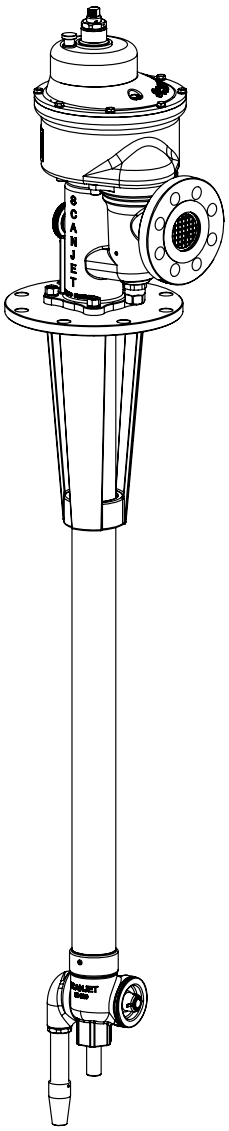
Instruction Manual

SC 30T



#SC 30T 15

Scanjet Marine AB

SALES OFFICE
Södra Långebergsgatan 36
P.O. Box 9316
SE-400 97 Göteborg, Sweden
Telephone +46 313 387 530
Telefax +46 313 387 540
E-mail office@scanjet.se
Web www.scanjet.se

FACTORY
Törnedalsgatan 1
P.O. Box 2
SE-275 21 Sjöbo
Telephone +46 416 513 100
Telefax +46 416 511 656
E-mail factory@scanjet.se
VAT SE556291242701

This Manual Applies for the Following Products:

Type	Date
Scanjet SC 30T	2012-06-20
Scanjet SC280	2012-06-20

Spare Parts Department

Contact Information

Read “12. How to Order Spare Parts” on page 36.

Scanjet Marine AB

Törnedalsgatan 1
P.O. Box 2
SE-275 21 Sjöbo, Sweden
Telephone +46 416 513 100
Telefax +46 416 511 656
E-mail spares@scanjet.se

This manual is intended to assist in the handling and operation of the Scanjet SC 30T Tank Cleaning System. Continuous product improvement is the policy of Scanjet Marine AB and we reserve the right to alter the specifications at any time without prior notice.

Contents

1. Introduction

SCANJET model SC 30T is a tank cleaning machine especially developed for cleaning of cargo and slop tanks on board chemical/product carriers. The size, construction and cleaning requirements of these tanks are design criteria, which have been evaluated prior to installation in your vessel.

SC 30T tank cleaning machine consists of two main parts; a gun unit that is fixed installed in deck and a turbine driven drive unit. The cleaning procedure will start by opening the valve for cleaning media. The drive unit will now turn the main pipe and lift the nozzle creating a horizontal spiral-cleaning pattern. When the cleaning procedure is finalized the valve is to be closed.

This manual has been prepared as a guide to facilitate for persons who will be operating and maintaining the tank cleaning machine. The key for long tank cleaning machine life will always be carefully planned maintenance, the tank cleaning machine is actually doing a rough and dirty job for you. With proper maintenance the Scanjet SC 30T will keep servicing you for many years.

2. Safety Instructions

- If the machine is used in potentially explosive atmospheres then tapes or joint sealing compounds, which are electrical insulators, must not be used on threads or joints, unless an electrical connection is otherwise established to ensure an effective grounding. In addition, connection pipe work must be electrically conductive and grounded to the tank structure. The resistance between the nozzle and the tank structure should not exceed 20 000 Ohm. This is important in order to avoid any build up of static electricity in the machine. For further information see CENELEC R044-001 Safety of Machinery, guidance and recommendations for the avoidance of hazards due to static electricity.
- When the equipment is operating in potentially explosive atmospheres, measures have to be taken to verify that the tank is inert at all times during cleaning operation. This is to avoid sparks and possible explosions since fluids moving at high velocities through air causes electrostatic build up in the media. As an extra precaution the cleaning media could be made conductive.
- The machine should be installed in accordance with national regulations for safety and other relevant regulations and standards.
- Precautions should be made to prevent starting of the tank cleaning operation, while personnel are inside the tank or otherwise can be hit by jets from the nozzle.
- In EU-countries the complete system have to comply with EU-machine directive and should be CE-marked. In North America consult Underwriters Laboratory for any specific regulatory needs relative to the entire CIP (Clean In Place) System.
- Earmuffs should always be used when operating machine.
- Safety goggles and safety gloves should be used when opening cofferdam plug.
- Be careful not to drop tank cleaning machine/equipment when lifting and carrying. Dropping the machine could cause serious injuries. Never stand under the machine during mounting.
- When handling the tank cleaning machine, never lift machine by the nozzle.
- The equipment may only be used for tank cleaning operations as described in this manual.
- The equipment has not been assessed as a safety related device as referred to in directive 94/9EC Annex II, clause 1.5

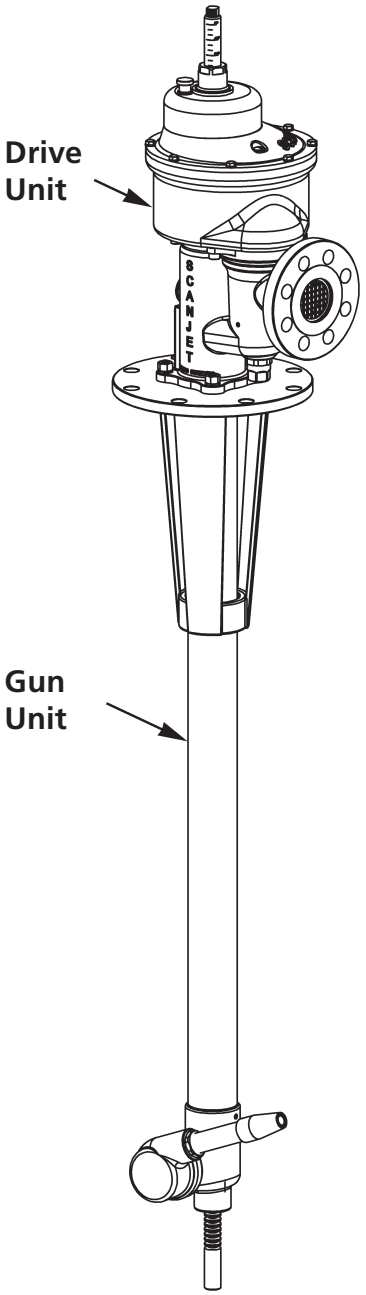
Always follow these instructions before taking the SC 30T into service!

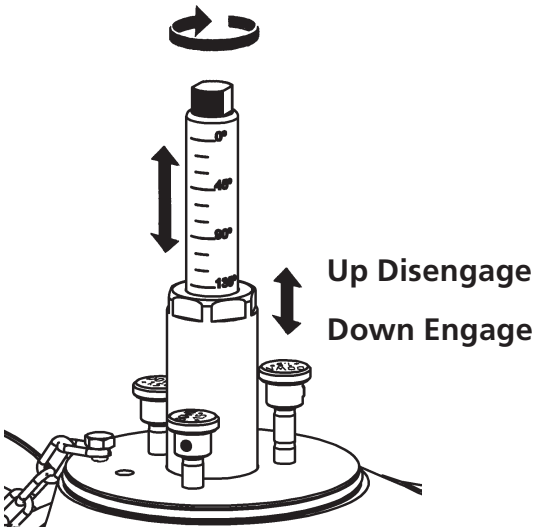
3. General Description

Cleaning media comes from the supply line on board the vessel and enter into the inlet housing, where it passes the vertical turbine driving the drive unit. Thereafter the cleaning media continue through the main pipe to the nozzle and then out in the tank. The drive unit will rotate the main pipe and elevate the nozzle and will hereby clean the tank in a spherical pattern.

Cleaning of tanks is a process depending on a number of factors; the soilage of the tank, distance, cleaning procedure and cleaning agent. All these factors are deciding for the number of cycles that needs to be run.

The rotation speed of the machine is depending on the rotation speed of the turbine and could easily be set to desired speed. The elevation per revolution (Pitch) for the nozzle can be set to different preset values by means of pushing or pulling the program knob (see below). The rotation of the main pipe and the elevation of nozzle are indicated on the scale on the lifting rod.





4. Installation Instructions

General Installation Instructions: SC 30T is designed to be installed in a vertical upright position, however, the machine may operate horizontally or in any desired position according to order configurations. The gun unit is tailor-made for each specific tank in respect size of nozzle.

Filtration: It is recommended to install a filter in the supply line in order to avoid large particles lodging inside the machine. All supply lines should be flushed to remove dirt and particles before connecting the machine to the system. Scanjet will not take any responsibility for rough dirt and particles in the supply line, causing malfunction to the machine.

Cleaning Media: Only media compatible with the materials listed on the reference list of parts for your model should be used, see "5. Technical Data" on page 8. Regarding passivation, read chapter "7.6. Pickling / Passivation Procedure" on page 21.

After Use Cleaning: Depending on the type of cleaning that is being performed and the type of cleaning solution used, a procedure for after use flushing of the cleaning system should be developed for your application. In general, a fresh water flush is recommended after each cleaning.

Pressure: Hydraulic shocks may damage the system. In order to avoid shocks increase pressure gradually from 0 to maximum operating pressure over 5-7 seconds. Do not exceed 12 Bar (175 PSI) inlet pressure. Higher pressure in combination with higher flow rates will increase consumption of wear parts.

Seals: The SC 30T is as standard equipped with O-rings in high performance Viton®. Some chemicals are highly aggressive to this material. In those cases Scanjet suggests a change of O-rings to Kalrez®. Please check chemical resistance for Viton®. See recommended O-rings kit on page 27.

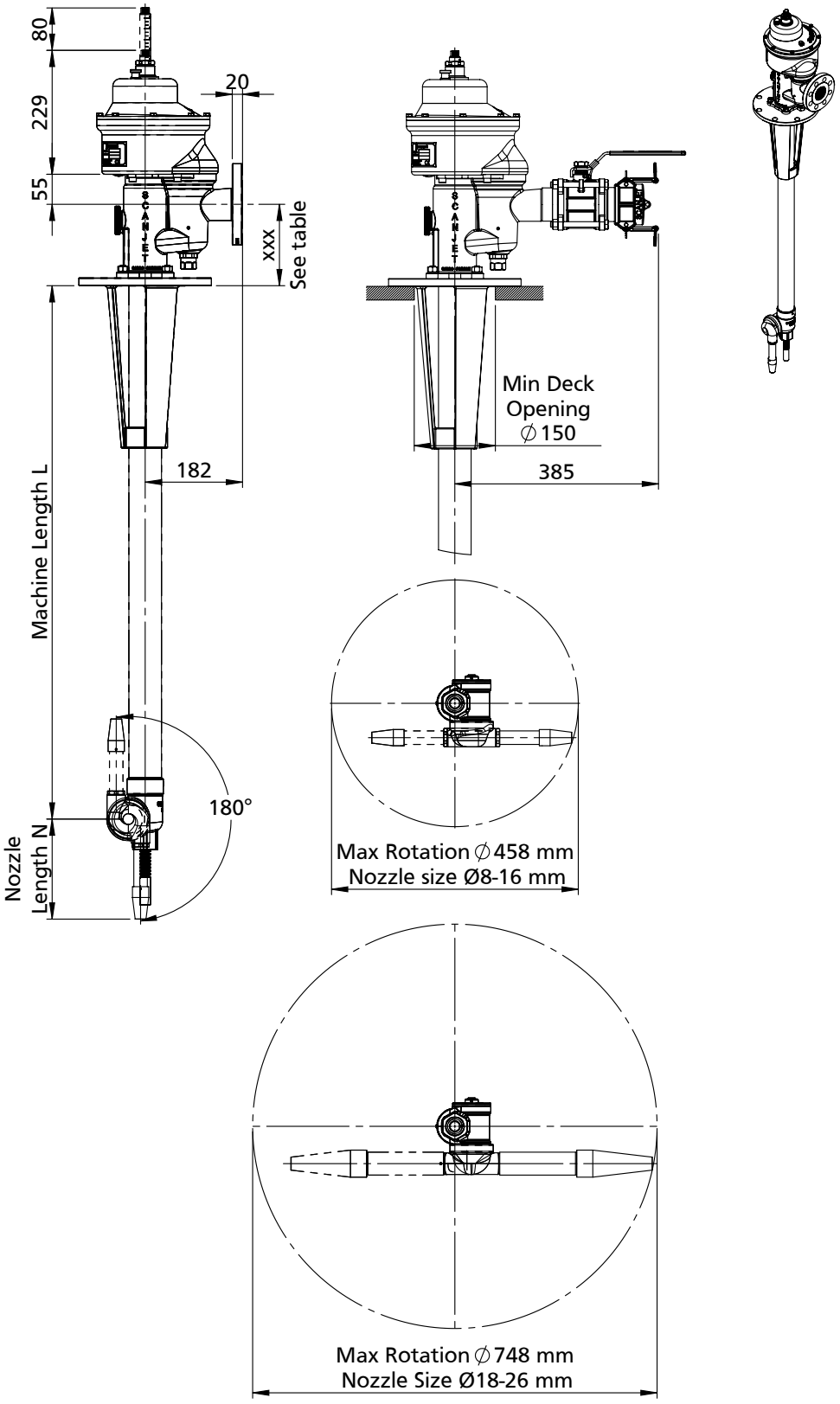
WARNING! If the machine is ***used in potentially explosive atmospheres*** then tapes or joint sealing compounds, which are electrical insulators, must not be used on threads or joints, unless an electrical connection is otherwise established to ensure an effective grounding. In addition, connection pipe work must be electrically conductive and grounded to the tank structure. This is important in order to avoid any build up of static electricity in the machine.

5. Technical Data

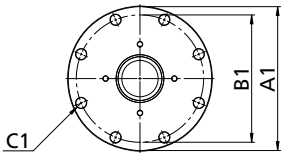
5.1. Specifications

Flow	**:** 5-70 m³/h (25-310 USgpm)
Inlet pressure	**:** 0,6-1,2 MPa (6-12 Bar, 85-175 psi)
Recommended pressure	**:** 0,8 MPa (8 Bar, 116 psi)
Max temperature	**:** 95°C (200°F)
Rotation speed	**:** 0,5-1,5 rpm depending on supply data and settings (might differ with climate, in cold climate the machine might rotate slower)
Approx weight	
Machine Length L=1 m	**:** 38 kg (84 lb)
Per additional meter of main pipe	**:** 10 kg (22 lb)
Drive unit	**:** 12 kg (26 lb) (composite 5 kg / 11 lb)
Material	
Inlet housing and main pipe	**:** AISI 316 / SS2348 / WST 1.4404
Other parts	**:** Makers' standard
Service space	**:** Min 350 mm radius from centre of deck flange for handling and service
Nozzle Length N	
Ø9-11 mm	**:** 185 mm
Ø12-16 mm	**:** 235 mm
Ø17-28 mm	**:** 335 mm

5.2. Dimensions

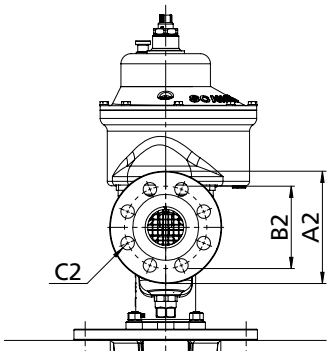


5.3. Deck and Inlet Flanges



Deck flange

Flange type	Deck flange no.	A1	B1	C1	Dim. xxx
Scanjet Standard.	30118-01	Ø245	Ø215	Ø18x8	151
PN16 DN150	30118-02	Ø285	Ø240	Ø23x8	151
PN6 DN200	30118-03	Ø320	Ø280	Ø18x8	156
JIS 5K 200A	30118-13	Ø320	Ø280	Ø23x8	156
PN6 DN150	30118-14	Ø265	Ø225	Ø18x8	151
ANSI 6" 150lb	30118-15	Ø279	Ø241	Ø23x8	151



Inlet flange

Flange type	Inlet housing no.	A2	B2	C2
2" Valve flange	30111-00			
PN16 DN40	30111-01	Ø150	Ø110	Ø18x4
PN16 DN50	30111-02	Ø165	Ø125	Ø18x4
PN16 DN65	30111-03	Ø185	Ø145	Ø18x4
JIS 10/16K 40A	30111-05	Ø140	Ø105	Ø19x4
JIS 10K 50A	30111-06	Ø155	Ø120	Ø19x4
JIS 16K 50A	30111-07	Ø155	Ø120	Ø19x8
JIS 10K 65A	30111-08	Ø175	Ø140	Ø19x4
JIS 16K 65A	30111-09	Ø175	Ø140	Ø19x8
ANSI 2" 150lb	30111-21	Ø152.4	Ø120.6	Ø19x4

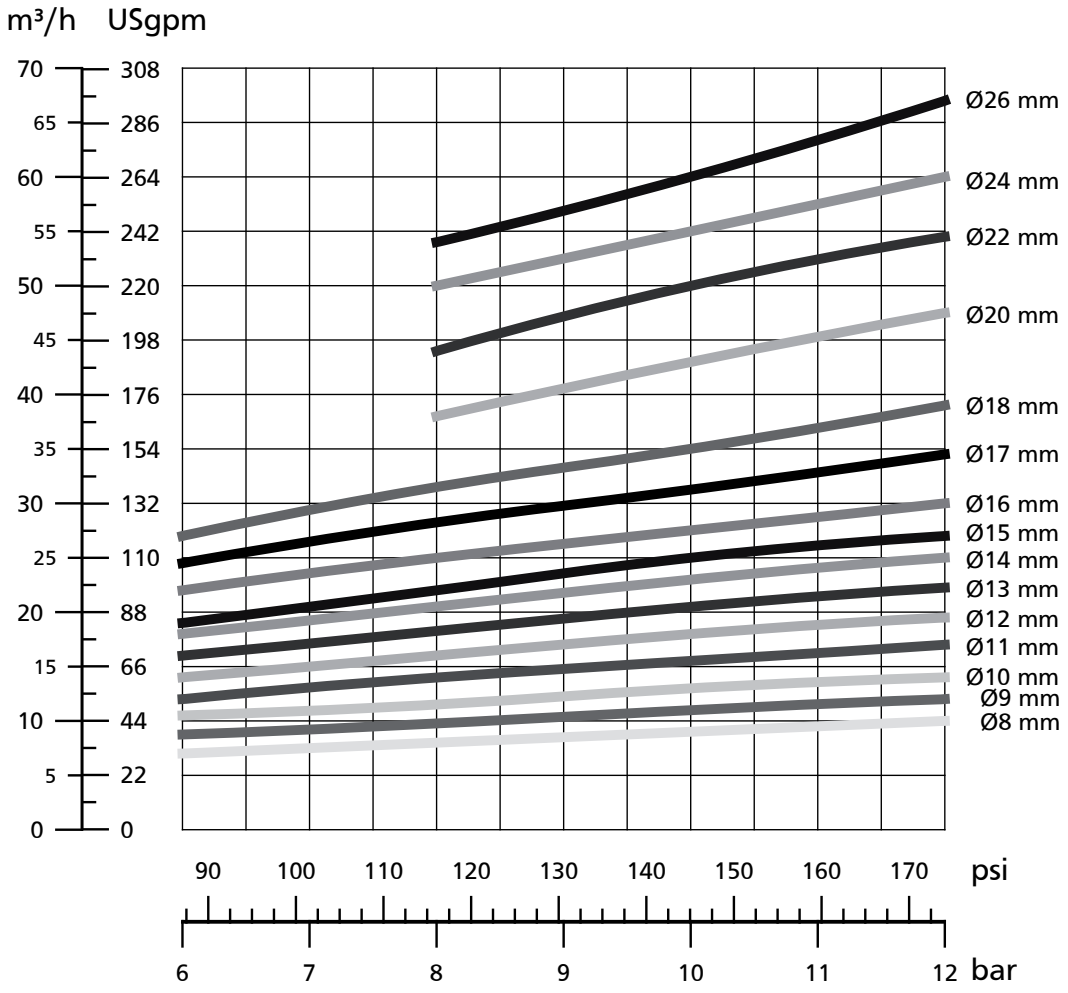
6. Performance Data

The table below shows the flow and effective jet length (radius) for each combination of inlet pressure and nozzle diameter, according to DNV. Other nozzles and maximum jet length available upon request.

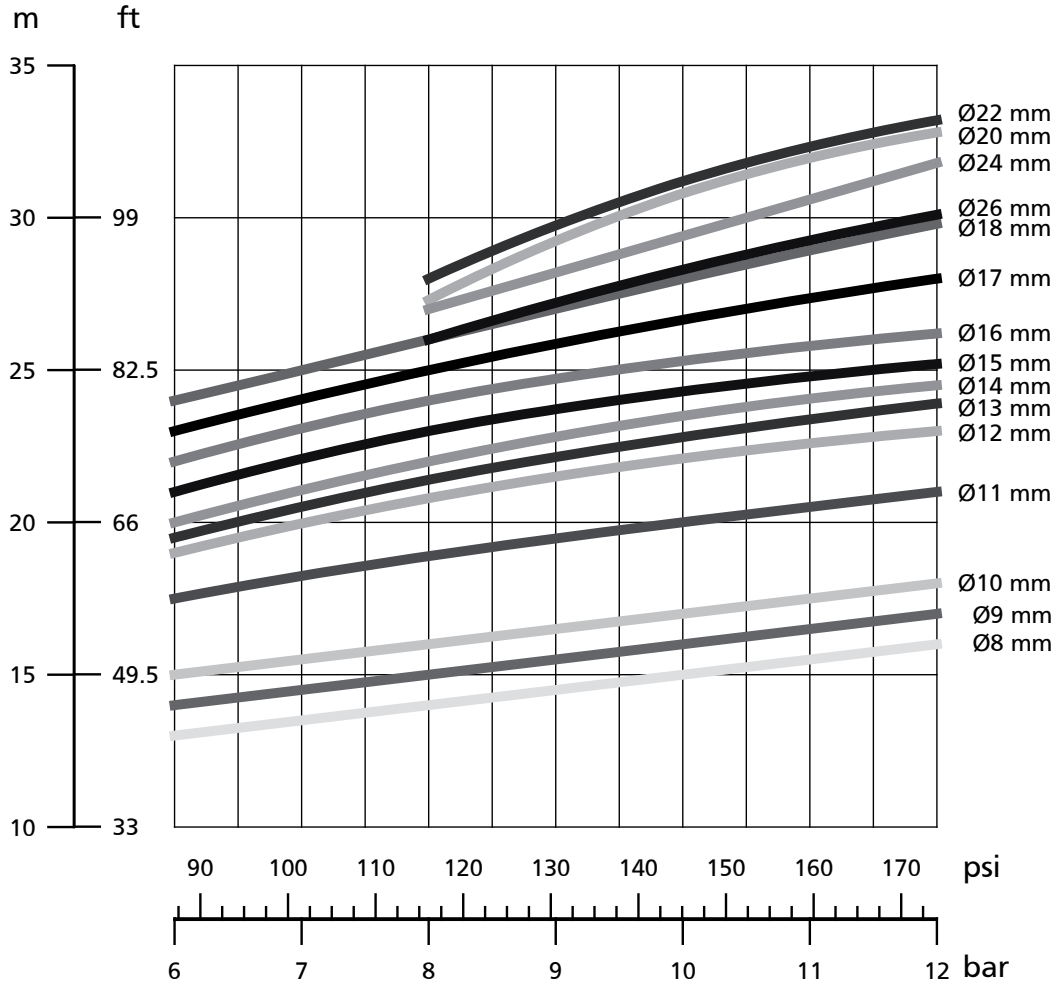
Inlet pressure has been measured at machine inlet. In order to achieve the performance indicated in the curves the pressure drop in supply lines must be taken into consideration.

	Supply pressure MPa (Bar)							
	0,6 (6)		**0,8 (8)**		**1,0 (10)**		**1,2 (12)**	
Nozzle size	Flow [m³/h]	Jet length [m]	Flow [m³/h]	Jet length [m]	Flow [m³/h]	Jet length [m]	Flow [m³/h]	Jet length [m]
Ø 8mm	7	13	8	14	9	15	10	16
Ø 9mm	8,8	14	9,9	15	11	16	12	17
Ø 10mm	10,5	15	11,5	16	13	17	14	18
Ø 11mm	12	18	14	19	15	20	17	21
Ø 12mm	14	19	16	21	18	22	19,5	23
Ø 13mm	16	19,3	18,3	21,5	20,5	22,8	22,3	23,9
Ø 14mm	18	19	20,5	22	23	23	25	25
Ø 15mm	19	21	22	23	25	24	27	25
Ø 16mm	22	22	25	24	27,5	25	30	26
Ø 17mm	24,5	23	28,3	25	31,3	26,7	24,5	28
Ø 18mm	27	24	31,5	26	35	28	39	30
Ø 20mm			38	27	43	31	47,5	33
Ø 22mm			44	28	50	31	54,5	33
Ø 24mm			50	27	55	29	60	32
Ø 26mm			54	25	60	27	67	30

Flow versus pressure



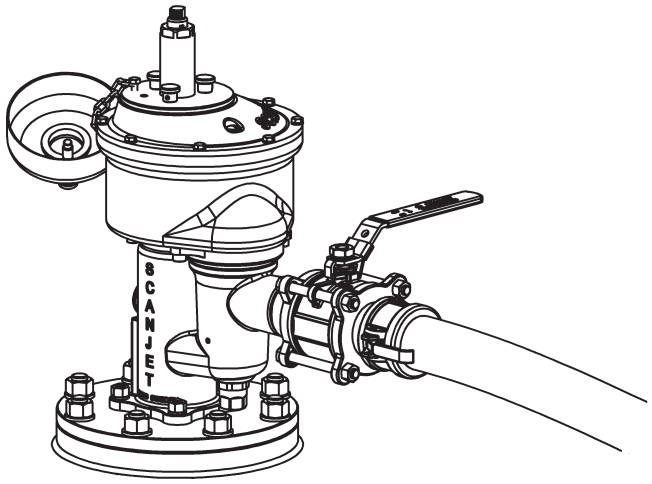
Jet length versus pressure



7. Operation

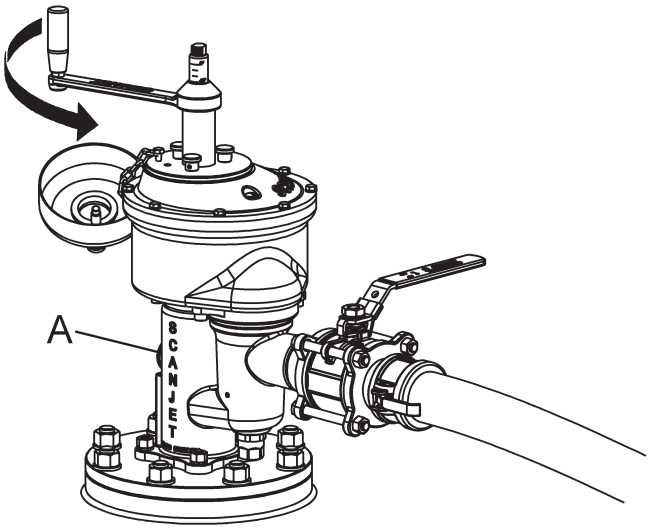
7.1. Starting Up

1. Remove protective cover. Remove the drainage plug under the drive unit and drain it.



NOTE! Do not handcrank machine with prewash program knob in down position.

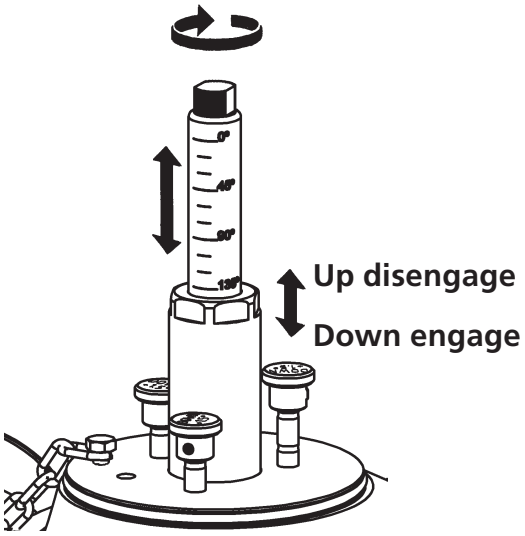
2. **Pull up all program knobs**, check that the machine could be handcranked one full cycle. Set nozzles to desired starting point by using the hand-manoeuvring device and remove the inspection plug (A) at the cofferdam.



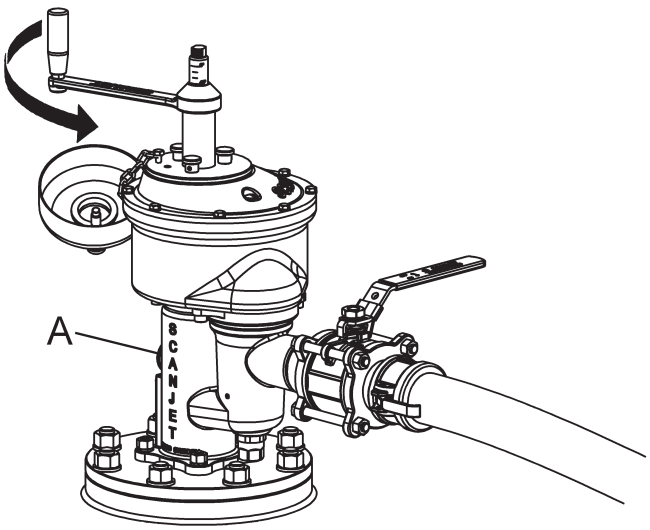
3. Open the inlet valve **slowly** to start the machine.

> **NOTE!** If the machine is started to fast, the magnetic coupling will release and the valve must be completely closed prior to restart.

4. Set desired program by pulling or pressing down the program knob, see next page for further information.



5. Check through the inspection hole and look at the top nut to make sure that the machine is rotating as it should and remount the inspection plug (A).



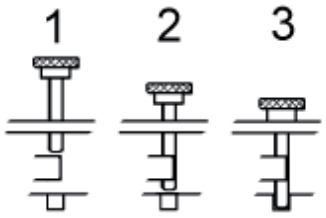
7.2. Setting Programs

The standard drive unit is delivered with four preset programs giving the following degrees of vertical elevation per revolution of main pipe (pitch) and as an option the Prewash program can be included in your delivery.

NOTE! Preset programs may vary from below spec. Please check your "White board for tank cleaning" for programs installed on your vessel.

Action	Standard Elevation	Optional Elevation
All program knobs in upper position	0	0
One program knob pushed down	1,5°/rev	2,5°/rev
Two program knobs pushed down	3,0°/rev	5,0°/rev
Three program knobs pushed down	4,5°/rev	7,5°/rev
(Optional) Prewash knob pushed fully down	60°/rev	60°/rev

Engage prewash



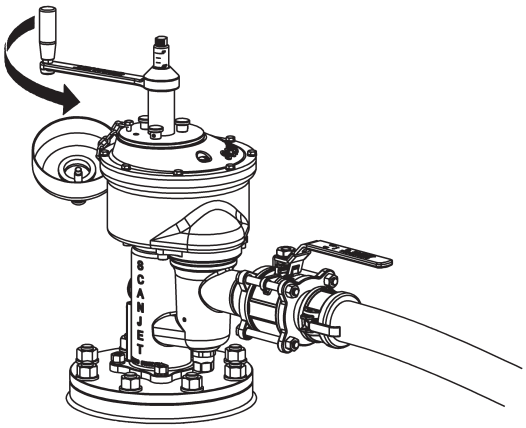
The Prewash knob (marked with P) has three possible positions. The first is fully up, this means no program engaged for this knob. Halfway down means an elevation of 1,5°/rev (or 2,5°/rev). The third is pushed fully down and this is the Prewash position.

To engage the prewash, push down the prewash knob while the machine is running until the knob enters the prewash position, fully down. (May take 4-8 seconds)

NOTE! Do not handcrank machine with prewash program knob in down position.

Disengage prewash

When the machine is running in prewash it might be difficult to pull up the prewash knob, in this case use the handcranking tool "carefully" to unload the pressure on the prewash knob. Push the handcranking tool gently ahead the rotation, be very careful.



7.3. Cleaning Procedure for Solidifying Cargoes

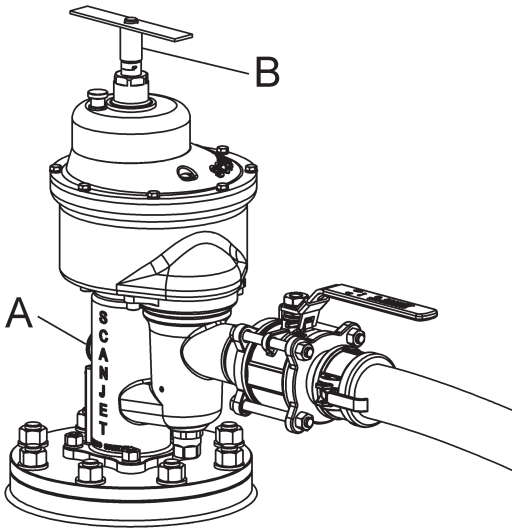
- During transport of cargo, sediments might be created in the bottom of the tank. The tank cleaning machine must be blown with air/nitrogen and the elevation of the machine must be handcranked every week. This will prevent sediments from being stacked in the gears at the nozzle housing.
- After discharge, prior to starting up tank cleaning operation, the machine must be handcranked in order to verify that no sediments are stacked in the gears.
- When starting the tank cleaning machine **all program knobs should be lifted up the first 60 seconds of the cleaning**. This will disconnect the gearbox from elevation and the gears in the tank will be flushed without being engaged. Install the desired program after the 60 seconds and continue the operation as normal.

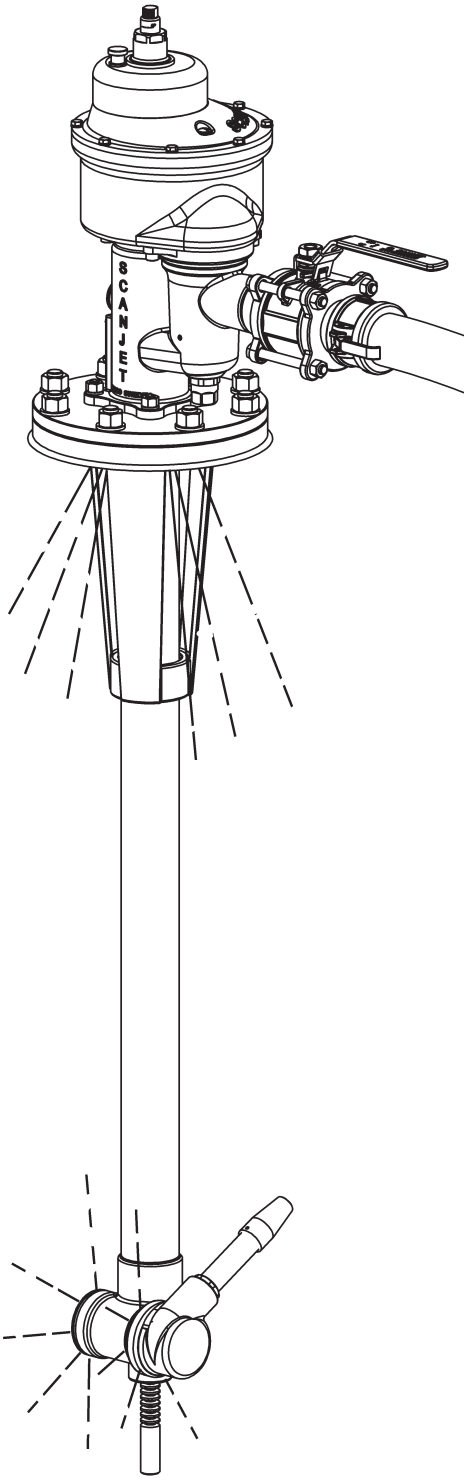
7.4. During Operation

The cofferdam plug (A) should be mounted during cleaning at all times. Would there be any leakage at the tank cleaning machine the cofferdam plug prevent the cleaning media from leaking outside the machine.

If leakage is detected the seals inside the machine have to be changed.

The rotation and elevation of the nozzle is indicated by the coupling shaft and the indication arrow (B) upon it.



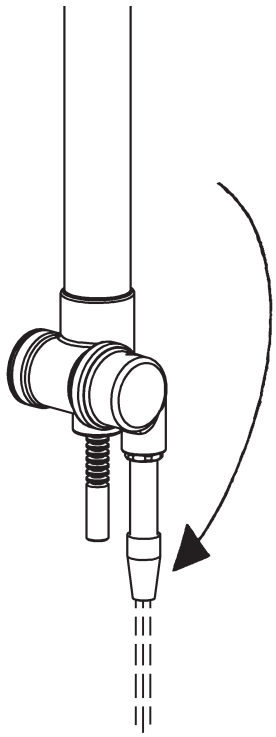


NOTE! The leakage at the nozzle housing and at the pipe support is normal and necessary to flush the Teflon bearings. During cold water rinsing the leakage is considerably higher then during hot water rinsing.

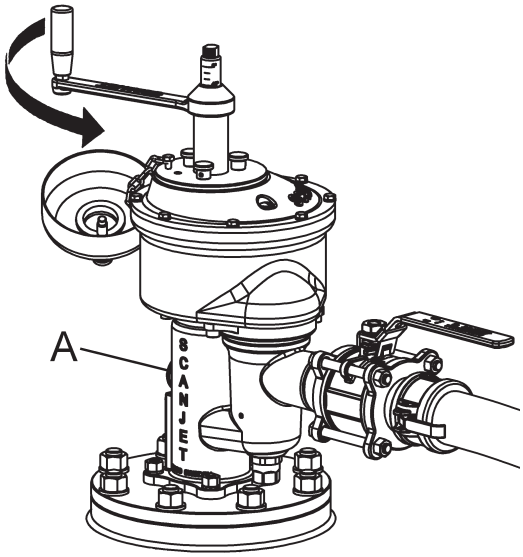
7.5. Closing Down

When the cleaning operation is finalized the following should be done.

1. Close the main valve, which will end the cleaning and stop the drive unit.
2. Make sure that the machine is left with the nozzle pointing downwards as this automatically drains the main pipe and ensures that no water will be left in the unit. The nozzle is pointing downwards when the lifting rod is in its lowest position. If necessary the nozzle should be hand manoeuvred by using the handcranking device to get the nozzle pointing downwards.

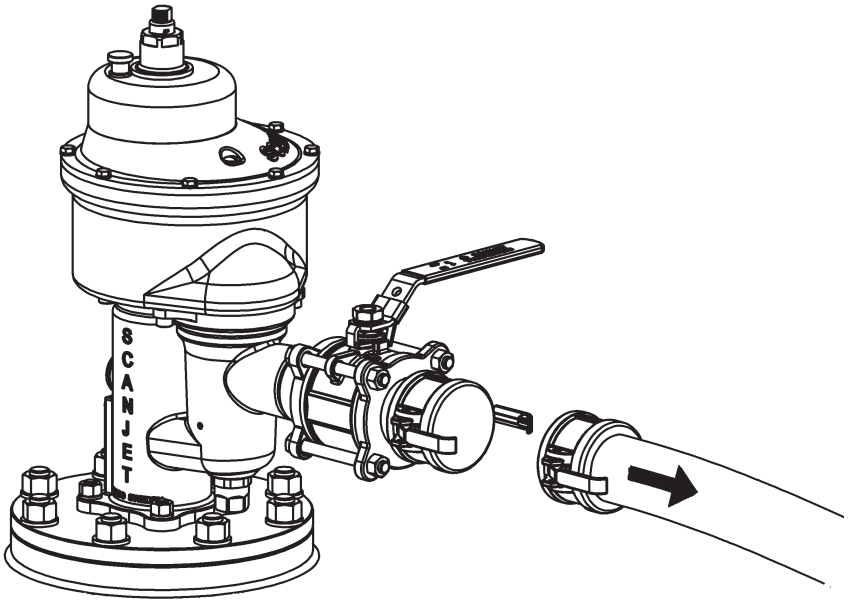


NOTE! Before handcranking the drive unit disconnect programs by pulling up all program knobs.



3. Open the inspection plug A, it is red and marked with "Open after cleaning". Check for leakage inside. If any water comes out the seals have to be changed. If this happens it is also very important to check the drive unit for water. If water is left in the drive unit it could damage the gears inside.

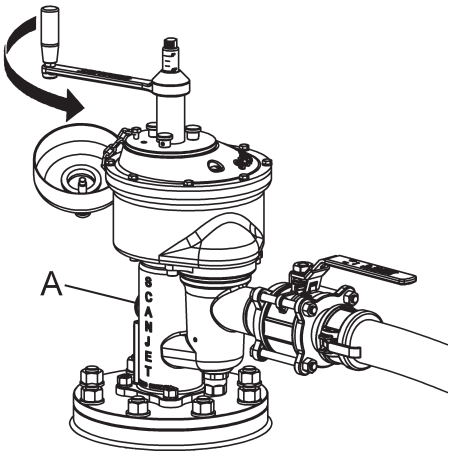
4. Disconnect the hose and replace the dust cap.



7.6. Pickling / Passivation Procedure

In many cases it is convenient to use the Scanjet tank cleaning machines for surface treatment of tanks. The fluids used for this kind of procedure are mostly Nitric and Hydrofluoric acid in different proportions. These chemicals are highly aggressive to most materials including the standard Viton® seals inside the tank cleaning machine. Scanjet recommends a change of seals to Kalrez® which is a perfluorelastomer and chemically stable with these acids.

This guide is valid for the following Scanjet machines: SC 30T, SC 30TH, SC 30TL, SC 40RT



Working procedure:

Before operation:

- Use the handcranking device and handcrank one full cycle to make sure that nothing is blocking the nozzle movement
- Open the red cofferdam plug (A)

During operation:

- Continuously check the cofferdam for leakage
- If leakage occurs, stop the operation, flush the machine with freshwater and change seals

After operation:

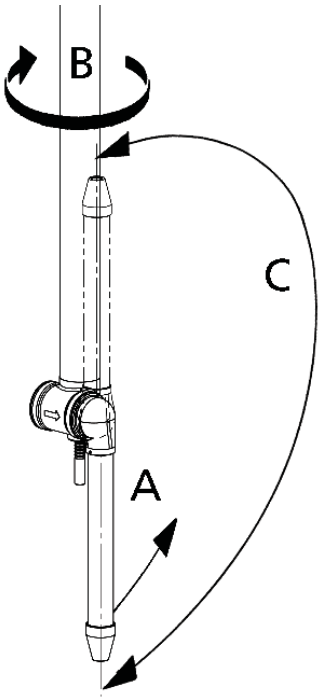
- Directly flush the machine with freshwater to make sure no residues are left in the machine
- Drain the drive unit, if fluid comes out open the drive unit and inspect
- Once again check the cofferdam and put back the red plug

Failure to comply to these recommendations could lead to serious damages to the machine. Don't forget to use safety glasses and protection clothes when doing the procedure.

It is recommended to follow a protocol and write a report for every machine.

7.7. Calculation of Cleaning Time

A) Calculation of cleaning time for a cycle



The cleaning time depends of the following:

Choose program with its characteristic pitch angle

A (elevation/ rev.)

Rotation speed of main pipe (indicated on lifting rod on top of the machine)

B (sec/rev.)

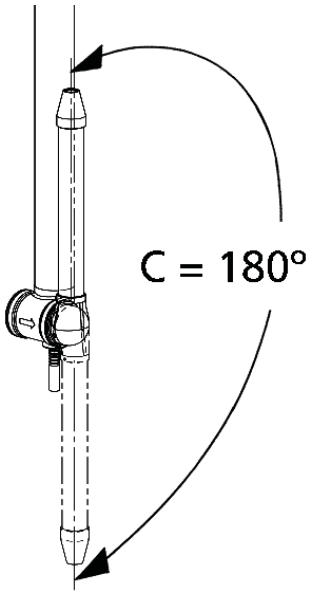
Washing angle

C (degrees)

Cleaning time

D (minutes)

Cleaning time $\mathbf{D = \frac{CxB}{Ax60}}$



Example 1: Prewash program is set and one turn of main pipe takes 50 sec (measured with a wrist watch by checking time for one run indicated by lifting rod). How long time does it take to wash the tank (one full cycle)?

A = 60°

B = 50 sec/rev

C = 180° (180° to 0°)

Cleaning time $\mathbf{D = \frac{180x50}{60x60} = 2.5\ minutes}$

Example 2: Commercial cleaning

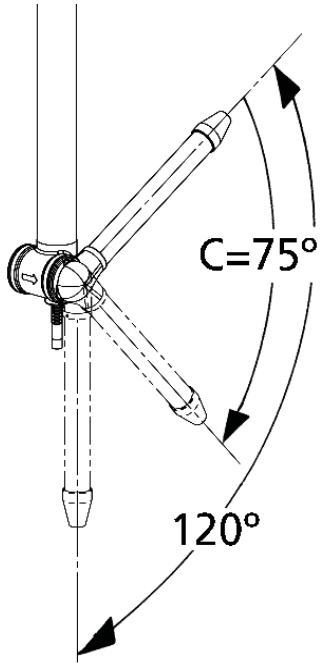
One program knob has been pressed down. We would like to do a cleaning between 120 degrees and 45 degrees. How long time does it take?

A = 3.0°

B = 50 sec/rev

C = 75°

Cleaning time **D** = $\frac{\mathbf{75x50}}{\mathbf{3.0x60}}$ **~ 21 minutes**



B) Calculation of cleaning time for getting out a certain amount of cleaning media (prewash).

- The total flow Q (m³/h) through the nozzles is calculated by adding the flow for each nozzle at the specific pressure used. See table under "5. Technical Data" on page 8.

- Needed amount of washing media **R** (m³) calculated as per Prewash Regulations.

- The time **T** the machine must be in operation is then calculated as:

$$\mathbf{T = \frac{Rx60}{Q}\ (min)}$$

Example 3:

- Prewash rules gives that 3 m³ of cleaning media should be used.

- We have a gun with a 18 mm nozzle and will operate the tankcleaning machine at 10 bar pressure.

- How long time should we operate the machine?

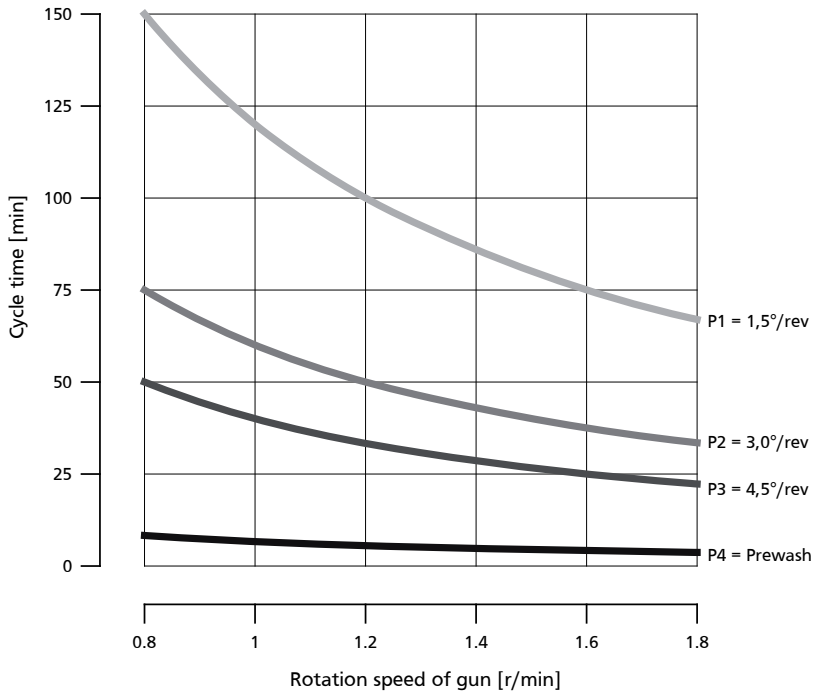
Solution

Table at page 11 shows that at 10 bar and 18 mm nozzle will give a flow of 40 m³/h per nozzle.

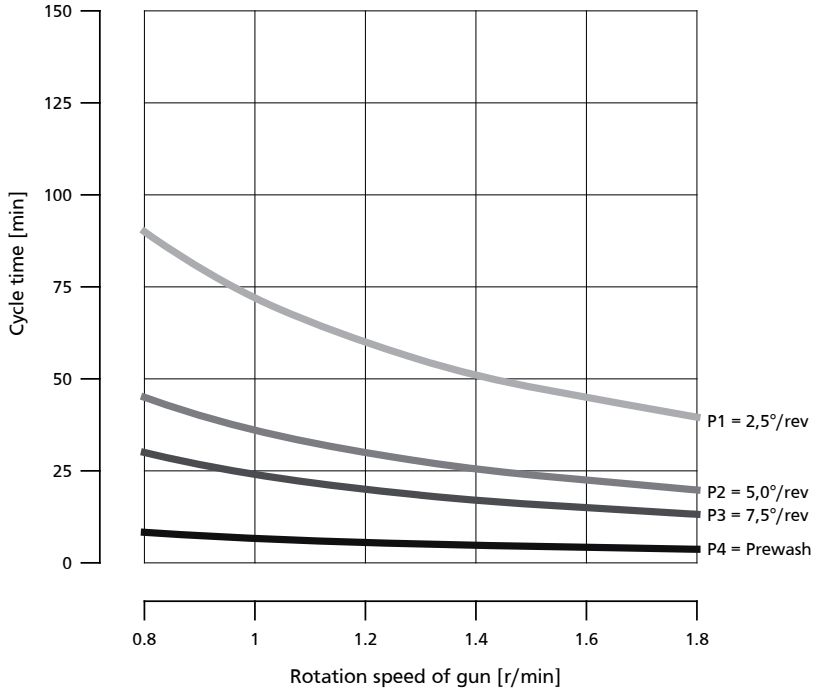
$$\mathbf{Needed\ time\ T = \frac{3x60}{40} = 4{,}5\ min}$$

Cleaning time for full cycle (180°) at different cleaning programs depending on the rotation speed of the main pipe

Standard (1.5° pitch per knob)



Optional (2.5° pitch per knob)



7.8. Speed Adjustment

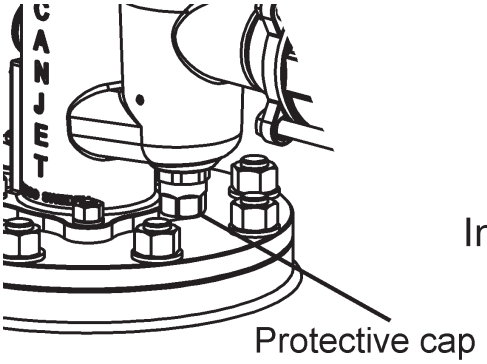
Changing the rotating speed for the turbine sets the rotating speed of the main pipe. This is done by changing position of the conical turbine in its sleeve. The speed can be adjusted while operating the machine by doing the following:

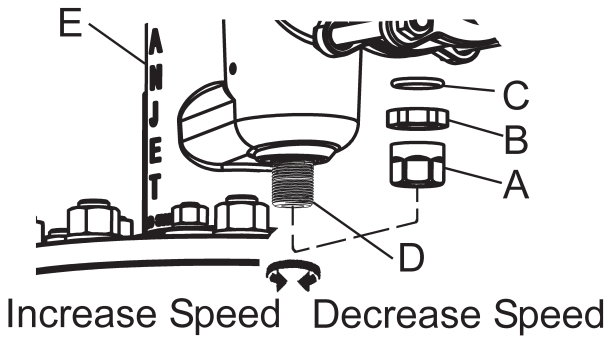
Note that the machine might rotate slower in cold climate.

1. Look at the top nut (pos. 103) through the cofferdam hole (E). The time it takes for one turn can be measured with a wristwatch.
2. The speed should be 0.5-1.5 rpm if not, adjust as follows
3. Remove protective cup (A) (Key no. 25)
4. Loosen contra nut (B) (Key no. 30)

> Stop the machine while adjusting the screw, and start again when the contra nut are tightened. Check the speed, if not ok adjust again.

5. Set the adjusting screw (D) to get the desired speed by using a special short Allen key no. 6 (tool 12061). By lifting the adjusting screw (D) the speed will reduce and vice verse. The fastest speed that is possible to get is when the turbine is running with a minimal gap between the turbine and the sleeve. This is achieved by lowering the turbine until it stops and then raise it approx. ½ a turn. Be careful not to lift the turbine too high, this would make the machine stop.
6. After the speed has been set, tighten contra nut (B)
7. Recheck the speed of the machine step 1-2 and if OK check for leakages at the adjusting screw. If leakages occur change O-ring (C, pos. 148).
8. Replace the protective cap (A)





8. Maintenance

8.1. Preventive Maintenance

In order to keep your Scanjet tank cleaning machine servicing you as an efficient tool in your tank cleaning operations, it is essential to care for maintenance. Following a simple maintenance program will keep your tank cleaning machine in good condition and the machine will maintain its high performance.

Good maintenance is careful and regular attention!

The following recommended preventive maintenance program is based on tank cleaning machines working in average conditions. However, a cleaning machine, which has a rough and dirty job to do, will need more frequent attention than one working in ideal conditions. It is recommended that the maintenance program is adjusted to suit such a situation.

Only use proper tools when servicing the machine; see chapter "21. Tool Kit" for Scanjet standard tool kit. Never use excessive force or hammer components together or apart. Always follow all assembly/disassembly steps in the order described in this manual. Never assemble components without previous cleaning; this is especially important at all mating surfaces. Work only in a clear well lighted working area.

Using any other than Scanjet original parts will invalidate the warranty.

8.2. Service Kit

Tank cleaning machines are installed and operated in extremely harsh conditions. In order to ensure continued safe operation of the Scanjet tank cleaning machines it is advised to follow given service instructions.

Scanjet has identified components which should been checked at regular intervals and replaced if necessary, because of wear or damage. This is important in order to avoid unplanned stops or breakdowns and to assure safe, smooth and trouble free operation of the tank cleaning machines. The components that may be subject to wear and need replacement have been included in service kit, naturally optimized for each specific model and type of Scanjet tank cleaning machine.

Service intervals are described on the following page.

Service kit are rapidly available and easy to order, as well as being more economical compared to ordering of parts individually.

The service kit are specified at page 53 and forward.

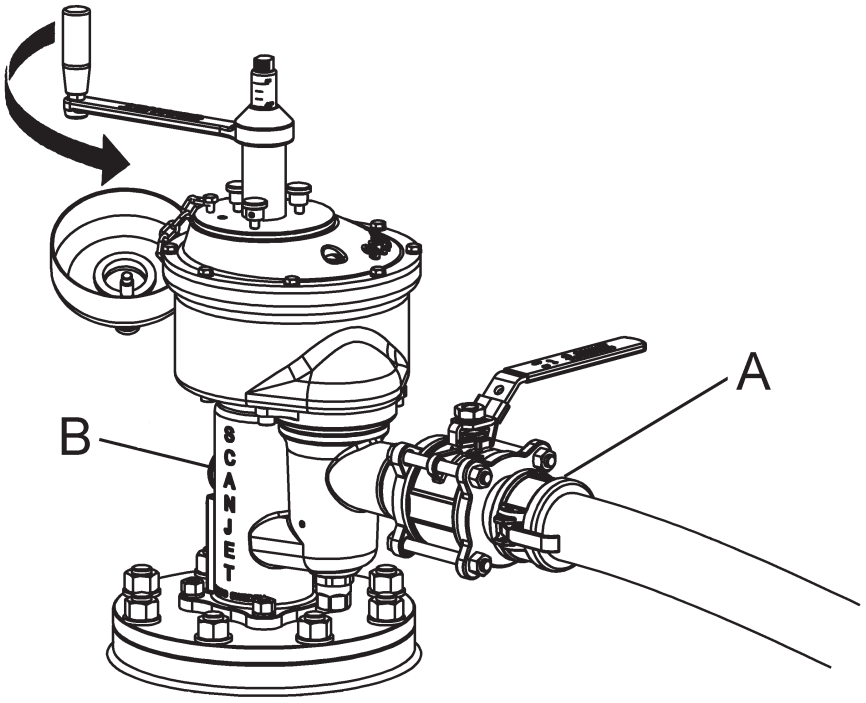
Scanjet part no.	Description
KIT 30T ODU	**Complete O-ring kit for SC280 Drive Unit**
KIT 30T OGU	**Complete O-ring kit for SC 30T Gun Unit**
KIT 30T OGU K	**Complete O-ring kit for SC 30T Gun Unit, Kalrez**
KIT 30T WGU	**Complete Wear kit for SC 30T Gun Unit**
T 30	**Scanjet basic tool kit including all necessary tools to service tha machine**

8.3. Service Intervals

Regular inspection before operation

- Check strainer for free flow. Remove all particles (A).
- Handcrank the machine in order to verify that elevation of the nozzle runs smoothly.
- Inspect cofferdam for leakage (B), this has to be done during operation while the inlet housing is pressurized. If leakage is detected the seals have to be changed, the drive unit also have to be checked for leakage and drained. If water is trapped inside the drive unit it could be damaged.

> **NOTE!** Before handcranking the drive unit disconnect programs by pulling up all program knobs



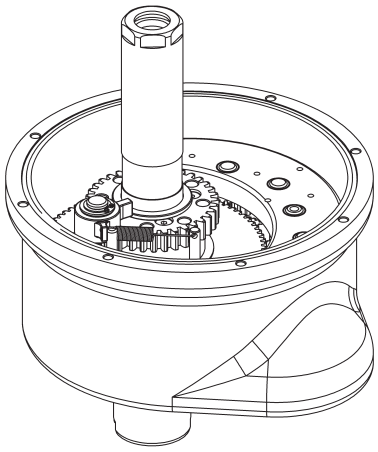
Every 12 month or every 300h operation, whichever comes first

- Thoroughly flush the machine prior to disassembly necessary parts and assure that no hazardous material remains in the machine.

- Be observant for leakage. Inspect cofferdam as described on previous page.

- Check the gearbox so it is properly greased; if necessary, refill.

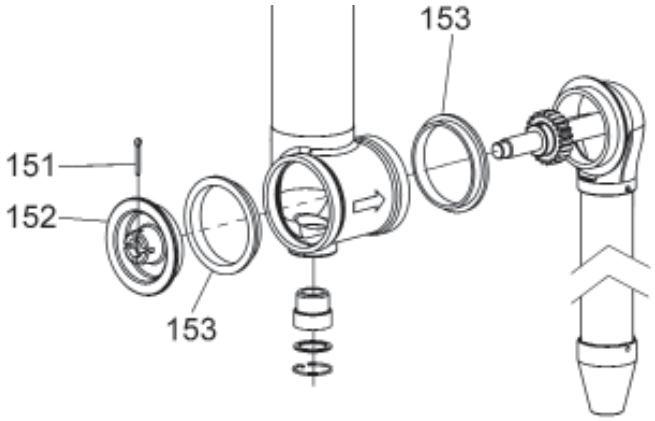
  Suitable grease is "BP Energrease MP-MG 2"/"Castrol Spheerol SX2" or equal to this specification. If another type of grease is used, the gearbox has to be cleaned and all old grease must be removed.



- Inspect nozzle and flow guides so no particles are stacked and inspect the bearings at the nozzle housing. Change if particles are stacked in the bearings or if bearings are worn out.

NOTE! The coupling shaft (pos. 28) has to be inserted and the machine hand-cranked to the lowest position (0°), before remounting the nozzle housing, pointing straight down.

NOTE! When replacing old/new bearings (pos. 170, 173) at the nozzle housing the thrust bearing (169) should be screwed in by hand to finger tight position and then **unscrew ½-¾ turn prior to fit in the split pin (pos. 163)**. This is important in order to get the correct clearance for flushing the bearing during the cleaning.



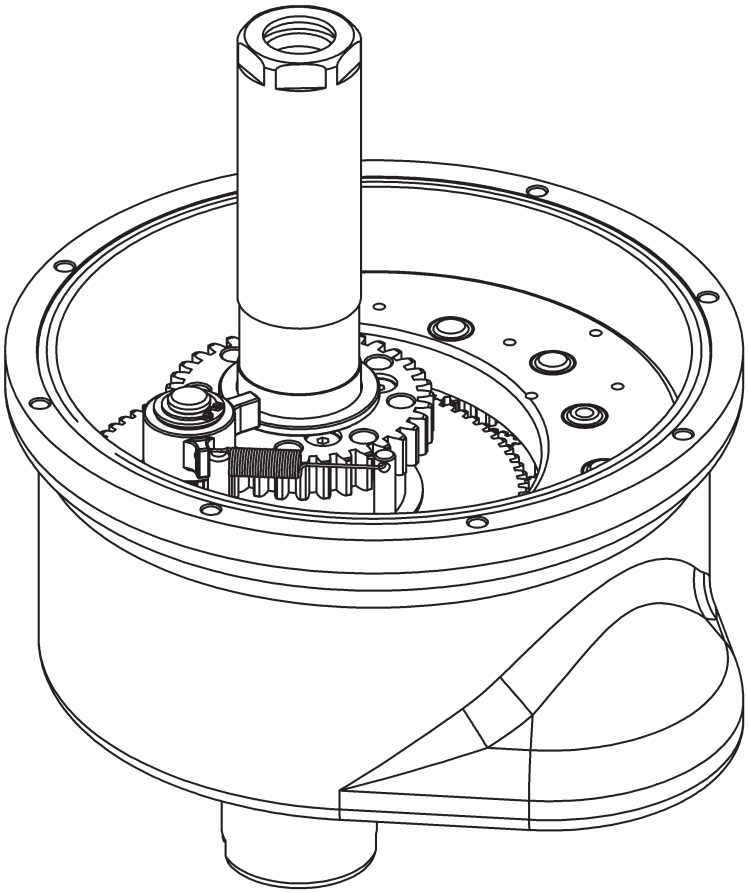
- A service card is included with this manual; see page 58. This should be completed each time service is performed on your tank cleaning machine to maintain a proper record/history.

Every 24 month or every 300h operation, whichever comes first

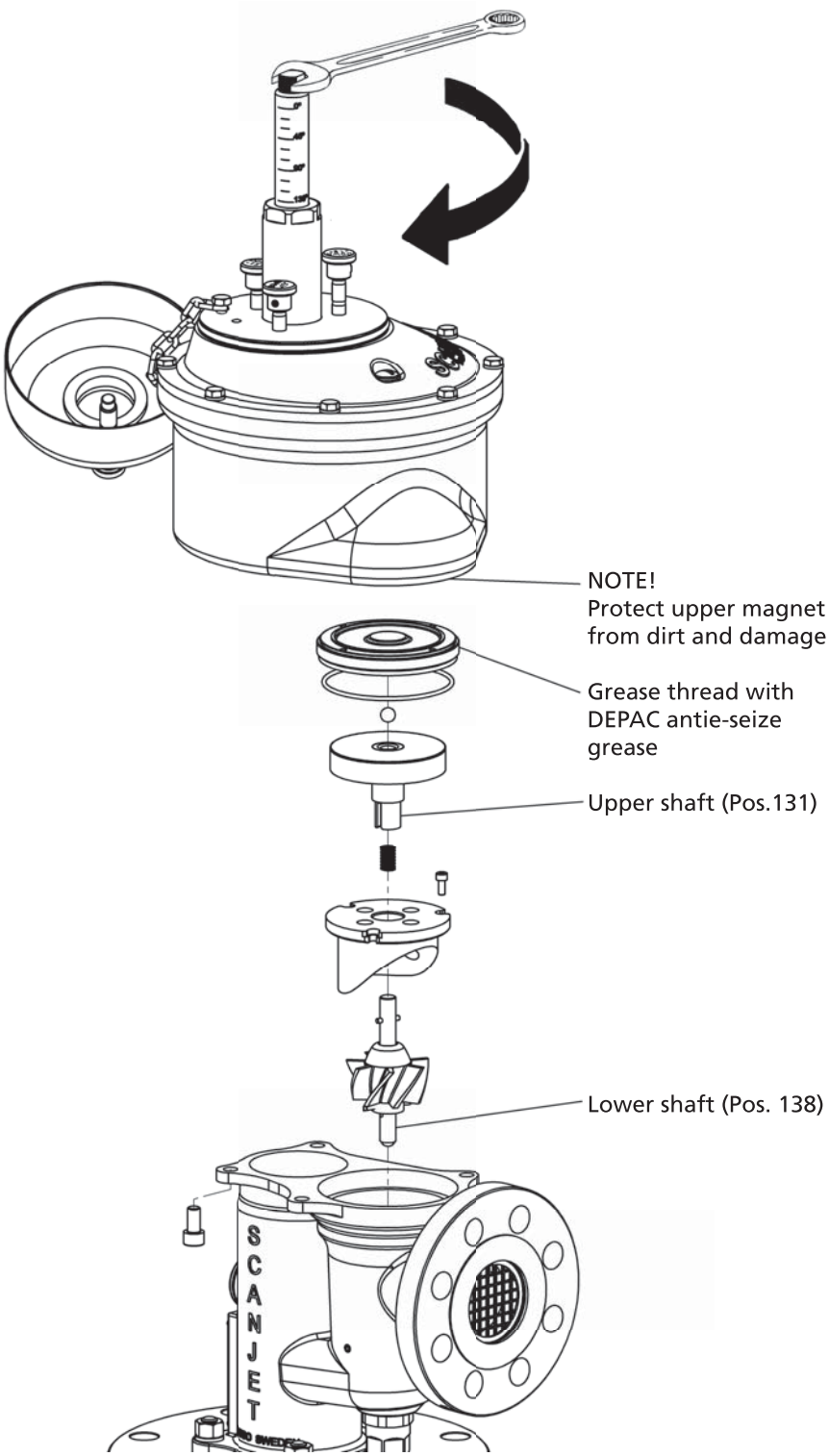
- Thoroughly flush the machine prior to disassembly necessary parts and assure that no hazardous material remains in the machine. Be observant for leakage and remember to fill in the service card.
- Check gears and bearings for wear, if necessary replace.
- Check the gearbox so it is properly greased. If necessary, refill.

  Suitable grease is "BP Energrease MP-MG 2"/"Castrol Spheerol SX2" or equal to this specification. If another type of grease is used, the gearbox has to be cleaned and all old grease must be removed.
- Check and change bearings at nozzle housing if needed.

NOTE! The picture below shows how the spring and feeder arm assembly are mounted. It is important to notice that the feeder arm connected with the spring should be on the outside of the cylindrical pin. This makes the feeder arm forced against the pin (by the spring), avoiding damages.

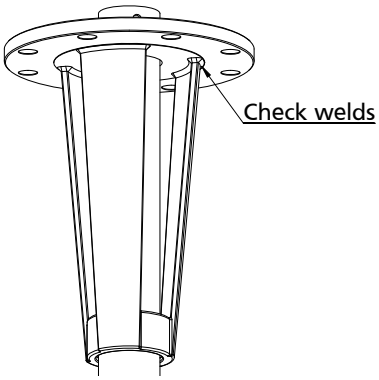


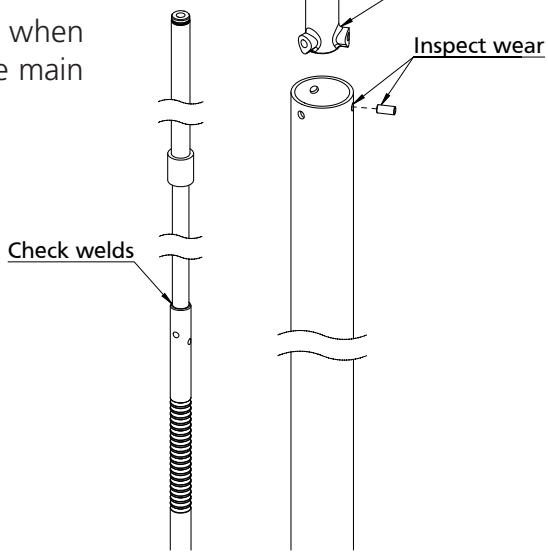
- Inspect, and change if necessary, lower shaft with turbine ball bearing (pos. 138) by removing drive unit and open cover to magnetic transmission. Check the upper shaft (pos. 131) and lower shaft (pos. 138) for wear. Change if necessary.



Major overhaul at time of drydocking vessel

- Thoroughly flush the machine prior to disassembly necessary parts and assure that no hazardous material remains in the machine. Be observant for leakage and remember to fill in the service card.
- Check all seals, bearings, gears and ball bearings for wear, if necessary replace.
- **Change all grease in the gearbox by dismantling the unit, removing all old lubrication and adding new grease. See previous pages for grease recommendations.**
- Order the service kit "KIT 30T ODU" for the drive unit and change all parts included in the kit.
- Order the service kit "KIT 30T OGU" ("KIT 30T OGU K" for Kalrez-version) for the gun unit and change all parts included in the kit.
- Order the service kit "KIT 30T WGU" for a complete wear kit, both for drive and gun unit, and change all parts in the kit.
- Make a complete survey of the gun unit installed below deck. Check that the nozzle has a free flow and is properly attached.
- Inspect main pipe (pos. 167), turning shaft (pos. 119) and lifting rod (pos. 163) both for wear and the weldings for damages. If needed, replace or send to workshop for refurbishment.
- Inspect the driving holes in the turning shaft (pos. 119 and main pipe (pos. 167). If the holes are oval more than 2 mm send it to workshop for refurbishment.
- Check the wear of the pin (pos. 166). If the wear is more than 0.5 mm change all pins.
- Always replace pos. 164 and 165 when the lifting rod is removed from the main pipe.





9. Removal of Drive Unit

To remove the drive unit from the gun unit at time of service etc. the following procedure should be followed:

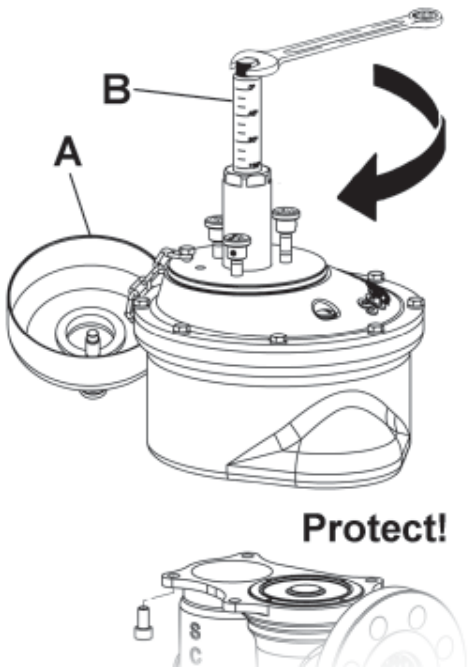
1. Remove the protective cover (A)

> **NOTE!** Before handcranking the drive unit disconnect programs by pulling up all program knobs

2. Handcrank the machine to the lowest position (0°)
3. Undo the coupling shaft by using a box wrench (13mm) and a hammer (B) carefully.

NOTE! To undo coupling shaft turn clockwise! (Left-threaded)

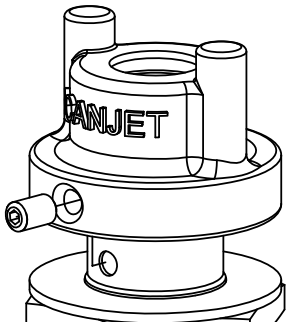
4. Undo the four bolts, as showed below, and lift the drive unit off the gun unit
5. Protect the upper magnet from dirt (steel chips etc.) and damages
6. Also protect the inlet housing from dirt to enter the machine and from damages



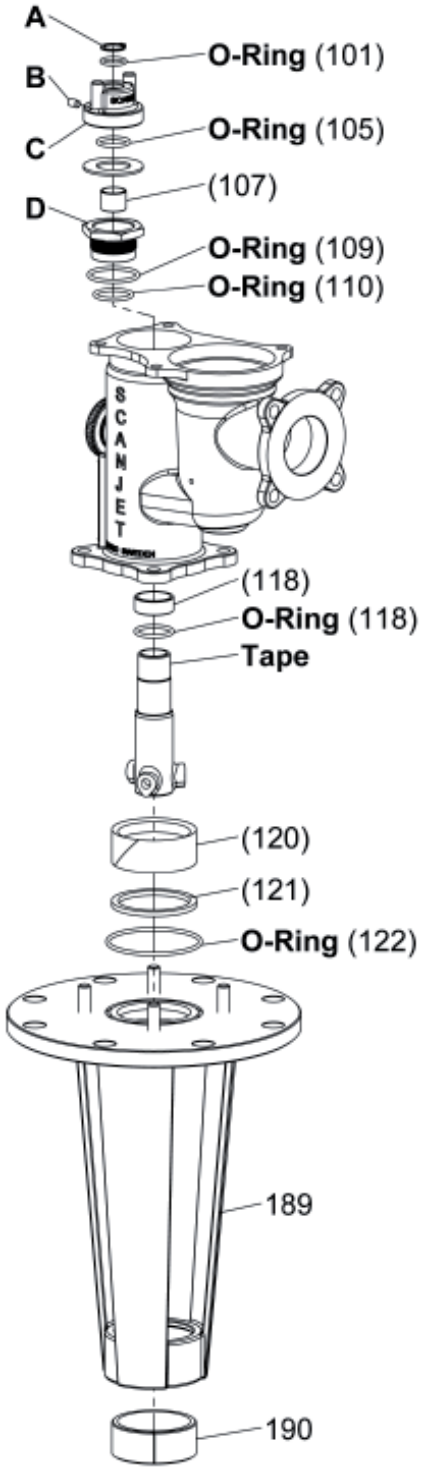
10. Removal of Location Sleeve / Inlet Housing

To remove the inlet housing or the location sleeve the following procedure should be followed:

1. Lift up the machine from the tank.
2. Remove retaining ring (A).
3. Undo the locking screw (B).
4. Undo the top nut (C) by using tool 30080.
5. Remove the location sleeve (D) by using the other end of tool 30080.
6. Change the seals and replace the location sleeve.
7. **NOTE!** Prior to remounting the inlet housing, the thread of the turning shaft must be protected by tape in order not to damage the sealing.
8. Look through the cofferdam hole and turn on the top nut until you have a full view of the groove in the turning shaft through the hole in the top nut. The groove in the turning shaft has to be **completely concentric** with the hole in the top nut, to prevent leakage. Use Loctite on the locking screw (B).



9. When changing pos. 120, 121 and/or 122, remove inlet housing completely.
10. When changing bearing pos 190 remove the support completely from main pipe.

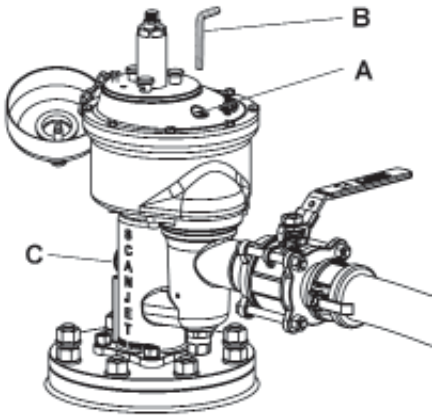


11. Troubleshooting

If the machine does not run:

In order to check and get the machine in operation, carry out the following inspection:

1. Inspect the strainer at the inlet flange and remove any dirt that might be stacked. Disengage Prewash and use the handcranking tool to manually elevate the nozzle.
2. Open the inspection plug (C) and try to start the machine by opening the inlet valve **slowly. Check that the pressure is correct!**
3. Remove the protective cap (A) at the drive unit. Check that the turbine is rotating freely by using an Allen key (B) as shown.
4. Check through the cofferdam hole (C) if the top nut is rotating. If so, everything is OK. If not, continue below.



5. Remove the drive unit and check that the upper magnet is running easy by rotating it by hand. Inspect the cover if there are any marks indicating that the upper magnet has been stacked on the cover.
6. Open up the turbine cover (pos. 127) and inspect the underside if the lower magnet has been going in to the cover and created marks. If so replace the lower magnet (pos. 131) and or turbine cover (pos. 127).
7. Open the turbine housing by unscrewing turbine cover (pos. 127) with tool (30074). Remove the screws (pos. 135) for the turbine housing sleeve; use a pair of tongs to lift it up. Check that there is no dirt in the turbine. Remount the turbine and check so that it is running smoothly. Adjust the adjusting sleeve (pos. 147) if necessary.
8. Check the nozzle so that no dirt is stacked in it. Look at the nozzle while starting the machine and if the water-jet is diffuse there might be dirt stacked in the nozzle.

If the machine runs with wrong speed:

9. Check that the pressure and flow is correct.
10. Try changing the rotation speed by adjusting the turbine as described on page 25. Note that the machine rotate slower in cold climate.

12. How to Order Spare Parts

To order spare parts please contact our "Spare Parts Department" at spares@scanjet.se or see contact information on page 2.

Using any other than Scanjet original parts will invalidate the warranty.

Please note that each gun unit is marked at the inlet housing as showed on fig below.

When ordering spare parts the following data must be referred to for securing a correct and rapid delivery.

Name of Application: *Name and original new build no. of vessel*

Invoice address: *Customer name and address*

Consignee: *Customer responsible person*

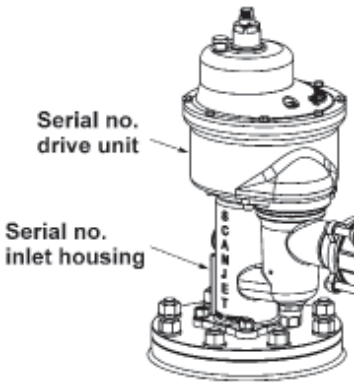
Your order no:

Contact person: *Customer contact person*

Mode of delivery: *By mail, courier etc***.**

Latest ETA destination: *Shipping address*

Shipping mark: *Marking of delivery*



Equipment model: *SC 30T, length of machine and nozzle size*

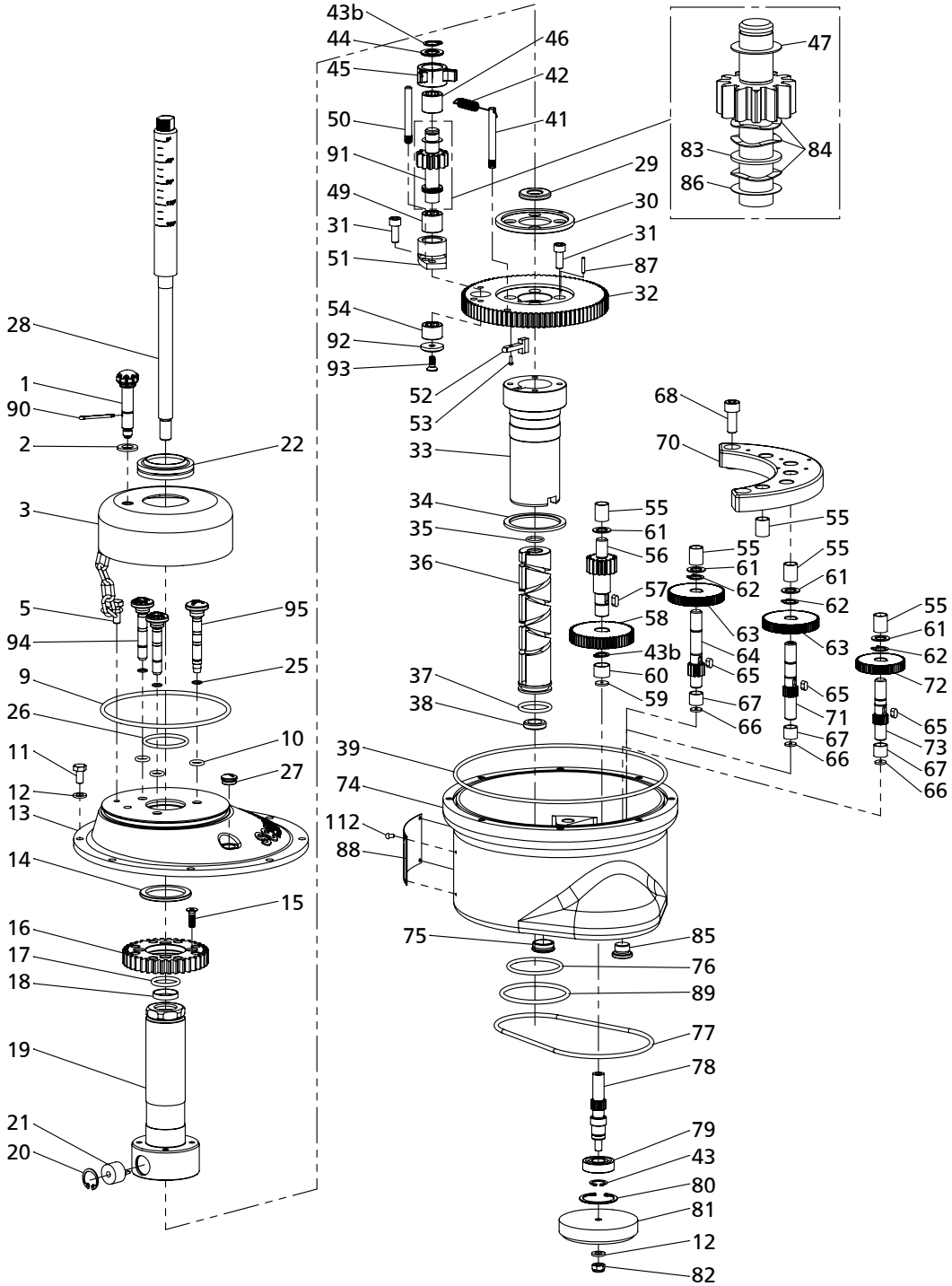
Serial no: *Serial numbers of machines both drive unit and gun unit*

Spare Part List:

Pos.	Part No.	Qty.	Description
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....

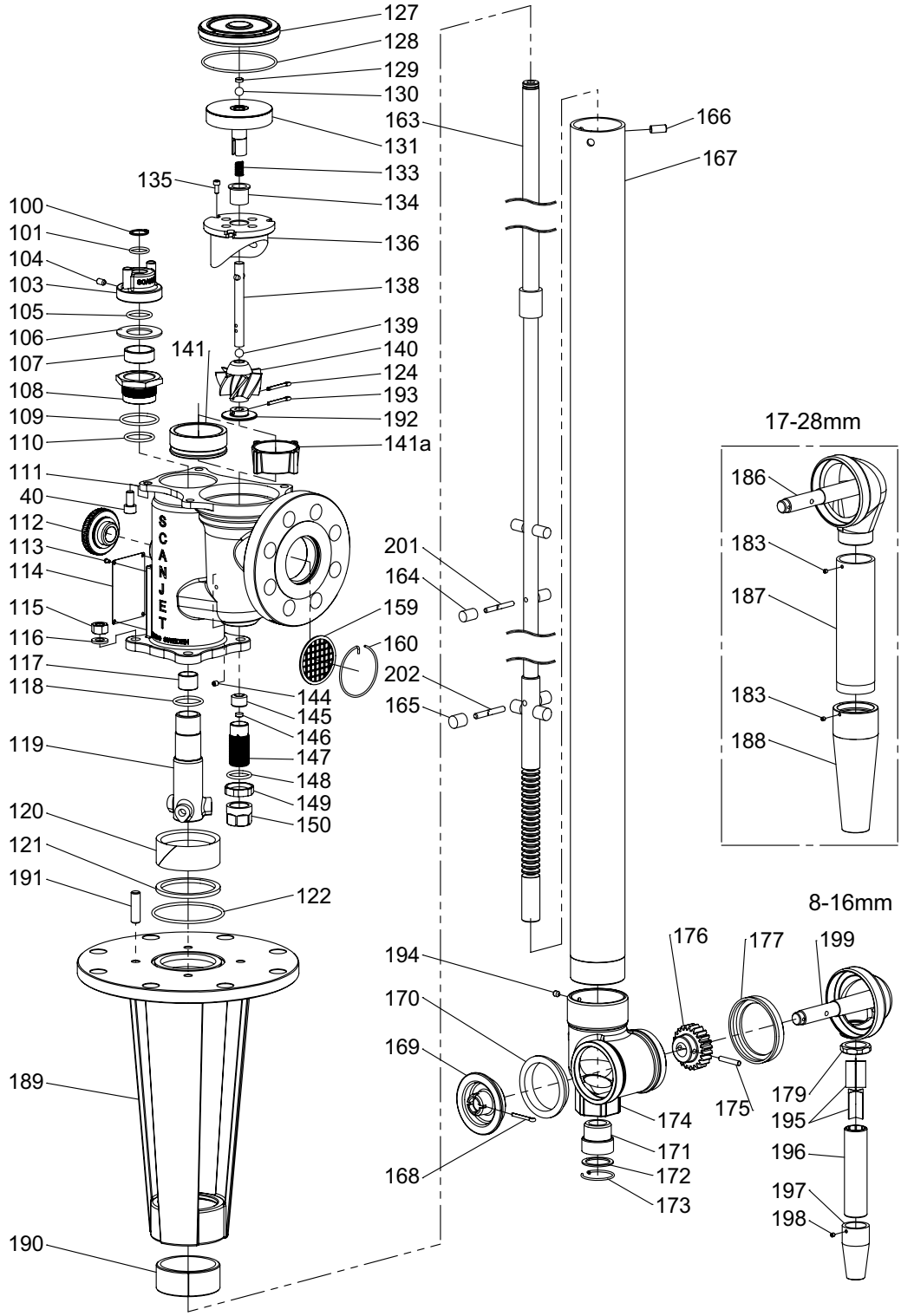
13. Exploded Drawing View - *Drive Unit SC280*

List dated 2012-06-20



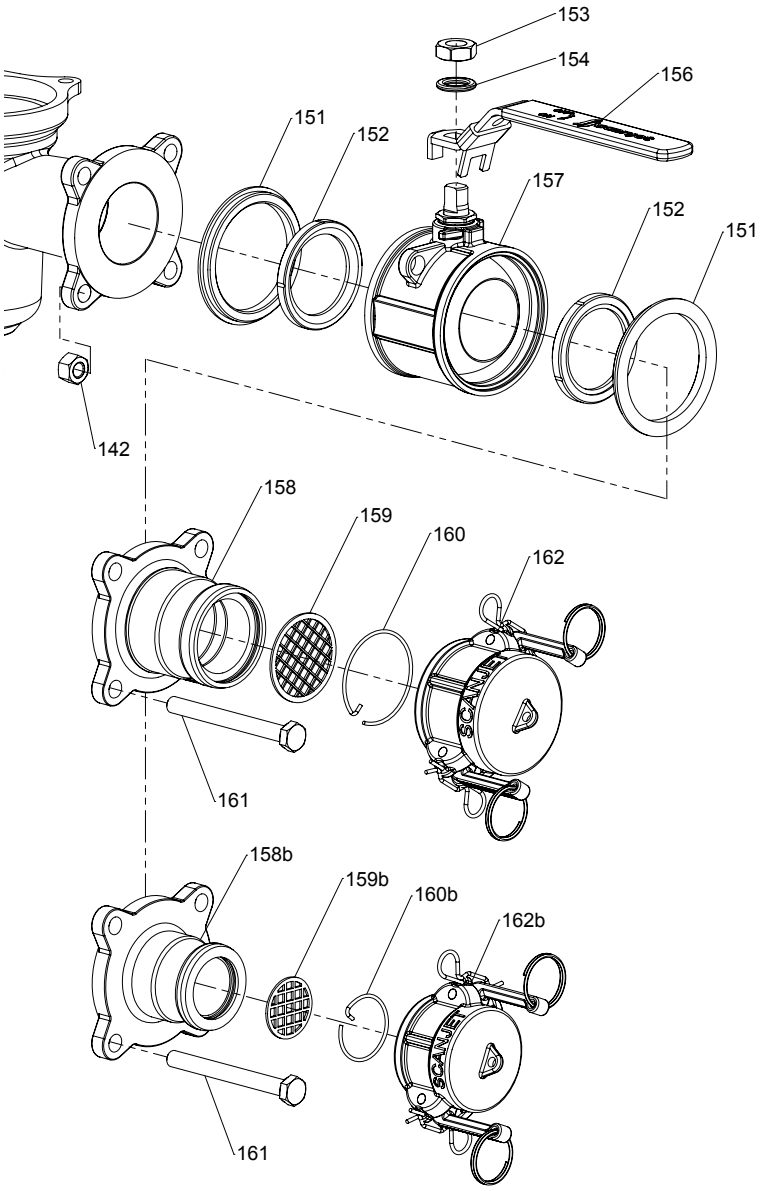
14. Exploded Drawing View - *Gun Unit SC 30T*

List dated 2012-06-20



15. Exploded Drawing View - *Valve and connection*

List dated 2012-06-20



16. Spare Parts List - *SC 30T*

List dated 2012-06-20

NOTE! *Spare parts number may be changed without prior notice. Final spare parts numbers will be issued for "ship set manual".*

Depending on nozzle size there is some parts that differ. See chapter "18. Basic Settings" on page 48 for information about your specific settings.

Spare Part List - SC 30T

Pos.	Part No.	Qty.	Description
1	30064	1	Fixing Shaft
2	30065	1	Washer
3	30056	1	Complete Protective Cover Assembly **Including pos. 1, 2, 4 & 22**
5	104443	1	Bolt
9	110035	1	O-ring
10	108730	3	O-ring
11	104441	8	Screw
12	106104	9	Washer
13	30002-1111	1	Cover 1,5° Complete with O-rings, shafts and bearings
	30002-1121	(1)	Cover 2,5° Complete with O-rings, shafts and bearings, **Optional**
	30002-3111	(1)	Cover 1,5° Complete with O-rings, shafts and bearings, Composite version
	30002-3121	(1)	Cover 2,5° Complete with O-rings, shafts and bearings, Composite version, **Optional**
14	30038	1	Bearing
15	104862	4	Screw
16	30049	1	Gear
17	120258	1	O-ring
18	20083	1	Guide Sleeve
19	30051	1	Driving Sleeve **Incl. Pos 17,18**
20	103261	1	Retaining Ring
21	20089	1	Guide Pin/Ruler
22	30067	1	Sealing

Spare Part List - SC 30T

Pos.	Part No.	Qty.	Description
25	120347	3	Retaining Ring
26	120259	1	O-ring
27	120348	1	Plug
28	20084	1	Coupling shaft
29	20062-2	1	Washer
30	30036	1	Washer
31	104741	6	Screw
32	30052	1	Gear **Incl. Pos 52, 53, 54 & 87**
33	30034	1	Coupling Sleeve
34	30026	1	Bearing Washer
35	109211	1	O-ring
36	20064	1	Continuous Screw **Incl. Pos. 35, 37, 38**
37	108765	1	O-ring
38	20085	1	Washer
39	108806	1	O-ring
40	104758	4	Screw
41	30069	1	Pin
42	25076	1	Spring
43	106210	1	Retaining Ring
43b	103110	2	Retaining Ring
44	30068	1	Washer
45	30053-1	1	Feeder Arm Assembly 1,5/3/4,5 **Incl. Pos 46**
	30053-2	(1)	Feeder Arm Assembly 2,5/5/7,5 **Incl. Pos 46, Optional**
46		1	Freewheel **Order Pos. 45**
47	120278	1	Washer
49		1	Freewheel **Order Pos. 51**
50	30073	1	Pin
51	30054	1	Bearing Housing Assembly **Incl. Pos. 49**
52	20091	1	Key
53	102470	1	Rivet
54	120312	1	Bearing
55	120342	5	Bearing
56	30044	1	Gear Shaft

Spare Part List - SC 30T

Pos.	Part No.	Qty.	Description
57	103615	1	Key
58	30048	1	Gear
59	30028	1	Washer
60	120343	1	Bearing
61	120286	4	Washer
62	103108	3	Retaining Ring
63	30047	2	Gear
64	30043	1	Gear Shaft
65	103614	3	Key
66	30027	3	Bearing
67	120341	3	Bearing
68	104641	2	Screw
70	30055	1	Bearing Support Assembly
			Incl. Pos. 55 (5 pcs.)
	30255	(1)	Bearing Support Assembly, Composite version **Incl. Pos. 55 (5 pcs.)**
71	30042	1	Gear Shaft
72	30046	1	Gear
73	30041	1	Gear Shaft
74	30001-11	1	Bottom Part Blue **Incl. Pos. 60, 67 (3 pcs.)**
	30256	(1)	Bottom Part Blue **Incl. Pos. 60, 67 (3 pcs.)**
			Composite version
75	120311	1	Plug
76	120262	1	O-ring
77	109042	1	O-ring
78	30040	1	Gear Shaft
79	106927-2	1	Ball Bearing
80	106260	1	Retaining Ring
81	20047	1	Upper Magnet Assembly
82	105964	1	Nut
83	120279	1	Washer
84	30127-1	3	Washer
85	120306	1	Drainage plug
86	120277	1	Washer

Spare Part List - SC 30T

Pos.	Part No.	Qty.	Description
87	102922	1	Expanding Pin
88	70100	1	Plate
89	109008	1	O-ring
90	106562	1	Splitpin
91	30045-2	1	Gear Shaft
92	30057	1	Brake Washer
93	104950	1	Bolt
94	30103-xx	3 (2)	Program Shaft **Acc. to order**
95	30103-xx-P	(1)	Progran Shaft Prewash **Optional**
100	120305	1	Retaining Ring
101	109440	1	O-ring
	110532	(1)	O-ring Kalrez **Optional**
103	30018	1	Top Nut Assembly **Incl. Pos. 101, 104, 105**
104	105104	1	Bolt
105	109264	1	O-ring
	110535	(1)	O-ring, Kalrez **Optional**
106	30021	1	Bearing
107	30023	1	Bearing
108	30009	1	Sleeve Assembly **Including 109, 110**
109	109275	1	O-ring
110	109268	1	O-ring
111	30111-xx	1	Inlet Housing **Acc. to order**
112	30270	1	Plug
113	106509	8	Rivet
	120559	(4)	Rivet (for drive units in composite material)
114	70104	1	Plate
115	105926	4	Nut
116	106148	4	Washer
117	30020	1	Bearing
118	109268	1	O-ring
	110536	(1)	O-ring Kalrez **Optional**
119	30016	1	Turning Shaft
120	50024	1	Bearing

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Spare Part List - SC 30T

Pos.	Part No.	Qty.	Description
121	50072	1	Gasket Teflon
122	109285	1	O-ring
124	106576	1	Splitpin
127	30008	1	Cover Assembly **Including 128, 129, 200**
128	120260	1	O-ring
129		1	Bearing
130	120295	1	Precision Ball
131	20006	1	Lower Magnet Assembly
133	20104	1	Spring
134	20017	1	Bearing
135	104713	3	Screw
136	20016	1	Turbine Housing
138	30007	1	Turbine Shaft Assembly **Including 139**
139		1	Precision Ball
140	20013-xx	1	Turbine T1 **Acc. to order**
	21013-xx	(1)	Turbine T2 **Acc. to order**
	21015-xx	(1)	Turbine T3 **Acc. to order**
141	30024-xx	1	Turbine Cone ("xx" is down inner diameter) **Acc. to order**
	30316-xx	(1)	Turbine Sleeve ("xx" is down inner diameter) **Acc. to Order**
142	105926	4	Nut
144	105095	1	Screw
145	20015	1	Bearing **Order pos. 147**
145a	20015-3	1	Bearing **Order pos. 147a**
146	20007	1	Bearing **Order pos. 147**
146a	20021	1	Bearing **Order pos. 147a**
147	20005-1	1	Adjusting Sleeve (Nozzle ≤Ø18mm) **Including pos. 145, 146**
147a	20005-2	1	Adjusting Sleeve (Nozzle ≥Ø20mm) **Including pos. 145a, 146a**
148	109263	1	O-ring
149	20026	1	Nut
150	20025	1	Cup

Spare Part List - SC 30T

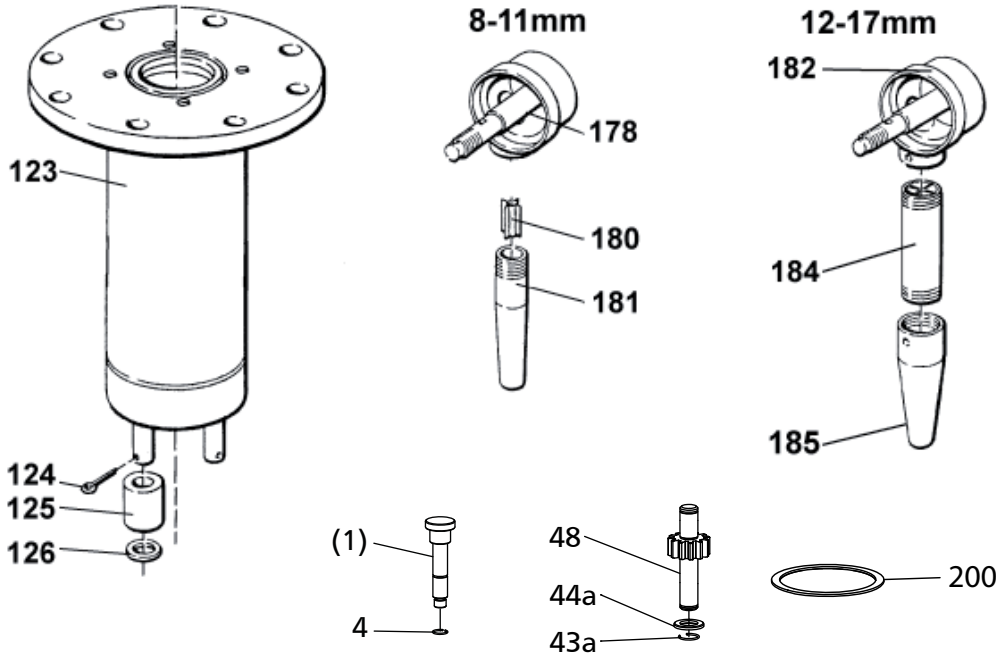
Pos.	Part No.	Qty.	Description
151	120380		Complete Sealing Kit for 2" ball valve
152		2	Valve Seat **Order pos. 151**
153	120366	1	Nut
154	120365	1	Spring Washer
156		1	Handle **Order pos. 157**
157	120373	1	Valve Body Complete Assembly
158	70069-1	1	Camlock Male 2"
158b	70069-5	1	Camlock Male 1½"
159	70066	1	Strainer (for Camlock Male 2")
159b	70068	1	Strainer (for Camlock Male 1½")
160	70098	1	Expansion Ring(for Camlock Male 2")
160b	41038	1	Expansion Ring(for Camlock Male 1½")
161	104493	4	Screw
162	120230	1	Dust Cup Complete(for Camlock Male 2")
162b	120355	1	Dust Cup Complete(for Camlock Male 1½")
163	30022-xxx	1	Lifting Rod (-xxx is length of rod) **Acc. to order**
164	50048	4	Distance
165	50051	4	Distance
166	50020	3	Bolt, Turning Shaft
167	50012-xxx	1	Main Pipe ("xxx" is length of pipe) **Acc. to order**
168	106576	1	Splitpin
169	70037	1	Thrust Bearing
170	70036	1	Teflon Bearing
171	50063	1	Bottom Bushing
172	50064	1	Washer
173	50066	1	Expansion Ring
174	30129	1	Bottom Housing
175	104233	1	Pin **Included in 186 or 199**
176	50025	1	Gear **Included in 186 or 199**
177	50015	1	Bearing
179	70011	1	Nut
183	105087	2	Screw (Nozzle ≥Ø18 mm)

Spare Part List - SC 30T

Pos.	Part No.	Qty.	Description
186	30228-M38	1	Nozzle Housing (Nozzle ≥Ø18 mm) **Including 175, 176**
187	50114	1	Nozzle Tube (Nozzle ≥Ø18 mm)
188	50115-xx	1	Nozzle (≥Ø18 mm, "xx" is outlet diameter)
189	30118-xx	1	Deck flange with support
190	30122	1	Bearing
191	120266	4	Pin Bolt
192	30319-37	1	Flow Washer **Acc. to order**
193	106576	1	Splitpin **Acc. to order**
194	105102	1	Screw
195	50158	2	Flow Guide
196	50156-100-L	1	Nozzle Tube (Nozzle ≤Ø11mm)
	50156-150-L	1	Nozzle Tube (Nozzle ≥Ø12mm)
197	50155-xx	1	Nozzle ("xx" is outlet diameter)
198	105087	1	Bolt
199	30228-M25	1	Nozzle Housing Assembly **Incl. 175, 176**
201	50055	2	Centring Shaft
202	50056	2	Centring Shaft

17. Spare Parts - *Old Versions*

List dated 2012-06-20



Spare Part List SC 30T - Old versions

Pos.	Part No.	Qty.	Description
4	120319	1	Ring (replaced by pos. 90)
43a	120302	1	Ring
44a	30088	1	Brake Washer
48	30045	1	Gear Shaft
			(Replaced by pos. 91, 92, 93)
123	30114-xx	1	Deck flange With Support (“xx” acc. to order)
124	106576	4	Splitpin
125	50095	4	Wheel
126	106111	4	Washer
178	50128	1	Nozzle Housing Assembly, **Incl. 175 & 176**
180	70071	1	Flow Guide
181	50009-xx	1	Nozzle (-xx is outlet diameter)
182	50228	1	Nozzle Housing Assembly, **Incl. 175 & 176**
184	50109	1	Flow Pipe
185	50110-xx	1	Nozzle (“xx” is outlet diameter)
200	30128	1	Sealing Washer (Incl. glue)

18. Basic Settings

This list is a guide for ordering spare parts depending on the size of the nozzles. This list may be changed without prior notice.

Nozzle size Ø8mm

Pos.	Part No.	Qty.	Description
140	21015-40	1	Turbine T3 Ø40
141	30024-40	1	Turbine Cone Ø40
144	105095	1	Screw
147	20005-1	1	Adjusting Sleeve
179	70011	1	Nut
195	50158	2	Flow Guide
196	50156-100-L	1	Nozzle Tube
197	50155-08	1	Nozzle Ø8 mm
198	105087	1	Bolt
199	30228-M25	1	Nozzle Housing Assembly

Nozzle size Ø9mm

Pos.	Part No.	Qty.	Description
140	21015-40	1	Turbine T3 Ø40
141	30024-40	1	Turbine Cone Ø40
144	105095	1	Screw
147	20005-1	1	Adjusting Sleeve
179	70011	1	Nut
195	50158	2	Flow Guide
196	50156-100-L	1	Nozzle Tube
197	50155-09	1	Nozzle Ø9 mm
198	105087	1	Bolt
199	30228-M25	1	Nozzle Housing Assembly

Nozzle size Ø10mm

Pos.	Part No.	Qty.	Description
140	21013-28	1	Turbine T2 Ø28
141	30024-28	1	Turbine Cone Ø28
144	105095	1	Screw

147	20005-1	1	Adjusting Sleeve
179	70011	1	Nut
195	50158	2	Flow Guide
196	50156-100-L	1	Nozzle Tube
197	50155-10	1	Nozzle Ø10 mm
198	105087	1	Bolt
199	30228-M25	1	Nozzle Housing Assembly

Nozzle size Ø11mm

Pos.	Part No.	Qty.	Description
140	21013-30	1	Turbine T2 Ø30
141	30024-30	1	Turbine Cone Ø30
144	105095	1	Screw
147	20005-1	1	Adjusting Sleeve
179	70011	1	Nut
195	50158	2	Flow Guide
196	50156-100-L	1	Nozzle Tube
197	50155-11	1	Nozzle Ø11 mm
198	105087	1	Bolt
199	30228-M25	1	Nozzle Housing Assembly

Nozzle size Ø12mm

Pos.	Part No.	Qty.	Description
140	21013-42	1	Turbine T2 Ø42
141	30024-42	1	Turbine Cone Ø42
144	105095	1	Screw
147	20005-1	1	Adjusting Sleeve
179	70011	1	Nut
195	50158	2	Flow Guide
196	50156-150-L	1	Nozzle Tube
197	50155-12	1	Nozzle Ø12 mm
198	105087	1	Bolt
199	30228-M25	1	Nozzle Housing Assembly

scanjet

Nozzle size Ø13mm

Pos.	Part No.	Qty.	Description
140	21013-40	1	Turbine T2 Ø40
141	30024-42	1	Turbine Cone Ø42
144	105095	1	Screw
147	20005-1	1	Adjusting Sleeve
179	70011	1	Nut
195	50158	2	Flow Guide
196	50156-100-L	1	Nozzle Tube
197	50155-13	1	Nozzle Ø13 mm
198	105087	1	Bolt
199	30228-M25	1	Nozzle Housing Assembly

Nozzle size Ø14mm

Pos.	Part No.	Qty.	Description
140	20013-35	1	Turbine T1 Ø35
141	30024-35	1	Turbine Cone Ø35
144	105095	1	Screw
147	20005-1	1	Adjusting Sleeve
179	70011	1	Nut
195	50158	2	Flow Guide
196	50156-150-L	1	Nozzle Tube
197	50155-14	1	Nozzle Ø14 mm
198	105087	1	Bolt
199	30228-M25	1	Nozzle Housing Assembly

Nozzle size Ø15mm

Pos.	Part No.	Qty.	Description
140	20013-38	1	Turbine T1 Ø38
141	30024-38	1	Turbine Cone Ø38
144	105095	1	Screw
147	20005-1	1	Adjusting Sleeve
179	70011	1	Nut
195	50158	2	Flow Guide
196	50156-100-L	1	Nozzle Tube

197	50155-15	1	Nozzle Ø15 mm
198	105087	1	Bolt
199	30228-M25	1	Nozzle Housing Assembly

Nozzle size Ø16mm

Pos.	Part No.	Qty.	Description
140	20013-38	1	Turbine T1 Ø38
141	30024-38	1	Turbine Cone Ø38
144	105095	1	Screw
147	20005-1	1	Adjusting Sleeve
179	70011	1	Nut
195	50158	2	Flow Guide
196	50156-150-L	1	Nozzle Tube
197	50155-16	1	Nozzle Ø16 mm
198	105087	1	Bolt
199	30228-M25	1	Nozzle Housing Assembly

Nozzle size Ø17mm

Pos.	Part No.	Qty.	Description
140	20013-42	1	Turbine T1 Ø42
141	30024-42	1	Turbine Cone Ø42
144	105095	1	Screw
147	20005-1	1	Adjusting Sleeve
183	105087	2	Screw
186	30228-M38	1	Nozzle Housing Assembly
187	50114	1	Nozzle Tube
188	50115-17	1	Nozzle Ø17 mm

Nozzle size Ø18mm

Pos.	Part No.	Qty.	Description
140	20013-44	1	Turbine T1 Ø44
141	30024-46	1	Turbine Cone Ø46
144	105095	1	Screw
147	20005-1	1	Adjusting Sleeve
183	105087	2	Screw
186	30228-M38	1	Nozzle Housing Assembly

187	50114	1	Nozzle Tube
188	50115-18	1	Nozzle Ø18 mm

Nozzle size Ø20-26mm

Pos.	Part No.	Qty.	Description
140	21013-38	1	Turbine T2 Ø38
141	30316-38	1	Turbine Cone Ø38
144	105095	1	Screw
147a	20005-2	1	Adjusting Sleeve
183	105087	2	Screw
186	30228-M38	1	Nozzle Housing Assembly
187	50114	1	Nozzle Tube
188	50115-xx	1	Nozzle (-xx is nozzle size in mm)
192	30319-37	1	Flow Washer
193	106576	1	Split Pin

19. Service Kit Contents

Service kit are rapidly available and easy to order, as well as being more economical compared to ordering of parts individually. This list is a guide when ordering service kit, containing the spare parts included in each kit. This list may be changed without prior notice.

KIT 30T ODU

Complete O-ring kit for SC280/SC281 Drive Unit

Pos.	Part No.	Qty.	Description
2	30065	1	Washer
4	120319	1	Ring
9	110035	1	O-ring
10	108730	3	O-ring
17	120258	1	O-ring
22	30067	1	Sealing
25	120347	3	Retaining Ring
26	120259	1	O-ring
27	120348	1	Plug
35	109211	1	O-ring
37	108765	1	O-ring
39	108806	1	O-ring
76	120262	1	O-ring
77	109042	1	O-ring
79	106927-2	1	Ball Bearing
85	120306	1	Plug

KIT 30T OGU

Complete O-ring kit for SC30T Gun Unit

Pos.	Part No.	Qty.	Description
100	120305	1	Retaining Ring
101	109440	1	O-ring
104	105104	1	Bolt
105	109264	1	O-ring
109	109275	1	O-ring
110	109268	1	O-ring
112	30270	1	Plug
118	109268	1	O-ring
122	109285	1	O-ring
128	120260	1	O-ring
135	104713	3	Screw
148	109263	1	O-ring
200	30128	1	Sealing

KIT 30T OGU K

Complete O-ring kit for SC30T Gun Unit, Kalrez version

Pos.	Part No.	Qty.	Description
100	120305	1	Retaining Ring
101	110548	1	O-ring
104	105104	1	Bolt
105	110535	1	O-ring
109	109275	1	O-ring
110	109268	1	O-ring
112	30270	1	Plug
118	110536	1	O-ring
122	109285	1	O-ring
128	120260	1	O-ring
135	104713	3	Screw
148	109263	1	O-ring
200	30128	1	Sealing

KIT 30T WGU

Complete Wear kit for SC30T Gun Unit

Pos.	Part No.	Qty.	Description
106	30021	1	Bearing
107	30023	1	Bearing
112	30270	1	Plug
117	30020	1	Bearing
120	50024	1	Bearing
121	50072	1	Gasket Teflon
124	106576	1	Splitpin
130	120295	1	Precision Ball
134	20017	1	Bearing
164	50048	4	Distance
165	50051	4	Distance
166	50020	3	Bolt, Turning Shaft
168	106576	1	Splitpin
170	70036	1	Teflon Bearing
171	50063	1	Bottom Bushing
172	50064	1	Washer
173	50066	1	Expansion Ring
177	50015	1	Bearing
190	30122	1	Bearing

20. Spare Part Kit

Spare part kit SC 30T

This spare part kit can also be ordered as Scanjet part no. S 30

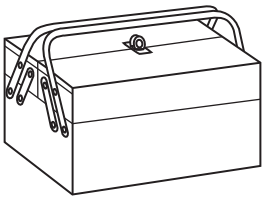
Pos.	Part No.	Qty.	Description	Material
4	120319	2	Ring	SS
11	104441	3	Screw	SS
12	106104	3	Washer	SS
40	104758	2	Screw	SS
76	120262	2	O-ring	Viton
100	120305	2	Retaining Ring	Bronze
101	109440	2	O-ring	Viton
105	109264	2	O-ring	Viton
110	109268	2	O-ring	Viton
112	30270	2	Plug	Plastic
122	109285	2	O-ring	Viton
135	104713	2	Bolt	SS
148	109263	2	O-ring	Viton

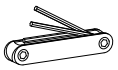
21. Tool Kit

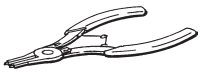
For normal maintenance and operation the following tools are included in Scanjet tool kit:

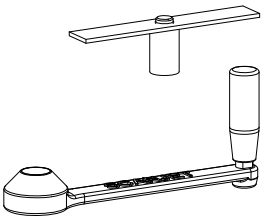
This tool kit can also be ordered as Scanjet part no. T 30T

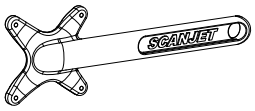
Pos.	Part No.	Qty.	Description
1	12020	1	Tool box
2	12030	1	Box wrench 10 mm
3	12040	1	Box wrench 13 mm
4	12044	1	Box wrench 17 mm
5	12051	1	Box wrench 25 mm
6	12056	1	Box wrench 30 mm
7	12060	1	Set of Allen keys
8	12061	1	Short 6 mm Allen key
9	12065	1	Tong for retaining rings
10	20127	2	Indication arrow
11	30072	2	Handcrank
12	30074	1	Tool for turbine cover
13	30080	1	Tool for coupling-/sealing sleeve
14	30083	1	Shaft
15	250059	1	"BP Energrease MP-MG 2"/"Castrol Spheerol SX2", 0,4 kg

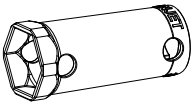


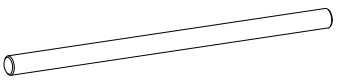












22. Service Card

Model Number of Machine: _____ Serial No.: _____

Nozzle Diameter: _____ mm

Date	No. of working hours	Maintenance Actions/Exchanged Parts	Sign
	0	Machine put into operation	

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