



Instruction Manual

Alfa Laval Toftejorg™ SaniMidget Retractor



Covering:
Standard Machines
Machines delivered with ATEX Certification in accordance with Directive 2014/34/EU
First published: August 2004
TE91A750

ESE01843-EN7 2017-06

Original manual

The information herein is correct at the time of issue but may be subject to change without prior notice

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1 EC/EU Declaration of Conformity

The Designated Company

Alfa Laval Kolding A/S

Company Name

Albuen 31, DK-6000 Kolding, Denmark

Address

+45 79 32 22 00

Phone No.

hereby declare that

Tank Cleaning Machine

Designation

Alfa Laval Toftejorg SaniMidget Retractor

Type

From serial number 2016-0001 to 2030-99999

is in conformity with the following directive with amendments:

FDA 21CFR§177

Machinery Directive 2006/42/EC

DS/EN ISO 12100:2011

The Pressure Directive 97/23/EC

According to its own volume and the rated pressure range, the product is regarded an Article 3, paragraph 3 Equipment

Equipment Explosive Atmospheres (ATEX) Directive 2014/34/EU

(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. Baseefa11ATEX000051X

Marking:  II 1 GD 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 person authorised to compile the technical file is the signer of this document

Global Product Quality Manager
Pumps, Valves, Fittings and Tank Equipment

Title

Lars Kruse Andersen

Name



Signature

ATEX Responsible Engineer

Title

Denniz Høxbroe

Name



Signature

Kolding

Place

2016-05-01

Date

(This Declaration of Conformity replaces Declaration of Conformity dated 2016-01-01)



*Unsafe practices and other important information are emphasized in this manual.
Warnings are emphasized by means of special signs.
Always read the manual before using the tank cleaning machine!*

2.1 Important information

WARNING

Indicates that special procedures must be followed to avoid serious personal injury.

CAUTION

Indicates that special procedures must be followed to avoid damage to the tank cleaning machine

NOTE

Indicates important information to simplify or clarify procedures.

2.2 Warning signs

General warning:



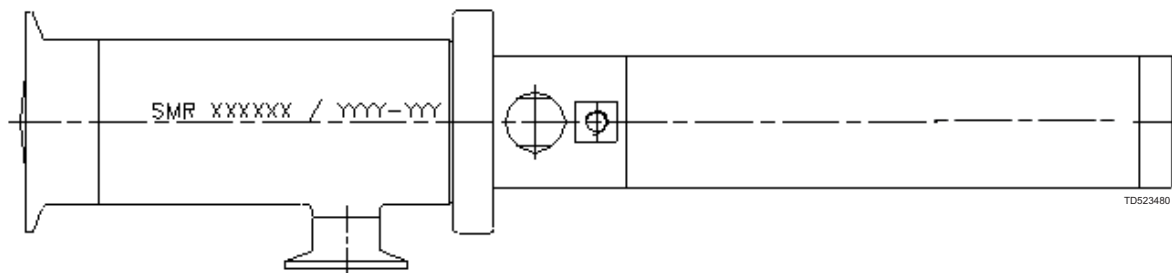
3 Introduction

SaniMidget Retractor

3.1 Introduction

This manual has been prepared as a guide for installing, operating and maintaining your Alfa Laval Toftejorg tank cleaning machine. Should you require further assistance, our Technical Sales Support department and worldwide net of sales offices will be pleased to help you.

Please quote the type, article and serial numbers with all of your enquiries; this helps us to help you. The type and serial number are placed on the front of the machine, SMR XXXXXX/YYY-YY (article number/serial number).



Important information:



Before installing the machine and setting it into operation, carefully read the General Safety and Installation Instructions (page 12) and the special conditions for safe use in accordance with ATEX Certification Directive 2014/34/EU (page 14) 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.

The English version of the instruction manual is the original manual. We make reservations in regard to possible mistranslations in language versions of the instruction manual. In case of doubt, the English version of the instruction manual applies.

3.2 Intended use

The end-user should verify:

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

3.3 Patents and trademarks

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

Alfa Laval Kolding A/S. All rights reserved.

The Alfa Laval logotype is a trademark or a registered trademark of Alfa Laval Corporate AB. "Toftejorg" is a trademark or registered trademark of Alfa Laval. Other products or company names mentioned herein may be the trademarks of their respective owners. Any rights not expressly granted herein are reserved.

3.4 ATEX marking

If ordered with ATEX certificate:

The Alfa Laval Toftejorg SaniMidget Retractor is certified as category I components. The certification is carried out by the notified body Baseefa, who has issued the certificate no. 11ATEX0051X. The marking on the ATEX certified Alfa Laval Toftejorg SaniMidget Retractor is as follows:

**Rotary Spray Head
SaniMidget Retractor
s/n.: yyyy-xxxxx**

Alfa Laval, DK-6000 Kolding, Albuen 31
 II 1GD c T188°C Tamb 0°C-150°C
 1180 Baseefa 11ATEX0051X

Temp. operation: Max. 95°C
 Temp. ambient: Max. 150°C
 Pressure: Max. 5 bar

75Mxxx-xx: SaniMidget Retractor type
 YYYY-zzzz: Serial number
 (Year-AL serial no.)

Changes to the machine are not allowed without approval by the person responsible for the ATEX certification at Alfa Laval Kolding A/S. 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 16 regarding special conditions for repair of ATEX certified machines.



3 Introduction

SaniMidget Retractor

3.5 Quality system

The Alfa Laval Toftebjerg 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 Kolding'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.

4.1 General description

The Alfa Laval Toftebjerg 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 Alfa Laval Toftebjerg 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 Alfa Laval Toftebjerg 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 threads or screws have been used in the product contact areas.

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

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

The Alfa Laval Toftebjerg 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 Alfa Laval Toftebjerg 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.

4 Installation

SaniMidget Retractor

4.2 Functioning

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

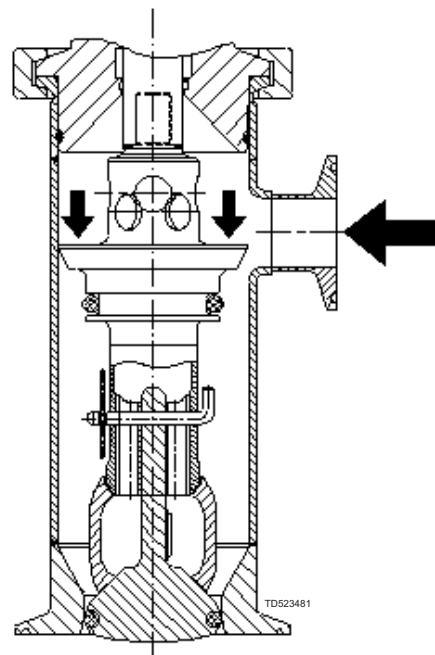
ATEX warning: The speed at which the spray ball is deployed (extended to the open position) must not exceed 0.5 m/s. Ensure that the cleaning media pressure does not exceed 3 bar max.



Media Driven

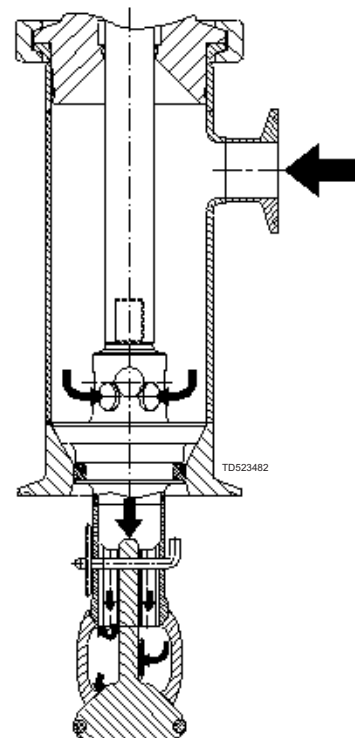
In the cleaning media operated version the cleaner head extends from the pressure of the cleaning media and is retracted by a spring.

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

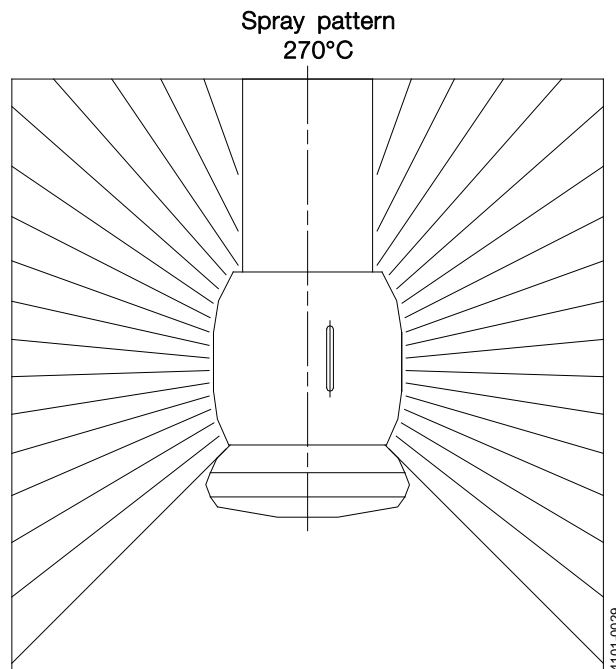
In the pneumatic operated version, the cleaner head is extended and retracted by an integrated pneumatic cylinder. The cleaner head is extended when air is applied to the pneumatic cylinder, which must be done before cleaning media supply has started. It is retracted to its initial position when cleaning 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 speed at which the spray ball is deployed (extended to the open position) must not exceed 0.5 m/s. Ensure that the cleaning media pressure does not exceed 3 bar max.



In both media and pneumatic driven Alfa Laval 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 Alfa Laval Toftejorg SaniMidget Retractor



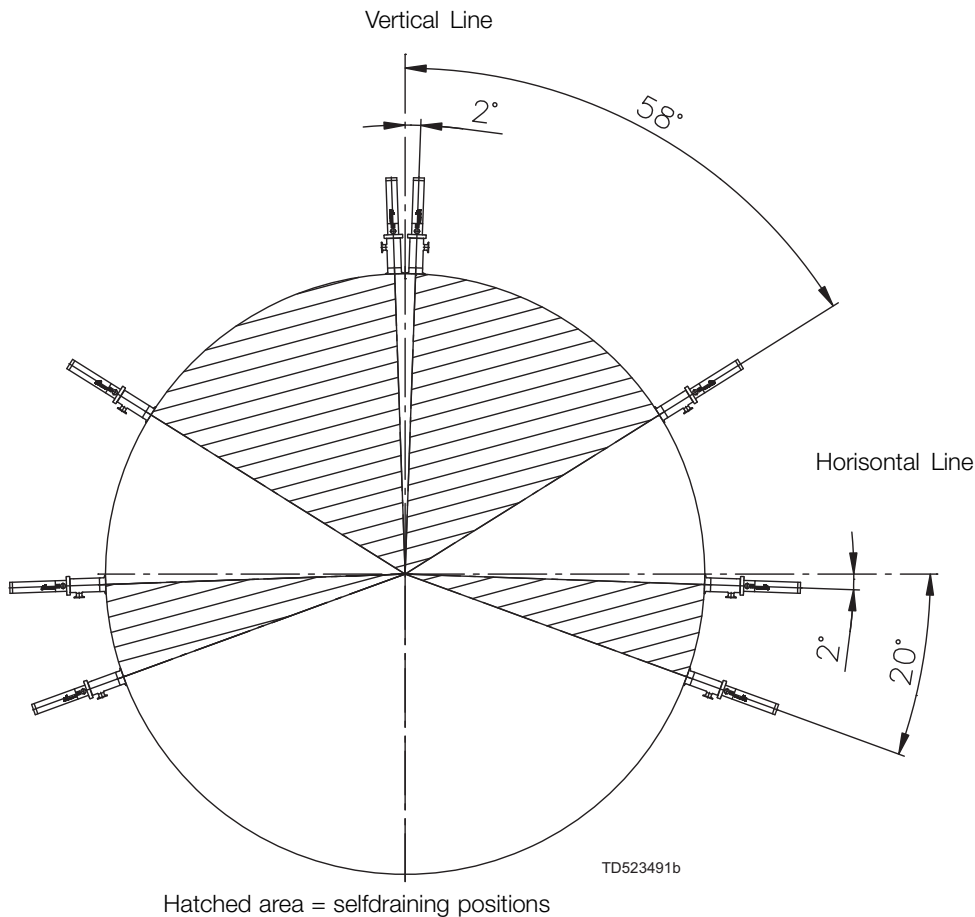
4 Installation

SaniMidget Retractor

4.3 General safety and installation instructions

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

The Alfa Laval 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.



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

The Alfa Laval 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 of 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 IEC/TS 60079-32-1:2013 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.

4 Installation

SaniMidget Retractor

4.4 Special conditions for safe use in accordance with ATEX certification

Directive 2014/34/EU

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



ATEX warning: The maximum permitted process fluid temperature is 95°C, with an ambient temperature range of 0°C to 150°C.



ATEX warning: The maximum permitted fluid pressure 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.



ATEX warning: The unit shall be operated in line with the guidance provided in IEC/TS 60079-32-1 for tank cleaning.



In addition to the above mentioned precautions relating to the ATEX guidelines Directive 2014/34/EU, the Safety Precautions on page 12 must be observed.

5.1 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 sales office.

Temperature

In accordance with the ATEX specifications regarding special conditions for safe use, see page 14. 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.

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 Alfa Laval 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.

ATEX 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.

6 Maintenance

SaniMidget Retractor

6.1 Service and Repair of ATEX Certified Machines

All service and repair of ATEX certified machines can be performed by Alfa Laval Kolding A/S, Denmark or by an Alfa Laval service center approved by Alfa Laval Kolding A/S.

**ATEX
Warning:**



In order to ensure compliance with the ATEX regulations and keep the machine ATEX certification valid the service or repair must be performed by an authorized person with knowledge of the ATEX requirements and regulations.

All spare parts must be original Alfa Laval spare parts and the repair or service must be done according to the instructions in the related manual.

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 traceability of all relevant documents in order to ensuring the retention of the ATEX certification of the machine.

6.2 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.

6.3 Preventive Maintenance

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

6 Maintenance

SaniMidget Retractor

Every 100 working hours

Inspect the piston, cleaner head and o-rings:

Disassembly

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.

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

1. Reassembly is carried out in the opposite order.

Rear part Media Driven

Alfa Laval Kolding A/S do not recommend or support disassembly of the rear part in the field. Please return the machine to us for disassembly.

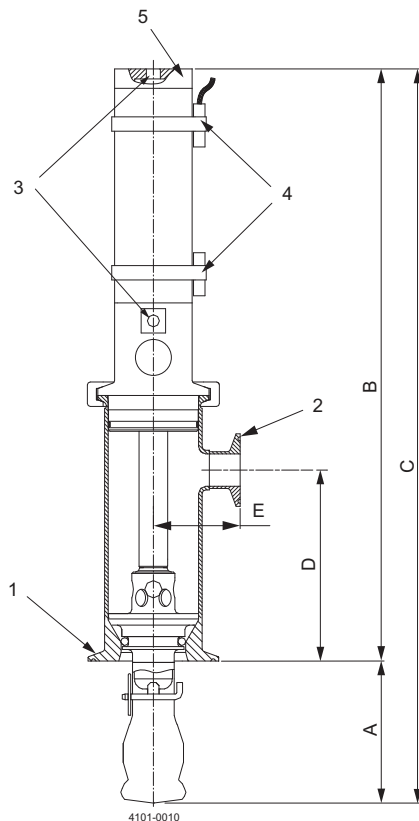
Rear part Pneumatic Driven

Alfa Laval Kolding A/S do not recommend or support disassembly of the rear part in the field. Please return the machine to us for disassembly.

7.1 Alfa Laval Toftejorg SaniMidget Retractor

Weight of machine:	See table below
Working pressure:	2-5 bar (29-73 psi)
Recommended inlet 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 contact surfaces: Ra = 0.8 µm - except weldings
	Self-lubricant with the cleaning media

Principal dimensions in mm



- 1 Tank connection
- 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

E See tables next page

7 Technical data

SaniMidget Retractor

Dimensions (mm)

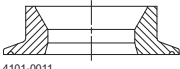
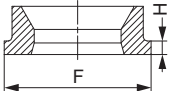
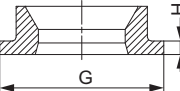
Pneumatic driven

Stroke	A	B	C	D	E	F	G	H	Weight
100	100	409	509	133	58.5	ø76.1	ø85	7	5.6 kg (12.4 lbs)
150	150	509	659	183	58.5	ø76.1	ø85	7	6.3 kg (13.9 lbs)
250	250	709	959	283	58.5	ø76.1	ø85	7	7.4 kg (16.3 lbs)

Media driven version + Pneumatic driven version with Spring return

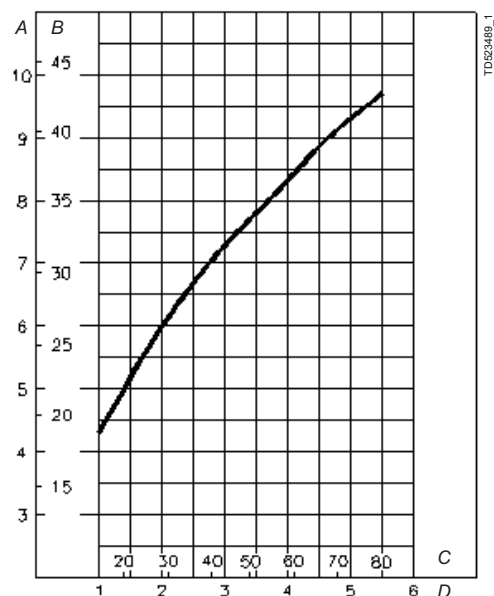
Stroke	A	B	C	D	E	F	G	H	Weight
100	100	479	579	133	58.5	ø76.1	ø85	7	5.6 kg (12.4 lbs)
150	150	609	759	183	58.5	ø76.1	ø85	7	6.3 kg (13.9 lbs)
250	250	869	1119	283	58.5	ø76.1	ø85	7	7.4 kg (16.3 lbs)

Tank connections

Tank Connection		
Clamp	Welded	Welded
		
3" Clamp ISO 2852 DN80 DIN11.866	3" ISO 2037/US	DN80 DIN 11.850

Performance Data

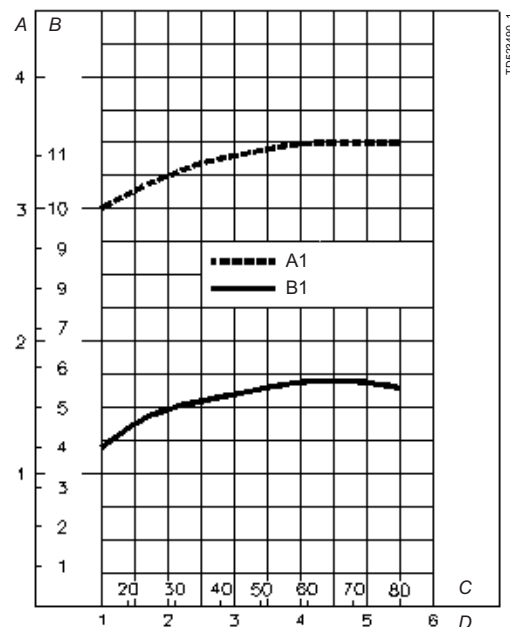
Flow rate



Inlet pressure

A: m³/h. B: USgpm. C: psi. D: bar

Throw length



Inlet pressure

A: m. B: ft. C: psi. D: bar
A1: Wetting. B1: Impact

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 into consideration.

Performance Data for Alfa Laval Tofteborg 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

7 Technical data

SaniMidget Retractor

7.2 Proximity sensors - accessories

Proximity sensors can be used to indicate if the SSB Retractor unit is either fully open, fully closed or both.

Alfa Laval offers supply of proximity sensors for subsequent assembly.

ATEX warning:



If Proximity sensors are fitted the SSB Retractor, the assembler or the end user is fully responsible for the assembly and the associated risk assessment and ATEX approval.

If this option is required, two sensors will be required for each position.

Standard sensor:	TE75P507
ATEX sensor:	TE75P596-70

If the SSB Retractor is being ordered with ATEX Certification it is important to note that if a sensor is fitted the ATEX Category & Zone in which the SSB Retractor can be used will be effected.

The SSB Retractor is ATEX Category 1 but if sensors are fitted the unit will assume the lower ATEX rating of the Proximity Sensor.

If sensors are required for an ATEX environment please consult Alfa Laval.

ATEX warning:



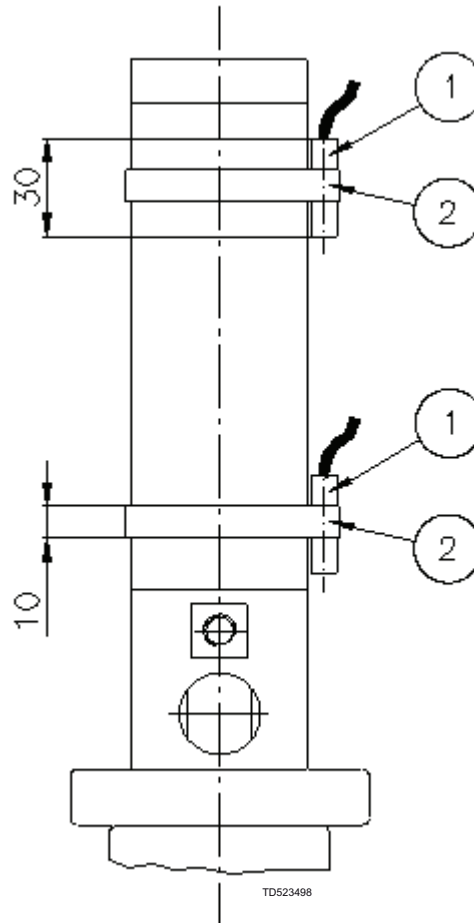
It is important to note that the SSB Retractor is ATEX Category 1 for installations in zone 0/20. However, if Proximity sensors are fitted, the overall ATEX rating of the SSB Retractor will assume the lower ATEX rating of the proximity sensor.

ATEX warning:



It is important to note that if the SSB Retractor is fitted with ATEX sensor, it is necessary to validate it with the installation.

Dimensional drawing of Magnetic Cylinder Sensor



Reference List of Parts, standard sensor

Position no	Item no	No/unit	Description	Material
1	TE75P507	2	Sensor	Aluminium
2	TE75M307	2	Sensor clip	Plastic

Reference List of Parts, ATEX sensor

Position no	Item no	No/unit	Description	Material
1	TE75P596-70	2	Sensor	Aluminium
2	TE75M307	2	Sensor clip	Plastic

7 Technical data

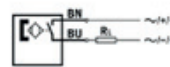
SaniMidget Retractor

7.3 Proximity sensors - data sheets

Article no. TE75P507

Proximity Sensor

Electric, with reed contact, for drives with T-slot, with cable, without LED, heat resistant design.



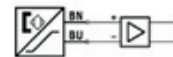
Data sheet

Feature	values
Design	for T-slot
Conforms to standard	EN 60947-5-2
Materials note	Free of copper and PTFE Conforms to RoHS
Measuring principle	Reed magnetic
Ambient temperature	-40 ... 120 °C
Switch output	with contact, bipolar
Switching element function	Normally open contact
Reproducibility of switching value	+/- 0,1 mm
Switch-on time	$t_{on} = 0,5 \text{ ms}$
Switch-off time	$t_{off} = 0,03 \text{ ms}$
Max. switching frequency	800 Hz
Max. output current	500 mA
Max. contact rating AC	10 VA
Max. contact rating DC	10 W
Voltage drop	$U_{drop} = 0 \text{ V}$
Short circuit strength	No
Overload withstand capability	Not available
Operating voltage range AC	0 ... 30 V
Operating voltage range DC	0 ... 30 V
Polarity protected	No
Electrical connection	Cable
Connector exit direction	2-core
Connector exit direction	axial
Cable length	2,5 m
Materials information, cable sheaths	TPE-S
Mounting type	Clamped in T-slot Insertable into slot lengthwise
Tightening torque	0,2 Nm
Product weight	50 g
Materials information, housing	Epoxy resin PC PET High alloy steel, non-corrosive
Ambient temperature with flexible cable installation	-5 ... 120 °C
Protection class	IP67
Insulation voltage	50 V
Surge strength	0,8 kV
Degree of contamination	3

Article no. TE75P596-70

Proximity Sensor

Electric, contactless, NPN, two wire Namur design, for drives with T-slot, assembly from above, with cable.



Data sheet

Feature	values
Design	for T-slot
Conforms to standard	EN 60947-5-6
Authorisation	C-Tick
CE mark (see declaration of conformity)	to EU directive for EMC to EU directive explosion protection (ATEX)
ATEX category Gas	II 1G
Explosion ignition protection type Gas	Ex ia IBC T4...T6
ATEX category Dust	II 1D
Explosion ignition protection type Dust	Ex iaD 20 IP67 T95°C
Explosion protection certification outside the EU	GOST-R EPL Ga
Explosion-proof ambient temperature	-10°C ≤ Ta ≤ +70°C
Certificate issuing department	KEMA 04 ATEX 1114 X
Materials note	Free of copper and PTFE
Measuring principle	Magnetic inductive
Ambient temperature	-25 ... 70 °C
Switch output	NAMUR
Switching element function	NAMUR
Reproducibility of switching value	+/- 0,1 mm
Switch-on time	t _{on} = 0,5 ms
Switch-off time	t _{off} = 0,5 ms
Max. output current in Namur operating mode	4,5 mA
Residual current	≤ 0,7 mA
Short circuit strength	for all electrical connections
Nominal operating voltage DC	8,2 V
Polarity protected	for all electrical connections
Electrical connection	Cable
Cable length	5 m
Materials information, cable sheaths	PVC
Mounting type	Clamped in T-slot
Assembly position	Any
Product weight	70 g
Materials information, housing	PA
Operating status display	Yellow LED
Ambient temperature with flexible cable installation	-5 ... 70 °C
Protection class	IP65 IP67

8 Product programme

SaniMidget Retractor

8.1 Standard configurations

Ordering key table

	Media Driven	Pneumatic Driven	Pneumatic Driven spring return					
	TE75MO	TE75M1	TE75M2	x	x	-	x	x
Tank connection welding DIN 11.850	-	-	-	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 Alfa Laval Tofteborg SaniMidget Retractor Pneumatic Driven, tank connection welding DIN11.850, stroke length 150 with ATEX Certification and Perflour o-rings: Article no. TE75M101-72

8.2 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:

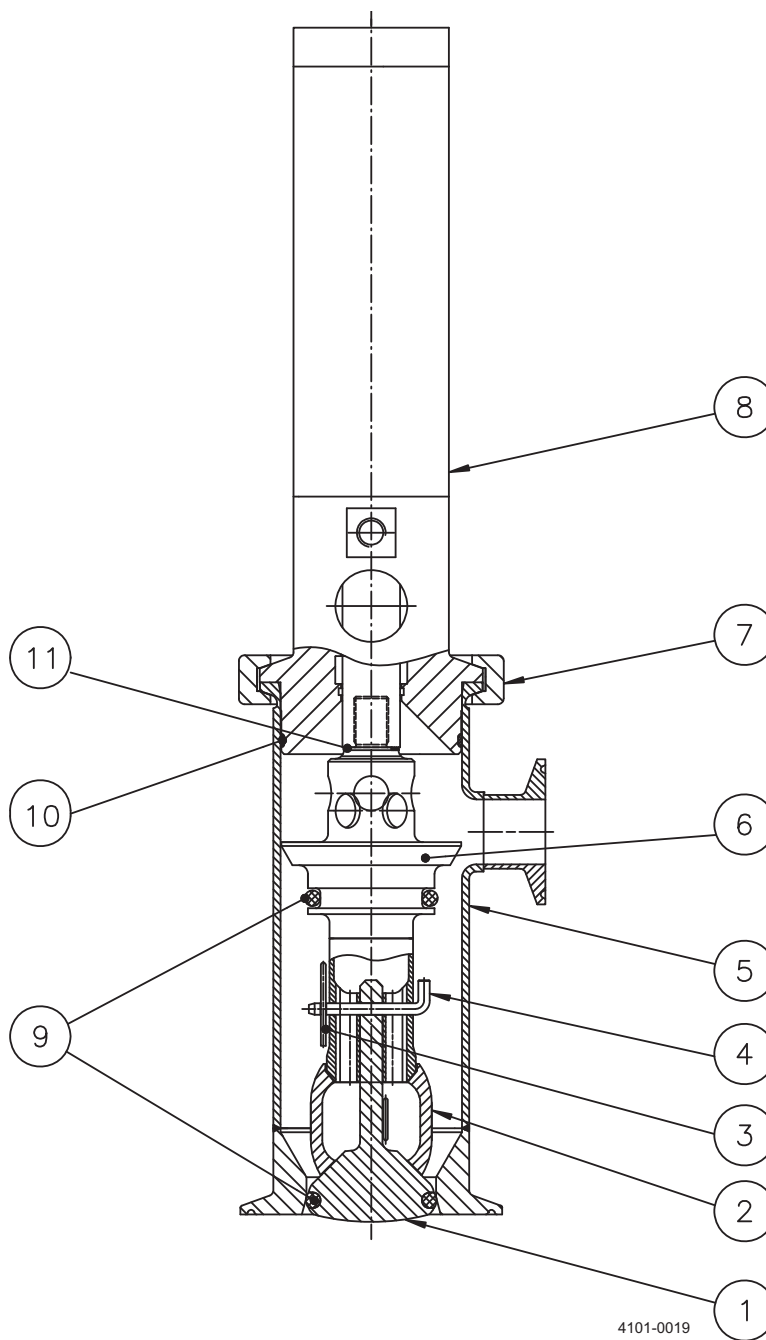
ATEX, Category 1 for installation in zone 0/20 in accordance with Directive 2014/34/EU

9 Part drawings, part lists and service kits

Toftejorg SaniMidget Retractor Media Driven, complete

9.1 Toftejorg SaniMidget Retractor Media Driven, complete

Cross sectional drawing
Toftejorg SaniMidget Retractor Media Driven, complete
Art. nos. TE75M000_032



9 Part drawings, part lists and service kits

Toftejorg SaniMidget Retractor Media Driven, complete

Parts list

Pos.		Qty	Denomination
1		1	Valve
2	◆○★	1	Cleaner head
3	◆○★	1	Spring pin
4	◆○★	1	Lock-pin
5		1	Front tube, complete
6	□	1	Piston, complete
7		1	Clamp ring
8	□	1	Cylinder, complete
9	□◆	2	O-ring, EPDM
	□○	2	O-ring, Viton
	□★	2	O-ring, Perflour
10	□◆	1	O-ring, EPDM
	□○	1	O-ring, Viton
	□★	1	O-ring, Perflour
11		1	Gasket

Service kits

Denomination

Service kits

◆	Standard spare part kit - EPDM	TE75M299
○	Standard spare part kit - Viton	TE75M29901
★	Standard spare part kit - Perflour	TE75M29902

Parts marked with ◆ are included in the standard spare part kit for SaniMidget Retractor - EPDM: TE75M299

Parts marked with ○ are included in the standard spare part kit for SaniMidget Retractor - Viton: TE75M29901

Parts marked with ★ are included in the standard spare part kit for SaniMidget Retractor - Perflour: TE75M29902

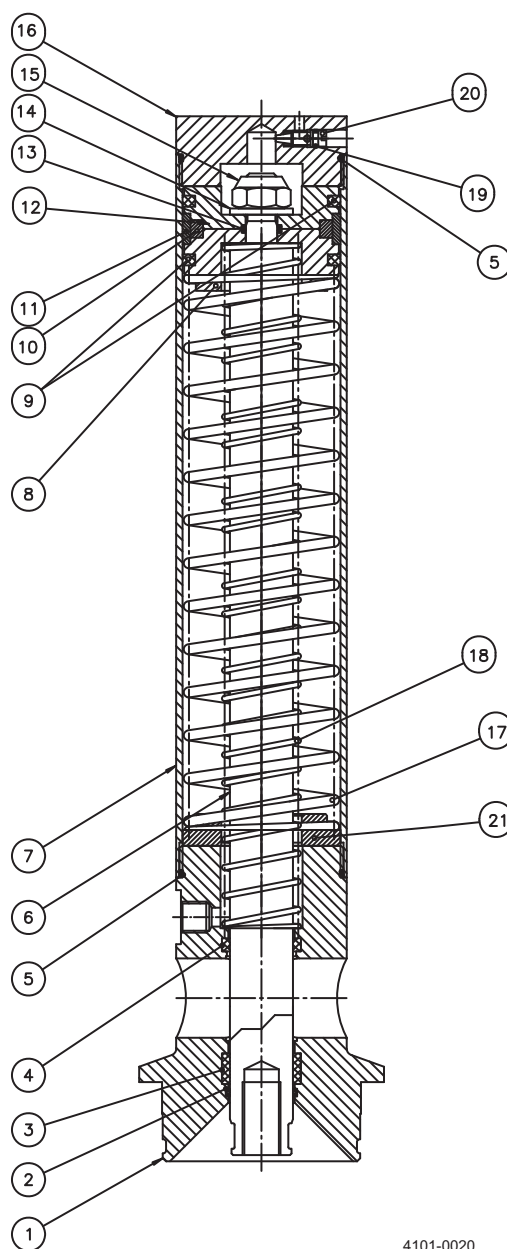
☐ Configuration according to delivery note/order.

9 Part drawings, part lists and service kits

Cylinder for Toftejorg SaniMidget Retractor Media Driven

9.2 Cylinder for Toftejorg SaniMidget Retractor Media Driven

Cross sectional drawing
Cylinder for Toftejorg SaniMidget Retractor, Media Driven
Art. nos. TE75M300, TE73M30015, TE73M30025, TE73M300001, TE73M300151, TE73M300251,
TE73M300002, TE73M300152, TE73M300252



9 Part drawings, part lists and service kits

Cylinder for Toftejorg SaniMidget Retractor Media Driven

Parts list

Pos.		Qty	Denomination
1		1	Adapter
2	☐	1	O-ring
3		1	Guide tape
4		1	Wiper
5		2	O-ring
6	☐	1	Shaft
7	☐	1	Cylinder
8		1	Piston
9		2	Gasket for Piston
10		1	Magnet ring
11		1	Guide tape
12		1	Piston
13		1	O-ring
14		1	Washer
15		1	Locking nut
16		1	End cover
17	☐	1	Spring
18	☐	1	Spring
19		1	O-ring
20		1	Air screw
21		1	Spring connection
22		1	Air filter

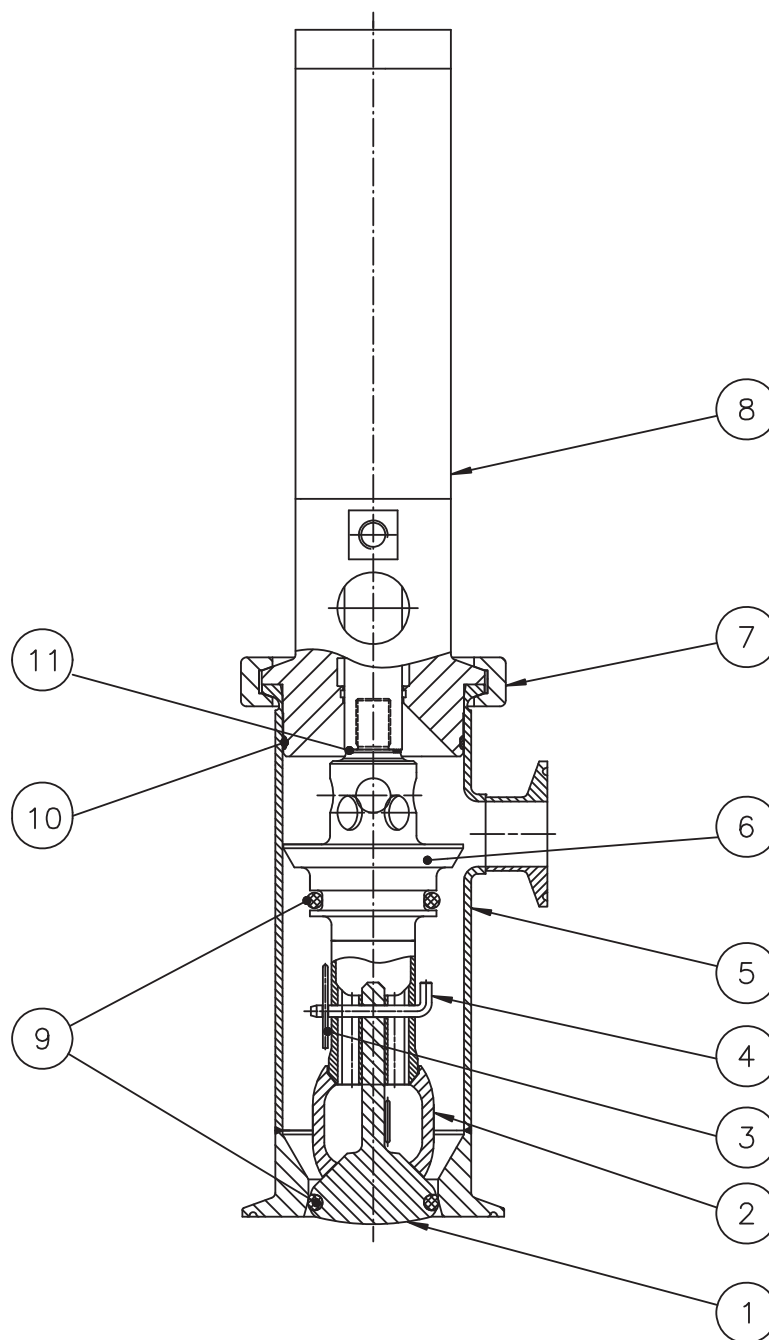
☐ Configuration according to delivery note/order.

9 Part drawings, part lists and service kits

Toftejorg SaniMidget Retractor Pneumatic Driven, complete

9.3 Toftejorg SaniMidget Retractor Pneumatic Driven, complete

Cross Sectional Drawing
Toftejorg SaniMidget Retractor, Pneumatic Driven
Art. nos. TE75M100_132



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9 Part drawings, part lists and service kits

Toftejorg SaniMidget Retractor Pneumatic Driven, complete

Parts list

Pos.		Qty	Denomination
1		1	Valve
2	◆○★	1	Cleaner head
3	◆○★	1	Spring pin
4	◆○★	1	Lock-pin
5		1	Front tube, complete
6	□	1	Piston, complete
7		1	Clamp ring
8	□	1	Pneumatic cylinder, complete
9	□◆	2	O-ring, EPDM
	□○	2	O-ring, Viton
	□★	2	O-ring, Perflour
10	□◆	1	O-ring, EPDM
	□○	1	O-ring, Viton
	□★	1	O-ring, Perflour
11		1	Gasket

Service kits

Denomination

Service kits

◆	Standard spare part kit - EPDM	TE75M299
○	Standard spare part kit - Viton	TE75M29901
★	Standard spare part kit - Perflour	TE75M29902

Parts marked with ◆ are included in the standard spare part kit for SaniMidget Retractor - EPDM: TE75M299

Parts marked with ○ are included in the standard spare part kit for SaniMidget Retractor - Viton: TE75M29901

Parts marked with ★ are included in the standard spare part kit for SaniMidget Retractor - Perflour: TE75M29902

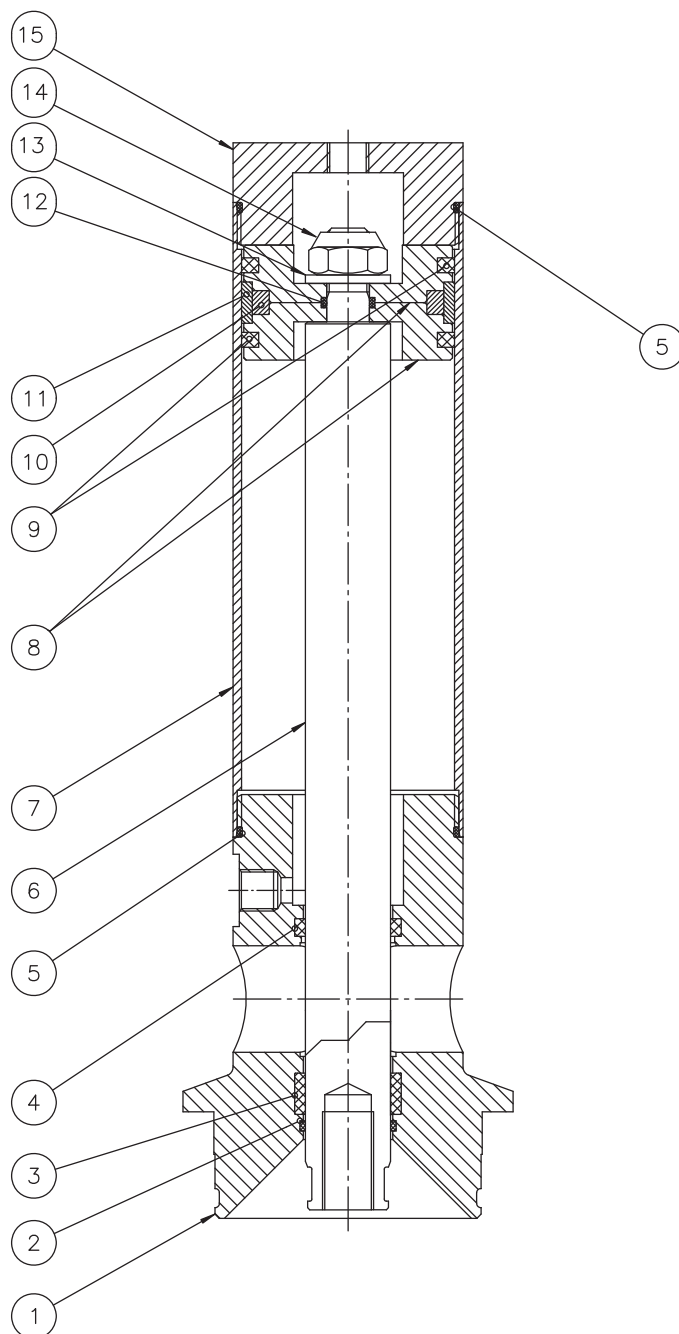
☐ Configuration according to delivery note/order.

9 Part drawings, part lists and service kits

Cylinder for Toftejorg SaniMidget Retractor Pneumatic Driven

9.4 Cylinder for Toftejorg SaniMidget Pneumatic Driven

Reference List of Parts
Cylinder for Toftejorg SaniMidget Retractor Pneumatic Driven
Art. nos. TE75M302, TE73M30215, TE73M30225, TE73M302001, TE73M302151, TE73M302251,
TE73M302002, TE73M302152, TE73M302252



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9 Part drawings, part lists and service kits

Cylinder for Toftejorg SaniMidget Retractor Pneumatic Driven

Parts list

Pos.		Qty	Denomination
1		1	Adapter
2	□	1	O-ring
3		1	Guide tape
4		1	Wiper
5		2	O-ring
6	□	1	Shaft
7	□	1	Cylinder
8		2	Piston
9		2	Gasket for Piston
10		1	Magnet ring
11		1	Guide tape
12		1	O-ring
13		1	Washer
14		1	Locking nut
15		1	End cover

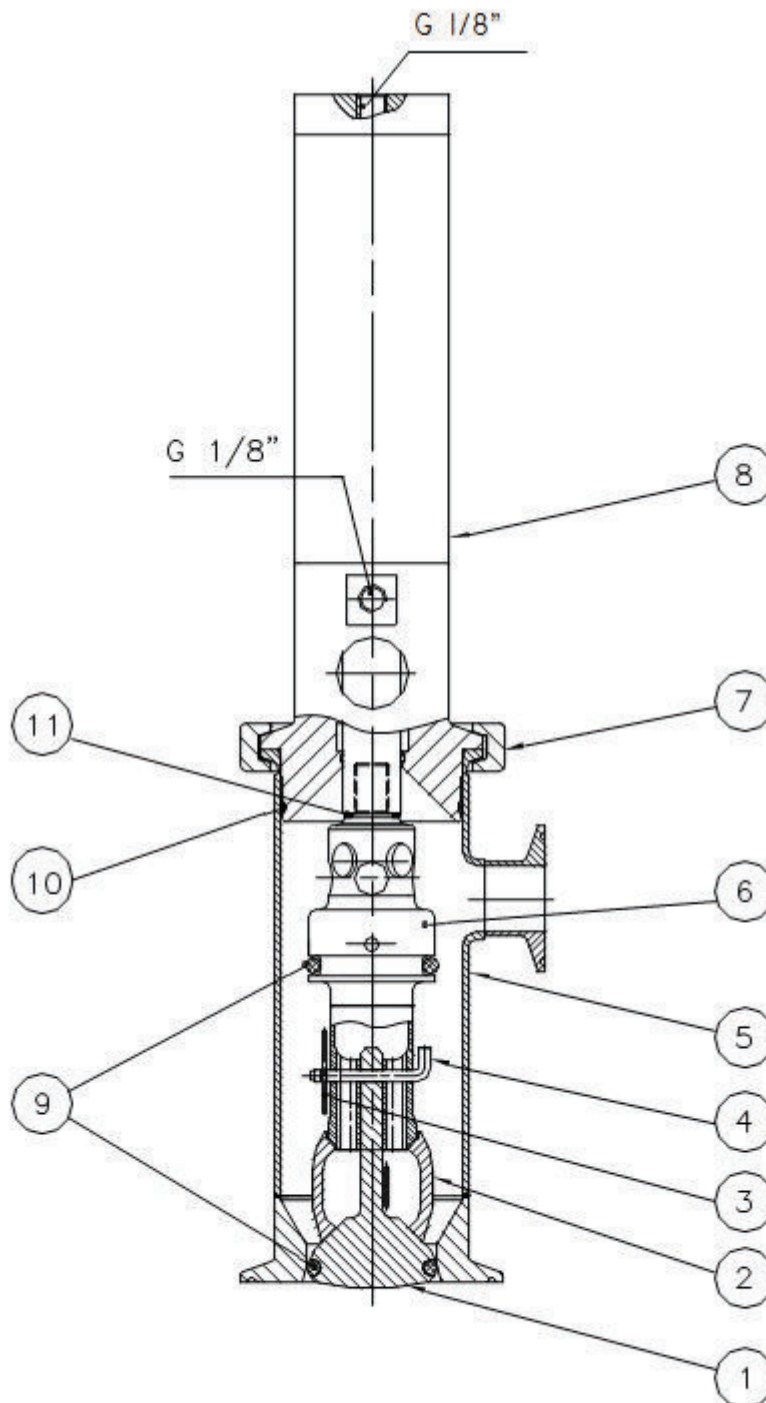
☐ Configuration according to delivery note/order.

9 Part drawings, part lists and service kits

Toftejorg SaniMidget Retractor Pneumatic Driven, Spring Return, complete

9.5 Toftejorg SaniMidget Retractor Pneumatic Driven, Spring Return, complete

Cross Sectional Drawing
Toftejorg SaniMidget Retractor Pneumatic Driven, Spring Return
Article no. TE75M200/232



41010023

9 Part drawings, part lists and service kits

Tottejorg SaniMidget Retractor Pneumatic Driven, Spring Return, complete

Parts list

Pos.		Qty	Denomination
1		1	Valve
2	◆○★	1	Cleaner head
3	◆○★	1	Spring pin
4	◆○★	1	Lock-pin
5		1	Front tube, complete
6	□	1	Piston, complete
7		1	Clamp ring
8	□	1	Pneumatic cylinder, complete
9	□◆	2	O-ring, EPDM
	□○	2	O-ring, Viton
	□★	2	O-ring, Perflour
10	□◆	1	O-ring, EPDM
	□○	1	O-ring, Viton
	□★	1	O-ring, Perflour
11		1	Gasket

Service kits

Denomination

Service kits

◆	Standard spare part kit - EPDM	TE75M299
○	Standard spare part kit - Viton	TE75M29901
★	Standard spare part kit - Perflour	TE75M29902

Parts marked with ◆ are included in the standard spare part kit for SaniMidget Retractor - EPDM: TE75M299

Parts marked with ○ are included in the standard spare part kit for SaniMidget Retractor - Viton: TE75M29901

Parts marked with ★ are included in the standard spare part kit for SaniMidget Retractor - Perflour: TE75M29902

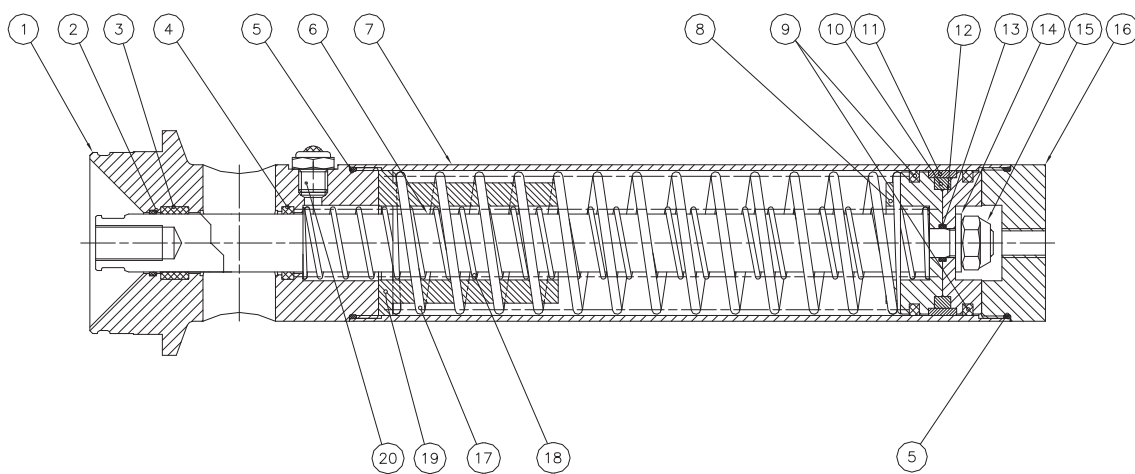
☐ Configuration according to delivery note/order.

9 Part drawings, part lists and service kits

Cylinder for Toftejorg SaniMidget Pneumatic Driven, Spring Return

9.6 Cylinder for Toftejorg SaniMidget Pneumatic Driven, Spring Return

Cross Sectional Drawing
Cylinder for Toftejorg SaniMidget Retractor Pneumatic Driven, Spring Return
Art. nos. TE75M303, TE73M30315, TE73M30325, TE73M303001, TE73M303151, TE73M303251,
TE73M303002, TE73M303152, TE73M303252



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9 Part drawings, part lists and service kits

Cylinder for Toftejorg SaniMidget Pneumatic Driven, Spring Return

Parts list

Pos.		Qty	Denomination
1		1	Adapter
2	☐	1	O-ring
3		1	Guide tape
4		1	Wiper
5		2	O-ring
6	☐	1	Shaft
7	☐	1	Cylinder
8		1	Piston
9		2	Gasket for Piston
10		1	Magnet ring
11		1	Guide tape
12		1	Piston
13		1	O-ring
14		1	Washer
15		1	Locking nut
16		1	End cover
17	☐	1	Spring
18	☐	1	Spring
19		1	Spring connection
20		1	Air filter

☐ Configuration according to delivery note/order.

10 General information

Cylinder for Toftejorg SaniMidget Pneumatic Driven, Spring Return

10.1 Service and Repair

Upon every return of a product, no matter if for modifications or repair, it is necessary to contact your local Alfa Laval office to guarantee a quick execution of your request.

You will receive instructions regarding the return procedure from your local Alfa Laval office. Be sure to follow the instructions closely.

10.2 How to Order Spare Parts

On the Cross Sectional Drawings as well as on all instruction drawings, the individual parts have a position number, which is the same on all drawings. From the position number, the part is easily identified in the Reference Lists of Parts, from page ff.

For the magnetic sensor system the individual parts have a position number, and all are listed in the Reference list of Parts, see from page ff. Ref. No. and description should be clearly stated.

Please also quote the type of machine and serial No. This will help us to help you. The type and serial Nos. are stamped on the Connection Nipple on the top of the tank cleaning machine.

10.3 How to contact Alfa Laval Kolding A/S

For further information please feel free to contact:

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

11.1 ATEX - special conditions for safe use

ATEX CERTIFICATION

EC – Type Examination Certificate Number: Baseefa11ATEX0051X

 II 1GD c T188°C T_{amb} 0°C to +150°C

BASEEFA CUSTOMER REFERENCE No. 5102
PROJECT FILE No. 12/1061

Special Condition for Safe Use

1. The unit may be operated, in a hazardous area, only when filled with the process fluid.
2. The maximum permitted process fluid temperature is 95°C, with an ambient temperature range of 0°C to 150°C.
3. The maximum permitted process fluid pressure is 3 bar.
4. The unit must not be operated in a vessel having an enclosed volume of greater than 100m³.
5. The unit must be effectively earthed at all times when in use.
6. The user must address the electrostatic hazards generated from the process of the equipment in accordance with guidance document IEC/TS 60079-32-1:2013.

This product fully complies to ATEX category 1 as long as the 6 special conditions above are adhered to.

Please read the above conditions prior to installation & ensure that all conditions are met.

Explanation of T (temperature) rating.

The ATEX classification

The standard machine is approved for an ambient temperature range of 0°C to +150°C and is marked

 II 1GD c T188°C T_{amb} 0°C to +150°C

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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