

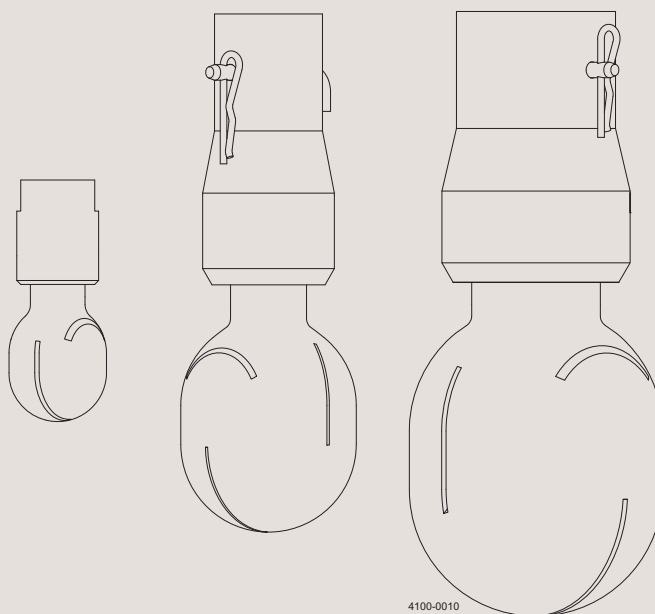


CSI

417.831.1411
csidesigns.com

Instruction Manual

Alfa Laval Toftejorg™ Rotary Spray Heads - SaniMicro, SaniMidget, SaniMagnum



Covering: Standard Machines

Machines delivered with ATEX Certification in accordance with Directive 94/9/EC valid until 2016-04-19/
Directive 2014/34/EU valid from 2016-04-20

Q-doc - Equipment Doc (3.1 Inspection Certificate - EN 10204)

Q-doc - Qualification Doc (Qualification Documentation, FAT/SAT)

TE91A747-EN8. First published: 2009-05

ESE01778-EN8

2015-11

Original manual

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

1. EC/EU Declaration of Conformity	4
2. Safety	5
2.1. Important information	5
2.2. Warning signs	5
3. Introduction	6
3.1. Introduction	6
3.2. Intended Use	6
3.3. Patents and Trademarks	7
3.4. Quality System	7
3.5. ATEX Marking	8
4. Installation	9
4.1. General Description	9
4.2. Functioning	9
4.3. General Safety and Installation Instructions	10
4.4. Special Conditions for Safe Use in Accordance with ATEX Certification	10
4.5. General safety precautions	11
5. Operation	12
5.1. Normal operation	12
6. Maintenance	13
6.1. Service of ATEX Certified Machines	13
6.2. Recommended Service Intervals	13
6.3. Service and repair of machines ordered with Alfa Laval Q-doc	13
6.4. Service and Repair of Machines Ordered with Alfa Laval Q-doc and FAT-SAT	13
7. Technical Data	14
7.1. Alfa Laval Toftejorg SaniMicro	14
7.2. Alfa Laval Toftejorg SaniMidget	16
7.3. Alfa Laval Toftejorg SaniMagnum	18
8. Product Programme	20
8.1. Alfa Laval Toftejorg SaniMicro	20
8.2. Alfa Laval Toftejorg SaniMidget	21
8.3. Alfa Laval Toftejorg SaniMagnum	22
8.4. Available add-ons	24
9. General information	25
9.1. Service & Repair	25
9.2. How to contact Alfa Laval Tank Equipment	25
10. Miscellaneous	26
10.1. ATEX - Special Conditions for Safe Use	26
10.2. Declaration of compliance for food contact materials	27

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 Alfa Laval

Designation

Toftejorg SaniMicro, SaniMidget & SaniMagnum

Type

From serial number 2015-0001 to 2030-99999

is in conformity with the following directive with amendments:

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

FDA 21CFR§177

Regulation (EC) 1935/2004

Equipment Explosive Atmospheres (ATEX) Directive 94/9/EC, valid until 2016-04-19

Equipment Explosive Atmospheres (ATEX) Directive 2014/34/EU, valid from 2016-04-20

(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. Baseefa04ATEX0357X

Marking:  II 1 GD c T140°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

QHSE Manager, Quality, Health and
Safety & Environment

Title

Annie Dahl

Name



Signature

ATEX Responsible Engineer

Title

Denniz Høxbroe

Name



Signature

Kolding

Place

2015-11-01

Date

(This Declaration of Conformity replaces Declaration of Conformity dated 2015-01-01)



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

3.1 Introduction

This manual has been prepared as a guide for installing, operating and maintaining your Alfa Laval Toftejorg Rotary Spray Head 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.

Important information:



Before installing the machine and setting it into operation, carefully read the General Installation Instructions (page 10), the special conditions for safe use in accordance with ATEX Certification Directive 94/9/EC valid until 2016-04-19/Directive 2014/34/EU valid from 2016-04-20 (page 10) and the Safety Precautions (page 11) 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. .

© Alfa Laval Corporate AB

This document and its contents is owned by Alfa Laval Corporate AB and protected by laws governing intellectual property and thereto related rights. It is the responsibility of the user of this document to comply with all applicable intellectual property laws. Without limiting any rights related to this document, no part of this document may be copied, reproduced or transmitted in any form or by any means (electronic, mechanical, photocopying, recording, or otherwise), or for any purpose, without the expressed permission of Alfa Laval Corporate AB. Alfa Laval Corporate AB will enforce its rights related to this document to the fullest extent of the law, including the seeking of criminal prosecution.

3.2 Intended Use

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.

Important information:



Liquid inlet pressure: Max. 3 bar.

Do not steam: Steaming through the Rotary Spray Head may result in excessive high rotation speed of the cleaner and cause severe wear of the ball bearing and/or damage to the cleaner.

See General Installation Instructions on page 10 of this manual for information on recommended installation position.

3.3 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.

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 Kolding A/S. The Alfa Laval Toftejorg™ SaniMxxx SB series product has patent in the US (US 8.137.481). 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 Quality System

The Alfa Laval Toftejorg Rotary Spray Head 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 comply with FDA 21CFR§177 and EU 10/2011.

3 Introduction

3.5 ATEX Marking

The Alfa Laval Toftebjerg SaniMicro, SaniMidget and SaniMagnum are certified as category I components. The certification is carried out by the notified body Baseefa, who has issued the certificate no. 04ATEX0357X. The markings on the ATEX certified Alfa Laval Toftebjerg SaniMicro, SaniMidget and SaniMagnum are as follows:

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

Alfa Laval, DK-6000 Kolding, Albuen 31
 II 1GD c T 140°C
 1180 Baseefa 04ATEX0357X

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

Alfa Laval, DK-6000 Kolding, Albuen 31
 II 1GD c T 140°C
 1180 Baseefa 04ATEX0357X

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

Alfa Laval, DK-6000 Kolding, Albuen 31
 II 1GD c T 140°C
 1180 Baseefa 04ATEX0357X

Serial number explanation

Machines supplied with or without normal documentation:

yyyy-xxxxx: serial number

yyyy: year

xxxxx: 5 digit sequential number

Changes to the machines 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: See also page 13 regarding special conditions for repair of ATEX certified machines.



4.1 General Description

The Alfa Laval Toftejorg Rotary Spray Heads are tank cleaning machines intended for industrial use in tanks, vessels and containers under typical CIP procedures. They have a broad range of application areas within pharmaceutical, food and chemical industries.

The Alfa Laval Toftejorg Rotary Spray Head is a sanitary cleaning device of the rotating fan spray type for permanent installation that provides a cleaning pattern from 180° - 360°. The machine is completely self-cleaning and when properly installed also self-draining (see page 10). All product contact surfaces are AISI 316L stainless steel (or better corrosion vice) or FDA compliant and EU 10/2011 compliant polymer materials.

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

The Alfa Laval Toftejorg Rotary Spray Head is designed for use in pharmaceutical, biotechnological, food and dairy processing applications. It may be used in reactors, mixing/processing tanks, spray dryers and other process equipment with a volume from 0.1 – 50 m³ (22 - 10,998 US gallons) and storage tanks up to 125 m³ (27496 US gallons). For larger volumes, multiple Alfa Laval Toftejorg Rotary Spray Heads may be applied.

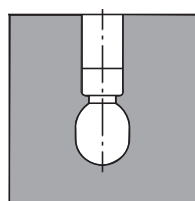
Application assistance and optimal position recommendation is available.

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

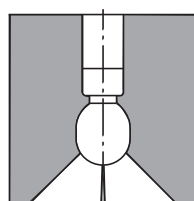
4.2 Functioning

The flow of the cleaning media causes the head of the Alfa Laval Toftejorg Rotary Spray Head to rotate, with fans laying out a swirling pattern throughout the vessel. This generates a vibrating impact and cascading flow that covers all internal surfaces of the tank or reactor. The device's self-cleaning feature is achieved by directing the cleaning media through the rotating bearing and onto the neck of the elongated head.

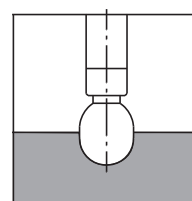
Spray Pattern



360°



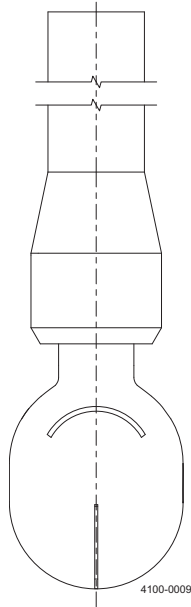
270°



180°

4 Installation

4.3 General Safety and Installation Instructions



Self draining position

Important information: Recommended installation position:
The Rotary Spray Head tank cleaning machine should be installed in vertical position (upright or upside down).
If the machine is installed horizontally, the life time may be reduced.



It is recommended to install a filter with mesh size 250 µm (0.01") in the supply line to avoid particles, scale etc. from clogging the inside of the Rotary Spray Head.

Before installation, all supply lines and valves must be thoroughly flushed to remove remains from welding, grinding dust, scale and other foreign matter. During handling and installation treat the machine with care in order not to damage the fine surface of the machine.

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

4.4 Special Conditions for Safe Use in Accordance with ATEX Certification

Directive 94/9/EC valid until 2016-04-19
Directive 2014/34/EU valid from 2016-04-20

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 140°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 valid until 2016-04-19/Directive 2014/34/EU valid from 2016-04-20, the General Safety Precautions on page 11 must be observed.

4.5 General safety precautions

The Alfa Laval Toftejorg Rotary Spray Head is intended for use inside a tank only, and must not be operated in open air or when the tank is open.

Warning:



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

ATEX Warning: If the machine is used in potential explosive atmospheres, tapes or joint sealing compounds, which are electrical insulators, must not be used on joints, if this may violate the grounding of the machine to the tank. Resistance between nozzles and tank must not exceed 20.000 Ohm. The intended installation with standard clamp connections will ensure this. In addition, connecting pipe work, must be electrically conductive and earthed to the tank structure.
This is essential to avoid the build-up of static electricity on the nozzles and the machine. For further information see IEC/TS 60079-32-1:2013, 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. Magnetic cylinder sensors shall be EX-approved

5 Operation

5.1 Normal operation

Cleaning Media

Use only media compatible with Stainless Steel AISI 316/316L, SAF 2205 and PTFE. If you have ordered the optional Hastelloy version, please contact your local Alfa Laval sales office for cleaning media guidelines. 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 in doubt contact your local Alfa Laval sales office.

Temperature:

In accordance with the ATEX specifications regarding special conditions for safe use.

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. Apply pressure gradually to avoid hydraulic shocks, which might stress mechanical parts in the Alfa Laval Tofteborg Rotary Spray Head cleaner. Max. pressure difference is 3.0 bar.

Recommendation



After Use Cleaning

After use flush the machine with fresh water. Cleaning media should never be allowed to dry or settle in the system

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.

6.1 Service of ATEX Certified Machines

In case of extensive machine wear, the machine is to be replaced, as it is not possible to repair Rotary Spray Head machines. Please remember to order an ATEX approved Rotary Spray Head 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 Service and repair of machines ordered with Alfa Laval Q-doc

In case of machine wear, the machine is to be replaced, as it is not possible to repair Rotary Spray Head machines.

Please remember to order a Q-doc version machine.

6.4 Service and Repair of Machines Ordered with Alfa Laval Q-doc and FAT-SAT

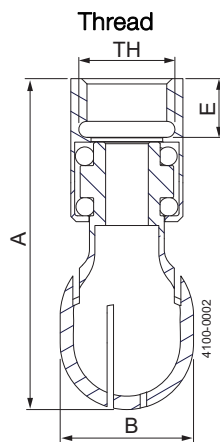
In case of machine wear, the machine is to be replaced, as it is not possible to repair Rotary Spray Head machines.

In order to ensure full traceability and to obtain full test documentation (FAT: Factory Acceptance Test), it is necessary to order a new Rotary Spray Head machine with Alfa Laval Q-doc. The new Rotary Spray Head machine is manufactured and tested (FAT) and shipped to the customer with new Alfa Laval Q-doc for further qualification (SAT: Site Acceptance Test) and validation (PV: Process Validation).

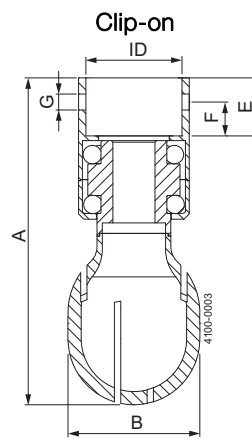
7 Technical Data

7.1 Alfa Laval Toftejorg SaniMicro

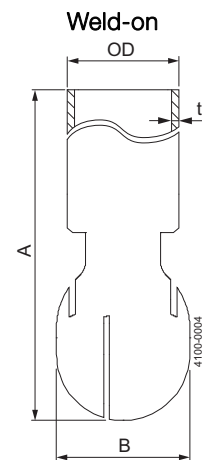
Weight of machine:	Thread and clip-on: 0.30 kg. On pipe: 0.55/090 kg	
Working pressure:	1-3 bar	
Recommended inlet pressure:	2 bar	
Max. working temperature:	95°C (200°F)	
Max. ambient temperature:	140°C (284°F)	
Wetting radius:	Max. 2.7 m	
Impact cleaning radius:	Max. effective 0.6 m	
Materials:	Inlet connections:	1.4404 (316L)
	bearing race parts:	SAF 2205 (UNS31803)
	balls:	AISI 316/PTFE (FDA compliant 21CFR§177. 1550 and EU 10/2011 compliant)
	head:	1.4404 (AISI 316L)
Lubricant:	Self-lubricating with the cleaning fluid	Self-lubricating with the cleaning fluid
Connections:	3/8" Rp or NPT thread	
	Clip-on or weld-on for pipe	
	ISO2037/DIN 11.850/BPE US tube	



TH
3/8" Rp (BSP)
3/8" NPT



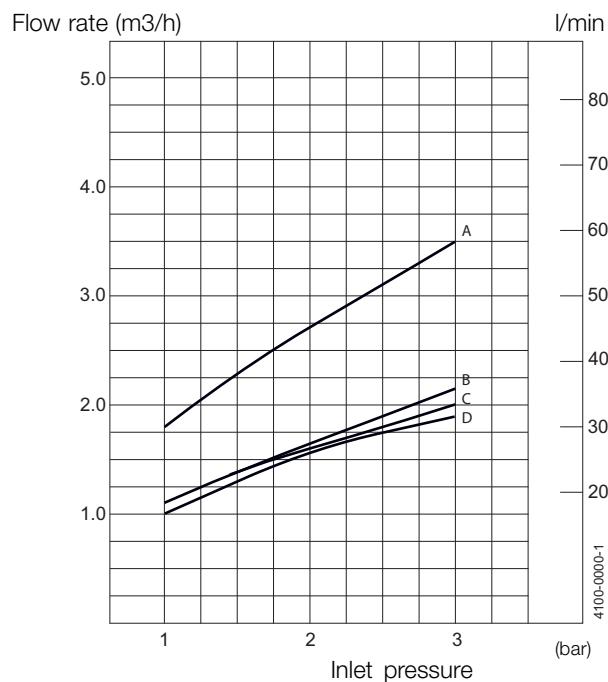
ID
ISO:
DIN Range 1: ø17.4 mm
DIN Range 2: ø18.2 mm
BPE US / DIN Range 2 : ø19.2 mm



OD x t
ISO:
DIN Range 1: ø17.2 x 1 mm
DIN Range 1: ø18 x 1 mm
DIN Range 2: ø19 x 1.5 mm
BPE US: ø19.05 x ø1.65 mm

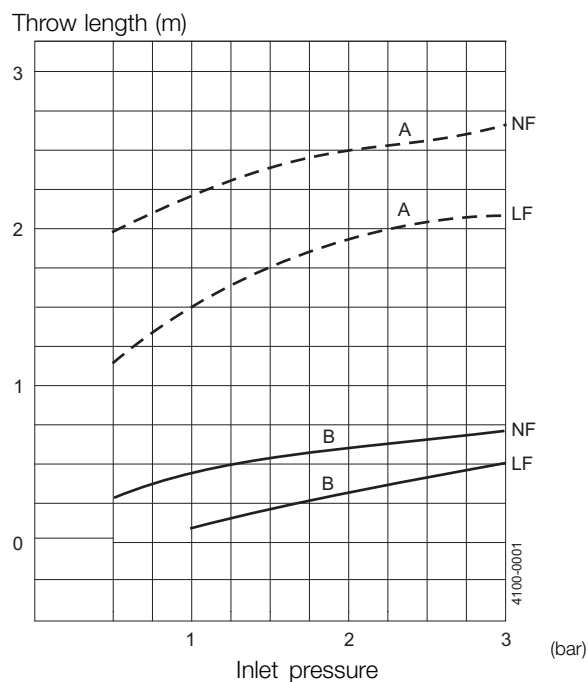
Type	A	B	E	F	G
Thread	62	ø25	11		
Clip-on	62	ø25	11	5.9	ø3.6
Weld-on	77.500	ø25			

Performance Data



A : 360°, 270°UP
B : 360° LowFlow
C : 270°UP LowFlow
D : 180°D

Cleaning radius



A : Wetting
B : Impact cleaning
NF : 360°, 270°UP, 180°D
LF : 360° LowFlow, 270°UP LowFlow

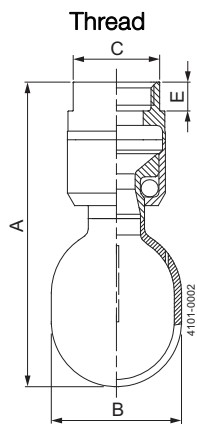
For Clip-on models, the flow rate is increased by approx. 0.2 m³/h

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 considered.

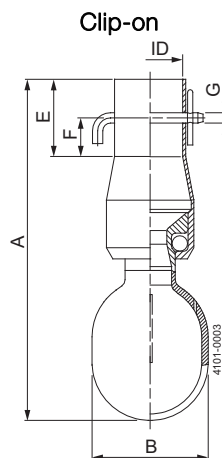
7 Technical Data

7.2 Alfa Laval Toftejorg SaniMidget

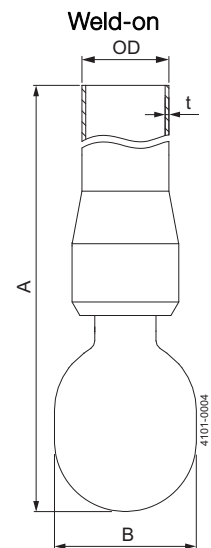
Weight of machine:	Thread and clip-on: 0.30 kg. On pipe: 0.55/090 kg	
Working pressure:	1-3 bar	
Recommended inlet pressure:	2 bar	
max. working temperature.:	95°C (200°F)	
Max. ambient temperature:	140°C (284°F)	
Wetting radius:	Max. 3 m	
Impact cleaning radius:	Max. effective 1.4 m	
Materials:	Inlet connections:	1.4404 (316L)
	bearing race parts:	SAF 2205 (UNS31803)
	balls:	AISI 316/PTFE (FDA compliant 21CFR§177. 1550 and EU 10/2011 compliant)
	head:	1.4404 (AISI 316L)
Lubricant:	Self-lubricating with the cleaning fluid	Self-lubricating with the cleaning fluid
Connections:	1/2" or 3/4" BSP or NPT thread	
	Clip-on or weld-on for pipe:	
	ISO2037, ASTM A270. BS4825 part 1 or DIN11850	



TH
3/4"Rp (BSP)
3/4" NPT



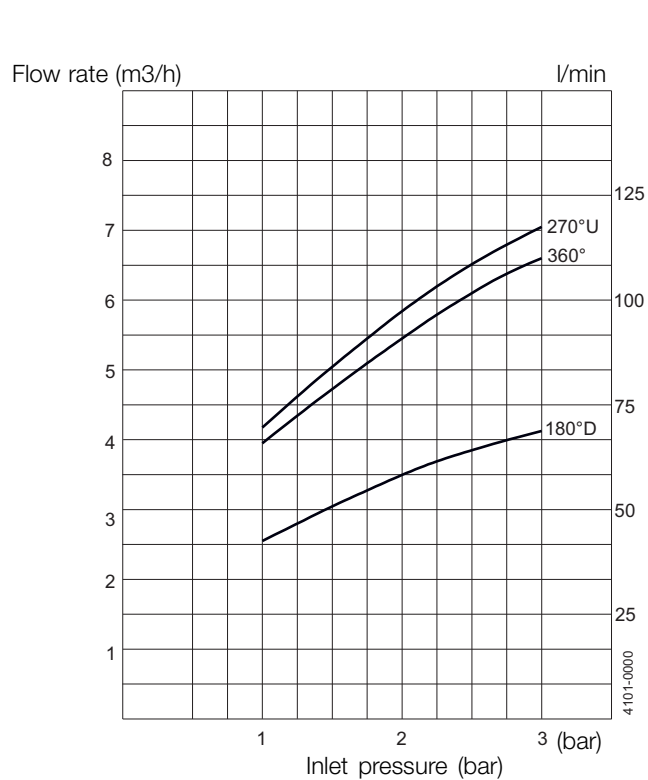
ID
ISO: ø25.3 mm
BPE US: ø25.7 mm
DIN Range 1: ø28.3 mm
DIN Range 2: ø29.3 mm



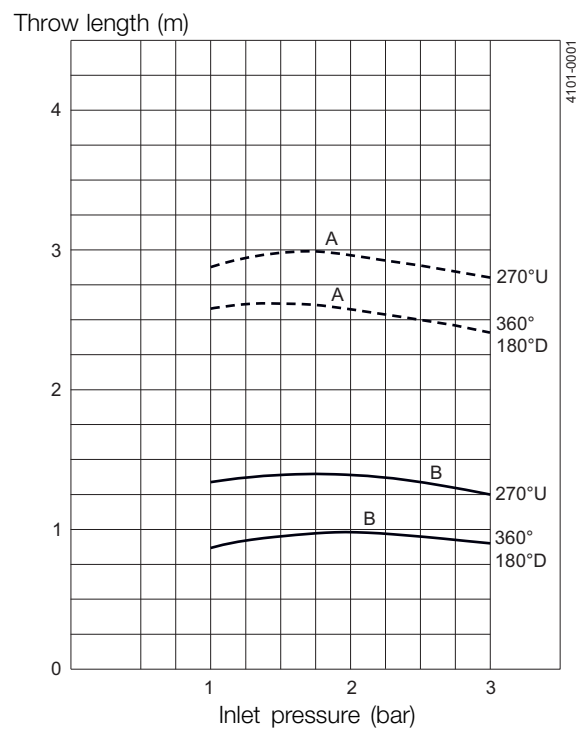
OD x t
ISO: ø25 x 1.2 mm
BPE US: ø25.4 x 1.65 mm
DIN Range 1: ø28 x 1 mm
DIN Range 2: ø29 x 1.5 mm

Type	A	B	C	E	F	G
Thread	102	ø45	30	10		
Clip-on	133.5	ø45		30	15	ø4
Weld-on	120.5, 500, 1000	ø45				

Performance Data



Cleaning radius



A: Wetting - B: Impact cleaning

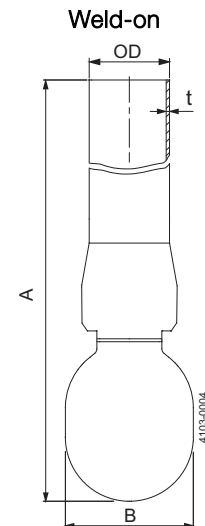
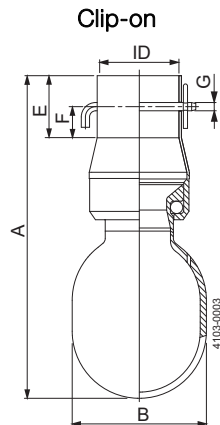
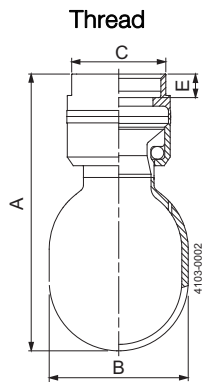
For Clip-on models, the flow rate is increased by approx. 0.5 m³/h

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 considered.

7 Technical Data

7.3 Alfa Laval Toftejorg SaniMagnum

Weight of machine:	Thread and clip-on: 0.76 kg. On pipe: 0.97/1.52 kg	
Working pressure:	1-3 bar	
Recommended inlet pressure:	2 bar	
Max. working temperature:	95°C (200°F)	
Max. ambient temperature:	140°C (284°F)	
Wetting radius:	Max. 3m	
Impact cleaning radius:	Max. effective 2m	
Materials:	Inlet connections:	1.4404 (316L)
	bearing race parts:	SAF 2205 (UNS31803)
	balls:	AISI 316/PTFE (FDA compliant 21CFR§177. 1550 and EU 10/2011 compliant)
	head:	1.4404 (AISI 316L)
Lubricant:	Self-lubricating with the cleaning fluid	Self-lubricating with the cleaning fluid
Connections:	1 1/4" BSP or NPT thread	
	Clip-on or weld-on for pipe:	
	ISO2037, ASTM A270. BS4825 part 1 or DIN11850	



TH
1 1/4" (BSP)
1 1/4" NPT
1 1/2" (BSP)
1 1/2" NPT

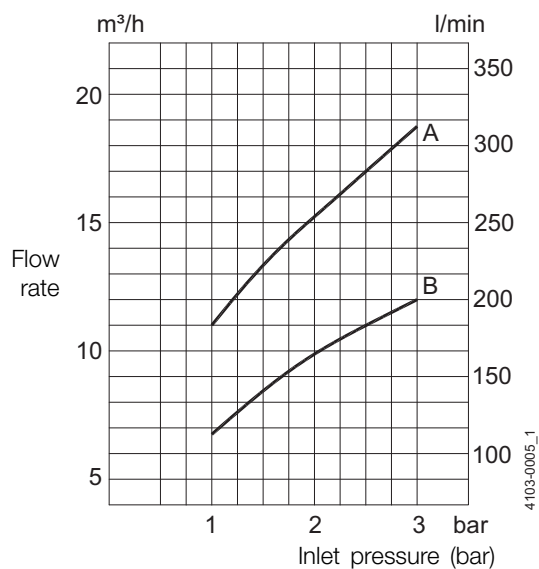
ID
ID 1: 1 1/2" ø38.4 mm
ID 2: 2" ø51.3 mm
DIN Range 1 ø40.4 mm
DIN Range 2 ø41.4 mm

OD x t
ISO ø38 x 1.2 mm
BPE US ø38.1 x 1.65 mm
BPE US ø50.8 x 1.65 mm
DIN Range 1 ø40 x 1 mm
DIN Range 2 ø41 x 1.5 mm

Type	A	B	C	E	F	G
Thread	130	ø65	44	10		
Clip-on	157	ø65		30	15	ø4.2
Weld-on	157, 500, 1000	ø65				

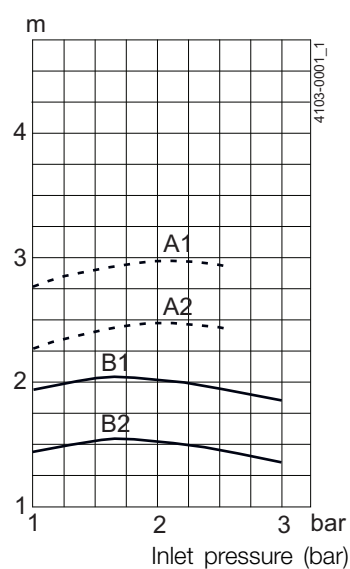
Performance Data

Flow rate (m³/h)



A : 360°, 270°UP
 B : 360° LowFlow
 C : 270°UP LowFlow
 D : 180°D

Throw length (m)



A : Wetting
 B : Impact cleaning
 A1: 360°, 270°UP, 180°D
 A2: 360° LowFlow, 270°UP LowFlow
 B1 : 360°/270°UP, 180°D
 B2 : 270°UP LowFlow, 360° LowFlow

For Clip-on models, the flow rate is increased by approx. 1.5 m³/h

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 considered.

8 Product Programme

This manual covers the product programme for Alfa Laval Toftejorg SaniMicro, SaniMidget and SaniMagnum.
For the different types of Alfa Laval Toftejorg SaniMicros, SaniMidgets and SaniMagnums, please see the following pages.

8.1 Alfa Laval Toftejorg SaniMicro

Alfa Laval Toftejorg SaniMicro, Clip-on

Surface finish: Semi bright

	Clip-on OD 17.2, ISO2037		Clip-on DN15, DIN11850-R1		Clip-on 3/4" US tube/DN15 DIN11850-R2	
Spray Pattern	Stainless steel	Hastelloy C22	Stainless steel	Hastelloy C22	Stainless steel	Hastelloy C22
360°	TE14B100-01	TE14D100-01	TE14B110-01	TE14D110-01	TE14B120-01	TE14D120-01
360° low flow	TE14B101-01	TE14D101-01	TE14B111-01	TE14D111-01	TE14B121-01	TE14D121-01
270°	TE14B103-01	TE14D103-01	TE14B113-01	TE14D113-01	TE14B123-01	TE14D123-01
270° up low flow	TE14B104-01	TE14D104-01	TE14B114-01	TE14D114-01	TE14B124-01	TE14D124-01

Surface finish: 0.5 µm Ra internal/external. With 3.1 certificate and electro-polished

	Clip-on OD 17.2, ISO2037		Clip-on DN15, DIN11850-R1		Clip-on 3/4" US tube/DN15 DIN11850-R2	
Spray Pattern	Stainless steel		Stainless steel		Stainless steel	
360°	TE14F100-91		TE14F110-91		TE14F120-91	
360° low flow	TE14F101-91		TE14F111-91		TE14F121-91	
270°	TE14F103-91		TE14F113-91		TE14F123-91	
270° up low flow	TE14F104-91		TE14F114-91		TE14F124-91	

Alfa Laval Toftejorg SaniMicro, Weld-on

Surface finish: Semi bright

		Weld-on OD 25, ISO2037		Weld-on DN15, DIN11850-R1		Weld-on DN15, DIN11850-R2		Weld-on 3/4" ASME BPE tube	
Spray Pattern	Height (mm)	Stainless steel	Hastelloy C22	Stainless steel	Hastelloy C22	Stainless steel	Hastelloy C22	Stainless steel	Hastelloy C22
360°	62	TE14B200-01	TE14D200-01	TE14B210-01	TE14D210-01	TE14B220-01	TE14D220-01	TE14B230-01	TE14D230-01
360° low flow	62	TE14B201-01	TE14D201-01	TE14B211-01	TE14D211-01	TE14B221-01	TE14D221-01	TE14B231-01	TE14D231-01
270° up	62	TE14B203-01	TE14D203-01	TE14B213-01	TE14D213-01	TE14B223-01	TE14D223-01	TE14B233-01	TE14D233-01
270° up low flow	62	TE14B204-01	TE14D204-01	TE14B214-01	TE14D214-01	TE14B224-01	TE14D224-01	TE14B234-01	TE14D234-01
180° down	62	TE14B202-01	TE14D202-01	TE14B212-01	TE14D212-01	TE14B222-01	TE14D222-01	TE14B232-01	TE14D232-01
360°	500	TE14B250-01		TE14B260-01		TE14B270-01		TE14B280-01	
360° low flow	500	TE14B251-01		TE14B261-01		TE14B271-01		TE14B281-01	
270° up	500	TE14B253-01		TE14B263-01		TE14B273-01		TE14B283-01	
270° up low flow	500	TE14B254-01		TE14B264-01		TE14B274-01		TE14B284-01	
180° down	500	TE14B252-01		TE14B262-01		TE14B272-01		TE14B282-01	

Alfa Laval Toftejorg SaniMicro, Thread

Surface finish: Semi bright

	Thread 3/8" Rp (BSP)		Thread 3/8" NPT	
Spray Pattern	Stainless steel	Hastelloy C22	Stainless steel	Hastelloy C22
360°	TE14B000-01	TE14D000-01	TE14B010-01	TE14D010-01
360° low flow	TE14B001-01	TE14D001-01	TE14B011-01	TE14D011-01
270° up	TE14B003-01	TE14D003-01	TE14B013-01	TE14D013-01
270° up low flow	TE14B004-01	TE14D004-01	TE14B014-01	TE14D014-01
180° down	TE14B002-01	TE14D002-01	TE14B012-01	TE14D012-01

8 Product Programme

This manual covers the product programme for Alfa Laval Toftejorg SaniMicro, SaniMidget and SaniMagnum.
For the different types of Alfa Laval Toftejorg SaniMicros, SaniMidgets and SaniMagnums, please see the following pages.

8.2 Alfa Laval Toftejorg SaniMidget

Alfa Laval Toftejorg SaniMidget, Clip-on

Surface finish: Bright

	Clip-on OD 25, ISO2037		Clip-on DN25, DIN11850-R1		Clip-on DN25 DIN11850-R2		Clip-on 1" US tube	
Spray Pattern	Stainless steel	Hastelloy C22	Stainless steel	Hastelloy C22	Stainless steel	Hastelloy C22	Stainless steel	Hastelloy C22
360°	TE10B100-01	TE10D100-01	TE10B105-01	TE10D105-01	TE10B106-01	TE10D106-01	TE10B102-01	TE10D102-01
270° up	TE10B130-01	TE10D130-01	TE10B135-01	TE10D135-01	TE10B136-01	TE10D136-01	TE10B132-01	TE10D132-01

Surface finish: 0.5 µm Ra internal/external. With 3.1 certificate and electro-polished

	Clip-on OD 25, ISO2037		Clip-on DN25, DIN11850-R1		Clip-on 1" US tube/DN25 DIN 11850-R2		Clip-on 1" US tube	
Spray Pattern	Stainless steel		Stainless steel		Stainless steel		Stainless steel	
360°	TE10F100-91		TE10F105-91		TE10F106-91		TE10F102-91	
270° up	TE10F130-91		TE10F135-91		TE10F136-91		TE10F132-91	

Alfa Laval Toftejorg SaniMidget, Weld-on

Surface finish: Bright

		Weld-on OD 25, ISO2037		Weld-on DN15, DIN11850-R1		Weld-on DN15, DIN11850-R2	
Spray Pattern	Height (mm)	Stainless steel	Hastelloy C22	Stainless steel	Hastelloy C22	Stainless steel	Hastelloy C22
360°	120.5	TE10B202-01	TE10D202-01	TE10B204-01	TE10B204-01	TE10B203-01	TE10D203-01
270° up	120.5	TE10B232-01	TE10D232-01	TE10B234-01	TE10B234-01	TE10B233-01	TE10D233-01
180° down	120.5	TE10B222-01	TE10D222-01	TE10B224-01	TE10B224-01	TE10B223-01	TE10D223-01
360°	500	TE10B200-01		TE10B205-01		TE10B207-01	
270° up	500	TE10B230-01		TE10B235-01		TE10B237-01	
180° down	500	TE10B220-01		TE10B225-01		TE10B227-01	
360°	1000	TE10B201-01		TE10B206-01		TE10B208-01	
270° up	1000	TE10B231-01		TE10B236-01		TE10B238-01	
180° down	1000	TE10B221-01		TE10B226-01		TE10B228-01	

Alfa Laval Toftejorg SaniMidget, Thread

Surface finish: Bright

		Thread 3/4" Rp (BSP)		Thread 3/4" NPT		Thread 3/4" NPT	
Spray Pattern	Height (mm)	Stainless steel	Hastelloy C22	Stainless steel	Hastelloy C22	Stainless steel	
360°	102	TE10B001-01	TE10D001-01	TE10B003-01	TE10D003-01	TE10B002-01	
270° up	102	TE10B031-01	TE10D031-01	TE10B033-01	TE10D033-01	TE10B032-01	
180° down	102	TE10B021-01	TE10D021-01	TE10B023-01	TE10D023-01	TE10B022-01	

8 Product Programme

This manual covers the product programme for Alfa Laval Toftejorg SaniMicro, SaniMidget and SaniMagnum.
For the different types of Alfa Laval Toftejorg SaniMicros, SaniMidgets and SaniMagnums, please see the following pages.

8.3 Alfa Laval Toftejorg SaniMagnum

Alfa Laval Toftejorg SaniMagnum, Clip-on
Surface finish: Semi bright

	Clip-on OD 38, ISO2037/US tube		Clip-on OD 51, ISO2037/US tube		Clip-on DN40 DIN11850-R1		Clip-on DN40 DIN11850-R2	
Spray Pattern	Stainless steel	Hastelloy C22	Stainless steel	Hastelloy C22	Stainless steel	Hastelloy C22	Stainless steel	Hastelloy C22
360°	TE11B100	TE11D100	TE11B104	TE11D104	TE11B105	TE11D105	TE11B106	TE11D106
360° low flow	TE11B140	TE11D140	TE11B144	TE11D144	TE11B145	TE11D145	TE11B146	TE11D146
270° up	TE11B130	TE11D130	TE11B134	TE11D134	TE11B135	TE11D135	TE11B136	TE11D136
270° up low flow	TE11B150	TE11D150	TE11B154	TE11D154	TE11B155	TE11D155	TE11B156	TE11D156

Surface finish: 0.5 µm Ra internal/external. With 3.1 certificate and electro-polished

	Clip-on OD 38, ISO2037/US tube		Clip-on OD 51, ISO2037/US tube		Clip-on DN40 DIN11850-R1		Clip-on DN40 DIN11850-R2	
Spray Pattern	Stainless steel		Stainless steel		Stainless steel		Stainless steel	
360°	TE11F100-91		TE11F104-91		TE11F105-91		TE11F106-91	
360° low flow	TE11F140-91		TE11F144-91		TE11F145-91		TE11F146-91	
270° up	TE11F130-91		TE11F134-91		TE11F135-91		TE11F136-91	
270° up low flow	TE11F150-91		TE11F154-91		TE11F155-91		TE11F156-91	

Alfa Laval Toftejorg SaniMagnum, Weld-on
Surface finish: Semi bright

		Weld-on OD 38, ISO2037		Weld-on OD 38, ISO2037/ASME BPE tube		Weld-on OD 51, ISO2037/ASME BPE tube		Weld-on DN40, DIN11850-R2	
Spray Pattern	Height (mm)	Stainless steel	Hastelloy C22	Stainless steel	Hastelloy C22	Stainless steel	Hastelloy C22	Stainless steel	Hastelloy C22
360°	157	TE11B202	TE11D202	TE11B252	TE11D252	TE11B253	TE11D253	TE11B204	TE11D204
360° low flow	157	TE11B242	TE11D242	TE11B262	TE11D262	TE11B263	TE11D263	TE11B244	TE11D244
270° up	157	TE11B232	TE11D232	TE11B282	TE11D282	TE11B283	TE11D283	TE11B234	TE11D234
270° up low flow	157	TE11B248	TE11D248	TE11B292	TE11D292	TE11B293	TE11D293	TE11B249	TE11D249
180° down	157	TE11B222	TE11D222	TE11B272	TE11D272	TE11B273	TE11D273	TE11B224	TE11D224
360° up	1000	TE11B201		TE11B250		TE11B251		TE11B205	
360° low flow	1000	TE11B241		TE11B260		TE11B261		TE11B245	
270° up	1000	TE11B231		TE11B280		TE11B281		TE11B225	
270° up low flow	1000	TE11B247		TE11B290		TE11B291		TE11B235	
180° down	1000	TE11B221		TE11B270		TE11B271		TE11B215	

8 Product Programme

*This manual covers the product programme for Alfa Laval Tofteborg SaniMicro, SaniMidget and SaniMagnum.
For the different types of Alfa Laval Tofteborg SaniMicros, SaniMidgets and SaniMagnums, please see the following pages.*

Alfa Laval Tofteborg SaniMagnum, Thread

Surface finish: Semi bright

	Thread 1 1/4" Rp (BSP)	Thread 1 1/4" (NPT)	Thread 1 1/2" Rp (BSP)		Thread 1 1/2" NPT	
Spray Pattern	Stainless steel	Stainless steel	Stainless steel	Hastelloy C22	Stainless steel	Hastelloy C22
360°	TE11B000	TE11B002	TE11B004	TE11D004	TE11B003	TE11D003
360° low flow	TE11B041	TE11B043	TE11B014	TE11D014	TE11B013	TE11D013
270° up	TE11B030	TE11B032	TE11B034	TE11D034	TE11B033	TE11D033
270° up low flow	TE11B045	TE11B046	TE11B054	TE11D054	TE11B053	TE11D053
180° down	TE11B020	TE11B022	TE11B024	TE11D024	TE11B023	TE11D023

8 Product Programme

*This manual covers the product programme for Alfa Laval Toftejorg SaniMicro, SaniMidget and SaniMagnum.
For the different types of Alfa Laval Toftejorg SaniMicros, SaniMidgets and SaniMagnums, please see the following pages.*

8.4 Available add-ons

Following add-ons are available for Alfa Laval Toftejorg SaniMicro, SaniMidget & SaniMagnum:

- Q-doc
- ATEX, category 1 for installation in zone 0/20
- Documentation package in accordance with ASME BPE 2007 (Design Specifications with traceability Matrix, FAT incl. QC Documentation (IQ & OQ), SAT incl. IQ & OQ for end-users execution and 3.1

For more information, please see explanation below or last page in ordering leaflet for Alfa Laval Toftejorg SaniMicro, SaniMidget & SaniMagnum.

TE10XXXX-91 TE10XXXX-71 TE10XXXX-81 TE10XXXX-51 TE10XXXX-61	Q-doc. ATEX ATEX + Q-doc. Q-doc. incl. FAT - SAT Q-doc. incl. FAT - SAT + ATEX	
Explanation to Add-on		
Q-doc	Equipment Documentation includes: - EN 10204 type 3.1 Material Inspection certificate - USP Class VI certificate - FDA Declaration of Conformity - TSE Declaration - QC Declaration of Conformity	
ATEX	ATEX approved machine for use in explosive atmospheres. Catagory 1 for installation in zone 0/20 in accordance to Directive 94/9/EC. valid until 2016-04-19/Directive 2014/34/EU valid from 2016-04-20 Ex II 1 GD c T140°C; Baseefa04ATEX0357X	
Q-doc + FAT-SAT	Qualification Documentation includes: - Q-doc: 3.1 , USP Class VI, FDA, TSE and QC Declaration of Conformity - RS, Requirement Specification - DS, Design specification incl. Traceability Matrix - FAT, Factory acceptance Test incl. IQ and OQ - SAT, Site Acceptance Test protocol incl. IQ and OQ for End-User Execution	

9.1 Service & 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.

9.2 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

10 Miscellaneous

10.1 ATEX - Special Conditions for Safe Use

ATEX CERTIFICATION

EC – Type Examination Certificate Number: Baseefa04ATEX0357X

 **II 1GD c T140°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 140°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.

This product fully complies to ATEX category 1 as long as the 5 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 +140°C and is marked

 **II 1GD c T140°C**

10.2 Declaration of compliance for food contact materials

Declaration of compliance for
food contact materials

Article Nr: TE14BXXX-XX
TE10BXXX-XX
TE11BXXX-XX
Product SaniMicro
SaniMidget
SaniMagnum

We, Alfa Laval Kolding A/S, hereby certify that the plastic articles intended to come into contact with product included in the article stated above comply with the Regulation (EC) No. 1935/2004 and the Regulation (EC) No. 10/2011 both in their relevant versions on materials and articles intended to come in contact with food.

Finished articles subject to an overall migration limit of 10 mg/dm² or 60 mg/kg.
The following substances subject to limitations are used in the above stated article:
SML:

PTFE
Tetrafluoroethylene (TFE): 0.05 mg/kg product

Migration from the plastic articles has been investigated by calculations as laid down in paragraph (32) in Regulation (EC) No. 10/2011, to control that the migration limits and other requirements are fulfilled. The articles can be used, within its application area, with all type of foods at batch size above

SaniMicro: 9.5 kg*
SaniMidget: 22 kg*
SaniMagnum: 35 kg*

We also certify that the plastic articles intended to come into contact with product included in the article stated above are also entirely in accordance with the present US regulation FDA CFR 21§177.

Kolding, December 15, 2014

A handwritten signature in blue ink, appearing to read 'Henrik Falster-Hansen', is written over a horizontal line.

Henrik Falster-Hansen
R&D Manager
Alfa Laval Kolding A/S

*Based on worst case scenario = dissolving 100% of the polymer material in one single batch

Alfa Laval Kolding A/S
Albuen 31, 6000 Kolding, Denmark
Tel switchboard: +45 79 32 22 00 - Fax switchboard: +45 79 32 25 80
www.alfalaval.com



CSI 417.831.1411 • csidesigns.com

© Alfa Laval Corporate AB

This document and its contents is owned by Alfa Laval Corporate AB and protected by laws governing intellectual property and thereto related rights. It is the responsibility of the user of this document to comply with all applicable intellectual property laws. Without limiting any rights related to this document, no part of this document may be copied, reproduced or transmitted in any form or by any means (electronic, mechanical, photocopying, recording, or otherwise), or for any purpose, without the expressed permission of Alfa Laval Corporate AB. Alfa Laval Corporate AB will enforce its rights related to this document to the fullest extent of the law, including the seeking of criminal prosecution.