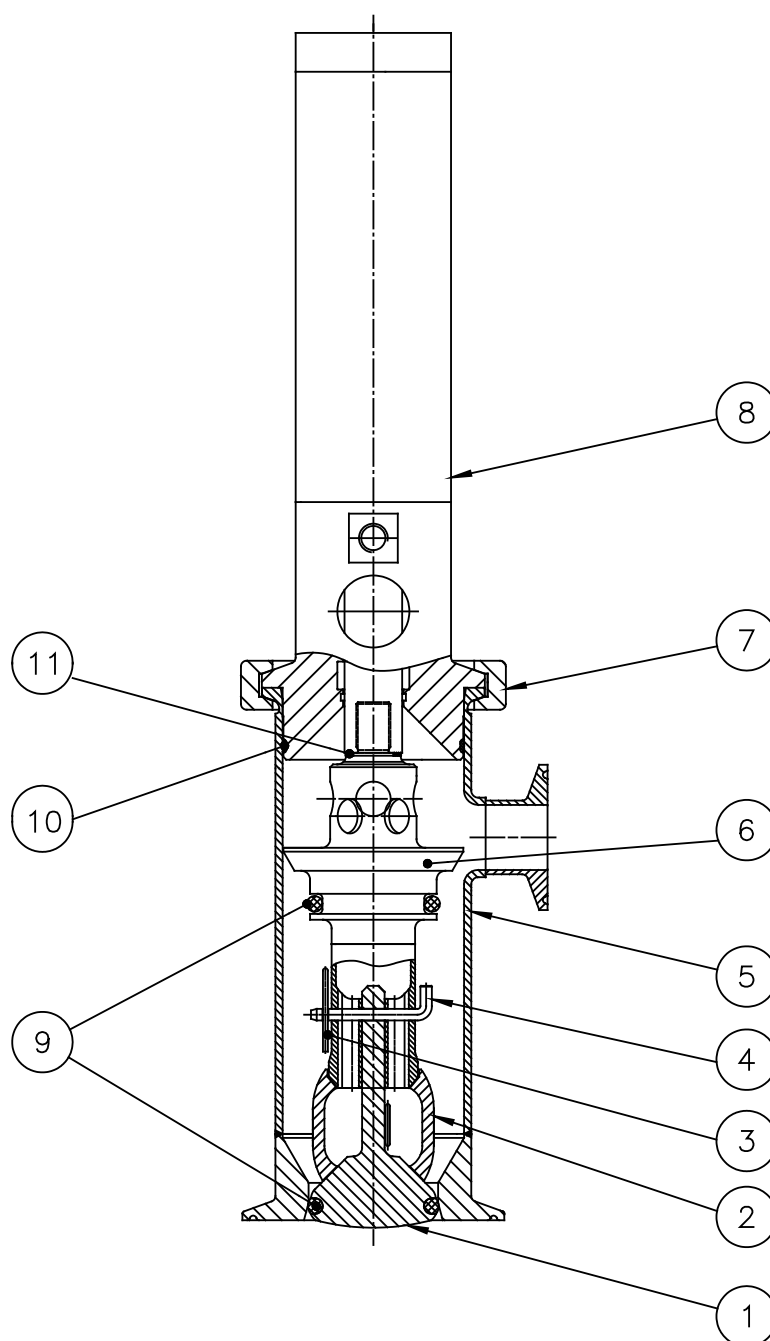
*) Pos. 5, Front tube, complete
Tank connection

Stroke length	Welding		Clamp	
	DIN 11.850	3" ISO/US	DN80 DIN 11.866	3"
100	TE75M315	TE75M316	TE75M317	TE75M318
150	-15	-15	-15	-15
250	-25	-25	-25	-25

Toftejorg SaniMidget Retractor, Media Driven (continued)

Cross Sectional Drawing

Art. no. TE75M000/032



Cylinder for Toftejorg SaniMidget Retractor, Media Driven

Reference List of Parts

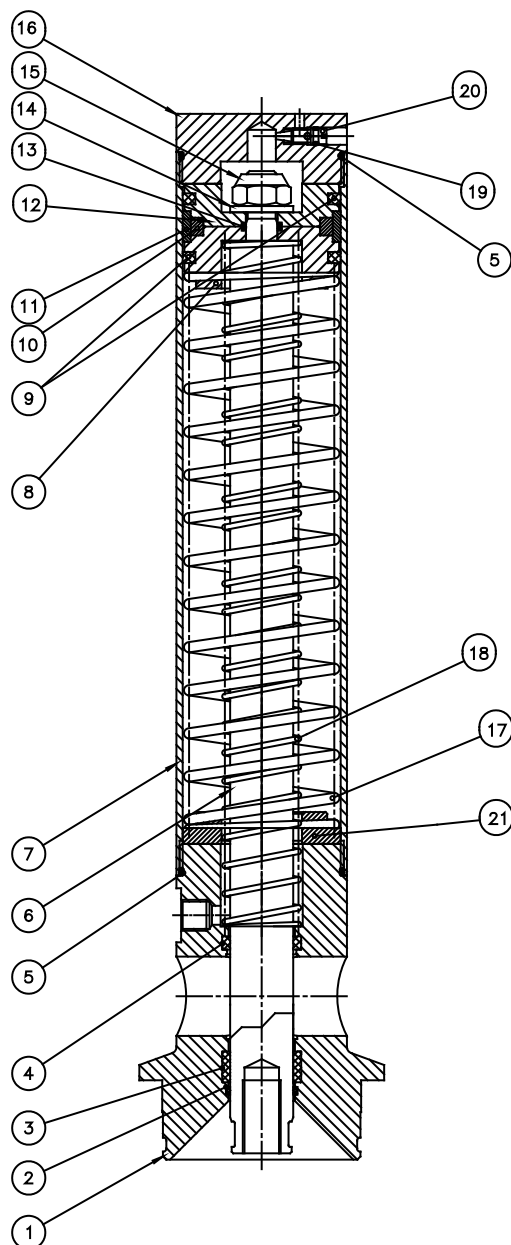
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Pos.		Ref. no.	No/ Unit	Description	Material
1		TE75M500	1	Adapter	Stainless steel
2	<input type="checkbox"/>	TE51T131	1	O-ring	EPDM
	<input type="checkbox"/>	TE51T134	1	O-ring	Viton
	<input type="checkbox"/>	TE51T133	1	O-ring	Perflour
3		TE51L076	1	Guide tape	
4		TE51T085	1	Wiper	
5		TE51T063	2	O-ring	Elastomer
6	<input type="checkbox"/>	TE75M520	1	Shaft, stroke length = 100	Stainless steel
	<input type="checkbox"/>	TE75M521	1	Shaft, stroke length = 150	Stainless steel
	<input type="checkbox"/>	TE75M522	1	Shaft, stroke length = 250	Stainless steel
7	<input type="checkbox"/>	TE75M551	1	Cylinder, stroke length = 100	Stainless steel
	<input type="checkbox"/>	TE75M551-15	1	Cylinder, stroke length = 150	Stainless steel
	<input type="checkbox"/>	TE75M551-25	1	Cylinder, stroke length = 250	Stainless steel
8		TE75M528	1	Piston	Polymer
9		TE51U500	2	Gasket for Piston	Rubber
10		TE75M550	1	Magnet ring	
11		TE51L077	1	Guide tape	
12		TE75M509	1	Piston	Polymer
13		TE51T064	1	O-ring	Elastomer
14		TE51B054	1	Washer	Stainless steel
15		TE51A524	1	Locking nut	Stainless steel
16		TE75M527	1	End cover	Stainless steel
17	<input type="checkbox"/>	TE75M605	1	Spring, stroke length = 100	
	<input type="checkbox"/>	TE75M606	1	Spring, stroke length = 150	
	<input type="checkbox"/>	TE75M607	1	Spring, stroke length = 250	
18	<input type="checkbox"/>	TE75M610	1	Spring, stroke length = 100	
	<input type="checkbox"/>	TE75M611	1	Spring, stroke length = 150	
	<input type="checkbox"/>	TE75M612	1	Spring, stroke length = 250	
19		TE51T172	1	O-ring	Elastomer
20		TE75M553	1	Air screw	Stainless steel
21		TE75M530	1	Spring connection	Polymer
22		TE51U126	1	Air filter	Stainless steel

Cylinder for Toftejorg SaniMidget Retractor, Media Driven (continued)

Cross sectional drawing

Art. nos. TE75M300, TE73M300-15, TE73M300-25, TE73M300-00-1, TE73M300-15-1, TE73M300-25-1, TE73M300-00-2, TE73M300-15-2, TE73M300-25-2



Toftejorg SaniMidget Retractor, Pneumatic Driven

Reference List of Parts

Art. nos. TE75M100_132

Pos		Ref. no.	No/ Unit	Description	Material	Remarks
1		TE75M502	1	Valve	Stainless steel	Spare part
2		TE75M533	1	Cleaner head	Polymer	Wear part
3		TE52D549	1	Spring pin	Stainless steel	Spare part
4		TE75M529	1	Lock-pin	Stainless steel	Spare part
5	<input type="checkbox"/>	See table*	1	Front tube, complete	Assy	
6	<input type="checkbox"/>	TE75M310	1	Piston, complete, stroke length = 100	Assy	Spare part
	<input type="checkbox"/>	TE75M310-15	1	Piston, complete, stroke length = 150	Assy	Spare part
	<input type="checkbox"/>	TE75M310-25	1	Piston, complete, stroke length = 250	Assy	Spare part
7		TE51S126	1	Clamp ring	Stainless steel	Spare part
8	<input type="checkbox"/>	TE75M302	1	Pneumatic cylinder, compl., stroke length = 100	Assy, EPDM	Spare part
	<input type="checkbox"/>	TE75M302-15	1	Pneumatic cylinder, compl., stroke length = 150	Assy, EPDM	Spare part
	<input type="checkbox"/>	TE75M302-25	1	Pneumatic cylinder, compl., stroke length = 250	Assy, EPDM	Spare part
	<input type="checkbox"/>	TE75M302-00-1	1	Pneumatic cylinder, compl., stroke length = 100	Assy, Viton	Spare part
	<input type="checkbox"/>	TE75M302-15-1	1	Pneumatic cylinder, compl., stroke length = 150	Assy, Viton	Spare part
	<input type="checkbox"/>	TE75M302-25-1	1	Pneumatic cylinder, compl., stroke length = 250	Assy, Viton	Spare part
	<input type="checkbox"/>	TE75M302-00-2	1	Pneumatic cylinder, compl., stroke length = 100	Assy, Perflour	Spare part
	<input type="checkbox"/>	TE75M302-15-2	1	Pneumatic cylinder, compl., stroke length = 150	Assy, Perflour	Spare part
	<input type="checkbox"/>	TE75M302-25-2	1	Pneumatic cylinder, compl., stroke length = 250	Assy, Perflour	Spare part
9	<input type="checkbox"/>	TE51T166	2	O-ring	EPDM	Wear part
	<input type="checkbox"/>	TE51T167	2	O-ring	Viton	Wear part
10	<input type="checkbox"/>	TE51T168	2	O-ring	Perflour	Wear part
	<input type="checkbox"/>	TE51T169	1	O-ring	EPDM	Wear part
	<input type="checkbox"/>	TE51T170	1	O-ring	Viton	Wear part
	<input type="checkbox"/>	TE51T171	1	O-ring	Perflour	Wear part
11		TE75M508	1	Gasket	Polymer	Spare part

*) Pos. 5, Front tube, complete

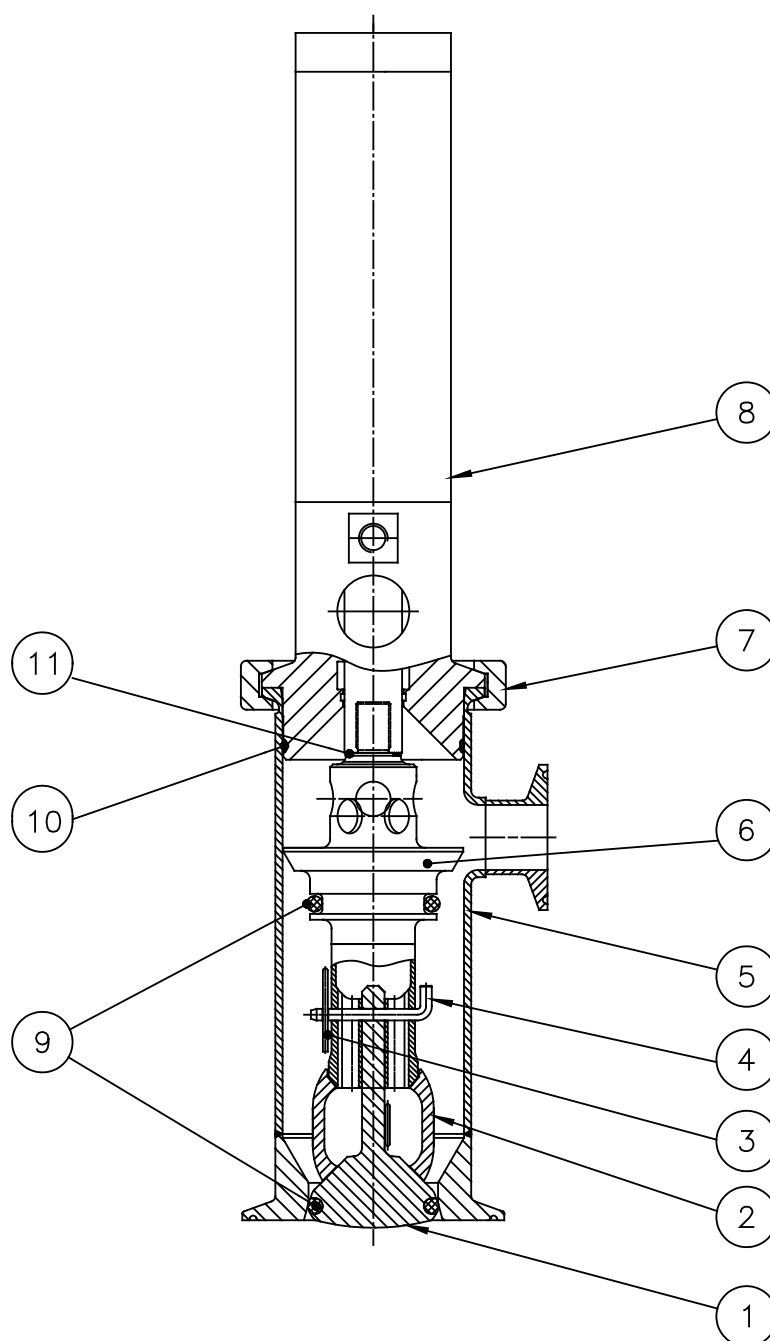
Tank connection

Stroke length	Welding		Clamp	
	DIN 11.850	3" ISO/US	DN80 DIN 11.866	3"
100	TE75M315	TE75M316	TE75M317	TE75M318
150	-15	-15	-15	-15
250	-25	-25	-25	-25

Toftejorg SaniMidget Retractor, Pneumatic Driven (continued)

Cross Sectional Drawing

Art. nos. TE75M100_132



Cylinder for Toftejorg SaniMidget Retractor, Pneumatic Driven

Reference List of Parts

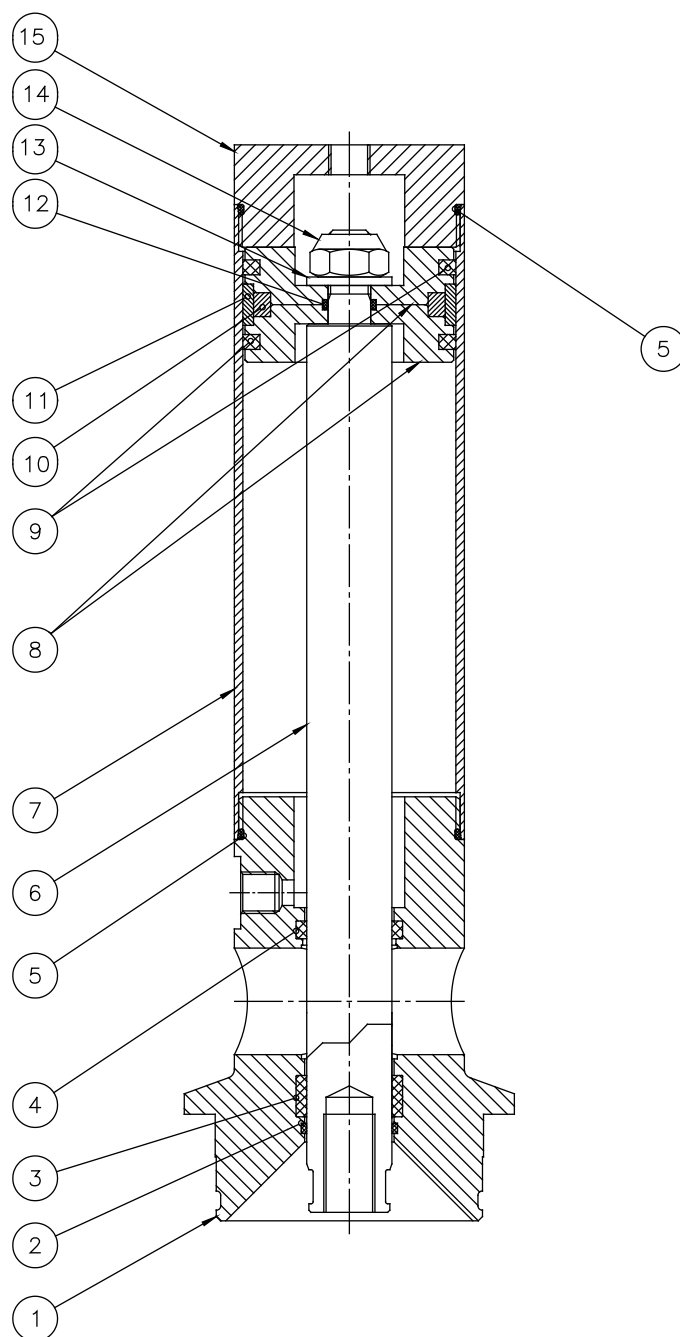
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Pos.		Ref. no.	No/ Unit	Description	Material
1		TE75M500	1	Adapter	Stainless steel
2	<input type="checkbox"/>	TE51T131	1	O-ring	EPDM
	<input type="checkbox"/>	TE51T134	1	O-ring	Viton
	<input type="checkbox"/>	TE51T133	1	O-ring	Perflour
3		TE51L076	1	Guide tape	
4		TE51T085	1	Wiper	
5		TE51T063	2	O-ring	Elastomer
6	<input type="checkbox"/>	TE75M590	1	Shaft, stroke length = 100	Stainless steel
	<input type="checkbox"/>	TE75M591	1	Shaft, stroke length = 150	Stainless steel
	<input type="checkbox"/>	TE75M592	1	Shaft, stroke length = 250	Stainless steel
7	<input type="checkbox"/>	TE75M552	1	Cylinder, stroke length = 100	Stainless steel
	<input type="checkbox"/>	TE75M552-15	1	Cylinder, stroke length = 150	Stainless steel
	<input type="checkbox"/>	TE75M552-25	1	Cylinder, stroke length = 250	Stainless steel
8		TE75M509	2	Piston	Polymer
9		TE51U500	2	Gasket for Piston	Rubber
10		TE75M550	1	Magnet ring	
11		TE51L077	1	Guide tape	
12		TE51T064	1	O-ring	Elastomer
13		TE51B054	1	Washer	Stainless steel
14		TE51A524	1	Locking nut	Stainless steel
15		TE75M538	1	End cover	Stainless steel

Cylinder for Toftejorg SaniMidget Retractor, Pneumatic Driven

Cross sectional drawing

Art. nos. TE75M302, TE73M302-15, TE73M302-25, TE73M302-00-1, TE73M302-15-1, TE73M302-25-1, TE73M302-00-2, TE73M302-15-2, TE73M302-25-2



Toftejorg SaniMidget Retractor, Pneumatic Driven, Spring Return

Reference List of Parts

Art. nos. TE75M200/232

Pos		Ref. no.	No/ Unit	Description	Material	Remarks
1		TE75M502	1	Valve	Stainless steel	Spare part
2		TE75M533	1	Cleaner head	Polymer	Wear part
3		TE52D549	1	Spring pin	Stainless steel	Spare part
4		TE75M529	1	Lock-pin	Stainless steel	Spare part
5	<input type="checkbox"/>	See table*	1	Front tube, complete	Assy	
6	<input type="checkbox"/>	TE75M311	1	Piston, complete, stroke length = 100	Assy	Spare part
	<input type="checkbox"/>	TE75M311-15	1	Piston, complete, stroke length = 150	Assy	Spare part
	<input type="checkbox"/>	TE75M311-25	1	Piston, complete, stroke length = 250	Assy	Spare part
7		TE51S126	1	Clamp ring	Stainless steel	Spare part
8	<input type="checkbox"/>	TE75M303	1	Pneumatic cylinder, compl., stroke length = 100	Assy, EPDM	Spare part
	<input type="checkbox"/>	TE75M303-15	1	Pneumatic cylinder, compl., stroke length = 150	Assy, EPDM	Spare part
	<input type="checkbox"/>	TE75M303-25	1	Pneumatic cylinder, compl., stroke length = 250	Assy, EPDM	Spare part
	<input type="checkbox"/>	TE75M303-00-1	1	Pneumatic cylinder, compl., stroke length = 100	Assy, Viton	Spare part
	<input type="checkbox"/>	TE75M303-15-1	1	Pneumatic cylinder, compl., stroke length = 150	Assy, Viton	Spare part
	<input type="checkbox"/>	TE75M303-25-1	1	Pneumatic cylinder, compl., stroke length = 250	Assy, Viton	Spare part
	<input type="checkbox"/>	TE75M303-00-2	1	Pneumatic cylinder, compl., stroke length = 100	Assy, Perflour	Spare part
	<input type="checkbox"/>	TE75M303-15-2	1	Pneumatic cylinder, compl., stroke length = 150	Assy, Perflour	Spare part
	<input type="checkbox"/>	TE75M303-25-2	1	Pneumatic cylinder, compl., stroke length = 250	Assy, Perflour	Spare part
9	<input type="checkbox"/>	TE51T166	2	O-ring	EPDM	Wear part
	<input type="checkbox"/>	TE51T167	2	O-ring	Viton	Wear part
10	<input type="checkbox"/>	TE51T168	2	O-ring	Perflour	Wear part
	<input type="checkbox"/>	TE51T169	1	O-ring	EPDM	Wear part
	<input type="checkbox"/>	TE51T170	1	O-ring	Viton	Wear part
	<input type="checkbox"/>	TE51T171	1	O-ring	Perflour	Wear part
11		TE75M508	1	Gasket	Polymer	Spare part

*) Pos. 5, Front tube, complete

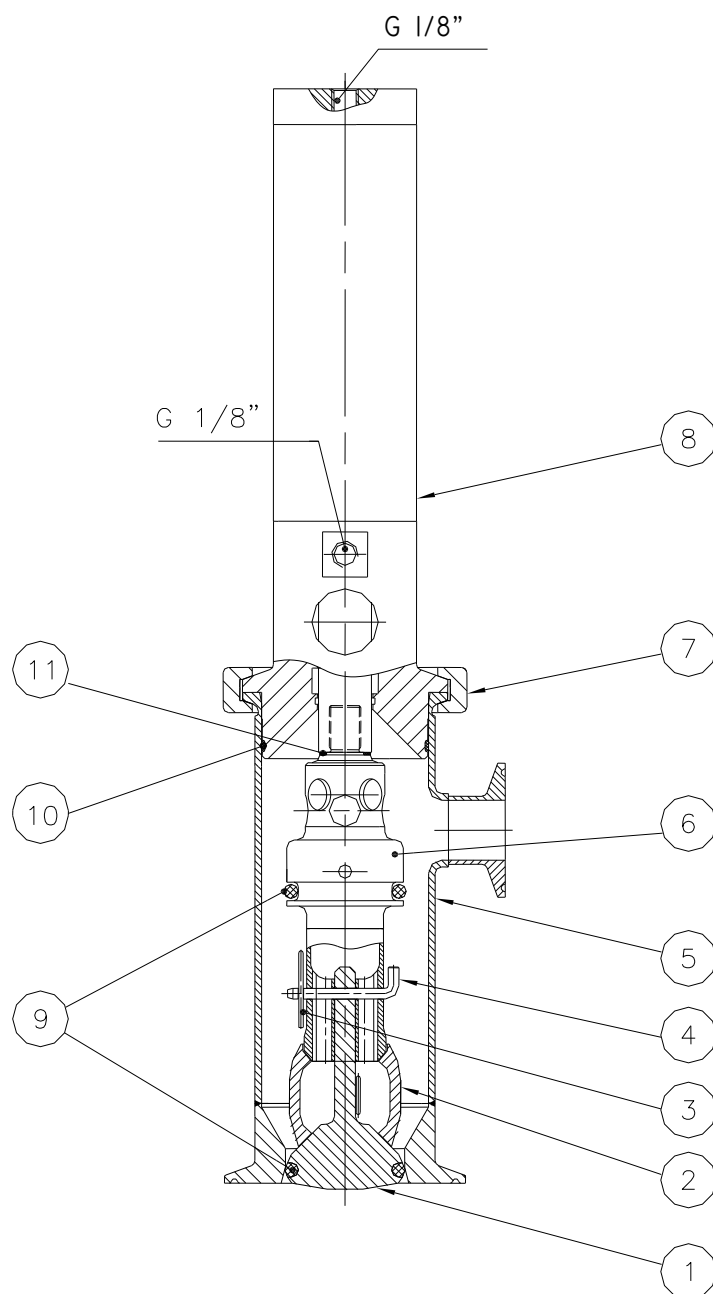
Tank connection

Stroke length	Welding		Clamp	
	DIN 11.850	3" ISO/US	DN80 DIN 11.866	3"
100	TE75M315	TE75M316	TE75M317	TE75M318
150	-15	-15	-15	-15
250	-25	-25	-25	-25

Toftejorg SaniMidget Retractor, Pneumatic Driven, Spring Return

Cross Sectional Drawing

Art. nos. TE75M200/232



Cylinder for Toftejorg SaniMidget Retractor, Pneumatic Driven, Spring Return

Reference List of Parts

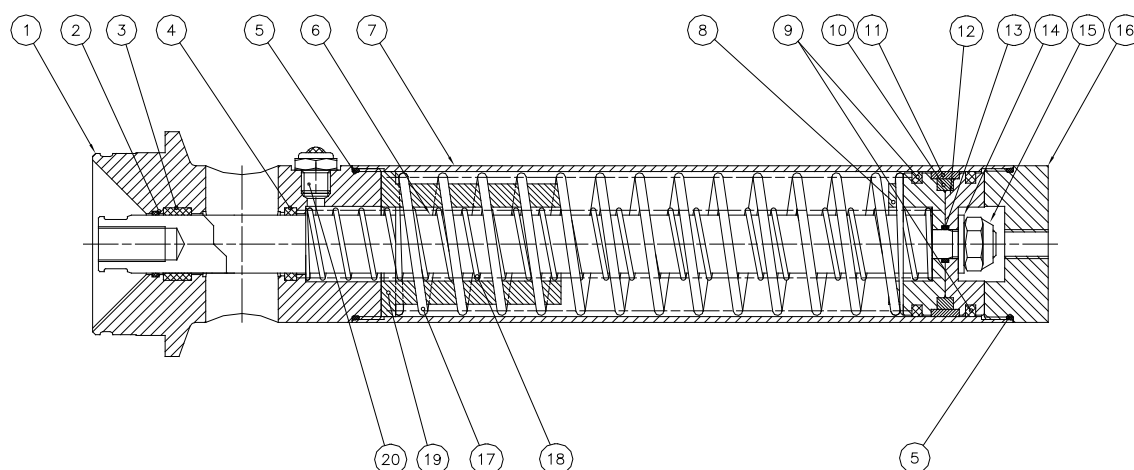
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Pos.		Ref. no.	No/ Unit	Description	Material
1		TE75M500	1	Adapter	Stainless steel
2	<input type="checkbox"/>	TE51T131	1	O-ring	EPDM
	<input type="checkbox"/>	TE51T134	1	O-ring	Viton
	<input type="checkbox"/>	TE51T133	1	O-ring	Perflour
3		TE51L076	1	Guide tape	
4		TE51T085	1	Wiper	
5		TE51T063	2	O-ring	Elastomer
6	<input type="checkbox"/>	TE75M520	1	Shaft, stroke length = 100	Stainless steel
	<input type="checkbox"/>	TE75M521	1	Shaft, stroke length = 150	Stainless steel
	<input type="checkbox"/>	TE75M522	1	Shaft, stroke length = 250	Stainless steel
7	<input type="checkbox"/>	TE75M551	1	Cylinder, stroke length = 100	Stainless steel
	<input type="checkbox"/>	TE75M551-15	1	Cylinder, stroke length = 150	Stainless steel
	<input type="checkbox"/>	TE75M551-25	1	Cylinder, stroke length = 250	Stainless steel
8		TE75M528	1	Piston	Polymer
9		TE51U500	2	Gasket for Piston	Rubber
10		TE75M550	1	Magnet ring	
11		TE51L077	1	Guide tape	
12		TE75M509	1	Piston	Polymer
13		TE51T064	1	O-ring	Elastomer
14		TE51B054	1	Washer	Stainless steel
15		TE51A524	1	Locking nut	Stainless steel
16		TE75M538	1	End cover	Stainless steel
17	<input type="checkbox"/>	TE75M605	1	Spring	
	<input type="checkbox"/>	TE75M606	1	Spring	
	<input type="checkbox"/>	TE75M607	1	Spring	
18	<input type="checkbox"/>	TE75M610	1	Spring	
	<input type="checkbox"/>	TE75M611	1	Spring	
	<input type="checkbox"/>	TE75M612	1	Spring	
19		TE75M531	1	Spring connection	Polymer
20		TE51U126	1	Air filter	Stainless steel

Cylinder for Toftejorg SaniMidget Retractor, Pneumatic Driven, Spring Return

Cross sectional drawing

Art. nos. TE75M303, TE73M303-15, TE73M303-25, TE73M303-00-1, TE73M303-15-1, TE73M303-25-1, TE73M303-00-2, TE73M303-15-2, TE73M303-25-2



How to Order Spare Parts and Claim Procedure

How to Order Spare Parts

The cross sectional drawings on page 23, 27, 25 and 29 show that the individual parts have a position number. From the Position number the part is easily identified in the Reference Lists of Parts, page 22, 24, 24, 28. For the magnetic sensor system the individual parts have a position number, and all are listed in the Reference list of Parts page 21.

Individual parts should always be ordered from the Reference Lists of Parts, page 22, 24, 24, 28. Ref. number and description should be clearly stated. please also quote the type of machine and serial number. This will help us to help you.

The article number and serial number are placed on the front of the tank cleaning machine, SMR XXXXXX/YYYY-YYY (article number/serial number).

Spare part kit

Standard Spare Part Kit for Toftejorg SaniMidget Retractor, Article No. TE75M299

Part No.	Description	No.
TE75M533	Cleaner head	1 pc.
TE52D549	Spring pin	1 pc.
TE75M529	Lock-pin	1 pc.
TE51T166	O-ring	2 pcs.
TE51T169	O-ring	1 pc.

Claim Procedure

In case of failure that needs assistance from Alfa Laval Tank Equipment, it is essential for our evaluation that the problem, as well as the working conditions of the machine, is described as detailed as possible.

How to contact Alfa Laval Tank Equipment

For further information please feel free to contact:

Alfa Laval Tank Equipment

Alfa Laval Kolding A/S

31, Albuen - DK 6000 Kolding - Denmark

Registration number: 30938011

Tel switchboard: +45 79 32 22 00 - Fax switchboard: +45 79 32 25 80

www.toftejorg.com , www.alfalaval.dk - info.dk@alfalaval.com

Contact details for all countries are continually updated on our websites.

Declaration of Conformity



EC Declaration of Conformity

The designated company

Alfa Laval Kolding A/S
Company name

Albuen 31, 6000 Kolding, Denmark
Address

+45 79 32 22 00
Phone no.

hereby declare that

Tank Cleaning Machine
Denomination

Toftejorg SaniMidget Retractor
Type

valid for serial numbers from 2014-00001 and subsequent serial numbers.

is in conformity with the following regulations and directives with amendments:

- **FDA 21CFR§177**
- **The Machinery Directive 2006/42/EC**
DS/EN ISO 12100:2010
- **The Regulation (EC) 1935/2004**
- **The Pressure Directive 97/23/EC**
According to its own volume and the rated pressure range the product is regarded as Article 3, paragraph 3 Equipment
- **The Equipment Explosive Atmospheres (ATEX) Directive 94/9/EC**
(Applicable for machine certified as category 1 and 2 component, see machine engraving)
DS/EN 13463-1:2009, DS/EN 13463-5:2011,
DS/EN ISO/IEC 80079-34:2011, Annex A, paragraph A.5.3 Rotating machines
EC Type Examination Certificate no. Baseefa11ATEX0051X
Marking: II 1GD c T188°C T_{amb} 0°C to +150°C
Baseefa Ltd., Certification body number 1180, Rockhead Business Park
Staden Lane, Buxton, Derbyshire SK17 9RZ, United Kingdom

The technical construction file is retained at the above address.

R&D Manager
Title

Henrik Faister Hansen
Name

Signature

ATEX Responsible Engineer
Title

Denniz Høxbroe
Name

Signature

September 25, 2014
Date

Alfa Laval Kolding A/S
Company



How to contact Alfa Laval

Contact details for all countries are continually updated on our website.

Please visit www.alfalaval.com to access the information directly.

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