Instruction Manual

Alfa Laval Toftejorg™ SaniJet 25

With

- **Standard**
- **Q-doc (3.1 Inspection Certificate – EN 10204)**
- **Q-doc + FAT-SAT (Qualification Documentation)**
- **ATEX Certification in accordance with Directive 94/9/EC**
- **USP Class VI materials**

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Original manual

Contents

Installation

Operation

Maintenance

Misc.

Toftejorg SaniJet 25, Product Program

This manual covers the product program for the EHEDG certified Toftejorg™ SaniJet 25 tank cleaning machine

Standard (see below for choices of welding connectors)

TE20J000-0X: ø4.2mm Nozzle size w. ISO228 thread
TE20J002-0X: ø5.2mm Nozzle size w. ISO228 thread
TE20J004-0X: ø6.2mm Nozzle size w. ISO228 thread

Available documentation add-on's

TE20J0XX-5X: Qualification Doc + FAT-SAT
TE20J0XX-6X: Qualification Doc + FAT-SAT + ATEX
TE20J0XX-7X: ATEX
TE20J0XX-8X: Qualification Doc + ATEX
TE20J0XX-9X: Qualification Doc

Explanation to documentation add-on´s:

Explanation to Add-on´s:

Qualification Doc includes:

Declaration of Compliance:
- EN 10204 type 3.1 inspection Certificate
- FDA Declaration of Compliance
- USP Class VI (if possible)
- TSE Declaration
- QC Declaration of Compliance

Qualification Doc + FAT-SAT include.

Qualification Documentation:
- RS, Requirement Specification
- DS, Design Specification incl. Traceability Matrix
- FAT, Factory Acceptance Test incl. IQ & OQ
- SAT, Site Acceptance Test Protocol incl. IQ & OQ for End-User Execution
- Declaration of Compliance:
  - EN 10204 type 3.1 inspection Certificate
  - FDA Declaration of Compliance
  - USP Class VI (if possible)
  - TSE Declaration
  - QC Declaration of Compliance

ATEX includes:

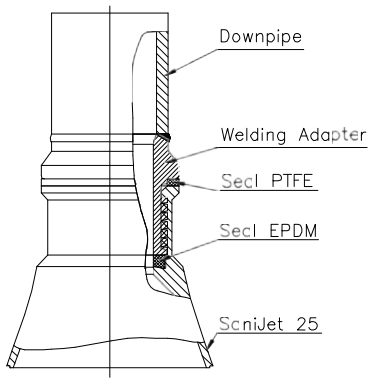
ATEX approved machine for use in explosive atmospheres. Category 1 for installation in zone 0/20 in accordance to Directive 94/9/EC. Ex II 1 GD c T140°C.

Available welding connection

Sanitary welding adapter (see right) with sealing assembly between Down pipe, Welding adapter and machine

(use cone with seal – seals comes with machines)

	Pipe Dimension in mm	
TE20J00X-X3	1½" BPE US/SWG pipe	ø38.1 x 1.63
TE20J00X-X4	1" ISO pipe	ø33.7 x 3.2
TE20J00X-X6	1½" ISO Dairy pipe	ø38 x 1.2
TE20J00X-X7	1" ANSI/Sch.40S	ø33.4 x 3.38
TE20J00X-X8	NW40	ø41 x 1.5



Introduction

Based on more than 30 years of experience from practical tank cleaning and production of tank cleaning equipment, the SaniJet 25 has been developed to meet the highest demands for efficiency, reliability and hygiene within food, beverage, pharmaceutical and biotechnology industry.

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

The SaniJet 25 is the first tank cleaning machine ever to obtain a certificate from EHEDG (European Hygienic Engineering Design Group). It is designed, tested and approved according to EHEDG´s requirement for self cleanability (EHEDG Doc. 2, see page 84) and tested to be sterilizable (EHEDG Doc. 5).

Warning:

In order to maintain the hygienic state of the machine it is of highest importance that the SaniJet 25 is handled and installed according to instructions. Scratches in the material surfaces and destroyed o-rings will reduce the performance and the hygienic design.

Therefore, it is recommended to use the correct tools specially designed for maintenance of the SaniJet 25 (TE81B155) is used.

Alfa Laval offers maintenance by a trained and certified SaniJet 25 service engineer.

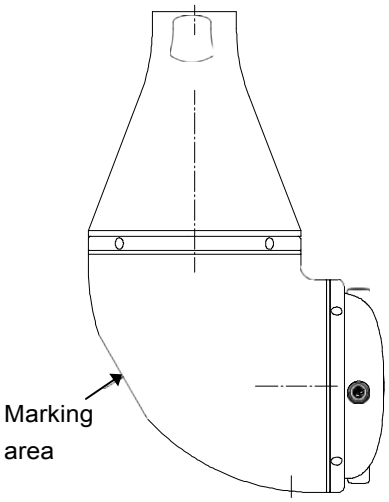
Alfa Laval offers education of you service engineer(s) for your maintenance of the SaniJet 25 using the special maintenance tools, teaching how to maintain the SaniJet 25 and its hygienic state and how to test the SaniJet 25 after maintenance.

If the SaniJet 25 stops rotating unintentionally within the warranty period, please return the machine to Alfa Laval Kolding A/S. Please do not try to fix any mechanical problems before shipping.

Marking

Alfa Laval tank cleaning machines are all marked to allow for recognition of type of machine, machine name, Serial number and manufacturing address. The marking are placed on the body of the tank cleaning machine.

or



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

Serial number explanation

Machines supplied with or without normal documentation:

yyyy-xxxxx: serial number
yyyy: year
xxxxx: 5 digit sequential number

Machines supplied with Qualification Documentation package:

yyyy-FAT-SAT-xxx: serial number
yyyy: year
xxx: 3 digit sequential number

ATEX Marking

The SaniJet 25 is certified as category I component. The certification is carried out by the notified body Baseefa, who has issued the certificate no. 04ATEX0358X. The marking on the ATEX certified SaniJet 25 is as follows (see previous page for position of marking):

Serial number explanation

Machines supplied with or without normal documentation:

yyyy-xxxxx: serial number
yyyy: year
xxxxx: 5 digit sequential number

Machines supplied with Qualification Documentation package:

yyyy-FAT-SAT-xxx: serial number
yyyy: year
xxx: 3 digit sequential number

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.

ATEX Important information 	Also see “Maintenance” page 25ff regarding special conditions for repair of ATEX certified machines.

Intended use

It is to be verified by the end-user that

- the SaniJet 25 tank cleaning machine is in conformity with respect to tank -, vessel - or container size in which it intended to be used.
- the constructions materials (both metallic and non-metallic) are compatible with product, flushing media, cleaning media, temperatures and pressure under the intended use.

To ensure the self cleanability and drainability the machine must be installed in vertical position

Warning:  Before installation and operation of the tank cleaning machine carefully read the General Installation Instructions (page 15), the special conditions for safe use in accordance with ATEX Certification, Directive 94/9/EC (page 17) and the Safety Precautions (page 22) and take all necessary precautions according to your application and local regulations.

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 the next editions of this Instruction Manual.

The Alfa Laval logotype is a trademark or a registered trademark of Alfa Laval Corporate AB. "Toftejorg" and “SaniJet” are trademarks or registered trademarks of Alfa Laval Kolding A/S. The Toftejorg™ SaniJet™ 25 product has patents in the EPO member states (EP 0 560 778), in the US (5333630) and in other countries and has a new patent pending (200600176 & 200600177 & 200700902). Other products or company names mentioned herein may be the trademarks of their respective owners. Any rights not expressly granted herein are reserved.

General Description

The SaniJet 25 is a media driven and media lubricated tank cleaning machine. No lubricating substances such as oil, grease etc. are used. All materials complies with FDA 21CFR§177 and for polymers also EU 10/2011, which makes the SaniJet 25 suited for sanitary and hygienic applications such as Food and Pharmaceutical industry. If required the machine is also available with USP Class VI materials from new or as an upgrade kit. The machine is self-cleaning; i.e. all internal and external surfaces are cleanable, drainable and sterilizable.

The SaniJet 25 is a sanitary cleaning device of the rotary jet head type for permanent installation that provides a 360° indexed cleaning pattern. Provided it is installed in a vertical position, the SaniJet 25 is proven completely self-cleaning by the EHEDG test method and self-draining. Using the Sanitary welding connection (included in the package) between down pipe and machine provides a self-cleanable connection. All product contact surfaces are AISI 316L, duplex SAF 2205 stainless steel or FDA compliant polymer and elastomer materials.

No exposed threads or screws are present in the product contact areas.

The SaniJet 25 is designed for use in pharmaceutical, biotechnology, food and dairy processing applications. Recommended for use in tanks and vessels between 0.5-30 m^3 (130-8,000 US gallons) for larger tanks multiple units may be used.

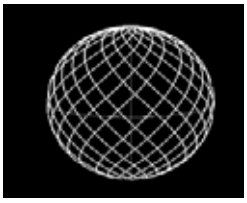
Quality system

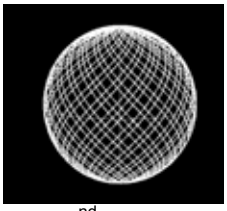
The SaniJet 25 is designed in accordance with the EHEDG design guidelines for sanitary design of processing equipment and is the first ever rotating jet head that has been awarded the certificate of compliance from EHEDG, showing that the machine has passed the EHEDG test (Doc. 2) for cleanability. In addition the machine is proven to be sterilizable based on EHEDG test (Doc. 5). 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 and EU compliant materials and also available as USP Class VI materials. All materials has full traceability according to EU1935/2004/EC

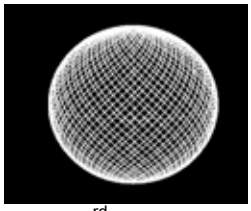
Functionality

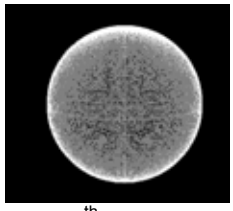
The cleaning fluid passing through the machine passes through a turbine, which accordingly is set into rotation. The turbine rotation is transmitted through a set of gears and drive shaft to the machine Body and the Hub cover with Nozzles.

The combined rotation of the machine Body and the Nozzles ensure a fully indexed tank cleaning coverage as illustrated below for a spherical tank with the machine placed in the centre. For light soiling only 1 cycle could be sufficient and for heavier soiling a full pattern (8 cycles) may be needed.
One cycle provides a coarse pattern and is built from $5^5/_8$ revolutions of the Hub cover with Nozzles; corresponding to $5^3/_8$ revolutions of the machine Body. During the following cycles, this coarse pattern is repeated 7 times, each coarse pattern displaced slightly. Hence, the pattern gradually becomes denser. Finally, after 8 cycles (a total of 45 revolutions of the Hub Cover with Nozzles and 43 revolutions of the machine Body), a complete cleaning pattern has been laid out, and the pattern starts over from the original starting point.


1st cycle


2nd cycle


3rd cycle

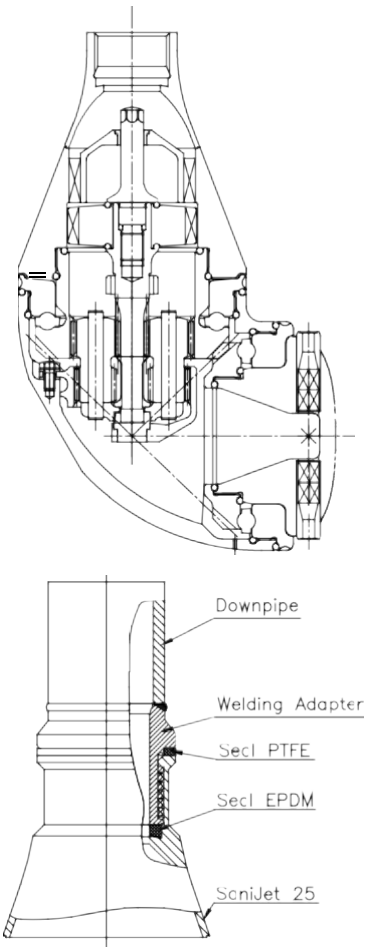

4th cycle

The number of cycles needed to perform a proper cleaning depends on type of soil, distance, cleaning procedure and agent. For residues that are easily mobilized, i.e. easy to remove, one cycle could be sufficient. Heavier soiling (high viscous, sticky substances, etc.) requires a denser pattern (more cycles are needed).

The rotation speed of the turbine depends on the flow rate through the machine. The higher the flow rate is, the higher the speed of rotation will be. In order to control the RPM of the machine for the wide range of flow rates, the machine has different turbines according to the Nozzle size.

Self-cleaning is ensured by flushing the planet gear, the Hub, the bevel gear, the nozzle head, the nozzles and the ball bearings with the CIP liquid. Furthermore, all gaps between moving parts are flushed with CIP liquid and finally also the outside surfaces of the machine is cleaned with the main flow of CIP liquid. In the bottom of the Body, the machine is equipped with a hole to ensure self-draining. This self-draining is only ensured, if the machine is installed in vertical position and the drain hole in not blocked.

The threaded connection between downpipe and machine is not a product contact surface as it is shielded of using two seals and the welding adaptor. A welding adaptor, depending on downpipe dimensions, comes as standard with the machine.

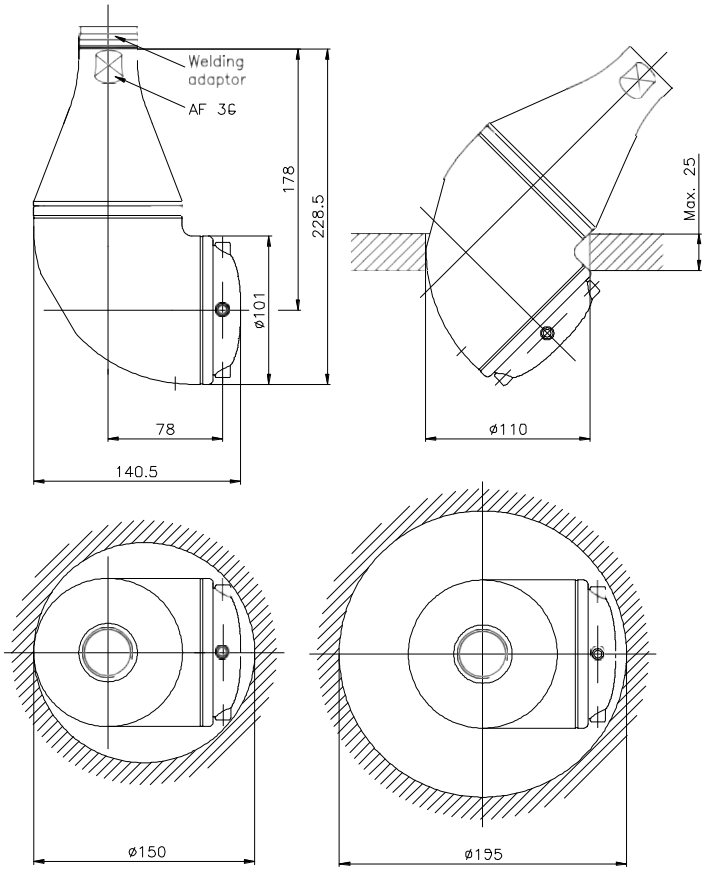


Technical Data

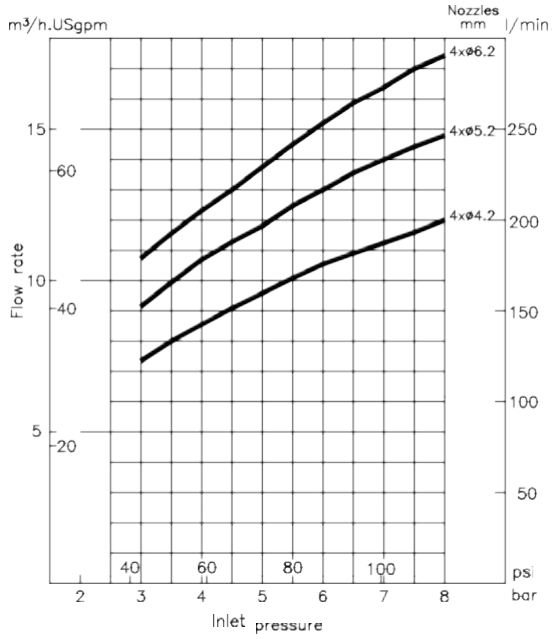
Weight of machine	:	6.3 kg (11.2 lb)
Working pressure	:	3-8 bar (40-115 psi)
Recommended inlet pressure	:	5-7 bar (70-100 psi)
Working temperature max.	:	95°C (200° F)
Ambient temperature	:	0 - 140°C (95°C/200°F - 140°C/284°F when not operated) => Steam pressure = 2.5 bar
Materials	:	Stainless steel AISI 316L, SAF 2205, PEEK, EPDM, PFA HP, PTFE

Dimensions

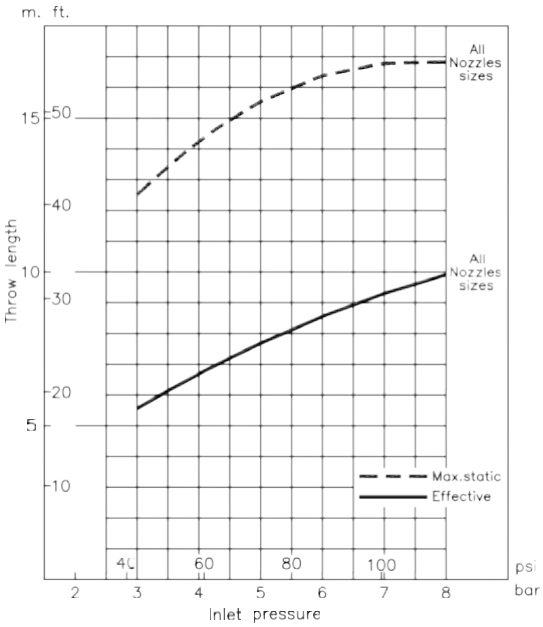
All dimensions are given in mm



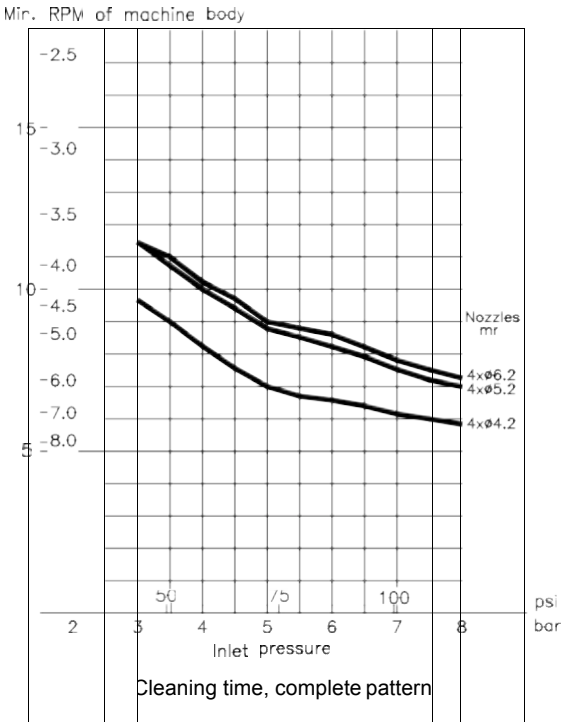
Performance Data



Flow rate



Horizontal throw length at static condition



Cleaning time, complete pattern

The throw length is measured as described in Technical Specification no. 93P000.

Note: Throw lengths are measured as horizontal throw length at static condition.

Vertical throw lengths upwards are approx. 1/3 less.

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

From August 2011 (serial number SJ25 1010 039 and from SJ25 1107 XXX) design changes resulted in a higher flow rate and a slightly shorter time for a full pattern. Current graphs are for the new configuration.

Instruction Manual - Installation

Contents

General Installation Instructions

The SaniJet 25 tank cleaning machine should be installed in vertical upright position with the connections pointing upward. Failure to do so means that the Toftejorg SaniJet 25 is no longer gravity drainable (influences cleanability and increases risk of corrosion) and the maintenance intervals may be shortened.

It is recommended that the cleaning fluid supply line is equipped with a filter that will trap solids with a particle size of 250µm (0.01") or smaller. Avoid solid particles, to minimize wear and unscheduled maintenance as particles can become caught in one of the internal passages of the machine and cause it to stop rotating.

In order to separate the CIP system from the process it is recommended to install a shutoff valve close to the machine inlet. This also prevents back-flow of liquid from the tank through the machine in case the cleaner head is submerged and there is an over-pressure inside the tank. The installation and operation shall be made in such a way that the gravity draining of the machine is ensured.

It is recommended that the fluid valve fitted is of a type that prevents hydraulic shocks, which may cause severe damage to the SaniJet 25 and/or the entire installation. Ideally, a frequency controlled pump with a ramp function for start-up is used for supplying the cleaning liquid.

Before connecting the machine to the system, all supply lines and valves should be flushed in order to remove foreign particles.

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

The SaniJet 25 machine has been tested at the factory before shipping. You can check that the machine is in operating condition by blowing compressed air into the inlet, while holding the machine by the cone (Pos. 1) and verify that the rest of the machine rotates evenly. If resistance is recognised, the machine should be disassembled in order to localise the cause or returned to the nearest Alfa Laval Service Centre.

Connect the welding adaptor to the supply line. Screw the machine tightly onto the welding adaptor using a 36 mm flat jawed spanner (tool No. TE81B159) and the flats machined on the inlet Cone.

Note: Do not try to turn the Nozzle head by hand, since this may damage the Gear. The Nozzle head can be turned by blowing compressed air through the inlet connection.

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-Machinery 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: 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.

ALWAYS use the welding adaptor included with the machine to connect the machine to the down-pipe (supply line). Otherwise the hygienic state of the installation is compromised. The welding adaptor's one end is welded onto the downpipe (weld must be of a hygienic quality e.g. following EHEDG guideline nr. 35 or 3-A recommendations of using AWS/ANSI D18.1)

Subject to the intended use environment and any in-house user requirements or policies adhesive such as Loctite No. 243 or equivalent could be used. Other methods could be acceptable and subject to customer preference.

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 threads or joints, unless an electrical connection is otherwise established to ensure that the machine is effective grounded. In addition, connecting pipe work must be electrically conductive and grounded 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 CENELEC R044-001 Safety of Machinery, guidance and recommendations for the avoidance of hazards due to static electricity.

Special Conditions for Safe Use – ATEX

In Acc. with the ATEX Certification, Directive 94/9/EC the following special conditions shall be obeyed.

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

ATEX Warning: 	Working temperature max: The maximum permitted process fluid temperature and ambient temperature when the machine is operating is 95°C. Ambient temperature: When the machine is **not** operating, the maximum permitted ambient temperature is 140°C.

ATEX Warning: 	The maximum permitted process fluid working pressure is 8 bar.

ATEX Warning: 	The unit must not be operated in a vessel having an enclosed volume of greater than $100m^3$. <u>Tanks larger than 100 m³:</u> To use Tank Cleaning Machines in tanks larger than 100m³ is possible under certain conditions. It is necessary to know the current factors such as tank size, cleaning solvent and product. Additives can be used in the cleaning solvent, or, for example, the tank can be filled with nitrogen. The basic rules are described in the guide "CLC / TR 50404:2003“. Following a guidance document such as "CLC / TR 50404:2003“ to establish safe use of machinery and process is the users own responsibility and is not covered by the ATEX certification for this product.

In addition to the above mentioned precautions relating to the ATEX guidelines Directive 94/9/EC of March 23 1994, the general safety precautions, page 22, must be observed.

Instruction Manual - Operation

Contents

Operation

Cleaning Media

Use only media/chemicals compatible with stainless steel AISI 316L, SAF 2205, PEEK, PFA HP, PTFE and EPDM. Normal detergents, moderate solutions of acids and alkalis will be acceptable. Aggressive chemicals, excessive concentrations of chemicals at elevated temperatures, as well as certain hypochlorites should be avoided. If you are in doubt, contact your local Alfa Laval sales office.

Note: PEEK is not resistant to concentrated sulphuric acid

Product

In cases where the machine is submerged in, or in other ways exposed to, product, the compatibility between stainless steel AISI 316L, SAF 2205, PEEK, PFA, PTFE and EPDM and the product must be considered carefully.

Note: EPDM swells significantly exposed to fatty materials

Pressure

Avoid hydraulic shocks. Increase pressure gradually. Do not exceed 8 bar inlet pressure. Recommended inlet pressure: 5-7 bar. High pressure in combination with high flow rate will increase consumption of wear parts. High pressure will also reduce the cleaning effect.

ATEX Warning:

Steam cleaning pressure:

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

ATEX Warning:

Draining:

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 settle 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.

Temperature

The maximum recommended process fluid temperature is 90°C. The recommended ambient temperature range is 0°C to 140°C. For higher ambient temperatures the machine can be fitted with gasket of compatible material.

In accordance with the ATEX specifications regarding special conditions for safe use, see page 17.

ATEX Warning:

Atmosphere/surface temperature:

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

ATEX Warning:

Steam cleaning:

Tanks with capacities greater than 100 m^3 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.

Safety Precautions

The machine is intended for use inside a tank only. As peak velocity of main jets reaches 40 m/s, SaniJet 25 must not be operated in open air or when tank is open.

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.

The cleaning jets impinging the tank surface are a source of noise. Depending on pressure and distance to the tank walls, noise level may reach up to 85 dB.

ATEX Warning:

In case potentially explosive liquids are used, precautions should be taken against incidental creation of an explosive mixture with oxygen in the tank atmosphere.

Warning:

Tanks may contain poisonous/hazardous products or products which represent an environmental or safety risk. Never open tank and dismount the machine without checking previous tank contents and necessary precautions.

Instruction Manual - Maintenance

Contents

Preventive Maintenance Guidelines

Following the Alfa Laval Preventive Maintenance Guidelines and using the Alfa Laval Service Kits ensures the availability of your equipment at all times and enables you to plan your operating budget and your downtime. The risk of unscheduled breakdowns due to component failure is virtually eliminated and in the long term your operating costs are reduced.

Alfa Laval Tank Cleaning Equipment Service Kits contain all you need. They comprise genuine Alfa Laval spare parts, manufactured to the original specifications.

The following recommended preventive maintenance program is based on tank cleaning machines working in average conditions. However, a tank cleaning machine, exposed to heavy soiling and recirculation CIP liquid containing abrasives and/or particulates, needs more frequent attention than one exposed to light/no soiling and recirculation with ordinary CIP liquid. Alfa Laval Tank Cleaning Equipment recommends you to adjust the maintenance program to suit the cleaning task in hand. Contact your local Alfa Laval sales office for discussion.

Note: Handle the SaniJet 25 with care. Take proper action to protect surfaces from being damaged.

Always use only proper tools and the SaniJet 25 standard tool kit. Never use force, hammer or pry components together or apart. Always perform all assembly/disassembly steps in the order described in this manual.

Clean all surfaces prior to assembling. Especially take care of the mating surfaces. Work in a clear well-lighted work area.

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, Kolding, Denmark, or Alfa Laval service centre approved by ALTEQ.

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 R
- 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.

Service and repair of machines ordered with Q-Doc

In order to ensure full traceability and to obtain full qualification and validation documentation, all service and repair of machines ordered with Q-Doc (Qualification Documentation) should be handled and ordered in one of the 2 different ways described below:

1. **Q-Doc Service/Rep Order** (Item no.: TEREP-Qdoc):
   (This maintenance order should be selected if the customer wishes to have ALTEQ to obtain full file log of all FAT (Factory Acceptance Test) documents for the Tank Cleaning Machine).
   - Maintenance/Repair is carried out at ALTEQ and Q-Doc Maintenance Log, FAT-SURFACE (if necessary), FAT-WELD (if necessary) and FAT-PERFORMANCE is performed. The FAT documents are stored in the Q-Doc Maintenance Log as PDF-files.
   - 3.1 Certificate + FDA Declaration of Conformity for all spare parts are stored in the Q-Doc Maintenance Log as PDF-files.
   - The machine is returned to the customer incl. the Q-Doc-Log CD and hardcopy of all FAT documents, for further qualification (SAT: Site Acceptance Test) and validation (PV: Process Validation).
   - Word and PDF documents are stored in the Alfa Laval Q-Doc Maintenance Log folder.

2. **Q-Doc-Spare Part Order** (Item no.: 20XXXX-5X and 20XXXX-6X):
   (This maintenance order should be selected if the customer wishes to carry out service or repair himself. The customer or the repair shop thus carries the full responsibility for the full traceability of the material and FAT documentation for the Tank Cleaning Machine).
   - The spare part is sent to the customer incl. 3.1 Cert. + FDA Declaration of Conformity incl. Weld-Log documentation (if necessary) as hardcopy.
   - This service information will not be recorded in the Alfa Laval Q-Doc folder. The customer has to perform all Qualification tests and documentation (FAT, SAT, IQ & OQ) himself.

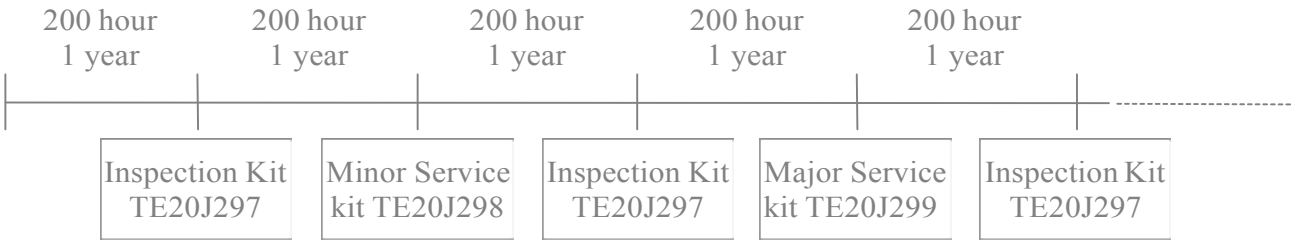
Contact local Alfa Laval service and support (see. www.alfalaval.com).
Important information to give to Alfa Laval:

- Serial No.
- Q-Doc maintenance order type:
  - Item no.: TEREP-Qdoc
    or
  - Item no.: 20XXXX-5X or -6X

(See page 32 for more information)

Maintenance intervals and Service Kits selection

Alfa Laval Service Kits for Tank Cleaning Machine type Toftejorg SaniJet 25 available in three levels: Inspection Kit, Minor Service Kit and Major Service Kit.



It is recommended to inspect the SaniJet25 after every 200 running hours or after 1 year to ensure the conditions of the machine is acceptable. During the inspection it is recommended that the inspection kit is used in order not to compromise the hygienic state of the machine.

Major Service kit includes the corresponding Minor Service Kit parts and the Minor Service Kit includes the corresponding Inspection Kit parts.

TE20J297 and TE20J297-01 Inspection Kit f. SaniJet 25

Pos	P/n (20J000_004-0x/7x) TE20J297	P/n (20J000_004-5x/6x/8x/9x) TE20J297-01	No./Unit	Description
2	TE51T212	TE51T212	1	Gasket
3.3	TE51T135	TE51T135	2	O-ring
6	TE51T138	TE51T194	1	O-ring
7	TE51T139	TE51T139	1	O-ring
9	TE51T141	TE51T196	2	O-ring
10	TE51T140	TE51T195	2	O-ring
16	TE51T136	TE51T192	1	O-ring
17	TE51T137	TE51T193	1	O-ring
19.2	TE52D561	TE52D561	1	Gasket

Inspection Kit is recommended to be replaced every 200 working hours or every year, whichever comes first.

TE20J298 and TE20J298-01 Minor Service Kit f. SaniJet 25

Pos	P/n (20J000_004-xx) TE20J298	P/n (20J000_004-5x/6x/8x/9x) TE20J298-01	No/Unit	Description
1.2	TE20J514	TE20J514	1	Bushing
5	TE20G318	TE20G318	2	Ball retainer with balls
13.3	TE20J508	TE20J508	1	Bearing for body
-	TE20J297	TE20J297-01	1	Inspection Kit f. SaniJet 25

Every 400 working hours or 2 years, whichever comes first, disassemble the machine according to the disassembly instruction given later in this manual and check the parts in the Minor Service Kit for excessive wear and replace if needed.

TE20J299 and TE20J299-01 Major Service Kit f. SaniJet 25

Pos	P/n (20J000_004-XX) TE20J299	P/n (20J000_004-5x/6x/8x/9x) TE20J299-01	No/Unit	Description
4	TE20J627	TE20J627	1	Nut for stem
8	TE20J624	TE20J624	1	Stem
11.1	TE20J521	TE20J521	1	Bushing
12	TE20J515	TE20J515	1	Planet gear assembly
14	TE20J522	TE20J522	1	Bevel gear
15	TE20J638	TE20J638	1	Nut for hub
-	TE20J298	TE20J298-01	1	Minor Service kit f. SaniJet 25

Every 800 working hours or 4 years, whichever comes first, disassemble the machine according to the disassembly instruction given later in this manual and check the parts in the Minor Service Kit for excessive wear and replace if needed.

Available add-on´s

Available add-on´s regarding material certificates, Declaration of Conformity and Q-Doc documents, see page 32 for more information.

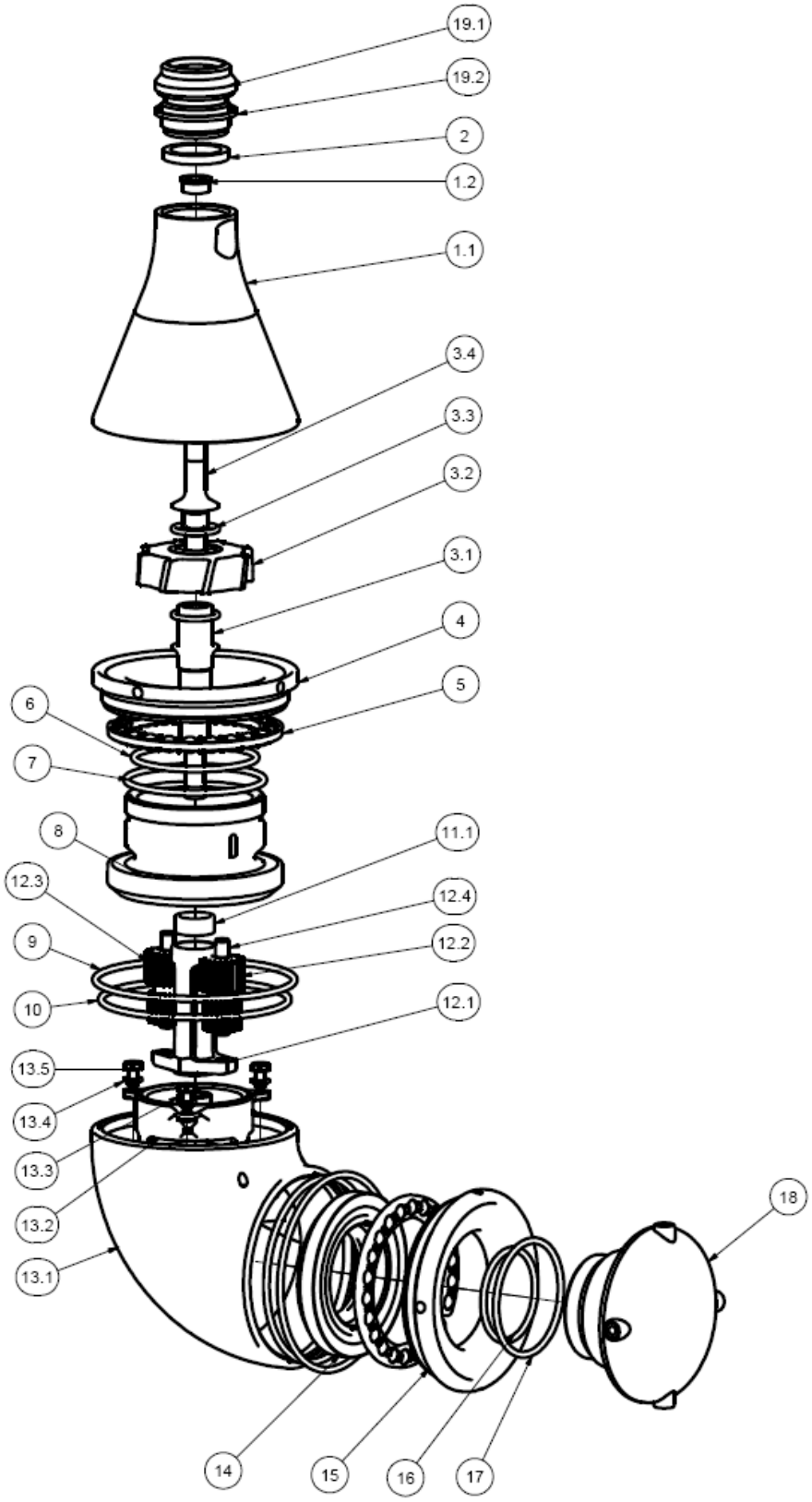
General recommendations

- Always read the instruction and maintenance manuals carefully before undertaking the service.
- Always replace all parts included in the Service Kit.
- Prior to assembly/disassembly clean all tools and fixtures to ensure that scratches and marks and trace of soil/corrosion from tools are avoided.
- Do not scratch or damage the surfaces of the machine.
    - Always place components on soft material

Check surfaces for product residues and clean all parts before assembly.

Assembly of the machine is described on the following pages.

Assembly drawing



Reference list of parts

For machines with -0x and -7x (after August 2012)

Pos.		Ref. No.	No.	Description	Materials	Remarks
1.1		TE20J510	1	Cone	Stainless steel	Spare part
1.2		TE 20J514	1	Bushing	Polymer	Wear part
2		TE 51T212	1	Gasket	Elastomer	Wear part
3.1		TE 20J540	1	Impeller Shaft	Stainless steel	Spare part
3.2	☐	TE 20J544	1	Impeller (ø4.2mm nozzle)	Polymer	Spare part
	☐	TE 20J545	1	Impeller (ø5.2mm nozzle)	Polymer	Spare part
	☐	TE 20J546	1	Impeller (ø6.2mm nozzle)	Polymer	Spare part
3.3		TE 51T135	2	O-ring	Elastomer	Wear part
3.4		TE 20J542	1	Shaft end	Stainless steel	Spare part
4		TE 20J627	1	Nut for stem	Stainless steel	Wear part
5		TE 20G318	2	Ball retainer with balls	Polymer/Stainless steel	Wear part
6		TE 51T138	1	O-ring	Elastomer	Wear part
7		TE 51T139	1	O-ring	Elastomer	Wear part
8		TE 20J624	1	Stem	Stainless steel	Wear part
9		TE 51T141	2	O-ring	Elastomer	Wear part
10		TE 51T140	2	O-ring	Elastomer	Wear part
11.1		TE 20J521	1	Bushing	Polymer	Wear part
12		TE 20J515	1	Planet gear	Polymer/Stainless steel	Wear part
13.1		TE 20J300	1	Body	Stainless steel	Spare part
13.2		TE 20J506	1	Gear ring	Stainless steel	Spare part
13.3		TE 20J508	1	Bearing for body	Polymer	Wear part
13.4		TE 20J509	6	Seal ring	Polymer	Spare part
13.5		TE 20J550	3	Screw for body assembly	Stainless steel	Spare part
14		TE 20J522	1	Bevel gear	Stainless steel	Wear part
15		TE 20J638	1	Nut for hub	Stainless steel	Wear part
16		TE 51T136	1	O-ring	Elastomer	Wear part
17		TE 51T137	1	O-ring	Elastomer	Wear part
18	☐	TE 20J320	1	Nozzle head (ø4.2mm nozzle)	Stainless steel	Spare part
	☐	TE 20J321	1	Nozzle head (ø5.2mm nozzle)	Stainless steel	Spare part
	☐	TE 20J322	1	Nozzle head (ø6.2mm nozzle)	Stainless steel	Spare part
19.1	☐	TE52D552	1	Welding adaptor (1½” Dairy)	Stainless steel	Spare part
	☐	TE52D554	1	Welding adaptor (1”ANSI/Sch40)	Stainless steel	Spare part
	☐	TE52D556	1	Welding adaptor (NW40)	Stainless steel	Spare part
	☐	TE52D558	1	Welding adaptor (1½”BPE US/SWG)	Stainless steel	Spare part
19.2		TE52D561	1	Gasket	Polymer	Wear part

For machines with -5x, -6x, -8x and -9x (after August 2012)

Pos.		Ref. No.	No.	Description	Materials	Remarks
1.1		TE20J510	1	Cone	Stainless steel	Spare part
1.2		TE 20J514	1	Bushing	Polymer	Wear part
2		TE 51T212	1	Gasket	Elastomer	Wear part
3.1		TE 20J540	1	Impeller Shaft	Stainless steel	Spare part
3.2	☐	TE 20J544	1	Impeller (ø4.2mm nozzle)	Polymer	Spare part
	☐	TE 20J545	1	Impeller (ø5.2mm nozzle)	Polymer	Spare part
	☐	TE 20J546	1	Impeller (ø6.2mm nozzle)	Polymer	Spare part
3.3		TE 51T135	2	O-ring	Elastomer	Wear part
3.4		TE 20J542	1	Shaft end	Stainless steel	Spare part
4		TE 20J627	1	Nut for stem	Stainless steel	Wear part
5		TE 20G318	2	Ball retainer with balls	Polymer/Stainless steel	Wear part
6		TE 51T194	1	O-ring	Elastomer	Wear part
7		TE 51T139	1	O-ring	Elastomer	Wear part
8		TE 20J624	1	Stem	Stainless steel	Wear part
9		TE 51T196	2	O-ring	Elastomer	Wear part
10		TE 51T195	2	O-ring	Elastomer	Wear part
11.1		TE 20J521	1	Bushing	Polymer	Wear part
12		TE 20J515	1	Planet gear	Polymer/Stainless steel	Wear part
13.1		TE 20J300	1	Body	Stainless steel	Spare part
13.2		TE 20J506	1	Gear ring	Stainless steel	Spare part
13.3		TE 20J508	1	Bearing for body	Polymer	Wear part
13.4		TE 20J509	6	Seal ring	Polymer	Spare part
13.5		TE 20J550	3	Screw for body assembly	Stainless steel	Spare part
14		TE 20J522	1	Bevel gear	Stainless steel	Wear part
15		TE 20J638	1	Nut for hub	Stainless steel	Wear part
16		TE 51T192	1	O-ring	Elastomer	Wear part
17		TE 51T193	1	O-ring	Elastomer	Wear part
18	☐	TE 20J320	1	Nozzle head (ø4.2mm nozzle)	Stainless steel	Spare part
	☐	TE 20J321	1	Nozzle head (ø5.2mm nozzle)	Stainless steel	Spare part
	☐	TE 20J322	1	Nozzle head (ø6.2mm nozzle)	Stainless steel	Spare part
19.1	☐	TE52D552	1	Welding adaptor (1½" Dairy)	Stainless steel	Spare part
	☐	TE52D554	1	Welding adaptor (1"ANSI/Sch40)	Stainless steel	Spare part
	☐	TE52D556	1	Welding adaptor (NW40)	Stainless steel	Spare part
	☐	TE52D558	1	Welding adaptor (1½"BPE US/SWG)	Stainless steel	Spare part
19.2		TE52D561	1	Gasket	Polymer	Wear part

Available add-on´s

Available add-on´s regarding material certificates, Declaration of Conformity and Q-Doc documents, see page 32 for more information.

Available add-on´s for Spare parts

Item no.	Description
TE20XXXX-**8X** TE20XXXX-**9X**	• Declaration of Conformity: - EN 10204 type 3.1 inspection Certificate - FDA Declaration of Conformity - USP Class VI (if possible) - TSE Declaration (if possible)

Available add-on´s for Q-Doc machines Spare parts

Item no.	Description
TE20XXXX-**5X** TE20XXXX-**6X**	• Declaration of Conformity: - EN 10204 type 3.1 inspection Certificate - FDA Declaration of Conformity - USP Class VI (if possible) - TSE Declaration (if possible) • Weld-Log documentation (if necessary) as hardcopy

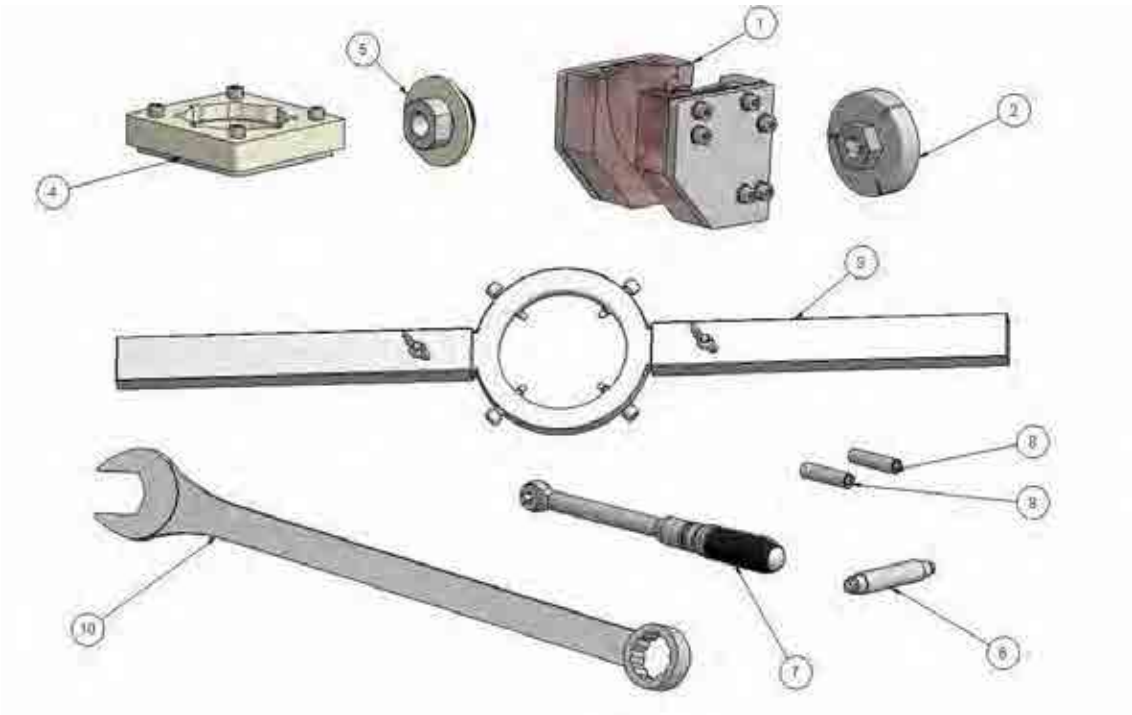
Toolkit and tools for assembly and disassembly

TE81B155 Standard toolkit f. SaniJet 25

Pos	P/n	No/Unit	Description
1	TE20J386	1	Fixture tool f. body
2	TE20J392	1	Fixture tool f. hub and turbine
3	TE20J393	1	Ring key f. nuts (dismountable)
4	TE20J366	1	Fixture tool f. nozzle
5	TE20J360	1	Fixture tool f. stem
6	TE81B139	1	Drift f. bushings
7	TE81B156	1	Torque wrench (4-24 Nm) – ¼”
8	TE81B157	1	NV8 socket, long, ¼”
9	TE81B158	1	NV9 socket, long, ¼”
10	TE81B159	1	NV36 Ring/Fork key

+ Bench vise (jaw opening > 160 mm)
+ Hammer (soft - plastic)
+ 3-5 mm standard drift
+ brush for applying food grade/FDA compliant grease

All tool surfaces that come into contact with the machine shall be of a material that is not cored and free of imperfections and soil.



Disassembly

Disassembly into main subassemblies

Tools need for disassembly

Standard toolkit	
Ref. nr	**Description**
TE20J386	Fixture tool f. body
TE20J593	Ring key f. nuts (dismountable)
TE81B157	NV8 socket, long, ¼”
TE81B156	Torque wrench (4-24 Nm) – ¼”

1. Put the two fixtures (TE20J386) around the house and slide the assembly between the jaws of the bench vise. Let the bolt ends slide on-top of the jaws. With the SaniJet 25 centred between the jaws tighten the bench vise.

2. Put the ring key (TE20J393) down around the cone until the screws in the ring key are level with the hygienic recesses in the stem nut (Pos. 4). NOTE: Be careful not to damage the surfaces

3. Tighten the 4 screws (by hand only) symmetrically into the 4 hygienic recesses around the stem nut (Pos. 4).

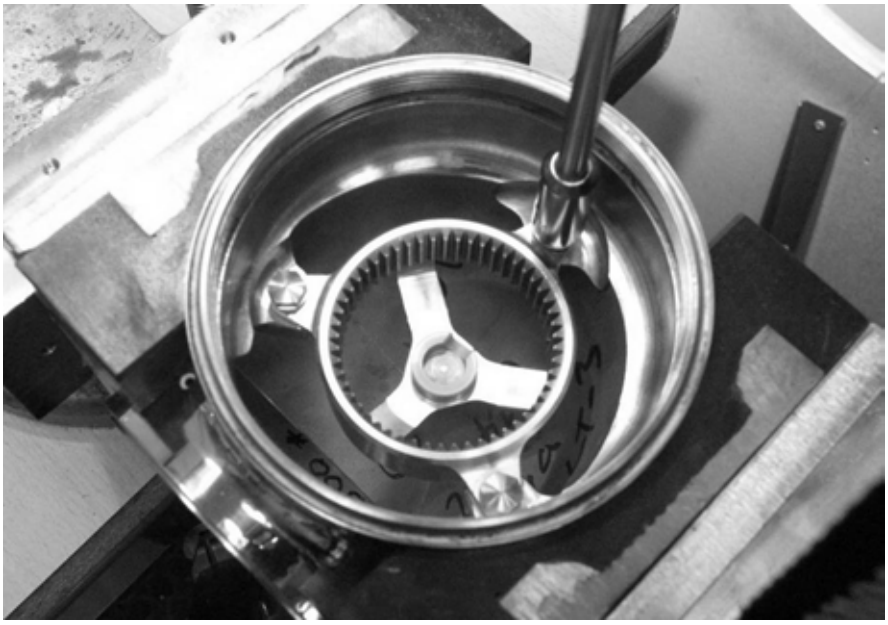
4. Loosen the stem nut (Pos. 4) with the ring key (TE20J393) just enough to be able to loosen the stem nut by hand. Large torque might be needed to loosen the stem nut. *Right handed thread.*

5. Loosen the stem nut (Pos. 4) by hand while lifting the cone (Pos. 1.1)

6. Remove the assembled top parts from the machine (lift vertically)

7. Remove assembled plant gear (Pos. 12) from the gear ring (Pos. 13.2)

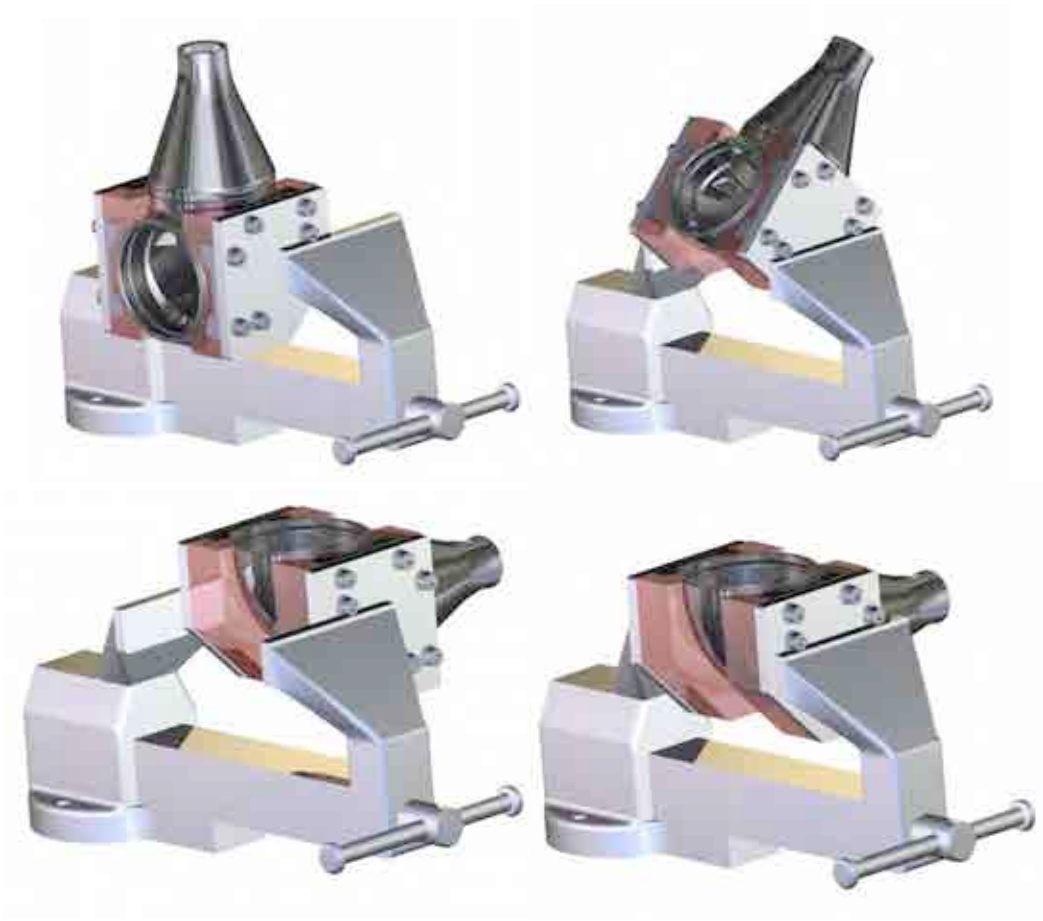
8. Remove the 3 screws (Pos. 13.5) securing the gear ring (Pos. 13.2) to the body using the torque wrench and NV8 socket long (TE81B156 + TE81B157)



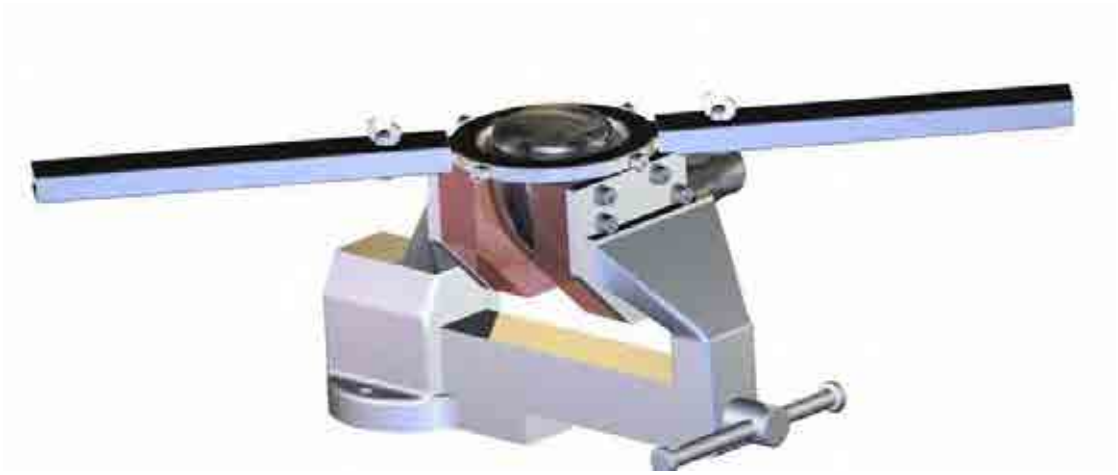
9. Remove the assembled gear ring (Pos. 13.2) from the body and remove the 6 seal rings (Pos. 13.4)

10. Remove the two O-rings (Pos. 9 and 10)

11. Loosen the bench vise slightly and turn the machine 90° and tighten the bench vise again



12. Lower the ring key (TE20J393) around the hub nut (Pos. 15) and tighten the 4 screws (by hand only) symmetrically on the 4 hygienic recesses around the hub nut (Pos. 15). Loosen the hub nut (Pos. 15). *Left handed thread*. When hub nut is loosened screw of with hands.



13. Remove hub nut (Pos. 15) from body. Lift vertically.

14. Remove O-rings (Pos. 9 and 10 – Same as those used at other end of body)

15. Assembled parts after disassembly into main subassemblies.

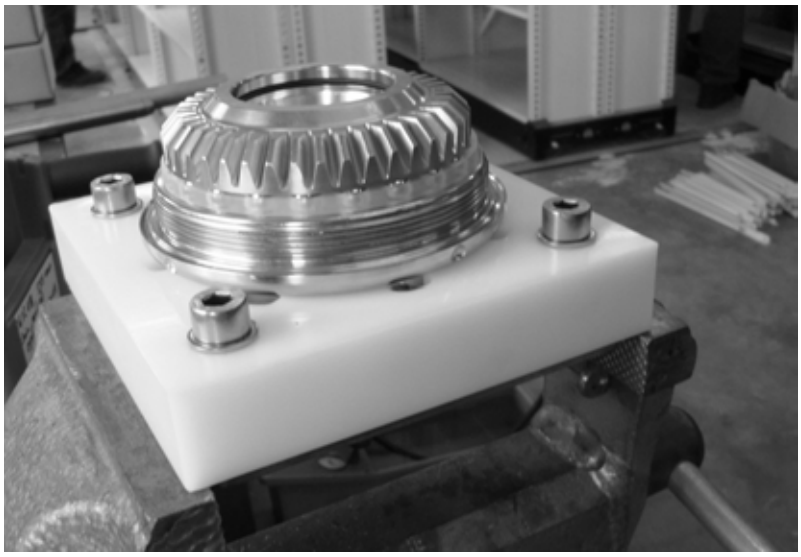
Disassembly of lower parts (Hub)

Tools required for the disassembly

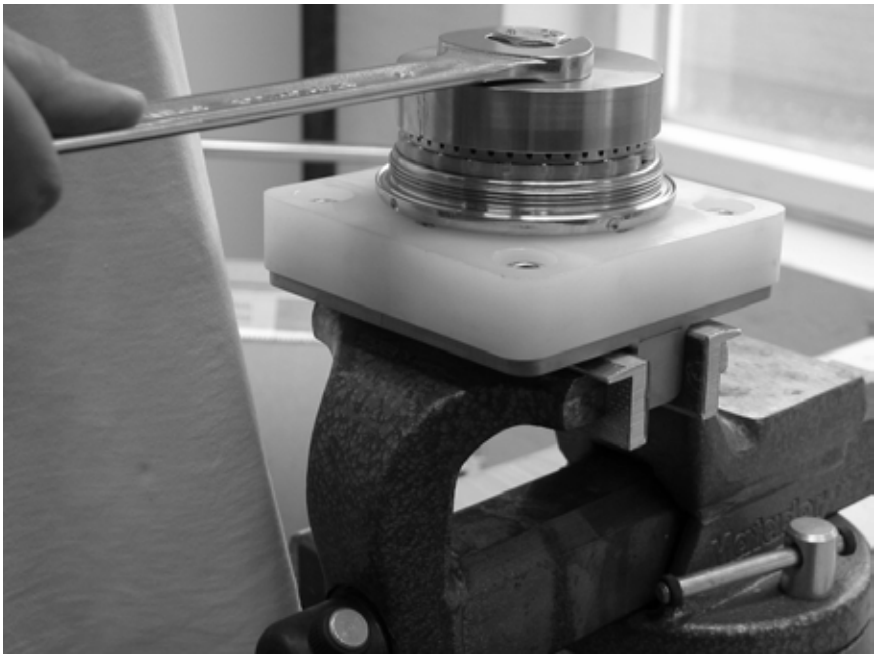
Standard toolkit	
Ref. nr	**Description**
TE20J366	Fixture tool f. nozzle
TE20J392	Fixture tool f. hub and turbine
TE81B159	NV36 Ring/Fork key

1. Place the fixture for nozzle (TE20J366) into the bench vise and secure it

2. Place the hub assembly into the fixture for nozzle (TE20J366)



3. Put the hub tool kit (TE20J392) on top of the bevel gear (Pos. 14) and loosen the bevel gear using ring key NV36 (TE81B159).



4. Remove the bevel gear (Pos. 14), the O-rings (Pos. 16 and 17) and the ball race (Pos. 5 – identical with the one used around the stem)

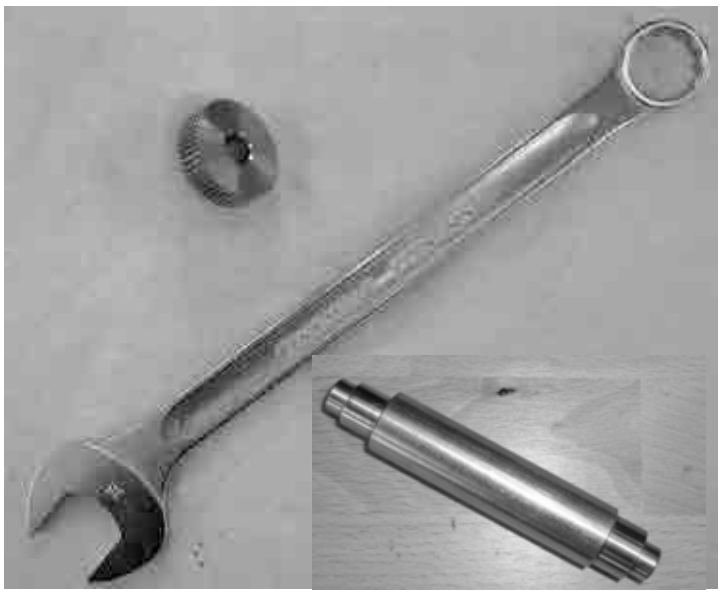
5. Carefully lift the hub nut (Pos. 15) of the Nozzle head (Pos. 18) while keeping it horizontal to avoid damaging the surfaces.

6. Parts from the disassembled lower part (Hub)

Disassembly of top parts (Cone and turbine)

Tools need for disassembly

Standard toolkit	
Ref. nr	**Description**
TE20J360	Fixture tool f. stem
TE81B159	NV36 Ring/Fork key
TE81B139	Drift f. bushings



1. Fasten the stem fixture (TE20J360) in bench vise.

2. Put the cone assembly onto the stem fixture (TE20J360)

3. Loosen cone (Pos. 1.1) using the 36NV spanner (TE81B159).

4. Loosen the cone (Pos. 1.1) by hand while lifting the cone vertically and finally remove the cone (Pos. 1.1)

5. Remove the impeller assembly

6. Remove the O-rings (Pos. 6 and 7)

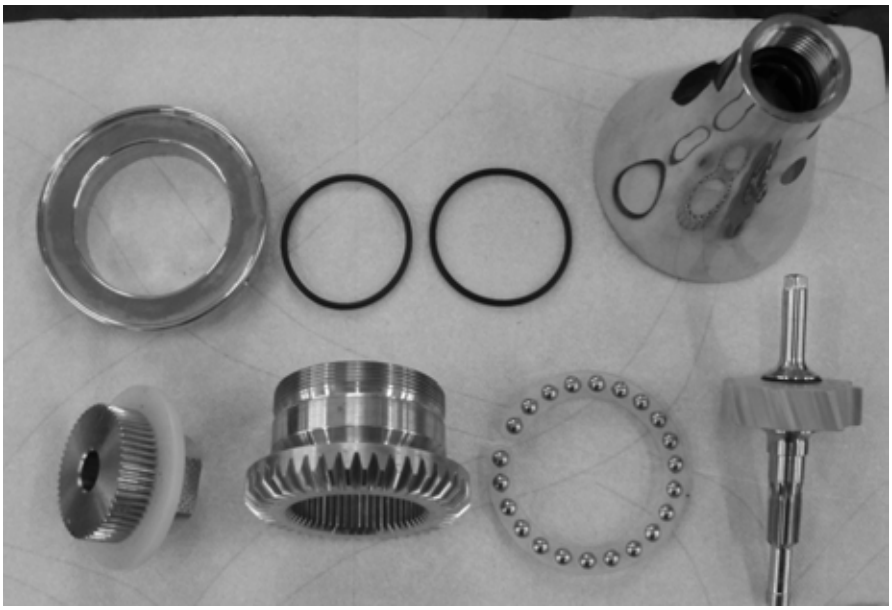
7. Carefully lift the stem nut (Pos. 4) off the stem (Pos. 8) while keeping it horizontally to avoid scratching the surfaces

8. Remove the ball race (Pos. 5) from the stem (Pos. 8).

9. Extract gasket (Pos. 2) from the inside of the top of the cone (Pos. 1.1)

10. Push out bushing (Pos. 1.2) from the top of the cone using the drift (TE81B139) tool

11. Parts from disassembled top parts

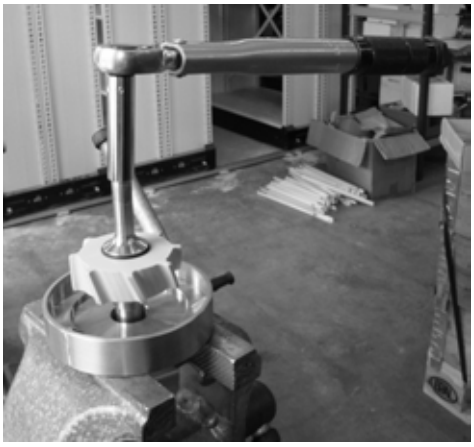


Disassembly of impeller shaft assembly

Tools need for disassembly

Standard toolkit	
Ref. nr	**Description**
TE20J392	Fixture tool f. hub and turbine
TE81B156	Torque wrench (4-24 Nm) – ¼”
TE81B158	NV9 socket, long, ¼”

1. Mount the impeller turbine fixture (TE20J392) in bench vise. Loosen the shaft end (Pos. 3.4) using the torque wrench and NV9 socket long (TE81B156 + TE81B158) and unscrew with hand.



2. Remove impeller (Pos. 3.2) from impeller shaft (Pos. 3.1).

3. Remove the two O-rings (Pos. 3.3) from the impeller (Pos. 3.2)

Disassembly of gear ring (bearing for body – Pos. 13.3)

Tools need for disassembly

Standard toolkit	
Ref. nr	**Description**
TE81B139	Drift
	Hammer

1. Push out bearing for body (Pos. 13.3.) using the drift (TE81B139)

Disassembly of planet gear (bushing – Pos. 11.1)

Tools need for disassembly

Standard toolkit	
Ref. nr	**Description**
	3-5 mm drift
	Hammer

2. Withdraw the bushing (Pos. 11.1) from the top of the planet gear assembly using a small diameter drift. Mount the assembly up-side-down in the bench vise and gently hammer the bushing out using the drift.

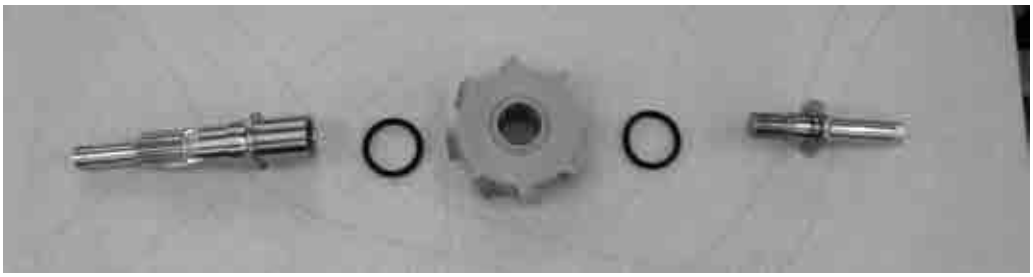
Assembly

Prior to assembly all parts should be cleaned and checked for damage, scratches, crevices and other imperfections.

Assembly of turbine

Parts required for the assembly

Pos.		Ref. No.	No/Unit	Description
3.1		TE20J540	1	Impeller Shaft
3.2	☐	TE20J544	1	Impeller (ø4.2mm nozzle)
	☐	TE20J546	1	Impeller (ø6.2mm nozzle)
	☐	TE20J545	1	Impeller (ø5.2mm nozzle)
3.3		TE51T135	2	O-ring
3.4		TE20J542	1	Shaft end



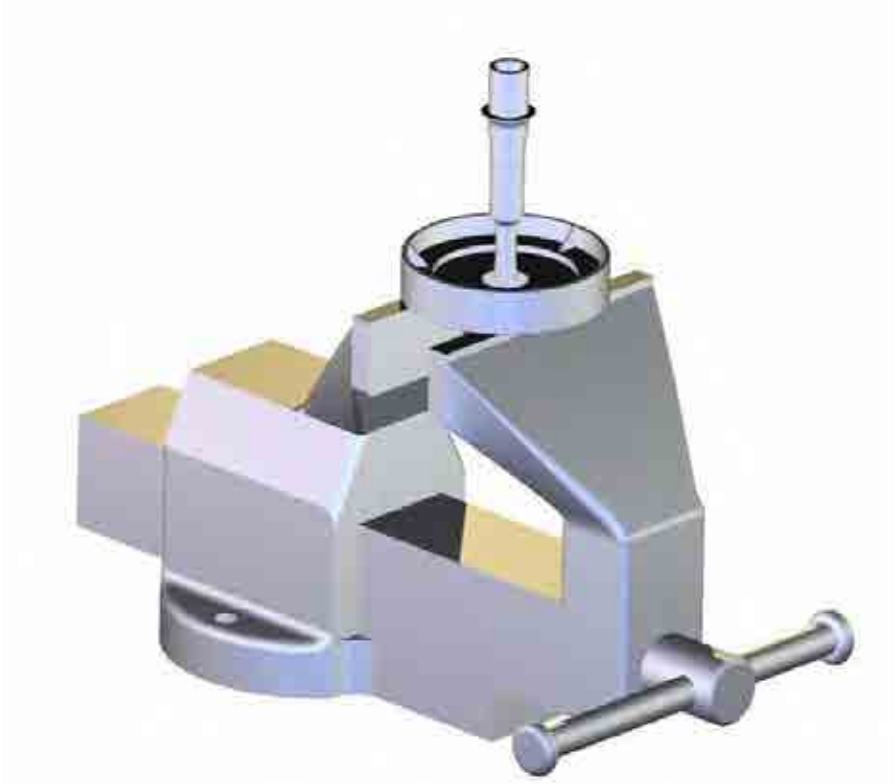
Tools need for assembly

Standard toolkit	
Ref. nr	**Description**
TE20J392	Fixture tool f. hub and turbine
TE81B156	Torque wrench (4-24 Nm) – ¼”
TE81B158	NV9 socket, long, ¼”

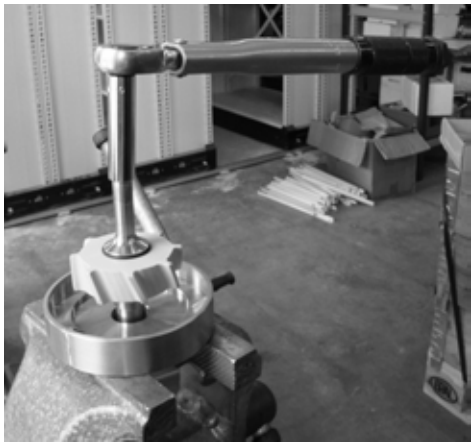
1. Place the O-rings (Pos. 3.3) into the grooves of the impeller (Pos. 3.2).

2. Secure the turbine shaft fixture (TE20J392) to hold the impeller shaft (Pos. 3.1) in the bench vise

3. Insert turbine shaft (Pos. 3.1) into turbine shaft fixture (TE20J392)



4. Place impeller (Pos. 3.2) with O-rings (Pos. 3.3) onto the impeller shaft



5. Screw the shaft end (Pos. 3.4) into the turbine shaft (Pos. 3.1) using the torque wrench (TE81B156) and NV9 spanner socket (TE81B158). Tighten with torque of 10-12 Nm.

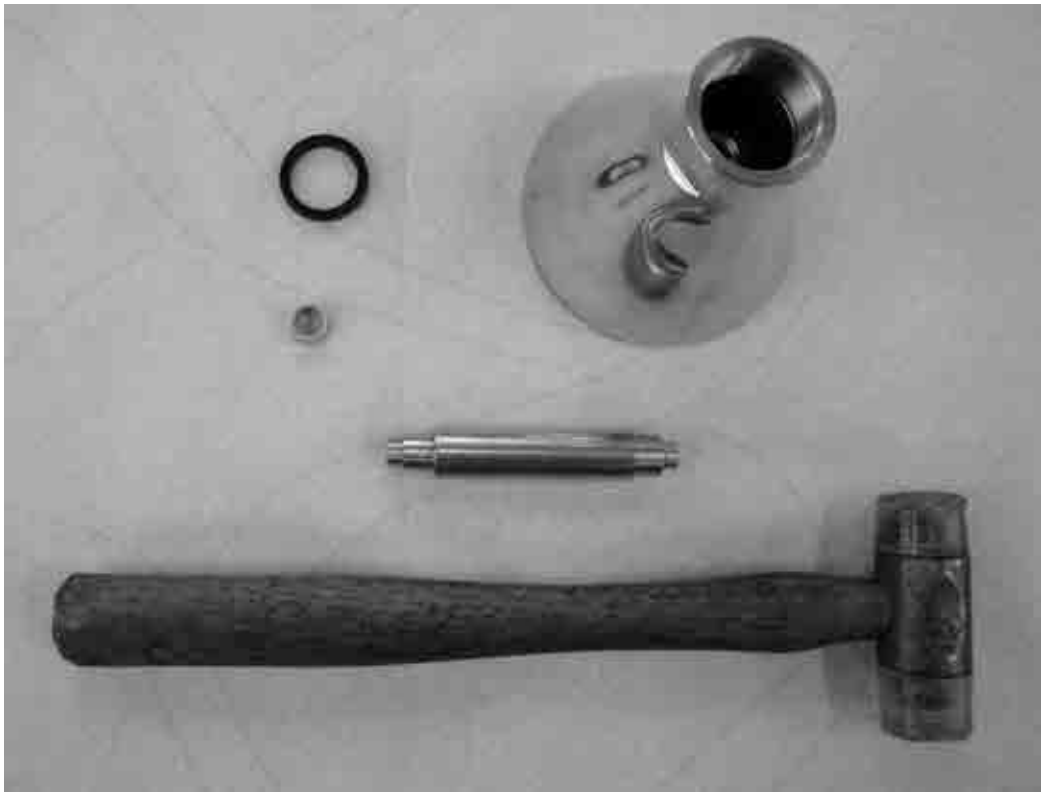
Assembly of Cone

Parts required for the assembly

Pos.	Ref. No.	No/Unit	Description
1.1	TE20J510	1	Cone
1.2	TE20J514	1	Bushing
2	TE51T212	1	Gasket

Tools need for assembly

Standard toolkit	
Ref. nr	**Description**
TE81B139	Drift
	Hammer



1. Mount bushing (Pos. 1.2) in cone (Pos. 1.1) using the drift punch (TE81B139) to put it in place

2. Use hammer to gently fix the bushing (Pos. 1.2) in its place.

3. Mount the gasket (Pos. 2) into the groove at the bottom of the thread at the top of the cone (Pos. 1.1)

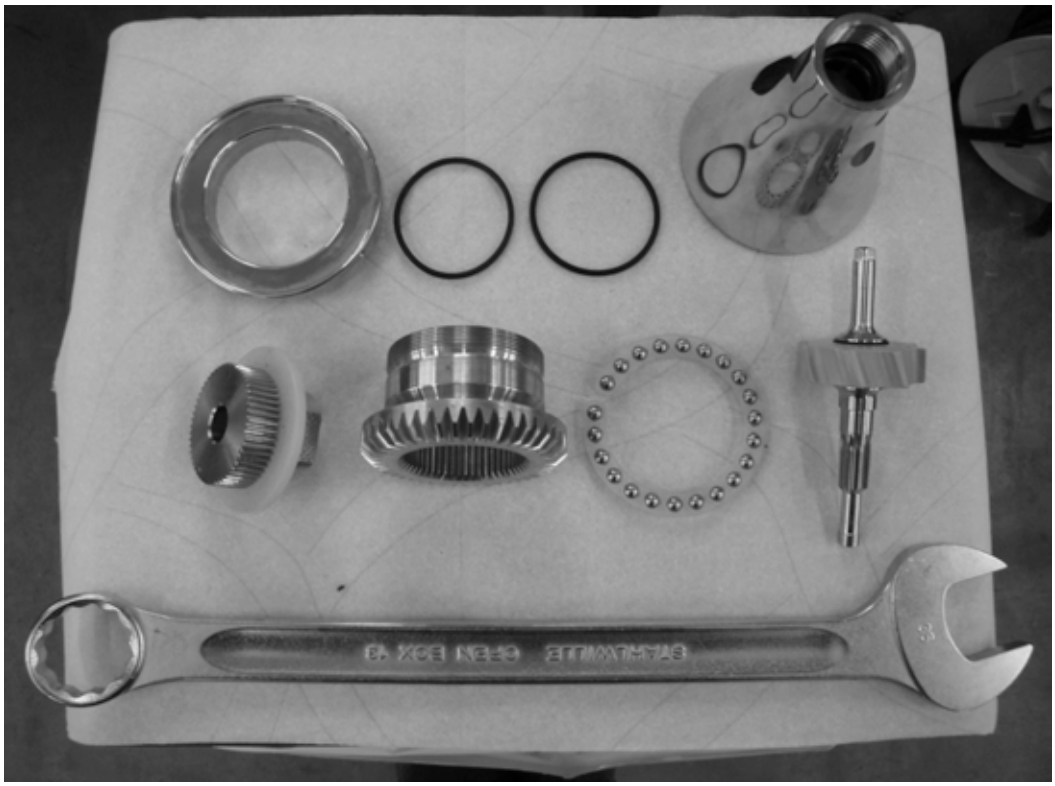
Assembly of top parts

Parts required for the assembly

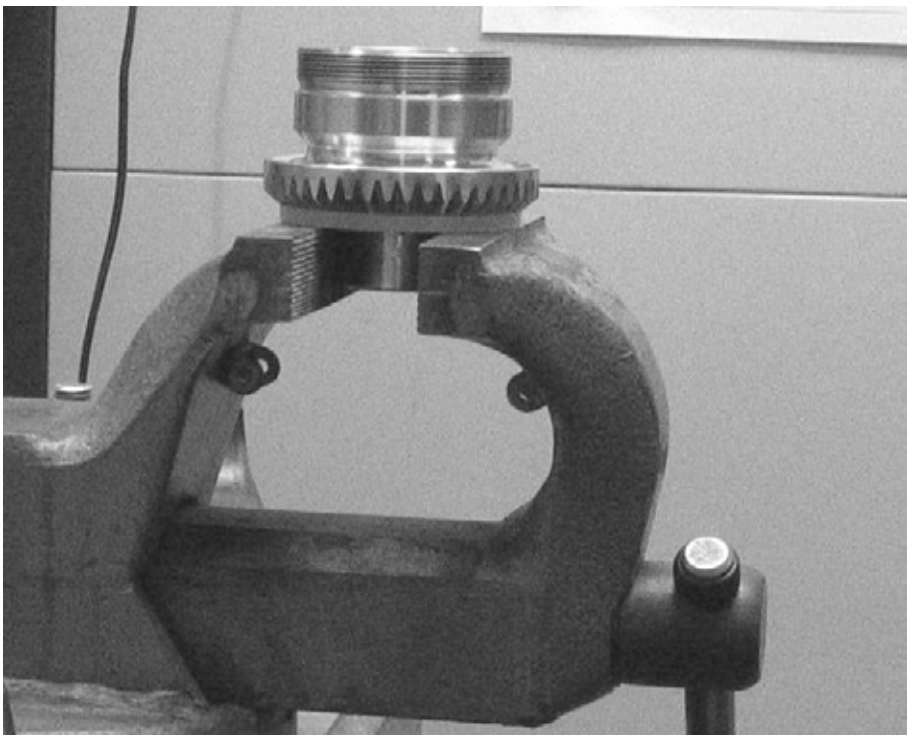
Pos.	Ref. No.	No/Unit	Description
		1	Assembled cone
		1	Assembled turbine
4	TE20J627	1	Nut for stem
5	TE20G318	2	Ball retainer with balls
6	TE51T138 or TE51T194	1	O-ring
7	TE51T139	1	O-ring
8	TE20J624	1	Stem

Tools need for assembly

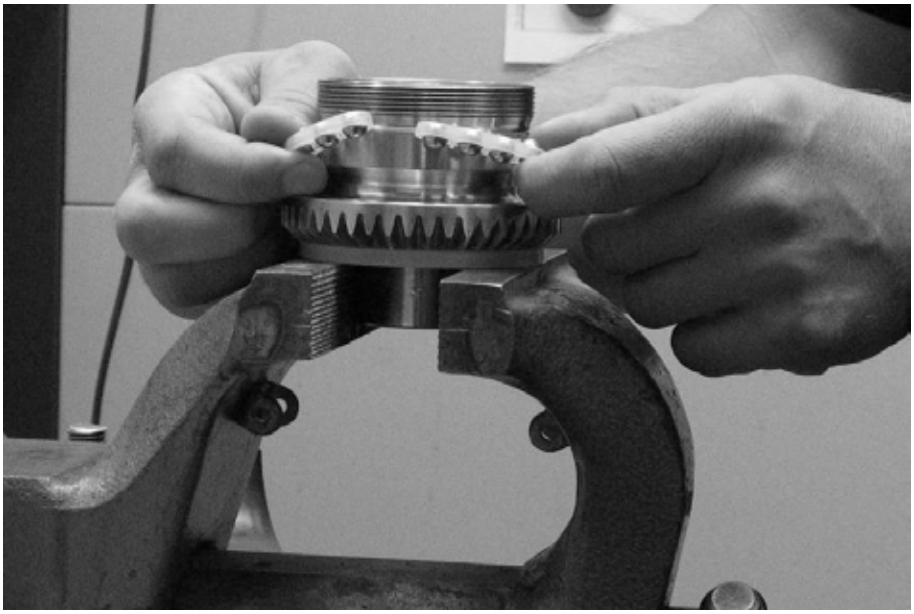
Standard toolkit	
Ref. nr	**Description**
TE20J360	Fixture tool f. stem
TE81B159	NV36 Ring/Fork key
	Brush for applying grease
	Glass of water
	Grease compliant with FDA (if allowed)



1. Secure the montage tool kit for stem (TE20J360) in bench vise
2. Fit the stem (Pos. 8) onto the fixture tool kit for stem (TE20J360)



3. Place the ball retainer with balls (Pos. 5) onto the grove on the stem (Pos. 8).



4. Place the stem nut (Pos. 4) onto the stem (Pos. 8), while keeping the stem horizontal. Do not apply any force to it.

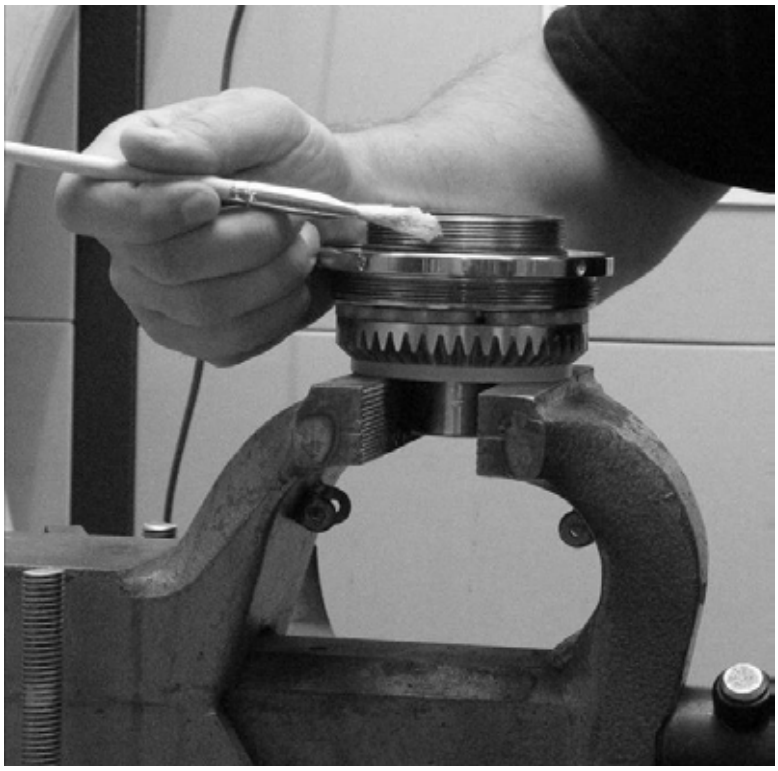
5. Preparation of O-rings (Pos. 6 and 7) before mounting: Dip the O-rings in water. If water is not used then be very careful about how the O-rings behave when screwing the cone (Pos. 1.1.) onto the stem.

6. Mount O-ring (Pos. 6) in groove around stem and O-ring (Pos. 7) in groove inside stem

7. Preparation before mounting the cone (Pos. 1.1) on stem (Pos. 8): It is recommended to grease the stem thread with food graded/FDA compliant grease. The grease reduces the risk for galling in threads. The grease is enclosed between the O-rings and, therefore, it will not come into contact with the cleaning media.

   Be very careful not to put grease onto the O-rings as the o-rings swells in contact with grease!

   If the food graded/FDA compliant grease is not allowed into the SaniJet 25 for some reason, it is recommended to be very careful when joining threaded parts.



8. Place turbine assembly into the stem (Pos. 8)

9. Carefully screw the cone (Pos. 1.1) onto the stem (Pos. 8) by hand.

10. Tighten the cone (Pos. 1.1) using the ring key spanner (TE81B141 or TE81B159) until you feel a stop and then tighten it a bit more. The stop you feel is two surfaces connecting.

11. Check that the turbine assembly can move freely in the top part assembly

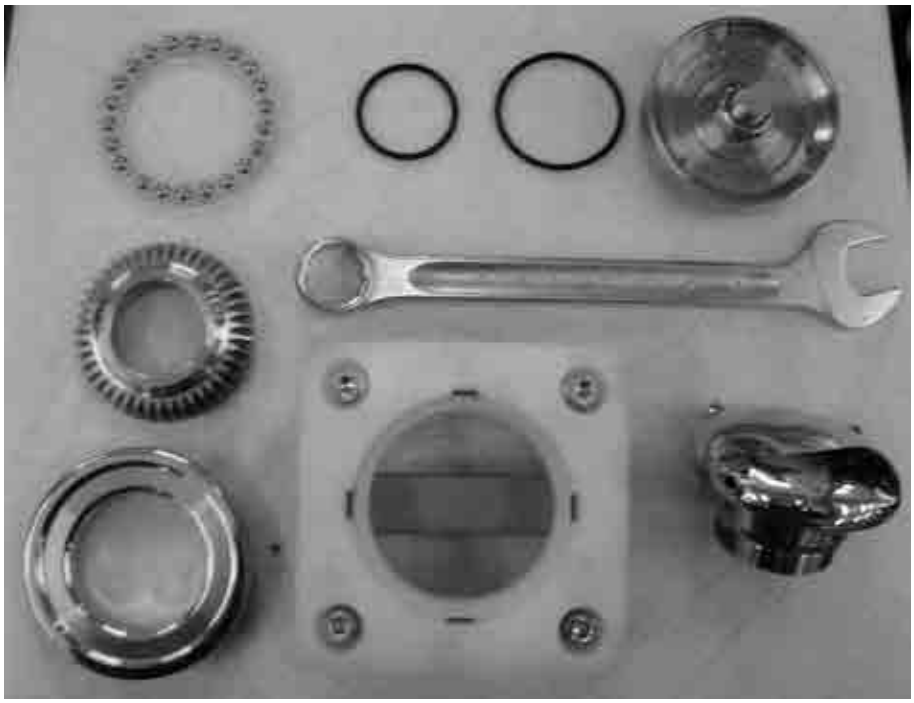
Assembly of lower parts

Parts required for the assembly

Pos.		Ref. No.	No/Unit	Description
14		TE20J522	1	Bevel gear
15		TE20J638	1	Nut for hub
16		TE51T136 or TE51T192	1	O-ring
17		TE51T137 or TE51T193	1	O-ring
18	☐	TE20J320	1	Nozzle head (ø4.2mm nozzle)
	☐	TE20J321	1	Nozzle head (ø5.2mm nozzle)
	☐	TE20J322	1	Nozzle head (ø6.2mm nozzle)

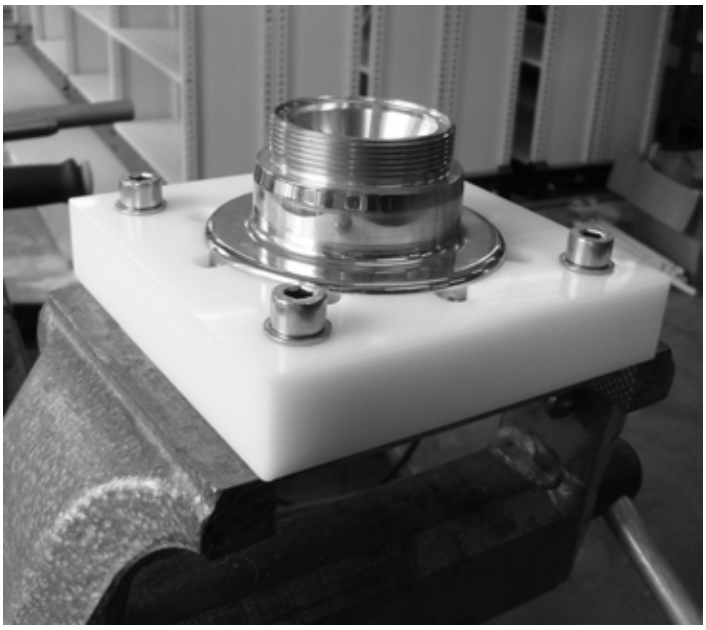
Tools required for the assembly

Standard toolkit	
Ref. nr	**Description**
TE20J366	Fixture tool f. nozzle
TE20J392	Fixture tool f. hub and turbine
TE81B159	NV36 Ring/Fork key
	Brush for applying grease
	Glass of water
	Grease compliant with FDA (if allowed)

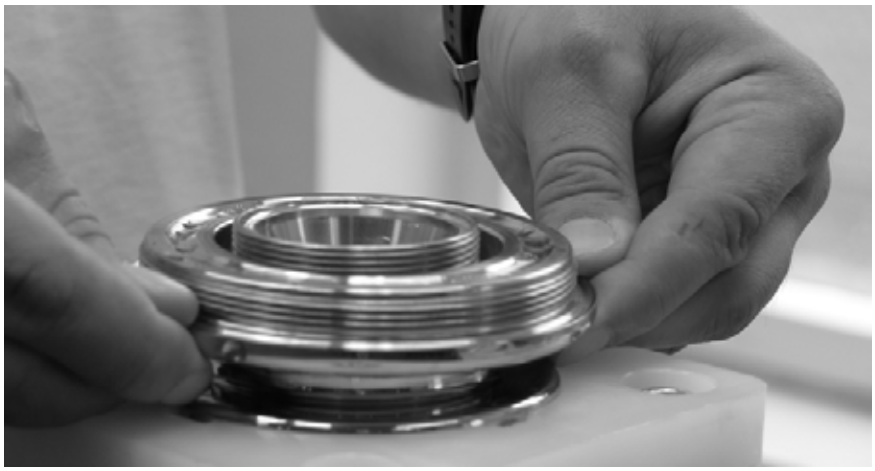


1. Secure the fixture for the nozzles (TE20J366) in benchvise.

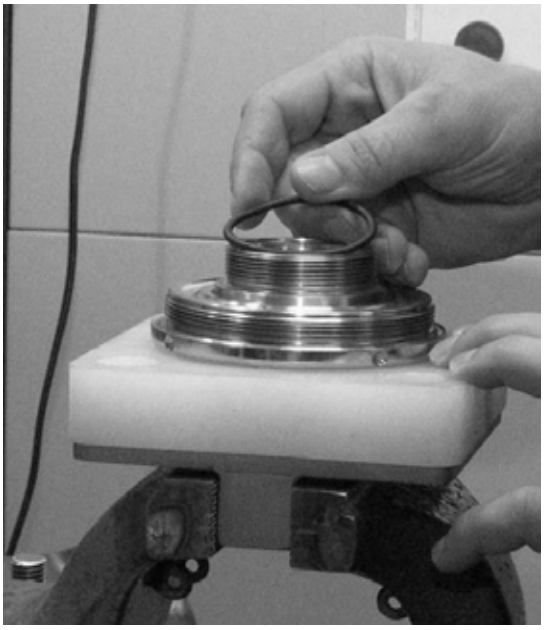
2. Place the nozzle head (Pos. 18) into the fixture for the nozzle (TE20J366)



3. Lower the hub nut (Pos. 15) vertically around the nozzle head (Pos. 18).



4. Preparation of O-rings (Pos. 16 and 17) before mounting: Dip the O-rings in water. If water is not used then be very careful about how the O-rings behave when screwing the cone onto the stem.
5. Mount O-ring (Pos. 16) in groove inside nozzle head (Pos. 18)

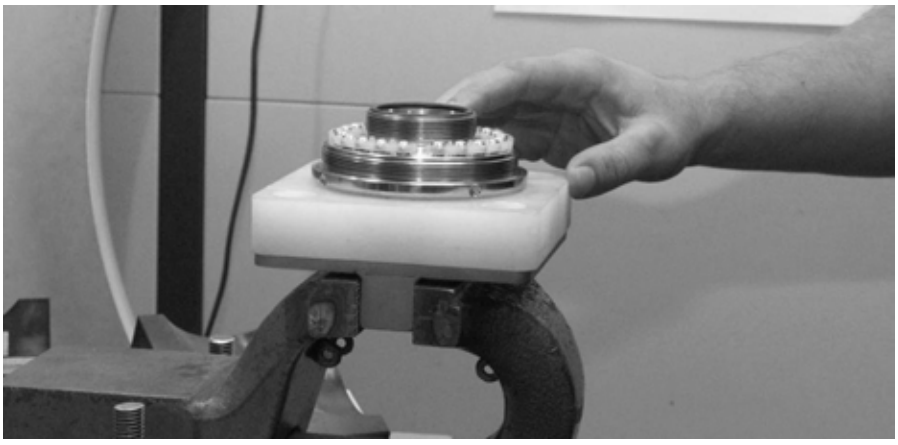


6. Preparation before mounting the bevel gear (Pos. 14) on nozzle head (Pos. 18): It is recommended to grease the nozzle head thread with food graded/FDA compliant grease. The grease reduces the risk for galling in threads. The grease is enclosed between the O-rings and, therefore, it will not come into contact with the cleaning media.

   Be very careful not to put grease onto the O-rings as the o-rings swells in contact with grease!

   If the food graded/FDA compliant grease is not allowed into the SaniJet 25 for some reason, it is recommended to be very careful when joining threaded parts.

7. Mount the ball retainer with balls (Pos. 5) in the groove on the hub nut (Pos. 15).



8. Preparation of O-rings before mounting: Dip the O-rings in water. If water is not used then be very careful about how the O-rings behave when screwing the cone onto the stem.

9. Mount the O-ring (Pos. 17) in the groove on the bevel gear (Pos. 14)

10. Screw the bevel gear (Pos. 14) on to the nozzle head (Pos. 18) thread by hand

11. Screw the bevel gear (Pos. 14) with the hub tool (TE20J392) while pressing on the tool

    Tighten the bevel gear (Pos. 14) using Ring key (TE81B159) until you feel a stop and then tighten it a bit more. The stop you feel is two surfaces connecting.

12. Check that the hub nut (Pos. 15) can rotate freely and that O-rings inside are mounted correctly (Pos. 16 and 17).

Assembly of planet gear

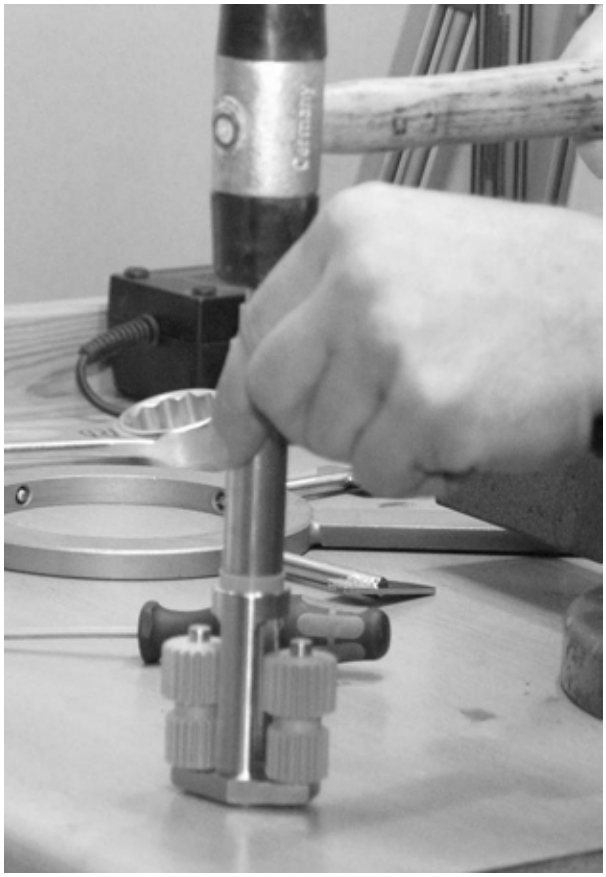
Parts and tools required for the assembly

Pos.	Ref. No.	No/Unit	Description
11.1	TE20J521	1	Bushing
12	TE20J515	1	Planet gear

Tools need for assembly

Standard toolkit	
Ref. nr	**Description**
TE81B139	Drift
	Hammer

1. Mount the bushing (Pos. 11.1) on the gear frame (Pos. 12). Push down using Drift (TE81B139) and hammer. The bushing should be flush with the top of the gear frame.



Assembly of gear ring

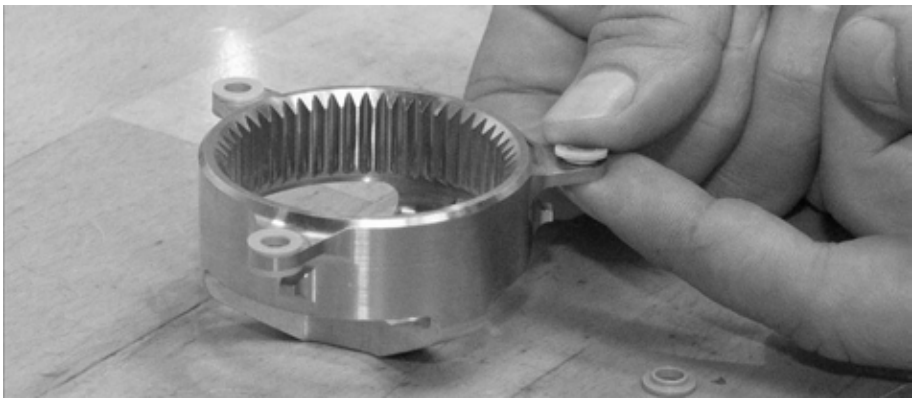
Parts and tools required for the assembly

Pos.	Ref. No.	No/Unit	Description
13.2	TE20J506	1	Gear ring
13.3	TE20J508	1	Bearing for body
13.4	TE20J509	6	Seal ring

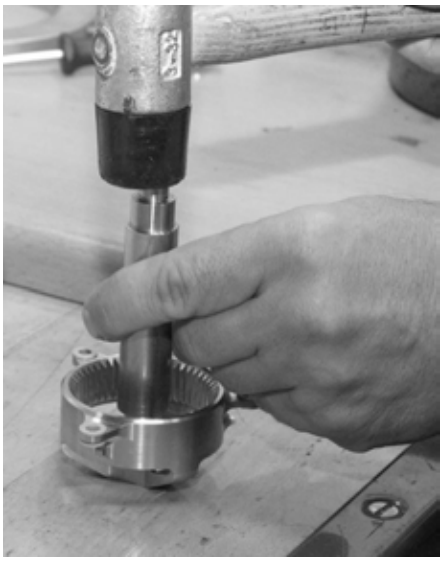
Tools need for assembly

Standard toolkit	
Ref. nr	**Description**
TE81B139	Drift
	Hammer

1. Mount seals (Pos. 13.4) on both sides of the three holes on the gear ring (Pos. 13.2)



2. Mount bearing for body (Pos. 13.3) on the gear frame (Pos. 13.2). Use Drift (TE81B139) and hammer to apply pressure.



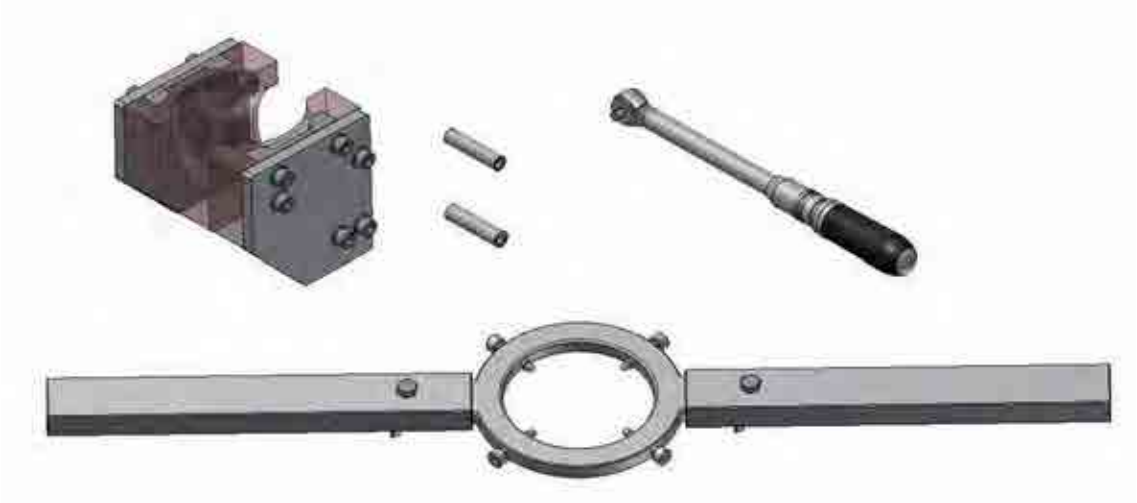
Assembly of body parts

Parts and tools need for assembly

Pos.	Ref. No.	No/Unit	Description
			Assembled top parts
			Assembled lower parts
			Assembled gear ring
			Assembled planet gear
9	TE51T141 or TE51T196	2	O-ring
10	TE51T140 or TE51T197	2	O-ring
13.5	TE20J550	3	Screw for body assembly

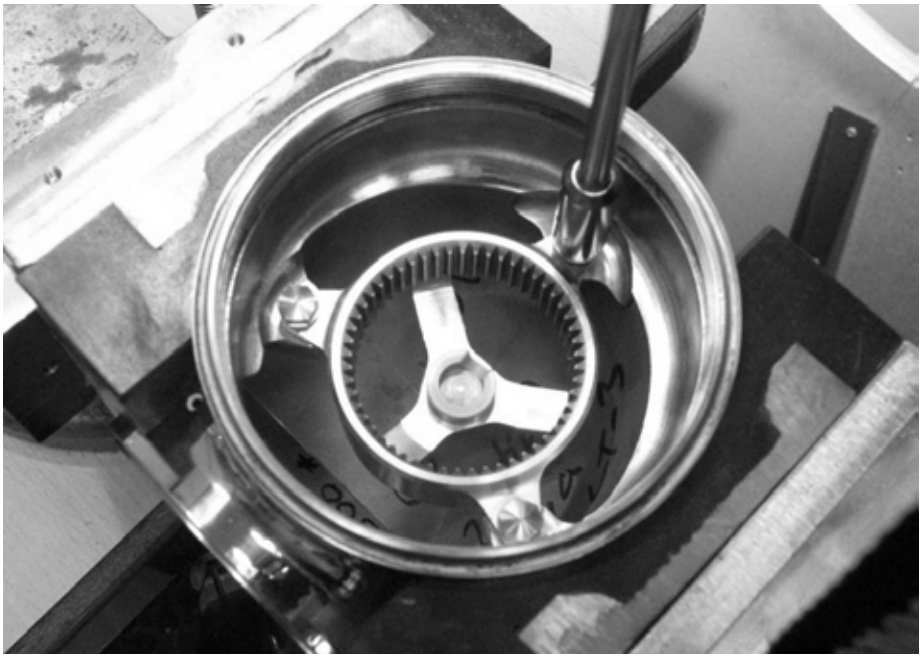
Tools need for disassembly and checking assembly

Standard toolkit	
Ref. nr	**Description**
TE20J386	Fixture tool f. body
TE20J393	Ring key f. nuts (dismountable)
TE81B157	NV8 socket, long, ¼”
TE81B158	NV9 socket, long, ¼”
TE81B156	Torque wrench (4-24 Nm) – ¼”
	Brush for applying grease
	Glass of water
	Grease compliant with FDA (if allowed)
	Hammer



1. Put the two fixtures (TE20J386) around the house and slide the assembly between the jaws of the bench vise. Let the bolt ends slide on-top of the jaws. With the SaniJet 25 centred between the jaws tighten the bench vise.

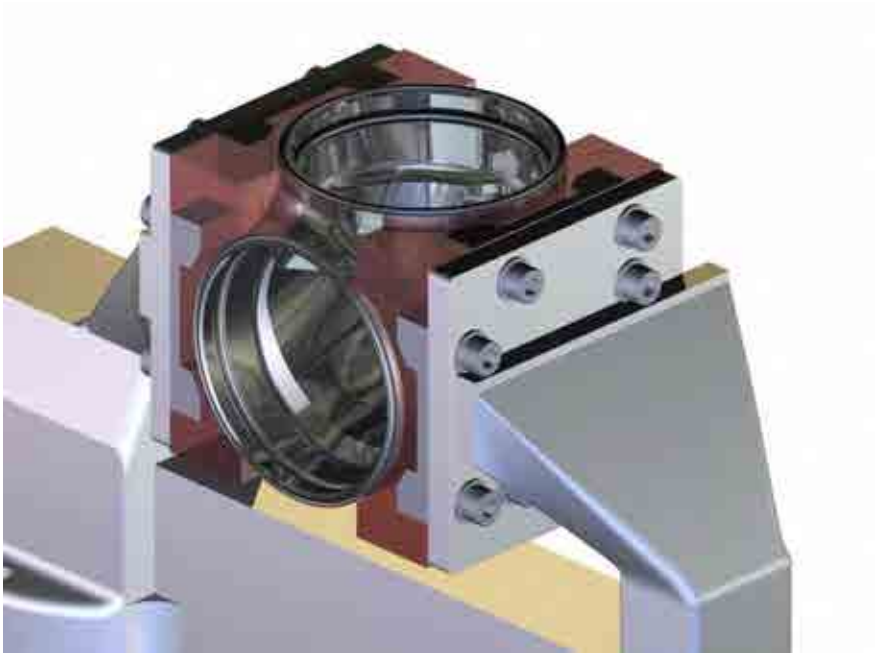
2. Mount assembled gear ring in body (Pos. 13.1). Tighten screws (Pos. 13.5) using the torque wrench (TE81B156+TE81B157) to maximum 5 Nm. Too much torque breaks the screws.



3. Preparation of O-rings before mounting: Dip the O-rings in water. If water is not used then be very careful about how the O-rings behave when screwing the cone onto the stem.

4. Mount the O-ring (Pos. 9) in the O-ring grove on the outside of body. (Pos. 13.1). If the length of O-ring does not fit precisely to the O-ring groove, then you can stretch the O-ring.

5. Mount the O-ring (Pos. 10) in the O-ring groove inside the body (Pos. 13.1).



6. Preparation before mounting the assembled top parts on body (Pos. 13.1): It is recommended to grease the body thread with food graded/FDA compliant grease. The grease reduces the risk for galling in threads. The grease is enclosed between the O-rings. Hence, it does not come into contact with the cleaning media.

   Be very careful not to put grease onto the O-rings as the O-rings swells in contact with grease!

   If the food graded/FDA compliant grease is not allowed into the SaniJet 25 for some reason, it is recommended to be very careful when joining threaded parts.

7. Mount assembled planet gear in the gear ring (Pos. 13.2)

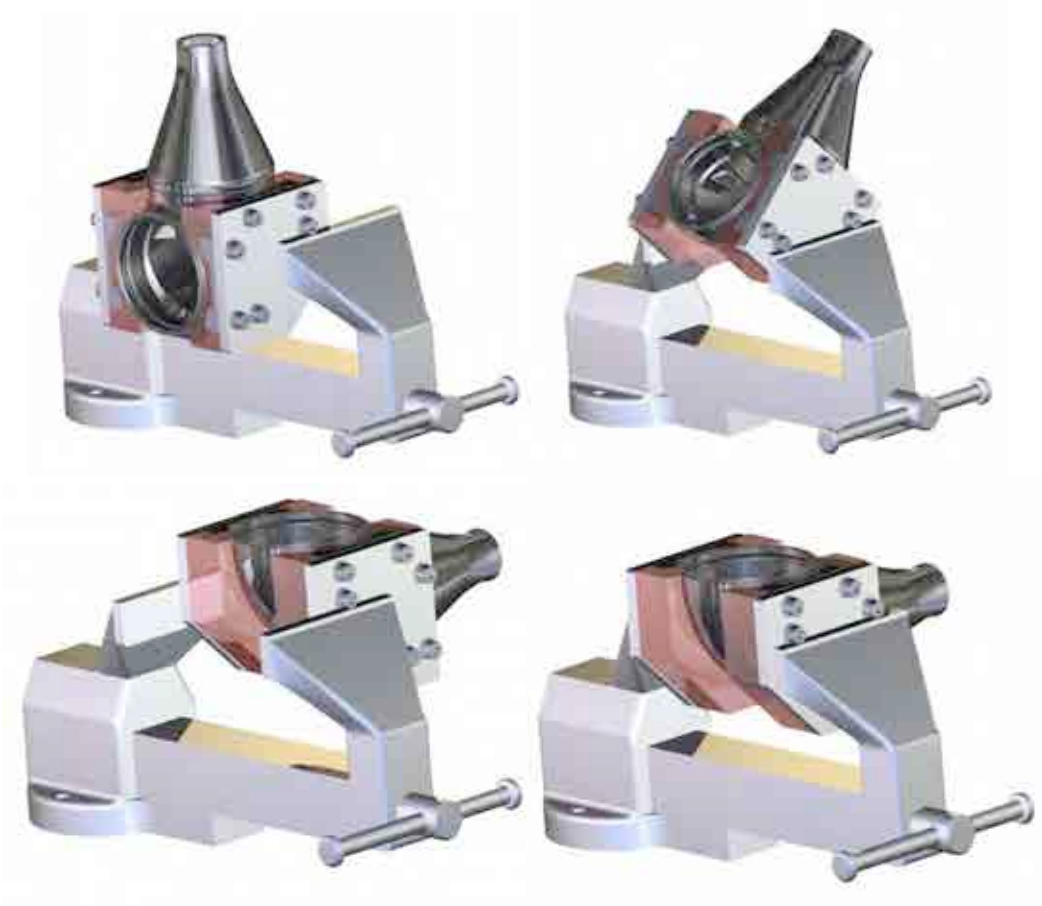
8. Place impeller shaft (Pos. 3.1) of the assembled top parts into the planet gear (Pos. 12) in the gear ring (Pos. 13.2). Then sink the cone assembly while trying to fit the gear wheels into each other.

9. Lower the assembled top parts onto the threads. Catch the thread while turning the stem nut (Pos. 4) by hand.

10. Lower the ring key (TE20J393) carefully around the cone (Pos. 1.1). Tighten the four screws (by hand only) symmetrically on stem nut.

11. Tighten the stem nut (Pos. 4) until you feel a stop and then tighten a bit more (the stop you feel are two surfaces connecting).

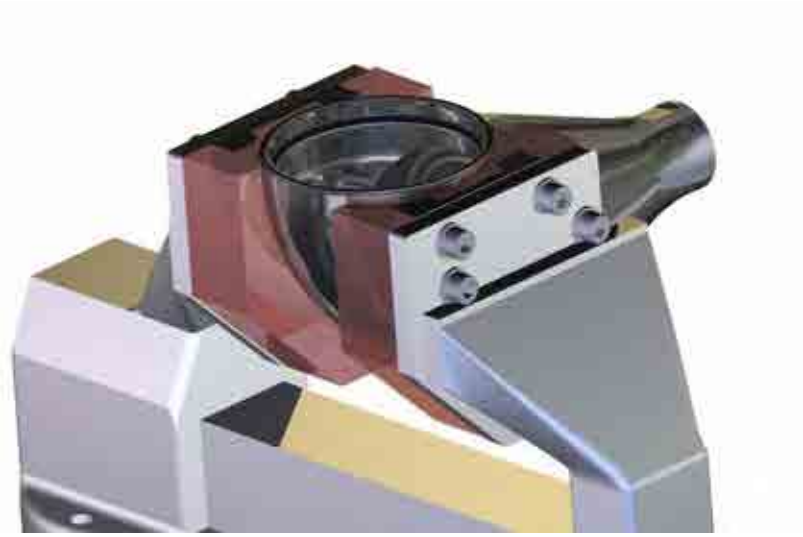
12. Loosen the bench vise and turn the assembly 90 degrees.



13. Preparation of O-rings before mounting: Dip the O-rings in water. If water is not used then be very careful about how the O-rings behave when screwing the cone onto the stem.

14. Mount the O-ring (Pos. 9) in the O-ring grove on the outside of body (Pos.13.1). If the length of O-ring does not fit precisely to O-ring groove, then you can stretch the O-ring.

15. Mount the O-ring (Pos. 10) in the O-ring groove inside the body.



16. Preparation before mounting the assembled lower parts on body (Pos. 13.1): It is recommended to grease the body thread with food graded/FDA compliant grease. The grease reduces the risk for galling in threads. The grease is enclosed between the o-rings and, therefore, it will not come into contact with the cleaning media.

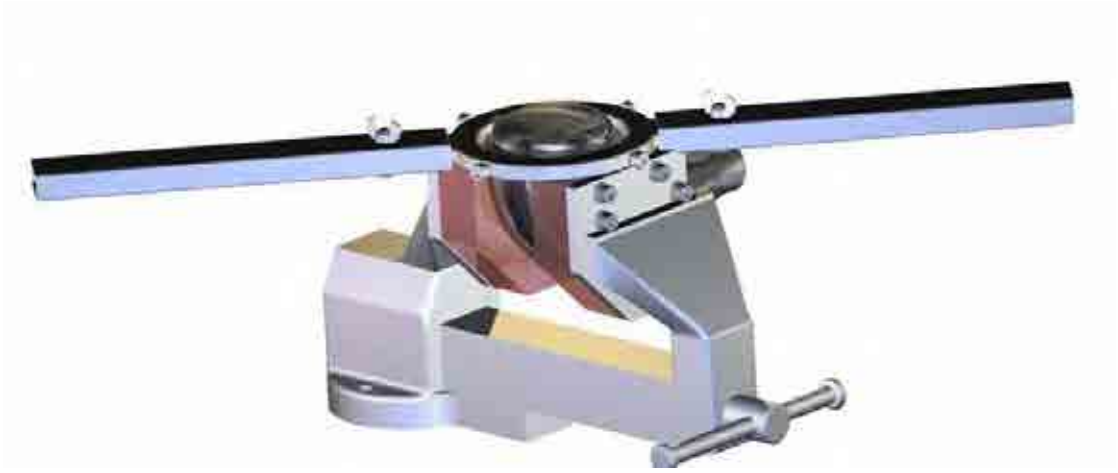
    Be very careful not to put grease onto the O-rings as the O-rings swells in contact with grease!

    If the food graded/FDA compliant grease is not allowed into the SaniJet 25 for some reason, it is recommended to be very careful when joining threaded parts.

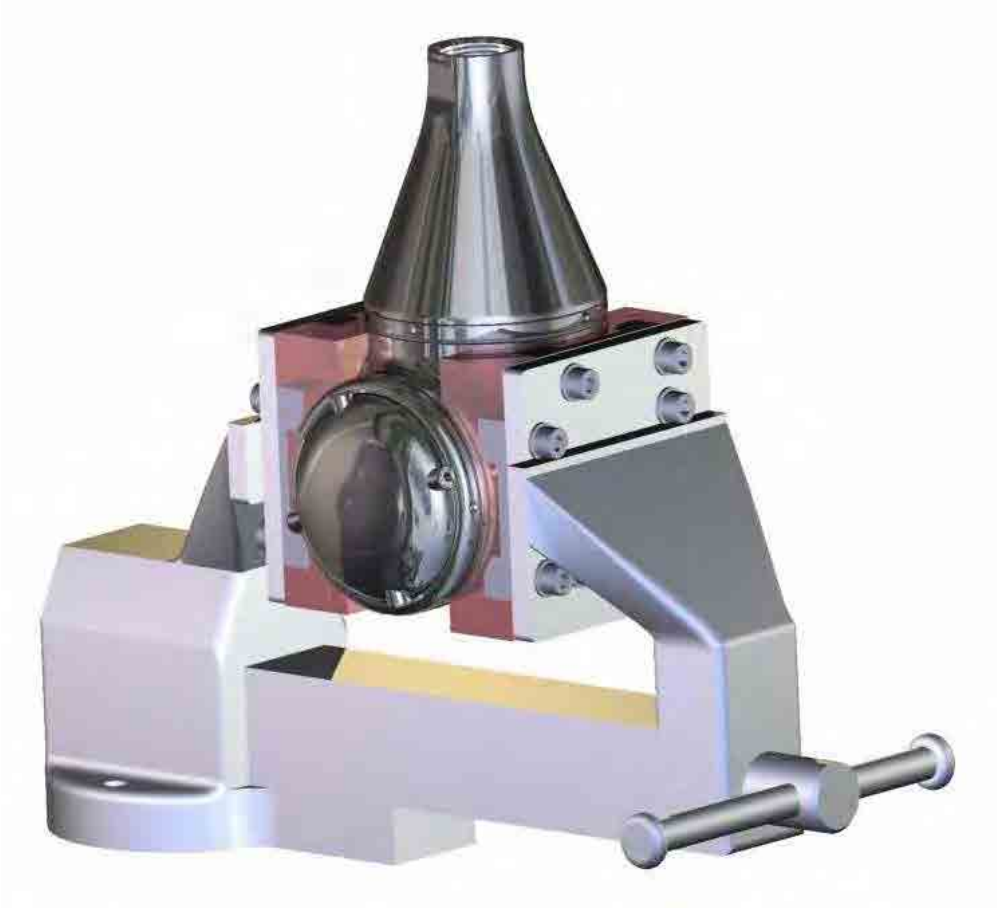
17. Lower the assembled lower parts while trying to fit the bevel gear wheels into each other. Then tighten the hub nut (Pos. 15) only by hand. Note: Left handed thread!!

18. Lower the ring-key (TE20J393) carefully around the nozzle head (Pos. 18). Tighten the four screws (by hand only) symmetrically on the hub nut (Pos. 15).

19. Tighten the hub nut (Pos. 15) until you feel a stop and then tighten a bit more (the stop you feel are two surfaces connecting). Note: Left handed thread!!



20. The assembly of SaniJet25 is finished



Checking the assembly of body parts

1. Lift the SaniJet up by hand and rotate the shaft end clockwise using the wrench extension (TE81B146 or TE81B156) and NV9 spanner socket (TE81B145 or TE81B158). The body (Pos 13.1) and nozzle head (Pos. 18) should rotate easily (very little movement is seen by each turn of the torque wrench extension).

   Be careful lifting the SaniJet25, do not drop the machine!

2. Check the O-rings (Pos. 10) and see if they are in place.

3. At last it is highly recommended to test the machine in working conditions.

Trouble Shooting Guide

Symptom: Slow or no rotation of machine

Possible Causes	Fault finding/solution
No or insufficient liquid flow	a). Check if supply valve is fully open. b). Check if inlet pressure to machine is correct. c). Check supply line/filter for restrict-ions/clogging.
Impeller jammed	d). Insert socket spanner on “nut” in top of Turbine shaft (Pos. 3.4) and easily turn Turbine shaft clockwise. If any resistance is recognised, disassemble machine to localise cause. e). Remove Turbine shaft with Impeller and Carrier assembly (see page 32) and remove foreign material. f). Remove Cone (see page 32) and check for clogging in Impeller of inlet guide inside Cone and in Impeller area. If particles repeatedly get jammed in the machine, install filter or reduce mesh size of installed filter in supply line.
Turbine shaft sluggish in bearings	g). Remove Turbine shaft with impeller (see page 32) and clean bearings
Planet gear jammed/sluggish	h). Remove foreign material from Planet wheels and internal gears. Check rotation of Planet wheels. If restriction is recognised, disassemble Carrier assembly (see page 32) and remove material build up, especially on Shafts and bushes in Planet wheels.
Galling	i). Check stem (Pos. 8) and hub (Pos. 18) for wear between these parts and the nuts (Pos. 4 and 15)

Symptom: Jets are incoherent within 1 m of the nozzles

Possible Causes	Fault finding
Guidevanes in the nozzles are clogged	a). Visually inspect the inside of nozzles to see if product is trapped. If so remove unwanted objects using either pressurized air or a pointy object.

How to Order Spare Parts

On the Part List Drawing page 29 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 List of Parts, page 30. Individual parts should always be ordered from the Reference Lists of Parts, clearly stating reference number and description.

Please also quote the type of machine and serial no. This will help us to help you. The serial no. is stamped on the housing of the tank cleaning machine.

In cases where spare parts are ordered for machines originally delivered with 3.1 certificates, please state this information on your ordering form together with the machine type and serial number. This is to ensure full traceability henceforward.

In connection with ordering of spare parts for machines originally delivered with Q-doc (Qualification Documentation) please note that all service and repair should be performed by Alfa Laval Tank Equipment A/S, Ishoej, Denmark, see page 26 “Service and Repair of machines ordered with Q-Doc”.

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.com – info.dk@alfalaval.com

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

Instruction Manual – Misc.

Contents

EC Declaration of Conformity with ATEX

EC Declaration of Conformity

Revision of Declaration of Conformity: 2014-10-28

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
Designation

Toftejorg SaniJet 25
Type

From serial numbers from 2015-00001 to 2030-99999

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

- **FDA 21CFR§177**
  The Regulation (EC) No. 1935/2004
- **The Machinery Directive 2006/42/EC**
  DS/EN ISO 12100:2010
- **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
- **The Equipment Explosive Atmospheres (ATEX) Directive 94/9/EC**
  (Applicable for machinse 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
  EC Type Examination Certificate no. 04ATEX0358X
  Marking: Ex 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	Annie Dahl	
Title	Name	Signature
ATEX Responsible Engineer	Denniz Høxbroe	
Title	Name	Signature

2015-01-01	Kolding
Date	Place

CE

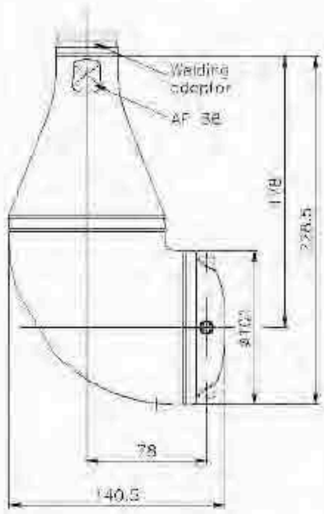
Declaration of Conformity, EN 10204, sub clause 2.2 Test Report

Declaration Of Conformity
per
EN 10204, Sub Clause 2.2 Test Report
Materials of Construction and Surface Finishes

Alfa Laval Kolding A/S (supplier)

declare, under our sole responsibility, that the following product:

Description
Toftejorg SaniJet 25 Rotary Jet Head



has been subjected to non-specific controls for product quality and is found to conform with the following standards and other normative documents.

Metal Materials

AISI 316	Werkstof no. 1.4401
AISI 316L	Werkstof no. 1.4404
SAF 2205	Werkstof no. 1.4462

1/2

Non-Metal Materials

PEEK	21CFR§177.2415
PFA	21CFR§177.1550
EPDM	21CFR§177.2600
PTFE	21CFR§177.1550

Surface Finish

All parts are finished with a nominal external surface roughness Ra = 0.5 µm (20 micro inch) and nominal internal surface roughness Ra=0.8 µm (30 micro inch)

Non-Specific Controls on Product Quality "As-Supplied"

All metallic part material certifications are inspected upon receipt before assembly.

Parts inspections are completed according to the approved ISO 9001:2008 standard program. The Quality Control Department only accepts the product in component parts for assembly according to this program if the parts comply with the above material specification documentation.

Product welds are executed, inspected and finished (polished where accessible), according to written approved procedures.

Parts produced from FDA approved polymers are only sourced from suppliers that have met "pre-qualification" standards established by Alfa Laval Tank Equipment's ISO 9001:2008 program. Materials of construction of component parts are controlled through clear and explicit specifications in purchase orders. These specifications include the materials of construction specified by the parts designers, making them subject to the contractual terms and conditions.

The following item numbers are covered by this certificate:

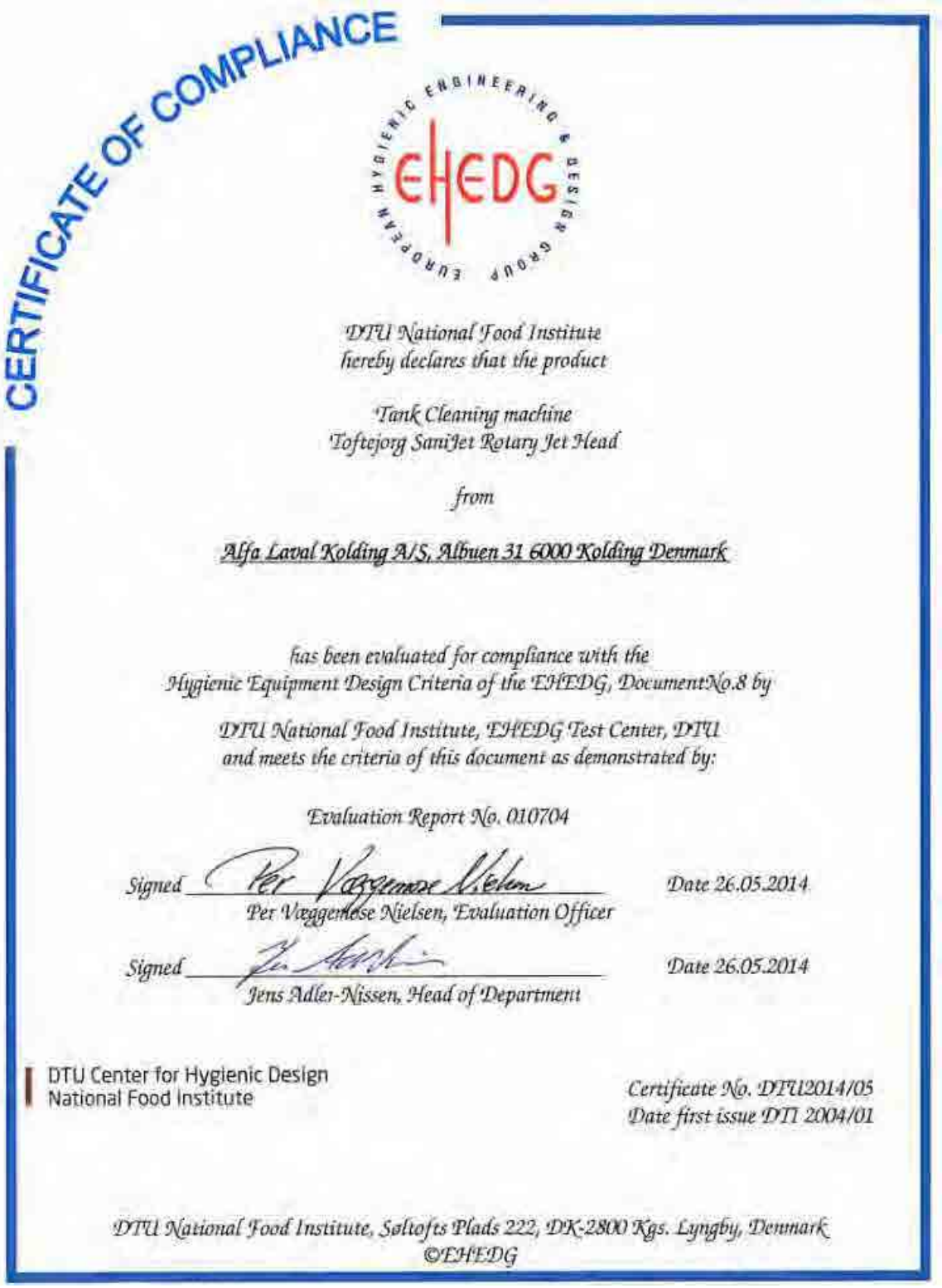
TJ20J000-xx	TJ20J002-xx	TJ20J004-xx
TJ20J010-xx	TJ20J012-xx	TJ20J014-xx

Options with ATEX:
TE20JXXX-6x
TE20JXXX-7x
TE20JXXX-8x

Kolding, Denmark, 2014.01.02

Annie Dahl, QHSE Manager, Alfa Laval

EHEDG certificate of self-cleanability



CERTIFICATE OF COMPLIANCE

EUROPEAN HYGIENIC ENGINEERING & DESIGN GROUP

EHEDG

DTU National Food Institute
hereby declares that the product

Tank Cleaning machine
Toftejorg SaniJet Rotary Jet Head

from

Alfa Laval Kolding A/S, Albuen 31 6000 Kolding Denmark

has been evaluated for compliance with the
Hygienic Equipment Design Criteria of the EHEDG, DocumentNo.8 by

DTU National Food Institute, EHEDG Test Center, DTU
and meets the criteria of this document as demonstrated by:

Evaluation Report No. 010704

Signed Per Vaggemose Nielsen Date 26.05.2014
Per Væggemose Nielsen, Evaluation Officer

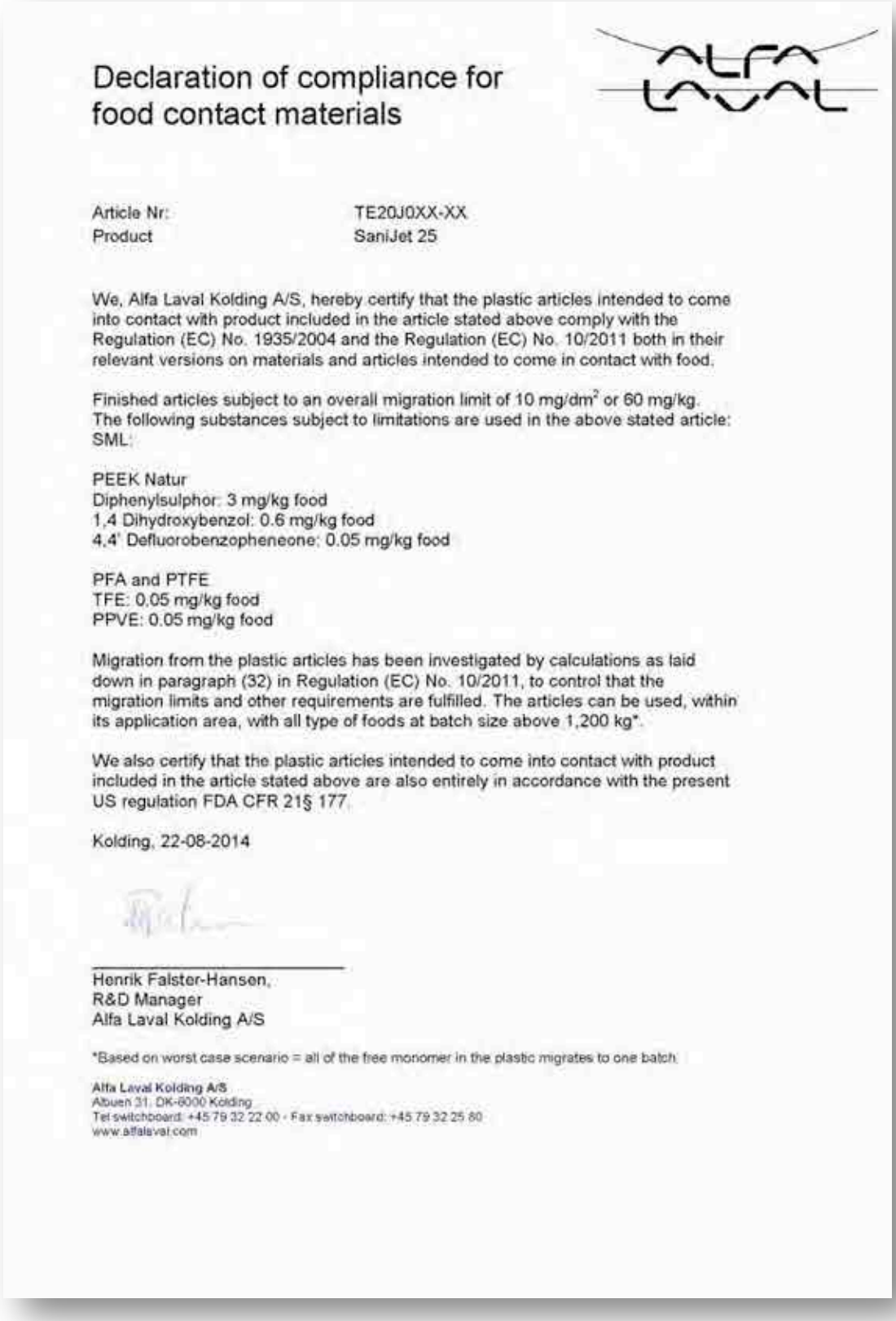
Signed Jens Adler-Nissen Date 26.05.2014
Jens Adler-Nissen, Head of Department

DTU Center for Hygienic Design
National Food Institute

Certificate No. DTU2014/05
Date first issue DTI 2004/01

DTU National Food Institute, Søltofts Plads 222, DK-2800 Kgs. Lyngby, Denmark
©EHEDG

Declaration of compliance for food contact materials



Declaration of compliance for food contact materials

Article Nr: TE20J0XX-XX
Product SaniJet 25

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/dm^2 or 60 mg/kg.
The following substances subject to limitations are used in the above stated article:
SML:

PEEK Natur
Diphenylsulphor: 3 mg/kg food
1,4 Dihydroxybenzol: 0.6 mg/kg food
4,4' Defluorobenzopheneone: 0.05 mg/kg food

PFA and PTFE
TFE: 0,05 mg/kg food
PPVE: 0.05 mg/kg food

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 1,200 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, 22-08-2014

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

*Based on worst case scenario = all of the free monomer in the plastic migrates to one batch

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

ATEX-Special Conditions for safe use

ATEX CERTIFICATION

EC – Type Examination Certificate Number: Baseefa04ATEX0358X

II 1GD c T140°C

BASEEFA CUSTOMER REFERENCE No. 5322
PROJECT FILE No. 10/0610

Special Condition for Safe Use

1. The Unit may be operated, only when filled with 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 8 bar.
4. The unit must not be operated in a tank/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.

Alfa Laval in brief

Alfa Laval is a leading global provider of specialized products and engineered solutions.

Our equipment, systems and services are dedicated to helping customers to optimize the performance of their processes. Time and time again.

We help our customers to head, cool, separate and transport products such as oil, water, chemicals, beverages, foodstuffs, starch and pharmaceuticals.

Our worldwide organization works closely with customers in more than 100 countries to help them stay ahead.