Alfa Laval GJ ToteBlast Station

Tank cleaning pump systems

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Instruction Manual

BRITISH ENGLISH

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The original instructions are in English

Contents

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1 Safety

Read this first

This Instruction Manual is designed for operators and service engineers working with the supplied Alfa Laval product.

Operators must read and understand the ***Safety, Installation and Operating*** instructions of the supplied Alfa Laval product before carrying out any work or before you put the supplied Alfa Laval product into service!

Not following the instructions can result in serious accidents.

This documentation describes the authorized way to use the supplied Alfa Laval product. Alfa Laval will take no responsibility for injury or damage if the equipment is used in any other way.

This Instruction Manual is designed to provide the user with the information to perform tasks safely for all phases in the lifetime of the supplied Alfa Laval product.

The operator shall always read the chapter ***Safety*** first. Hereafter the operator can skip to the relevant section for the task to be carried out or for the information needed.

Always read the chapter ***Technical Data*** thoroughly.

This is the complete Instruction Manual for the supplied Alfa Laval product.

NOTE

The illustrations and specifications in this Instruction Manual were effective at the date of printing. However, as continuous improvements are our policy, we reserve the right to alter or modify the Instruction Manual without prior notice or any obligation.

The English version of the Instruction Manual is the original manual. Alfa Laval cannot be held responsible for incorrect translations. In case of doubt, the English version applies.

1.1 Safety Signs

Mandatory action signs

	General mandatory action sign.
	Refer to instruction manual.

Warning signs

	General warning.

1.2 Safety Precautions

Below are other recommendations and reminders from Alfa Laval about the Tote Blast Station:

General

	• Have a professional electrician service all electrical components • Be mindful of filtration of the cleaning fluid or water. Large partials or debris in the water can damage the pump and/or the Alfa Laval GJ tank cleaning machine • If the tote does not gravity drain through the 2” drain and the tote begins to fill with washing fluid, please contact Alfa Laval immediately to re-size the Alfa Laval to 19gpm or less • Using 460 volts to the control panel will cause damage to the control panel if the panel is wired for 3 phase 230 volts. If 460 volts is required please revert to the wiring diagram inside the control panel. • Make sure before use that the pump has been properly primed. If the pump is run dry damage can be caused. See *Pump Priming* on page 17 for priming instructions • The flange gaskets must be properly installed to ensure no leakage • All safety precautions are taken before starting and while operating the Tote Blast Station

Storage

Alfa Laval recommend:

- Store the supplied Alfa Laval product as supplied in original packaging
- Port opening(s) should be protected against any ingress
- Bare steel (not stainless) should be lightly oiled/greased
- Store in a clean, dry place without direct sunlight or UV light
- Temperature range -5 °C to 40 °C (23 °F - 104 °F)
- Relative humidity less than 60%
- No exposure to corrosive substances (including contained air)

Safety check

A visual inspection of any protective device (shield, guard, cover or other) on the supplied Alfa Laval product shall be carried out at least every 12 months. If the protective device is lost or damaged, especially when this leads to deterioration of safety performance, it shall be replaced. The fixing of the protective device should only be replaced with fixings of the same or an equivalent type.

Inspection acceptance criteria:

- It should not be possible to reach moving parts originally protected by a protective device
- The protective device must be securely mounted
- Ensure that screws for the protective device are securely tightened

Procedure in case of non-acceptance:

- Fix and/or replace the protective device

1.3 Warning Signs in Text

Pay attention to the safety instructions in this Instruction Manual.

Below are definitions of the four grades of warning signs used in the text where there is a risk for injury to personnel or damage to the supplied Alfa Laval product.

DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate damage to the supplied Alfa Laval product.

NOTE

Indicates important information to simplify or clarify procedures.

1.4 Requirements of Personnel

Operators

The operators shall read and understand this Instruction Manual.

Maintenance personnel

The maintenance personnel shall read and understand this Instruction Manual. The maintenance personnel or technicians shall be skilled within the field required to carry out the maintenance work safely.

Trainees

Trainees can perform tasks under the supervision of an experienced employee.

People in general

The public shall not have access to the supplied Alfa Laval product.

In some cases, specially skilled personnel may need to be hired (i.e. electricians, welders). In some cases the personnel has to be certified according to local regulations with experience of similar types of work.

1.5 Recycling Information

Unpacking

Packing material may consist of wood, plastics, cardboard boxes and in some cases metal straps.

	• Wood and cardboard boxes can be reused, recycled or used for energy recovery • Plastics should be recycled or burnt at a licensed waste incineration plant • Metal straps should be sent for material recycling

Maintenance

During maintenance, oil (if used) and wear parts in the supplied Alfa Laval product should be replaced.

- Oil and all non-metal wear parts must be disposed of in accordance with local regulations
- Rubber and plastics should be burnt at a licensed waste incineration plant. If not available they should be disposed of in accordance with local regulations
- Bearings and other metal parts should be sent to a licensed handler for material recycling
- Seal rings and friction linings should be disposed of to a licensed land fill site. Check your local regulations
- All metal parts should be sent for material recycling
- Worn out or defected electronic parts should be sent to a licensed handler for material recycling

Scrapping

At end of use, the equipment must be recycled in accordance with the relevant local regulations. Besides the equipment itself, any hazardous residues from the process liquid must be considered and dealt with in a proper manner. When in doubt, or in the absence of local regulations, please contact your local Alfa Laval sales company.

How to contact Alfa Laval

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

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

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2 Introduction

Stationary system allows IBCs/totes to be cleaned in 2-7 minutes.

2.1 Description

Perform intermediate bulk container (IBC) cleaning in house, in less than half the time, with the ToteBlast Station. This complete all-in-one system utilizes patented rotary impingement technology designed to blast residue from the IBC/tote interior, in a precise, global indexing pattern. This high impact cleaning technology ensures the entire tote interior is thoroughly cleaned in the most efficient manner, utilizing the least amount of resources, including: time, energy, cleaning chemicals, and water. The system comes equipped with everything needed to set up an IBC/tote cleaning station. The simplicity in design and affordability, coupled with the most durable and effective technology, makes this the ideal IBC/ tote cleaning system for any application, industrial or sanitary.

The ToteBlast Station comes with a vertical multistage centrifugal pump with motor, control panel, a ¾"x50’ hose and all the necessary fittings and hardware required for permanent installation. The system also comes with a threaded inlet adapter that can be threaded into any IBC/tote lid with a 2" NPT opening.

2.2 Intended Use

It is to be verified by the end-user:

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

The Tote Blast Station is designed to be operated in a closed tank, tote, IBC or vessel in a secured manner. Use in an open environment is not recommended.

2.3 Patents and Trademarks

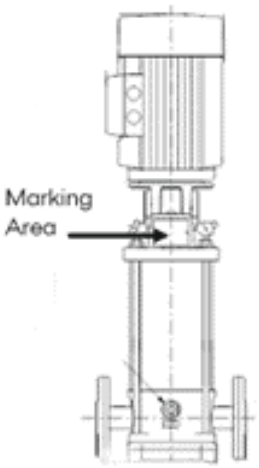
This instruction manual is published by Alfa Laval without any warranty. Improvements and changes to this instruction manual may at any time be made by Alfa Laval without prior notice. Such changes will, however, be incorporated in new editions of this instruction manual.

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

2.4 Marking

The marking for the Tote Blast Station is the serial number of the vertical multistage pump that is provided. This number is linked to the GJ 9 rotary jet head and the control panel used in the system.

The serial number of the pump is located on the pump nameplate located in the position below:



3 Installation

3.1 Unpacking/Delivery

The Alfa Laval Tote Blast Station will arrive on a skid with separate boxes for the pump, hose, and control panel.

All of the components in the system include:

- Multistage centrifugal pump
- Control panel
- ¾" × 50’ hose
- Two 1-1/4" ANSI flanges
- Two 1-1/4" gaskets
- 1-1/4" × ¾" reducer coupling
- Eight flange bolts
- Eight flange nuts
- ¾" 90 degree elbow
- 2" Tote insertion fabrication

Open the boxes and remove all of the components with the exception of the pump. The pump will be positioned lying down in the crate and must be raised in an upright position. To raise upright, use some type of mechanical hoist (fork lift, crane, etc.) and the J-hooks placed on the motor of the pump to gently raise it upright and remove from the box. In some cases eye bolts may be needed to move the pump. The mechanical hoist must also be used to position the pump into place for mounting. Remove the packaging from all of the components and make sure the correct number of each component is included.

If components are missing or excess components were shipped please contact Alfa Laval.

3.2 Tools and Materials

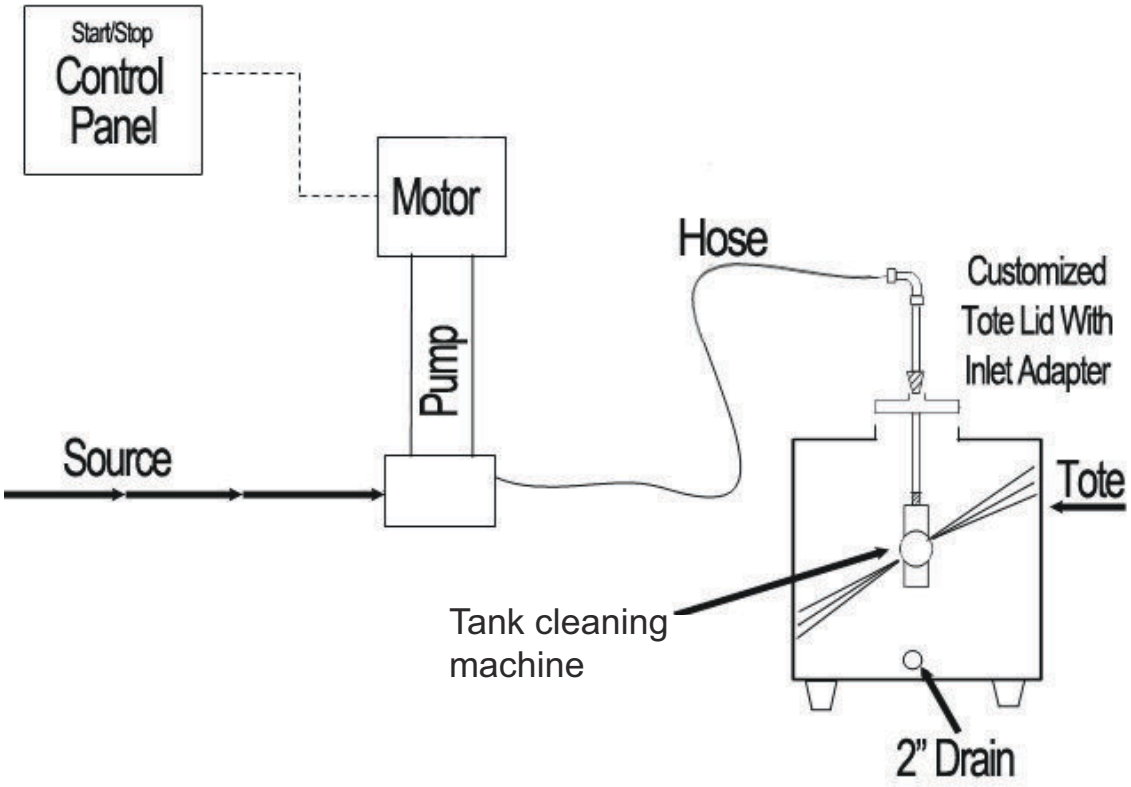
Installation of the ToteBlast System requires a basic set of hand tools but Alfa Laval also recommends the following tools and materials for the mounting of the pump:

- Concrete hammer Drill with ½" bit
- Four vibration-resistant wedge stud anchors (McMaster Carr part # 94475A263) or equivalent

For all electrical work including the mounting, positions, and wiring of all system components, Alfa Laval recommends hiring a professional electrician and installing everything according to industry standards.

3.3 System Layout

Plumbing and Installation Diagram of the ToteBlast System



NOTE

Use four (4) vibration-resistant wedge stud anchors or equivalent to mount the vertical multistage pump. For all electrical work including mounting, positioning and wiring of all system components, Alfa Laval recommend hiring a professional electrician to install everything according to industry standards.

3.4 Pump and Control Panel Mounting

Alfa Laval recommends that when mounting the pump and control panel, to use the supervision and direction of a professional electrician to ensure proper installation and safety precautions are taken.

For installation of the pump, Alfa Laval recommends the following tools and materials:

- Concrete hammer drill with appropriate drill bits
- McMaster-Carr vibration-resistant wedge concrete stud anchors (Part number 94475A263) or other equivalent anchor bolts
- Some type of mechanical hoist

For mounting of the pump follow the recommended steps below:

1. Place the pump into desired position and mark the mounting holes onto the floor. Be sure to take into account the direction of the flow of the pump so that the suction hose and discharge hose can be properly routed.
2. Move the pump out of the way to allow proper space for drilling.
3. Drill holes where bolt hole locations have been marked onto floor, making sure to drill to the proper depth required for the selected mounting anchors (2 in. if using the recommended McMaster-Carr Anchors).
4. Install the anchor bolts into the drilled holes and then lower the pump back into position onto the bolts and install the anchor nuts and washers making sure to tighten the anchor nuts in a star pattern.

   NOTE

   Over tightening anchor nuts may crack the base of the pump

For mounting of the control panel, Alfa Laval recommends that it be done by a professional electrician according to industry standards.

3.5 Pump Set-up

The pump for the Tote Blast Station will have a source hose that is supplied by the customer and an Alfa Laval supplied discharge hose to deliver the fluid to the Alfa Laval. Both hoses will attach to the pump via a 1-1/4" flange.

NOTE

Be sure to remove the plastics caps on the flanges of the pump.

The Tote Blast Station comes with one ¾" diameter by 50' long hose to run from the pump outlet to the Alfa Laval. This hose will come preassembled from Alfa Laval with a pump flange and reducer bushing on one end. To install to the pump, first remove the end caps from the pump's discharge flange which can be determined by the flow arrow located towards the bottom of the pump. Then, with the flange gasket in-between the two flanges, install the four flange bolts and nuts.

NOTE

DO NOT TIGHTEN

All four flange bolts must be snug first to ensure that the gasket is not cocked or slipping on one side. Once the bolts are snug and the gasket is in the proper position, tighten the flange bolts using an alternating star pattern. If the gasket is not installed properly the gasket may tear and the system will leak fluid. If the system leaks, a replacement flange gasket will be needed.

Repeat the same process for the suction flange of the pump after first installing the source hose to the flange provided by Alfa Laval. Again be sure that the gasket is properly installed to prevent leakage. Snug all flange bolts and tighten in a star pattern (same process as discharge side of pump).

3.6 Pump Priming

The pump will also need to be primed before operation. Priming is important to remove all of the air from the system so that the pump does not get damaged.

To prime the pump, first locate the priming plug on either side of the pump, directly under the motor. The pump must be flooded in order to operate correctly. To do this, the operator can either let fluid fill the pump from the source and let the pump fill until overflowing out of the priming hole and then re-install the priming plug. If flooded suction is unavailable, the pump will have to be completely filled via the priming plug opening.

NOTE

It is important that the priming process is done correctly in order to force all air out of the pump.

3.7 Electrical Set-up

Alfa Laval recommends that all electrical work be done by a professional electrician using the proper industry standards. The electrical diagram for the control panel can be found in the appendix as well as diagrams for the control panel timer. The control panel is designed for either 3 phase 230 volt or 460 volt power. Again, refer to the Appendix for details on wiring.

The pump can also be wired for 3 phase power. Refer to the pump manual for wiring of the pump in either 3 phase 230 V or 460 V power.

Also ensure that when the pump is connected to the control panel that the motor rotates in the proper direction. The direction of the motor rotation is shown on the fan casing of the motor. If the wires are reversed on the pump, it will rotate backwards and will not work properly. If this occurs have the electrician switch the black and white wires to the opposite pins to reverse the direction of the pump.

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4 Operation

4.1 General Operation

To operate the Tote Blast Station, first ensure that the Alfa Laval GJ tank cleaning machine is inside the tote and secured. Never start the system without the Alfa Laval GJ tank cleaning machine secured inside the tote. Make sure that the water supply will be large enough for the full cycle so that the pump does not run dry. Set the timer on the control panel (see appendix for timer instructions) to the desired cleaning time and press the green button on the control panel to start. If there is an emergency, the operator can stop the cycle by pressing the red stop button on the control panel. When the timing cycle is complete the system will automatically shut off.

NOTE

If the tote does not gravity drain through the 2” drain and the tote begins to fill with washing fluid, please contact Alfa Laval immediately to re-size the Alfa Laval GJ tank cleaning machine to 19 gpm or less

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5 Technical Data

NOTE

Technical data must be observed during installation, operation and maintenance.

All personnel should be informed about the technical data.

5.1 Technical Data

Pump	
Type:	Grundfos CRI vertical multistage
Model:	See *Table 1* on page 22 in section *Pump Curves* on page 22
Mechanical seal:	Single shaft seal, C/SiC, Viton
Motor:	Standard NEMA 180TC framed with totally enclosed fan cooled. 2 poles = 3600 rpm at 60 Hz, IP 55, insulation class F. Energy effieciency IE2

Control panel	
Type:	On/Off/Reset with internal timer
Power rating:	Three phase
Mains voltage:	240/480 dual voltage
On/off:	Local mains disconnect
Insulation class:	NEMA 4X
Timers:	Internal adjustable.1 min - 1+ hours

5.2 Physical Data

Materials	
Product wetted steel parts:	AISI 304, AISI 304L
Other non-wetted steel parts:	Cast iron
Finish:	Semi bright
Product wetted seals:	EPDM rubber

Operating pressure and temperature	
Max. inlet/outlet pressure:	14 bar (200 PSI)
Temperature range wetted parts:	-10 ºC to 95 ºC (14 ºF to 203 ºF) (max. temperature)
Ambient temperature range, wetted parts:	-10 ºC to 45 ºC (14 ºF to 113 ºF)

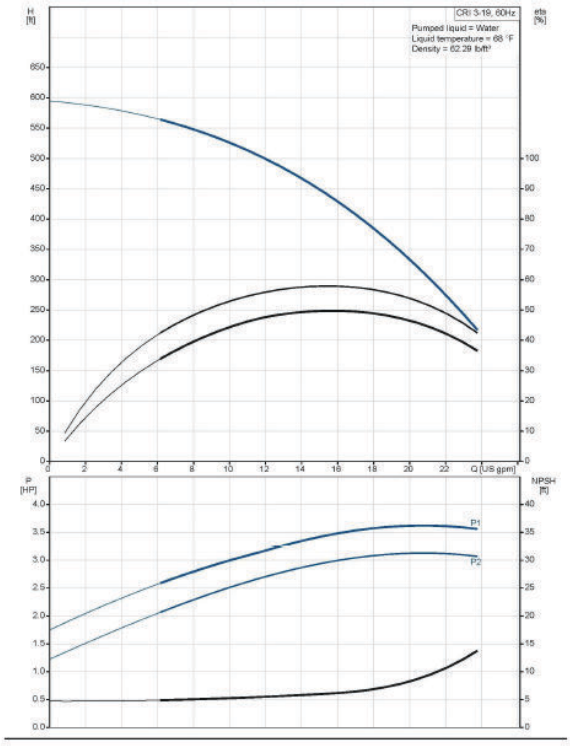
Process connection	
Inlet and outlet:	1 1/4 inch ANSI flange/DIN11851 (2nd series) unions

Weight	
12 gpm system:	111 kg (245 lbs)
19 gpm system:	113 kg (250 lbs)

5.3 Pump Curves

Pump curves at 60 Hz

97742688 CRI 3-19 60 Hz



96083594 CRI 3-25 60 Hz

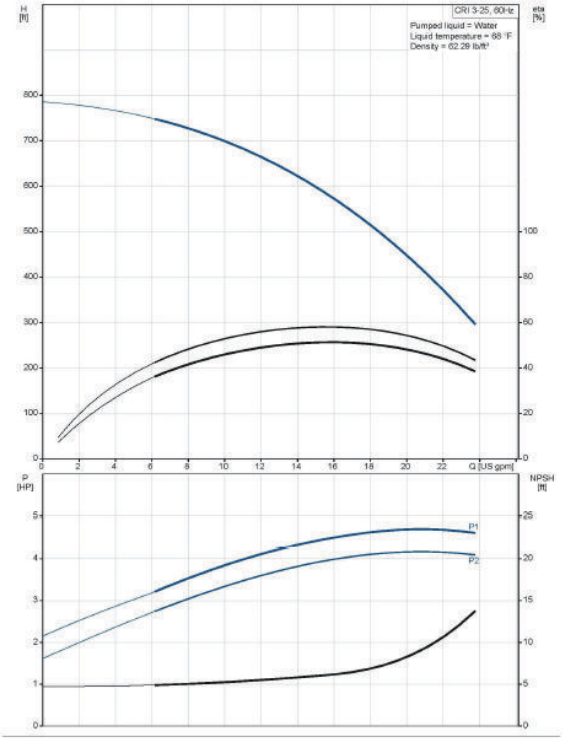


Table 1: Table 1

Flow rate	Pump model	Power rating
12 gpm	CRI 3–19	3 HP / 2.2 KW
19 gpm	CRI 3–25	5 HP / 3.7 KW

6 Spare Parts

For every delivered Alfa Laval Product, a spare part list is available.

This spare part list contains a range of the most common wear parts for the machinery. If any component not mentioned is required, please contact your local Alfa Laval representative for availability.

You can find our spare part catalogue at *https://hygienicfluidhandling-catalogue.alfalaval.com*.

Always use Alfa Laval genuine spare parts. The warranty of Alfa Laval products is dependent on use of Alfa Laval genuine spare parts.

6.1 Ordering Spare Parts

When ordering spare parts, please always state:

1. Serial number (if available)
2. Item number/spare part number (if available)
3. Capacity or other relevant identification

6.2 Alfa Laval Service

Alfa Laval is represented in all larger countries of the world.

Do not hesitate to contact your local Alfa Laval representative, with any questions or requirement of spare parts for Alfa Laval equipment.

6.3 How to Contact Alfa Laval

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

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

6.4 Warranty - Definition

WARNING

The rules of Intended use are absolute. Use of the supplied Alfa Laval product is allowed only when in compliance with the technical data supplied with the Intended use.

Differing utilisation, other than agreed with Alfa Laval Kolding A/S, exclude any liability and warranty.

No modification or alteration of the supplied Alfa Laval product is allowed, unless explicit permission is granted by Alfa Laval Kolding A/S.

Liability and warranty are excluded:

- If advice and instruction of operating instructions are ignored
- For incorrect operation or for insufficient maintenance of the supplied Alfa Laval product
- For any kind of change of function of the supplied Alfa Laval product without prior written agreement by Alfa Laval Kolding A/S
- If supplied Alfa Laval product is modified by non-authorised persons
- If using the supplied Alfa Laval product without attention of appropriate safety regulations, (see *Safety* on page 5)
- If protection equipment is not used and vessel process / ancillary equipment is not brought to a standstill
- If the supplied Alfa Laval product and ancillary parts are not properly maintained (to be executed in intervals and including fitting of prescribed replacement parts)

When exchanging parts, only original replacement parts, released from the manufacturer, must be used.