

# Operating instructions



## TRUCK BOOSTER



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# 1 Safety Precautions and Warnings

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## Symbols used to mark instructions



Before starting up your high-pressure washer for the first time, this instruction manual must be read through carefully. Save the instructions for later use.



Safety instructions marked with this symbol must be observed to prevent danger to persons.



This symbol is used to mark safety instructions that must be observed to prevent damage to the machine and its performance.



This symbol indicates tips and instructions to simplify work and to ensure a safe operation.



### For your own safety

The high-pressure washer may only be used by persons instructed in its use and who have been expressly authorised to do so.

Although extremely easy to operate, children should not be allowed to use the washer.

### Warning

Inhalation of aerosols can be hazardous to health. Where applicable use a device in order to avoid or reduce aerosols production, e.g., a shield covering the nozzle. For protection against aerosols use a respiratory mark of class FFP 2 or higher.

### General

When using the high-pressure hot water washer all existing national regulations must be observed. Beyond the instruction manual and the current national legal regulations for prevention of accidents, also the approved rules for safe working must be observed.

Any method of use endangering the safety of persons or equipment is forbidden.

### Before use

Before starting up your high-pressure hot water washer check that it is in a regular condition. Electric plugs and couplings must be watertight.

Check the electric cables at regular intervals for damage and wear. Only use the high-pressure hot water washer if the electric cable is all right (damaged electric cables can cause electric shock!)

### Important instructions

Connection to public drinking water supply must be performed in accordance with the applicable regulations in your country. **IMPORTANT:** Only use water without impurities!

Before each use of your high-pressure hot water washer check the most important visual parts.

High-pressure jets can be dangerous if misused. Never direct the water jet towards people, pets, electric wiring, or the machine itself.



Spray handle and lance are affected by a thrust during operation - therefore always hold the spray lance firmly with both hands.

Never try to clean clothes or footwear on yourself or other persons.

Operator and anyone in immediate vicinity of the site of cleaning should take action to protect himself from being struck by debris dislodged during operation.

Check that cleaning will not result in dangerous substances (e.g. asbestos, oil) being washed off the object to be cleaned and harming the envi-

ronment.

Do not clean sensitive surfaces made of rubber, fabrics or the like with the zero nozzle. With the flat jet nozzle keep a distance of at least 15 cm to the surface to be cleaned.

Never let children operate the machine.

Do not use the machine if the electric cable or the high-pressure hose are damaged.

Do not cover the machine during operation or use it in a room without adequate ventilation !

If any of the machines overload protection devices trips (machine stops unintended), release the trigger of the spray handle. Lock the spray handle with locking device and turn the start/stop switch to position „OFF“. Refer to section “7 Trouble Shooting”.

Never start the cleaner without water supply. Even a short water deficiency can damage the sleeves of the pump.

### Operation

Avoid damage to the electric cables such as squeezing, pulling, knots etc. and keep them away from sharp or hot objects.

Avoid damage to the high-pressure hose such as running over by vehicles, squeezing, pulling, knots/kinks etc. and keep it away from oil and sharp or hot objects, as such may cause the hose to burst.

The cleaner can be used in zones classified as ZONE 2.

**Important!** Never use the machine in an environment where there could be a danger of explosion (according to EN-50014).

**Important!** When the system has been in operation and

thereafter stopped, there might still be a working pressure in the pipeline and high-pressure hoses. Therefore you should pay special attention to the following:

- Never dismount the high-pressure hose from the machine during operation. Disconnect the machine and relieve the high-pressure hose of pressure prior to dismounting.
- Never dismount the high-pressure hose from the outlet point before it has been securely closed and the high-pressure hose has been relieved of pressure.
- Prior to any service interference in the machine it should be disconnected and the system relieved of pressure by activating the trigger of the spray handle.

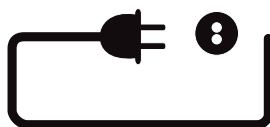
### Repair and Maintenance

Only carry through the maintenance operations described in the operating instructions. Only use original NILFISK-ALTO spare parts.

Do NOT make any technical modifications to the high-pressure hot water washer.

**Warning!** High-pressure hoses, nozzles and couplings are important for the safety when operating the machine. Only use the high-pressure hoses, nozzles and couplings prescribed by NILFISK-ALTO! For major repairs, please contact your nearest NILFISK-ALTO service organisation.

### Mains power connection



**This product is intended for stationary installation only and is supplied without a power cord! Only let an au-**

**thorized electrician connect the machine to the mains supply !**

The following points must be observed:

- Check that the voltage stated on the data plate corresponds to your mains voltage.
- Make sure that the power cord contains the right number of wires (including ground wire) and that each wire has the right dimensions to carry the load (amperage) stated on the data plate of the machine.
- Make sure that the installation (cables, connection points and fuses) is correctly dimensioned for the load of the machine - refer to the data plate of the machine.

**If not required by local legislation, we strongly recommend you to connect the machine to a power source with a Residual Current Device (RCD) which will disconnect the power supply if the leakage current exceeds 30 mA for 20 milli seconds !**

See section “3.5 Mains power connection” for further instructions.

Only let a qualified electrician maintain the electric installation.

### Safety Devices

#### Safety Valve

The pressure side of the high-pressure pump is fitted with a safety valve. This valve leads the water back to the suction side of the pump when the spray handle is closed or if a nozzle is blocked.

The safety valve is adjusted and sealed by the producer. **THIS ADJUSTMENT MUST NOT BE CHANGED !**





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**Machine protection**

The machine features an over-current protection and built-in thermal protection of the motor. In the event of increased power consumption (maloperation)

and in the event of excessive motor temperature (obstructed ventilation etc.), the entire machine will automatically be disconnected from the mains supply.

*Short circuit protection*

The machine is equipped with a short-circuit protection. In the event of short-circuits in the machine, the protective device will disconnect the entire machine from the mains supply.

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## 2 Description

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**2.1 Application**

This high-pressure hot water washer has been developed for stationary installation and professional use within:

- light industry
- transport
- building and construction
- service

Section 4 describes how to use the high-pressure hot water washer.

Only use the high-pressure hot water washer for purposes described in this manual.

The safety precautions must be observed to prevent damage to the machine, the surface to be cleaned or severe personal injuries.

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**2.2 Operation elements**

See foldout at the end of these operating instructions.



- 1 High-pressure outlet (quick coupling, male)
- 2 Main switch
- 3 Stop push button (red)
- 4 Start push button (green)
- 5 Heating ON/OFF push button
- 6 Pressure gauge
- 7 Water inlet
- 8 Thermostat (temperature adjustment)
- 9 Button for addition of detergents
- 10 Inspection window (hour counters, error messages)
- 11 Holder for spray lance
- 12 Dosing of detergent
- 13 Data plate
- 14 Lifting device
- 15 Holder for spray lance - frost protection, external (option, not standard)

# 3 Installation

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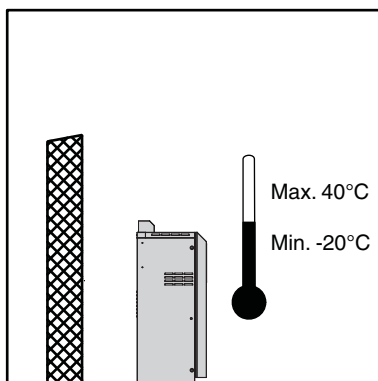
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## 3.1 Temperature conditions

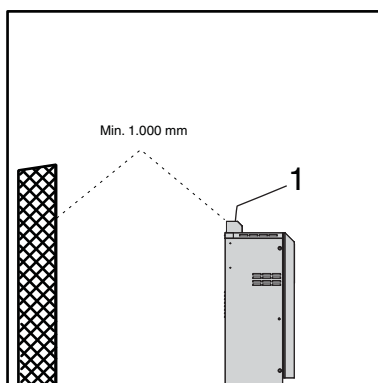
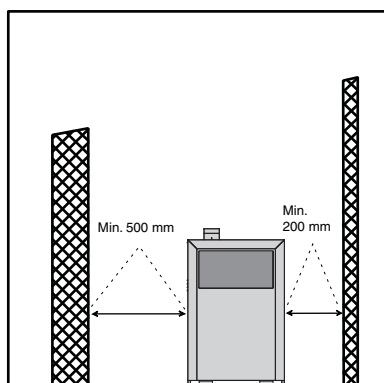


The machine has been constructed for outdoor placement. The min. ambient temperature for the machine is  $-20^{\circ}\text{C}$  and the maximum ambient temperature is  $40^{\circ}\text{C}$ .



**Note:** Hose and spray lance are not frost resisting as a standard and must therefore be dismounted at temperatures below  $0^{\circ}\text{C}$ .

## 3.2 Condition of distance



In consideration of the cooling system of the machine and the accessibility of service, there must be free wall space on both sides of the machine. To the right 200 mm at a minimum, to the left 500 mm at a minimum and behind 300 mm.

The distance from the chimney outlet to inflammable material must be 1,000 mm.

The chimney (1) can be turned  $180^{\circ}$  by dismounting 4 pcs. M5 screws (under the top plate), turning the chimney and re-mounting the screws.

## 3.3 Foundation / leveling

Place the machine on a plane floor.

Shape of foundation, see fold-out at the end of this manual.

Bolt the machine to the foundation through the 3 holes ( $\text{Ø}12$  mm) in the bottom plate. Before fastening, the machine must be leveled.

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### 3.4 Water connection

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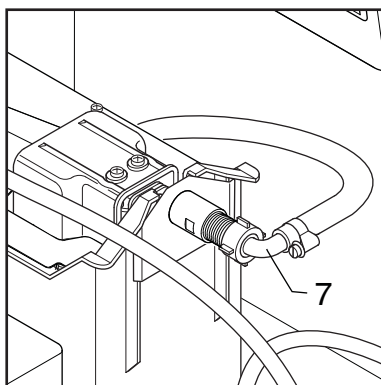
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The water connection is made with a flexible hose connected to the water tank (7) of the machine.

The water hose can be lead in through:

1. The bottom plate
2. The punch-out pieces in the rear plate

(see foldout at the end of this manual).

Make sure that the supply hose is suited for the purpose (temperature and flow rate). If in doubt, contact your Nilfisk-ALTO representative.

The connection can be made to a public drinking water supply network or a private water supply. Water quality: particle size  $<50 \mu$ . A shut-off cock should be mounted on the water supply network in the immediate vicinity of the machine. Make sure that the water supply is within the following specifications and that the water does not contain particles such as floating sand.

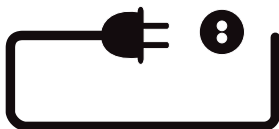
Min. water inlet pressure: 1 bar (at the required flow rate of the machine - see data plate).

Max. water pressure: 10 bar  
Max. water inlet temp.: 30°C.

All TRUCK BOOSTER feature a water tank, and no further protection against back-flowing water into the supply network is required. The machine complies with EN 1717.

If there is a risk of floating sand or other impurities in the inlet water, a sand filter (50 micron) should be mounted between the supply outlet and the internal filter of the machine.

### 3.5 Mains power connection



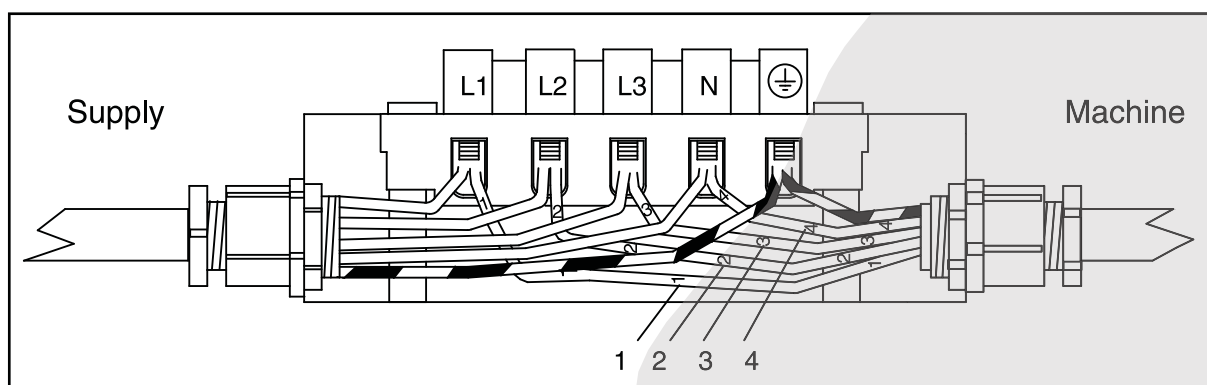
**CAUTION!** An authorized electrician must perform the electrical

connection of the machine to the main power supply. Refer to section "1 Safety precautions and warnings".

The following precautions must be observed:

- Make sure that the supply cable is of the correct dimension (see voltage and load on the data plate of the machine) and is suitable for the specific environment.





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The electric cable can be lead in through:

1. The bottom plate.
2. The punch-out pieces in the rear plate and through the relief ring into the junction box.

(see foldout at the end of this manual).

- Connect the phase cords of the supply cable to the connection terminals L1, L2 and L3. Connect the zero cord to N. For single phase machines use L1 and N to connect phase and zero cords.
- Connect protective earth wire to the earthing terminal.

- Check and measure the protective earth connection according to legislation.
- Connect the other end of the cable to an approved plugged socket outlet of a correct dimensioned main supply.

Make sure that the cable is properly guided and relieved between the fixed installation and the machine and that the cable is without any damage to the insulation.

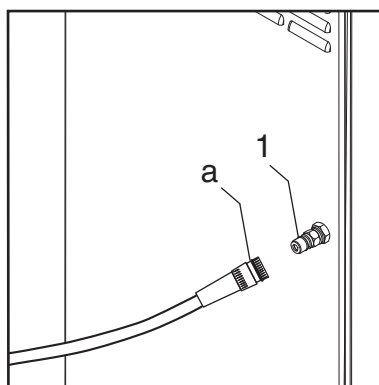
Also see notes in section **"1 Safety precautions and warnings"**!



**Note:** Beware that the electric cables of the machine are not mixed up. The wires 1, 2, 3,

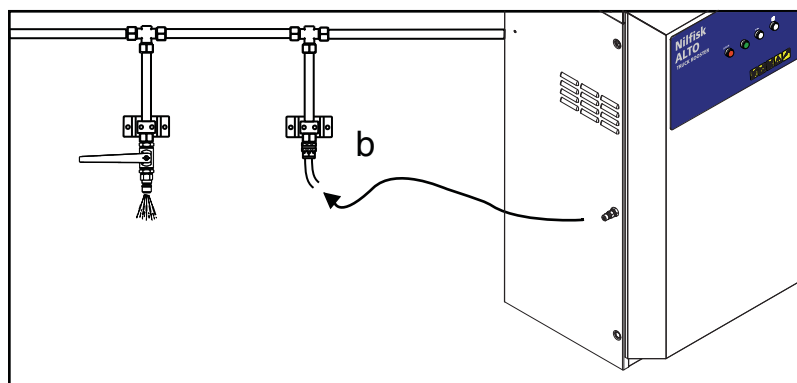
4 **MUST** keep the illustrated positions.

### 3.6 High-pressure connection



The outlet of the machine (1) can be connected directly to a standard high-pressure hose (a) or to a pipeline with fixed outlet points (b).

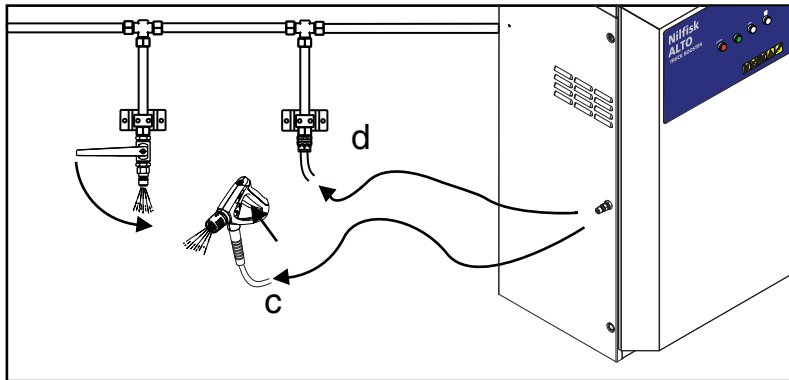
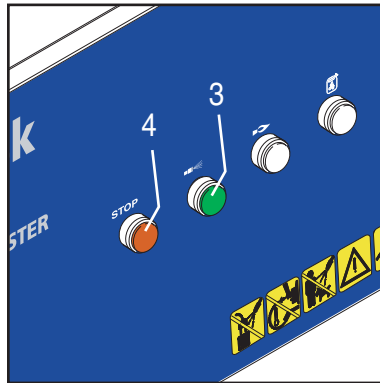
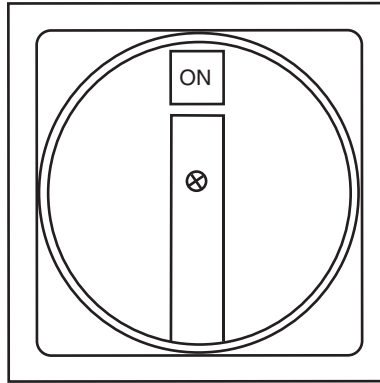
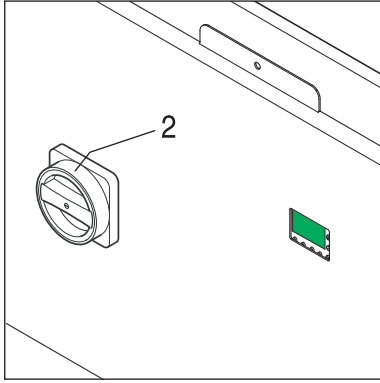
**IMPORTANT:** When connecting to a pipeline always use a flexible hose connection from the outlet of the machine (pos. 1) - order no. 6300843. Contact your Nilfisk-ALTO distributor for further information.



It is recommended to let a service technician authorized by Nilfisk-ALTO prepare the pipeline.

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## 3.7 Venting



When the TRUCK BOOSTER is properly connected to supply water, electrical installation and a high-pressure hose (or pipeline) the high-pressure pump must be vented before it is operational.

1. Turn the main switch, (2) to position "ON".
2. Push the "START" button (3), and the TRUCK BOOSTER will start.
3. Open the outlet point (spray handle on high-pressure hose, (c) or outlet on piping system (d) without having a spray lance connected.
4. Let the water run until all air has escaped from the pump (even water flow).
5. In the case of a recently installed piping system, or if the pipeline and the pump have been emptied in any other way, the system should be vented by starting the pump and then letting the water run at each outlet point of the pipeline at turns. It is recommended to begin with the most distant outlet (height and/or length).
6. When connecting the high-pressure hose directly to the machine, starting the pump and activating the trigger of the spray handle without having attached the spray lance, should vent the system.
7. Stop the TRUCK BOOSTER by pressing the "STOP" push button (4).

The TRUCK BOOSTER is now vented.

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### 3.8 Connecting to external fuel supply



The TRUCK BOOSTER can be connected to an external fuel supply. As a standard, the machine is supplied with a 40 l container.

Heating oil, DIN 51603-1 (without bio diesel) can be used.

Diesel according to EN 590 (up to 7% bio diesel) can be used with the following restrictions:

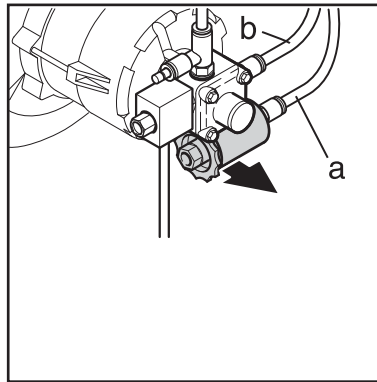
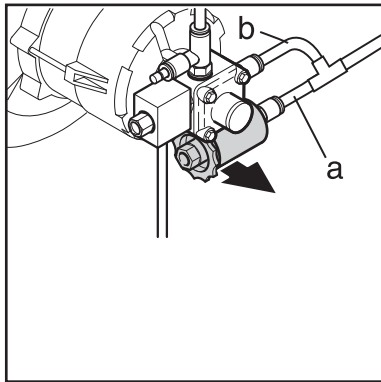
Maximum storage time in high pressure cleaner diesel tank: 1

month.

Diesel stored externally for more than 6 months is not allowed to be filled into Nilfisk-ALTO high pressure cleaners.

Diesel EN 590 is not recommended for use in HPW's at an ambient temperature below 0°C.

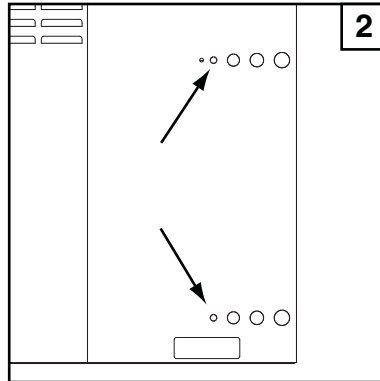
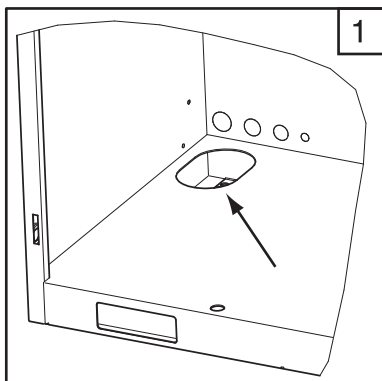
Diesel EN 590 from an open container must not be used.



You can choose between "one" and "two" -string connection, where "one"-string only has one supply hose (a) and "two"-string has an additional return hose (b) - see figure.

Please observe that in some countries only the "one" string system is approved.

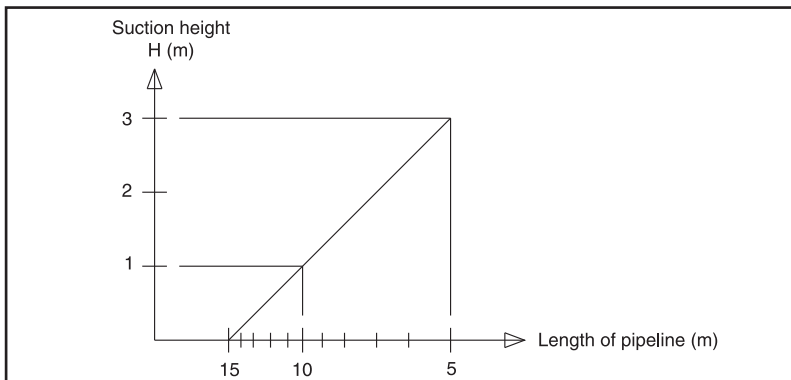
The fuel hose for the external fuel supply can be lead-in:



1. Through the bottom plate to the oil pump.
2. Through the punch-out pieces in the rear plate to the oil pump.

See foldout at the end of this manual.

Please observe the following restrictions to fuel line.



# EN 4 Operation

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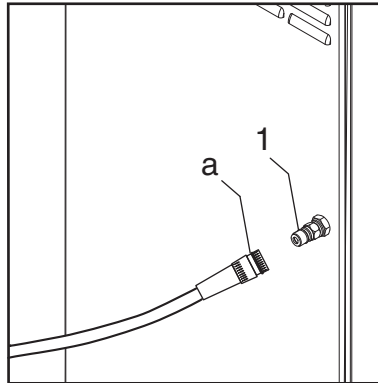
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## 4.1 Connections

### 4.1.1 High-pressure hose - directly on the machine



The Nilfisk-ALTO high-pressure hose with imprinted max. working pressure and temperature should be attached to the outlet connection of the machine (1) by the quick coupling (a).

Max. extension hose: 50 m.

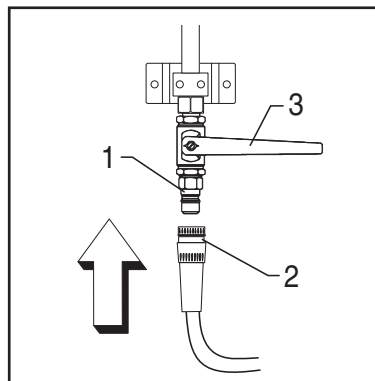


#### **Danger of scalding!**

Never dismount high-pressure hoses at water temperatures above 50°C.

**IMPORTANT:** Prior to dismounting the high-pressure hose, the machine should be stopped. Then activate the trigger of the spray handle to relieve the high-pressure hose of pressure.

### 4.1.2 High-pressure hose - to outlet point



In the case of a pipeline with fixed outlet points the high-pressure hose with imprinted working pressure and temperature should be attached to the nipple of the high-pressure cock (1) by the quick coupling (2). Upon attachment turn the handle of the high-pressure cock (3) to open position.



#### **Danger of scalding!**

Never dismount high-pressure hoses at water temperatures above 50°C.

**IMPORTANT:** Prior to dismounting of the high-pressure hose or when changing to another outlet point the high-pressure cock should be carefully closed. Then activate the trigger of the spray handle to relieve the high-pressure hose of pressure.

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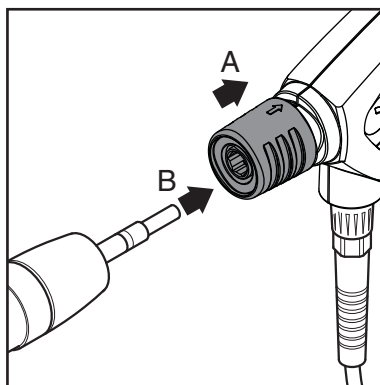
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**Pipeline, max. length:**

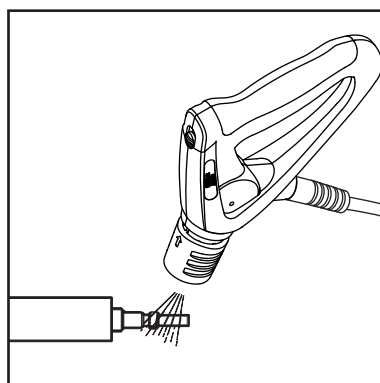
Ø12 x 1,5 - max.	50 m
Ø15 x 1,5 - max.	180 m
Ø18 x 1,5 - max.	500 m

When using max. pipe lengths, only use a high-pressure hose of 10 m.

#### 4.1.3 Spray handle - accessories



1. Pull the blue quick-release grip (A) of the spray handle backwards.
2. Insert the nipple of the spray lance (B) into the quick-release connection and release it.
3. Pull forward the spray lance or any other accessory to ensure correct mounting before starting the machine.

**NOTE!**

Clean nipple of any impurities each time the spray lance has been dismantled.

#### 4.1.4 Selection of spray lance

You may use a double spray lance as well as a single spray lance with the machine. The recommended nozzle size of the lance is printed on the data plate of the machine – i.e. 0550. The max. pressure of the machine can be reduced by using nozzles with a wider diameter.

Never use lances with smaller nozzles (nominal value / diameter) than stated on the data plate.

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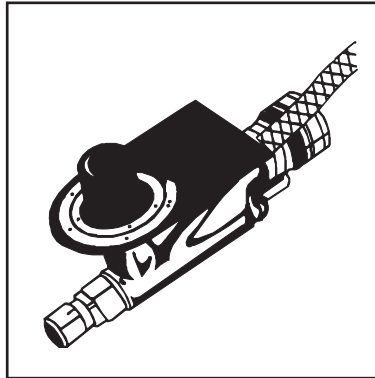
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**4.1.5 Application of detergents (external)**

If you want to apply detergents or disinfectants these can be dosed to the water through an external injector. In conjunction with the injector it may be advantageous to use a wall rack on which spray lances, 2 pcs. of 25 l containers as well as 10 m high-pressure hose can be placed.

Refer to your Nilfisk-ALTO sales representative for your optimal solution.

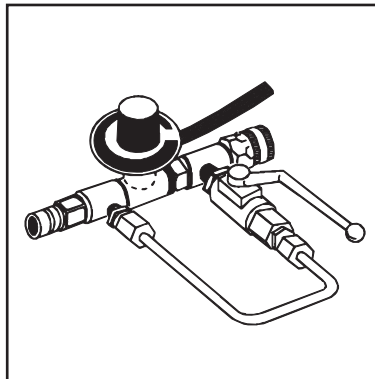
Below you will find various types of outlet points with injectors.



**Outlet point with detachable injector**

To be attached to the quick coupling of the high-pressure cock. To be used for dosing of low-foaming detergents or disinfectants.

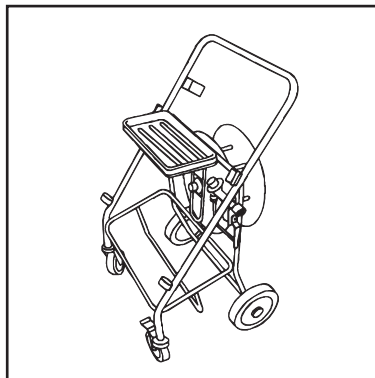
Dosage 1-8%.



**Outlet point with detachable foam injector**

To be attached to the quick coupling of the high-pressure cock. To be used in conjunction with foam lance for application of high-foaming detergents or disinfectants.

Dosage 1-5%.



**Outlet point with cleaning trolley and foam injector**

To be attached to the quick coupling of the high-pressure cock.

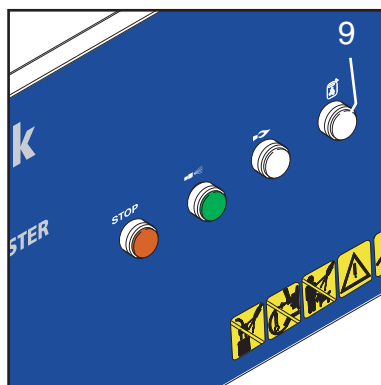
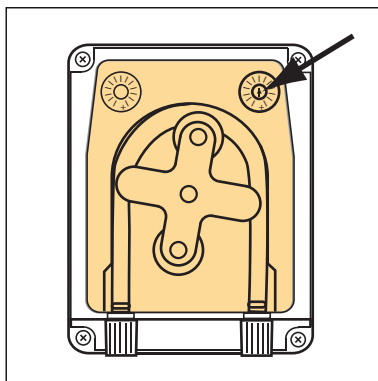
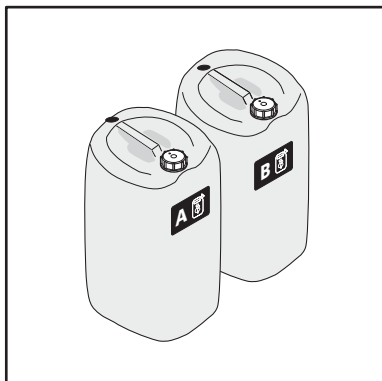
To be used in the same way as "Outlet point with detachable foam injector".

Makes it possible to place 4 spray lances, 2 pcs. of 25 l containers as well as 20 m high-pressure hose.



#### 4.1.6 Application of detergents (internal)

If you want to apply a detergent, do as follows:



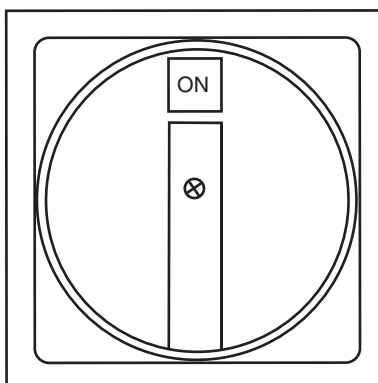
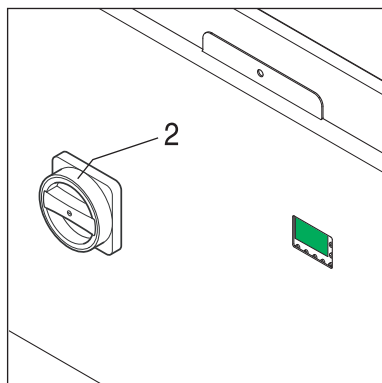
1. Fill a detergent into a 25 l container.
2. Turn the machine on, push the button for addition of detergents (9) and lay out detergent.  
The concentration of detergent can be adjusted on the detergent pump.
3. Turn off the addition of detergent by pushing the button (9).

**NB:** The PH value of the detergent should be between 5.8 – 8.5%. If you want to apply a detergent with another PH value, an external injector should be used (see section 4.1.5).



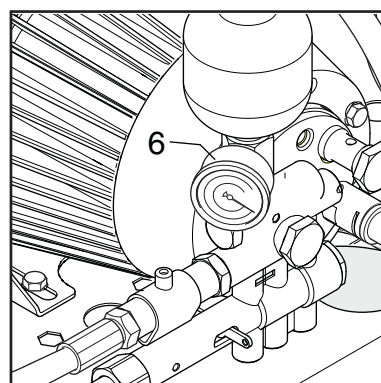
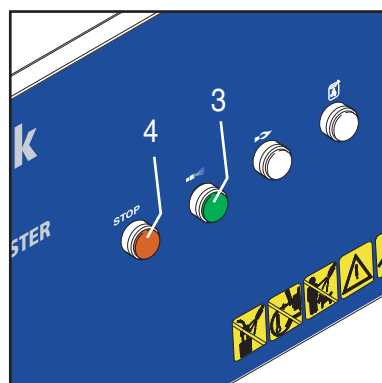
## 4.2 Operation

### 4.2.1 Starting up



The shut-off cock on the water inlet should be open, and the spray handle on the high-pressure hose should be closed.

1. Turn the main switch (2) to position - **ON** -.
2. Push the green "**START**" push button (3).



Check on the pressure gauge (6) that a pressure is being built up in the system and that the motor of the TRUCK BOOSTER stops within c 20 seconds with the green "**START**" push button (3) lit. The TRUCK BOOSTER is now in "Stand-by" mode waiting for the operator to activate the spray handle.

If a pressure is not being built up, vent the machine as described in sections 3.7 - 3.8 **Venting**.

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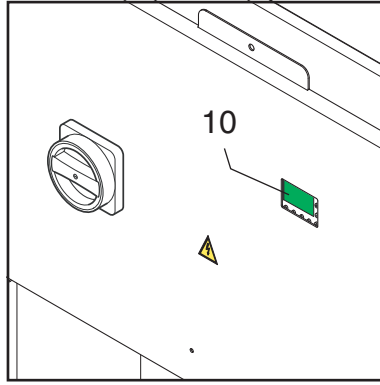
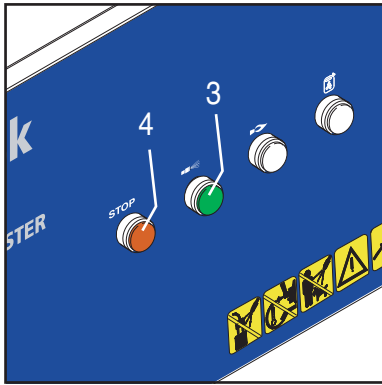
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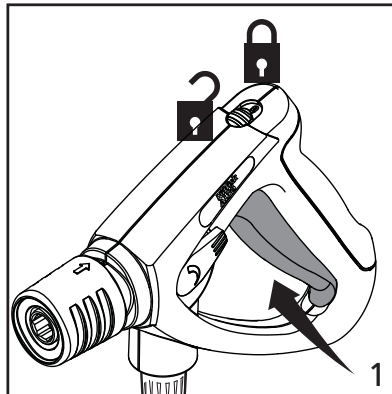
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If the motor of the TRUCK BOOSTER does not start or stops unintentionally with the red “STOP” push button (4) flashing, an error is present. Read the error message through the “Inspection window” and refer to section “7 Troubleshooting”.

**4.2.2 Operation - automatic start/stop**



**Always hold the spray lance with both hands!**

The TRUCK BOOSTER is automatically started when the trigger (1) of the spray handle is activated and will automatically stop and enter standby mode when the trigger is released.

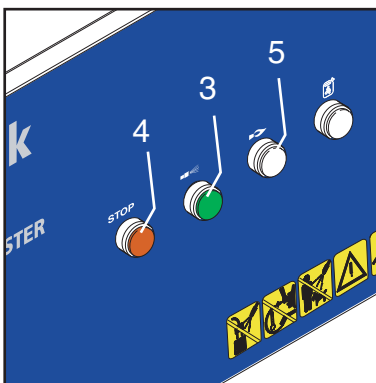
When the machine is not in use, the trigger should be locked with locking device.

**4.2.3 Running with hot water**

The TRUCK BOOSTER is equipped with a diesel unit to heat the water.

The diesel unit can be switched on or off at convenience by pushing the white “Heating” push button (5). Pushing the button once will turn on the light in the button and switch ON the diesel unit.

Pushing the button again will turn out the light in the button and switch OFF the diesel unit.

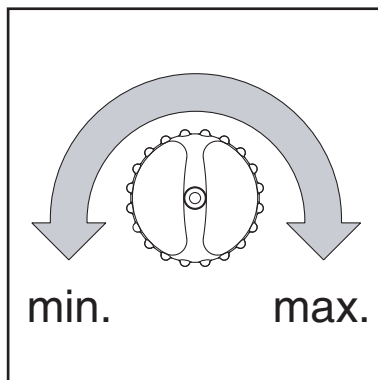
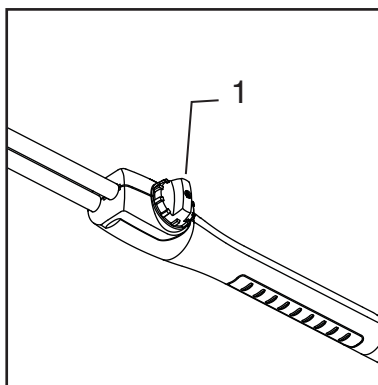


The temperature can be adjusted within the limits stated on the “Thermostat” (8), by turning the button to the desired value. When the diesel unit is ON (push button (5) alight), the control unit of the TRUCK BOOSTER will monitor the water temperature and regulate the diesel unit to provide the preset temperature.

If an error occurs to the heating system of the TRUCK BOOSTER, the machine stops and the red “STOP” push button (4) will start flashing and the diesel unit will be shut off. The TRUCK BOOSTER will continue to be functional with non heated water by pushing the green “START” push button (3).

In this case please refer to section “7 Troubleshooting”.

#### 4.2.4 Double spray lance, pressure regulation



The spray lance features 2 nozzles, a high-pressure nozzle and a low pressure nozzle.

##### High-pressure mode

When the pressure reducing valve (1) is completely closed (turned clockwise - **B**), only the high-pressure nozzle is used - **high-pressure mode**.

##### Low pressure mode

When the reducing valve (1) is completely opened (turned counterclockwise - **A**), both spray lances are used - **low pressure mode** / possibility of dosing detergents.

The pressure can be regulated between these positions.

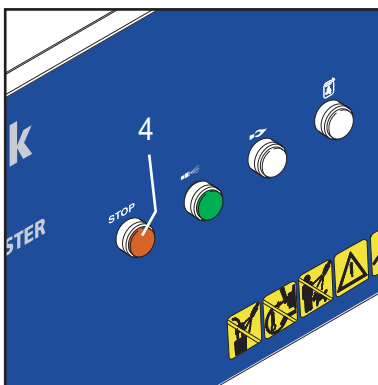


#### 4.2.5 Stop



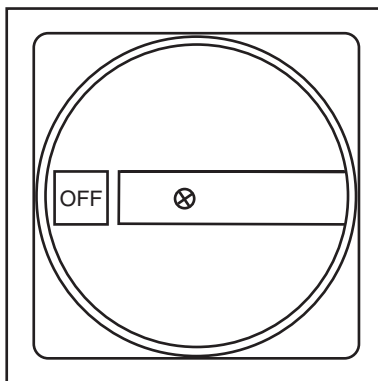
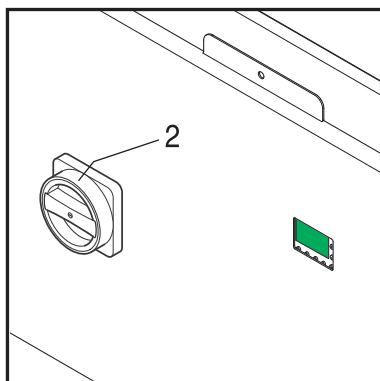
##### Danger of scalding!

Never detach high-pressure hoses at a water temperature above 50°C.



Never detach the high-pressure hose while the machine is in operation.

1. To stop the machine, push the red "STOP" button (4). The red light will come on. To disconnect the TRUCK BOOSTER completely from mains, turn the main switch (2) to position - **OFF** -.
2. Close the shut-off cock of the water inlet and activate the spray lance or open the high-pressure cock to relieve the pipeline / high-pressure hose of pressure.



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**4.2.6 Automatic “system shut-down”**

Your TRUCK BOOSTER features a function called “system shut-down” that can be enabled by your Nilfisk-ALTO service technician during installation or at a later time.

When enabled, “system shut-down” will automatically switch

OFF the TRUCK BOOSTER when it has not been used for a predefined time (from 1 sec. up to 9 hours) at your choice. Shut-down is disabled on delivery - please contact your Nilfisk-ALTO service representative if you would like the function(s) to be enabled.

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**4.2.7 Frost protection, internal**

The machine has been constructed for outdoor placement. The machine features a fan

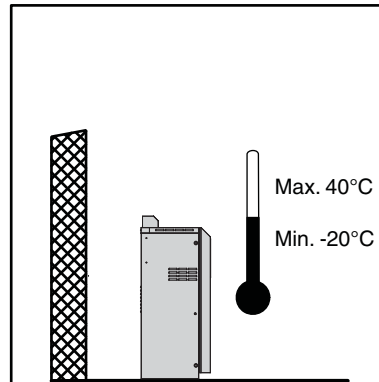
heater automatically starting up when the temperature inside the machine gets too low.

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The adjustment of the thermal sensor is effected in the electric box. On delivery the adjustment has been set at 5°C. This setting must not be lowered.

**NB: The frost protection does NOT function if the machine has been turned off on the main switch.**



**IMPORTANT:** For safety reasons, hoses, spray lances and other accessories should always be thawed prior to use.

**4.2.8 Frost protection, external (Option, not standard)**

This option ensures that hose, handle and spray lance does not freeze. After use the spray lance must be placed in the spray lance holder (pos. 15). Then turn off the machine on the front panel.

frost protection will start. Water will now circulate through hose, handle, spray lance and back to the machine.

If the temperature is below the temperature set on the thermal sensor in the electric box, the



**IMPORTANT:** The frost protection is not active, when the machine has been switched on (ready for operation).

# 5 Fields of Application and Working Methods

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## 5.1 Fields of application

The most important fields of application for this product are:

<b>Transport</b>	Cleaning of trucks, buses, cars etc.
<b>Building &amp; Construction</b>	Cleaning of vehicles, equipment, buildings etc.
<b>Light industry</b>	Degreasing and cleaning of machines, workpieces, and vehicles.
<b>Service</b>	Cleaning of vehicles, public baths, institutions etc.

## 5.2 Working pressure

The high-pressure system may be used with high or low pressure at your own option:

<b>Low pressure</b>	Is first and foremost used for the application of detergents and for flushing.
<b>High-pressure</b>	Is used during the actual cleaning.
<b>Intermediate pressure</b>	As an example it may be used for the cleaning of surfaces which cannot stand a too powerful jet, i.e. soft surfaces.

## 5.3 Temperature

Hot water significantly increases the efficiency of the cleaning process – especially grease, oils and fats can be broken down more easily at higher temperatures.

Temperatures up to 60°C should clean off proteins, such as blood substances.

Oil and traffic film should be exposed to app. 70°C, whereas grease and fat is easiest to remove with temperatures of 80 to 85°C.

Several detergents become more efficient when acting with hot water – please refer to manufacturers recommendations.

## 5.4 Mechanical impact

In order to break down tough layers of dirt, additional mechanical impact may be required. Special lances with special nozzles (pulsating jet /

concentrated “0” jet) are available for such purposes as are rotating brushes plus soft & sand blasting equipment.

Please ask your Nilfisk-ALTO representative.

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## 5.5 Detergents

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As standard the system is delivered without a detergent injector and the optional, factory mounted, internal chemical system.

If you want to use detergents or disinfectants these should be dosed through an external injector (see section 4.1.5) or through the pump (see section 4.1.6).

The most efficient cleaning is reached with detergents in conjunction with the high-pressure cleaning. For that purpose NILFISK-ALTO can offer you a series of products specially developed for high-pressure cleaning, among other fields within:

- Cleaning of vehicles, machines, stalls etc.
- Disinfection
- Degreasing of workpieces
- Descaling

The products are water-based, without phosphates, and the applied tensides (surface active substances) comply with the present requirements for easy biodegradability.

#### General rules for addition of detergents

Nilfisk-ALTO cleaning equipment can be used for all detergents and disinfectants, which are suitable for high-pressure cleaning according to the prescriptions of the supplier. (If using external injector, section 4.1.5, the pH-value should be between 4 and 14. If using addition of chemicals through the high-pressure pump, section 4.1.6, the pH-value MUST be between 5.5 and 8.5). Acid and lye should not be applied in a concentrated form.

Carefully observe the prescriptions and guidelines of the supplier, also the rules concerning safety clothing and drainage facilities.

Contact your Nilfisk-ALTO distributor for directions as to which product(s) will fulfill your requirements.

The method of application and the dosage of the individual products appear from the product labels or the data sheet.

Low-foaming detergents are applied through an injector and under low pressure. A change to cleaning under high-pressure is effected by regulating from »low pressure mode« to »high-pressure mode« on the double spray lance or by attaching a high-pressure spray lance.

For foam cleaning you will have to attach a special foam equipment. Insert the suction hose of the injector into the foam detergent.

Attach the foam lance on the spray handle and now you are ready for foam application. Upon the application open the by-pass cock of the foam injector and replace the foam lance by a spray lance, and you are ready for cleaning.

Detergents, which are not exactly prescribed for use in conjunction with high-pressure cleaning, **must only** be used upon a previous approbation from Nilfisk-ALTO and the supplier.

The use of Nilfisk -ALTO detergents ensures that machines, accessories and detergents match, which is the condition of an optimal solution of a cleaning task.

Nilfisk -ALTO can offer you a wide range of efficient agents for cleaning and disinfection. The products are composed of substances, which combine efficiency and environmental considerations at one and the same time.



## 5.6 Working methods

Your high-pressure hot water washer has been developed for cleaning according to the so-called »2-step method«.

**However, your high-pressure hot water washer must be equipped with an external detergent injector.**

### STEP 1

Application of detergent - soaking.

### STEP 2

High-pressure cleaning.

In practice the working process is laid down in accordance with the actual job, but as a starting point the following working method can be described for a job:

1. Apply detergent under low pressure. The dosage is chosen according to the job, which is to be carried through, and the adjustment is made on the dosing unit.
2. Await acting time. Let the detergent act on the dirt/surface for a short time prior to pressure cleaning - usually a few minutes.
3. High-pressure cleaning. Clean all surfaces under high-pressure.
4. Rinse afterwards, if necessary. To make sure that residual impurities are removed from the surface.

In connection with the working process the optimum cleaning will be reached by following these 3 pieces of advice:

#### **Advice no. 1**

When using a detergent, usually always apply it on a dry surface. If the surface is rinsed with water at first, it may be difficult for it to absorb the detergent, and the result is a reduced effect of the detergent.

#### **Advice no. 2**

When applying a detergent on large vertical surfaces (i.e. the sides of a truck) work from below and upwards. Thus you will avoid the detergent running off the surface through grooves and dark streaks appearing on the surface whilst cleaning.

#### **Advice no. 3**

During the high-pressure cleaning you should work so that the high-pressure water does not run over the surface which has not been cleaned yet. This is to ensure that there is sufficient detergent on the surface when the high-pressure water hits the surface.



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## 5.7 Typical cleaning tasks

## 5.7.1 Vehicle

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Task	Accessories	Method
<b>Machinery</b> <b>Tractors</b> <b>Ploughs etc.</b>	Detergent injection Powerspeed lances Curved lances and underchassis washers Brushes	<ol style="list-style-type: none"> <li>1. Apply detergent to vehicle or equipment surfaces in order to soften up dirt and grime. Apply from bottom to top.</li> <li>2. Proceed with cleaning using the high-pressure lance. Clean again from bottom to top. Use accessories to clean in difficult to reach places.</li> <li>3. Clean fragile areas such as motors, rubber at lower pressure levels to avoid damage.</li> </ol>
<b>Vehicle body-work</b>	Standard lance Detergent injection Curved lances and underchassis washers Brushes  <b>Detergents</b> Active Shampoo Active Foam Sapphire Super Plus Active Wax Allosil RimTop	<ol style="list-style-type: none"> <li>1. Apply detergent to vehicle or equipment surfaces in order to soften up dirt and grime. Apply from bottom to top. In cases of particularly dirty vehicles, pre-spray with a product such as Allosil in order to remove traces of insects etc, then rinse at low pressure and apply normal car cleaning detergent. Let detergents settle for 5 minutes before cleaning off. Metallic surfaces can be cleaned using RimTop.</li> <li>2. Proceed with cleaning using the high-pressure lance. Clean again from bottom to top. Use accessories to clean in difficult to reach places. Use brushes in order to add a mechanical cleaning effect. Short lances can help for cleaning of motors and wheel arches. Curved lances or under-carriage washers can be valuable for the cleaning of car under-chassis and wheel arches.</li> <li>3. Clean fragile areas such as motors, rubber at lower pressure levels to avoid damage.</li> <li>4. Apply a liquid wax using the pressure washer in order to protect the bodywork from pollution.</li> </ol>

## 5.7.2 Building and equipment



<p><b>General surfaces</b></p> <p><b>Metallic equipment</b></p>	<p>Foam injectors Standard lance Curved lances Tank cleaning head</p> <p><b>Detergents</b> Intensive J25 Multi Combi Active Alkafoam</p> <p><b>Disinfectant</b> DES 3000</p>	<ol style="list-style-type: none"> <li>1. Apply thick foam over the surfaces to be cleaned. Apply on dry surfaces. Apply from top to bottom on vertical surfaces. Let the foam act for up to 30 minutes for the optimal effect.</li> <li>2. Proceed with cleaning using the high-pressure lance. Use applicable accessories. Use high-pressure to dislodge large amounts of incrustated dirt or grime. Use lower pressure and high water volume in order to rapidly flush away loose dirt and rinse surfaces.</li> <li>3. Apply DES 3000 disinfectant once the surfaces are perfectly clean.</li> </ol> <p>Areas covered by amounts of loose dirt, such as animal remains in slaughterhouses, can be removed by using high water flow to flush away the dirt to evacuation pits or drains.</p> <p>Tank cleaning heads can be used to clean barrels, vats, mixing tanks etc. Cleaning heads may be hydraulically or electrically powered and give the possibility for automatic cleaning without a constant user.</p>
<p><b>Rusted or damaged surfaces prior to treatment</b></p>	<p>Wet sand blasting equipment</p>	<ol style="list-style-type: none"> <li>1. Connect the sand blasting lance to the pressure washer and place the suction tube in the sand.</li> <li>2. Always wear protective equipment during sand blasting.</li> <li>3. Spray the surfaces to be treated with the mix of water and sand. Rust, paint etc will be stripped off.</li> </ol>



These are merely several examples of cleaning tasks that can be solved by a pressure washer in association with accessories and detergents. Each cleaning task is different. Please consult your local dealer or Nilfisk-ALTO representative in order to discuss the best solution for your own cleaning tasks.

## 6 Maintenance

To ensure the most optimal maintenance of your TRUCK BOOSTER, you should consider making a "Service Contract" with Nilfisk-ALTO. In this way your TRUCK BOOSTER will always be ahead of potential problems.

Though paying attention to a few things will ensure a prolonged and reliable operation of your TRUCK BOOSTER.

Therefore it will be a good idea

to make a habit of the following:

Prior to attaching the high-pressure hose, the quick couplings should be cleaned of dust and sand. Flush if necessary. This will prevent a clogging up of the nozzle.

Prior to attaching the spray lance or other accessories to the spray handle, the machine should be started and the quick coupling cleaned of dust and sand.

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**Maintenance Schedule**

		Weekly	After the first 50 operating hours	Every six months or 500 operating hours	As required
6.2	Checking pump oil level	●			
-	Changing pump oil		●	●	
6.3	Cleaning water filter	●			●
6.5	Fuel filter		●		●

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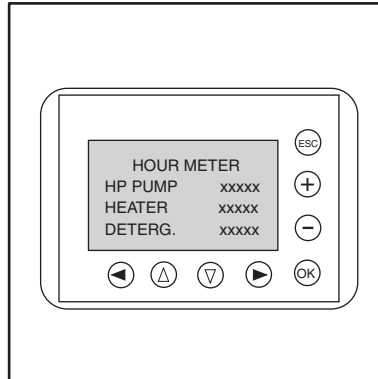
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**6.1 Hour counters**

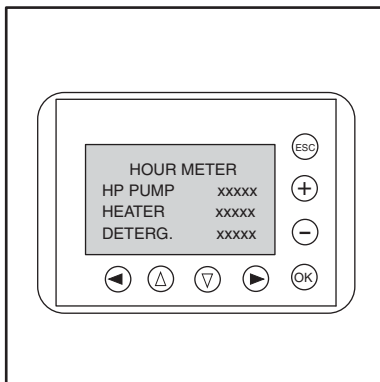


Your TRUCK BOOSTER features built-in hour counters that keep track of the number of working hours on your machine.

By depressing the button "Heating ON/OFF" (5) to switch off the heating and then depressing the red "STOP" button (4) and keeping it depressed, you will be able to see the number of working hours of the high pressure pump, the heating system and the detergent pump through the inspection window (10).

Letting go of the "STOP" button will switch off the hour counter display again.

**6.2 Oil**



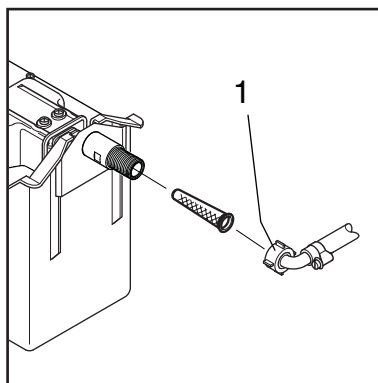
Your TRUCK BOOSTER is equipped with an electronic "oil sensor", which monitors the level of lubricant oil in the high-pressure pump. If the oil level (by malfunction or excessive wear) should drop to a low level, your TRUCK BOOSTER will stop. The red light flashes. The display shows hour counters.

Topping up the oil cup of the pump will be possible, but you should send for a Nilfisk-ALTO service technician as soon as possible to disclose the cause of the oil loss.

**PROTECT THE ENVIRONMENT**

Waste oil and oil sludge must be removed as laid down in the instructions.

### 6.3 Water filter



To avoid debris entering the water tank and the high-pressure pump, a water filter is fitted at the water inlet of the water tank. Dependent on the purity of the water, this filter will have to be cleaned at regular intervals.

The filter can be removed when the union nut (1) has been unscrewed.

### 6.4 Cleaning of high pressure nozzle

A clogging up in the nozzle will cause the pump pressure to increase above normal operating pressure, and cleaning of the nozzle is required immediately.



1. Stop the cleaner and detach the spray lance.

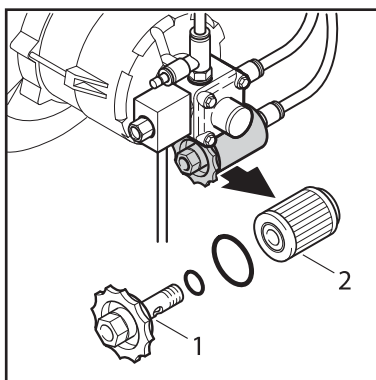
2. Clean the nozzle with the cleaning tool.

**IMPORTANT:** ONLY use the cleaning tool when the spray lance is detached.

3. Flush the spray lance backwards with water.

4. If the pressure is still too high, repeat items 1-3.

### 6.5 Fuel filter



Open the door to gain access to the fuel pump.

Clean filter:

1. Unscrew filter cap (1).

2. Clean/replace fuel filter (2).

3. Dispose of cleaning solution/damaged filter in accordance with the disposal regulations.

### 6.6 Disposable waste

This high-pressure hot water washer consists of parts, which can affect the environment when thrown away. Parts that can pollute are as follows:

Oil, painted/zinc-coated parts, plastics/plastic-coated parts. Therefore, it is important to follow the laws concerning the removal of polluting and dangerous materials when replac-

ing spare parts or disposing of high-pressure hot water washer.

It is recommended that you bring the rejected parts to waste disposal areas or recycling plants that are approved for the destruction of these types of materials.

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# EN 7 Trouble Shooting

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You have chosen the best quality and therefore deserve the best service. The TRUCK BOOSTER features an "Error detection system" that will stop the TRUCK BOOSTER in case of a severe error that needs immediate attention. The red light of the STOP button will flash, and the display in the inspection window will indicate the nature of the error.

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Though the user can correct some of these errors, you should note the error and contact the nearest Nilfisk-ALTO service organization. To avoid unnecessary disappointments, you should check this section before contacting the nearest Nilfisk-ALTO service organization.

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## 7.1 General trouble shooting

Symptom	Reason	Action
<b>Machine will not start</b> (NO ERROR indication)	<ul style="list-style-type: none"> <li>&gt; A fuse has blown</li> <li>&gt; Power disconnected</li> </ul>	<ul style="list-style-type: none"> <li>• Change the fuse.</li> <li>• Connect power.</li> </ul>
<b>Fuses blow</b>	<ul style="list-style-type: none"> <li>&gt; Installation does not correspond to the ampere consumption of the machine</li> </ul>	<ul style="list-style-type: none"> <li>• Change to an installation corresponding to the ampere consumption of the machine at a minimum.</li> <li>• Change the fuse.</li> </ul>
<b>Working pressure too low</b>	<ul style="list-style-type: none"> <li>&gt; Nozzle worn</li> <li>&gt; Wrong spray lance</li> <li>&gt; Reduction valve of spray lance not adjusted to max. pressure.</li> <li>&gt; Nozzle partly clogged up</li> </ul>	<ul style="list-style-type: none"> <li>• Replace the nozzle.</li> <li>• Replace the spray lance (see section 4.1.4).</li> <li>• Turn reduction valve completely counter-clockwise (see section 4.1.4).</li> <li>• Clean the nozzle (see section 6.4).</li> </ul>
<b>Working pressure fluctuating</b>	<ul style="list-style-type: none"> <li>&gt; Insufficient water supply</li> <li>&gt; High-pressure hoses too long</li> <li>&gt; Air in the system</li> <li>&gt; Detergent container empty</li> </ul>	<ul style="list-style-type: none"> <li>• Check that the water tank is not drained of water during operation of the machine. If it is, clean the water inlet filter of the machine. If that does not solve the problem, the water supply for the machine is insufficient. <b>NB!</b> Avoid long, thin hoses (min. 3/4").</li> <li>• Dismount high-pressure extension hoses and retry. Extension hose max. 50 m. <b>NB!</b> Avoid long extension hoses with many couplings.</li> <li>• Vent the system (see section 3.7).</li> <li>• Refill or close dosing valve.</li> </ul>

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Symptom	Reason	Action
<b>No working pressure</b>	> Water inlet filter clogged up	• Clean filter (see sect. 6.3).
	> Nozzle clogged up	• Clean nozzle (see sect. 6.4).
	> No inlet water	• Check that the shut off cock of the water inlet is open. Check that the water supply meets the requirements (see section 3.4).
	> High-pressure cock of outlet point open	• Close all high-pressure cocks not in use.
<b>Machine starts and stops</b>	> Leaky hose/ pipeline/spray handle	• Repair leak.

## 7.2 Error messages

If your TRUCK BOOSTER does not heat the water although the white “Heating” push button (5) has been activated, the “overheat melting fuse” has blown. This fuse is located within the machine and **MUST ONLY** be exchanged by an Nilfisk-ALTO service technician.

Error Message (red STOP light flashing)	Reason	Action
<b>E1</b>	> Lack of water	• Check your water supply – open?, sufficient pressure? • Check and clean inlet filter, section 6.3.
	> Declutching of thermal relay or motor winding protector	• Check ventilation. • Check fuses.
	> Defective or mal-adjusted flow sensor / pressure switch	• Call Nilfisk-ALTO service.
<b>Flow failure E4</b>	> Defective or mal-adjusted flow sensor	• Call Nilfisk-ALTO service.
<b>No flame detected E5</b>	> No flame is detected when it should be present	• Check your fuel supply, and refill is necessary.
	> Fuel filter clogged	• Call Nilfisk -ALTO service.
	> Flame sensor soothed or defective	• Call Nilfisk -ALTO service.
<b>Illegal flame detected E6</b>	> Flame detected when it should NOT be present	• Flame sensor not mounted in place. Mount sensor.
	> Flame sensor defective	• Call Nilfisk -ALTO service
<b>Red STOP light flashing Display shows hour counters</b>	> Shortage of oil in h.p. pump	• Top up with oil.





## 8 Technical Data



Model		TRUCK BOOSTER 7-63 D		TRUCK BOOSTER 5-49 D		TRUCK BOOSTER 5-30 D	
Pump pressure <sup>1)</sup>	bar	175	170	85			
Water volume, min./max. pres.	l/min	21/19.5	16.1/15.5	14.1/13.3			
Water tank, volume	liter	3	3	3			
Water connection:							
Max. pressure, feed water	bar	10	10	10			
Min. pressure, feed water	bar	1,0	1,5				
Max. temperature, feed water	°C	30	30	30			
Spray lance:							
Nozzle type, h. p./l.p.		0680	0550	0700			
Thrust, max.	N/kp	49/4.9	43/4.3	25/2.5			
Pipeline, max. length	m	Ø12 x 1.5 - max. 50					
	m	Ø15 x 1.5 - max. 180					
	m	Ø18 x 1.5 - max. 500					
When using max. pipe length, only use a high pressure hose of 10 m.							
Sound pressure level L <sub>pA</sub> measured in accordance with ISO 11202 [DISTANCE 1m] [FULL LOAD]:		dB(A)	76	75.5	71.5		

<sup>1)</sup> 10 m (3/8") high pressure hose.

Data at 12°C hot feed water.

We reserve the right to make alterations.

## 9 Warranty

Your Nilfisk-ALTO product is guaranteed for 12 months from date of purchase (purchase receipt must be presented) on the following conditions:

- that defects are attributable to flaws or defects in materials or workmanship. (Usual wear and tear as well as misuse are not covered by the guarantee).
- that repairs have not been carried out or attempted by other than Nilfisk -ALTO-trained service staff.
- that only original accessories have been applied.
- that the product has not been exposed to abuse such as knocks, bumps or frost.
- that the instructions in the manual have been carefully observed.

A warranty repair comprises the replacement of defective parts, but it does not cover freight and packaging charges. Besides we refer to national Sale of Goods Act.

Any **illegitimate** guarantee repair will be invoiced. (I.e. malfunctions due to **causes** mentioned in section "7.0 Trouble shooting" of the instruction manual).

# 10 EC Declaration of Conformity





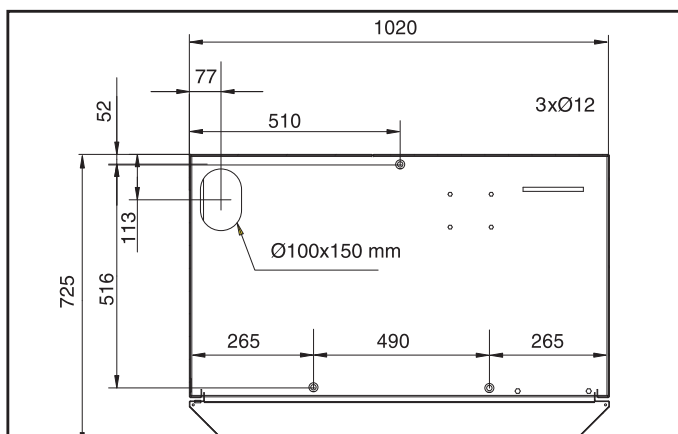
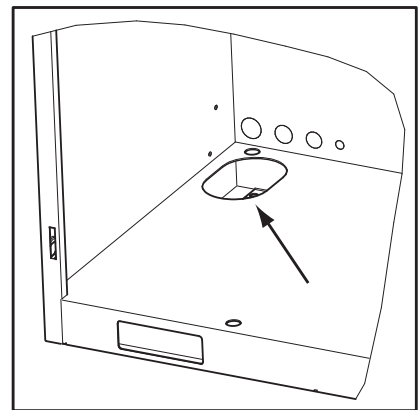
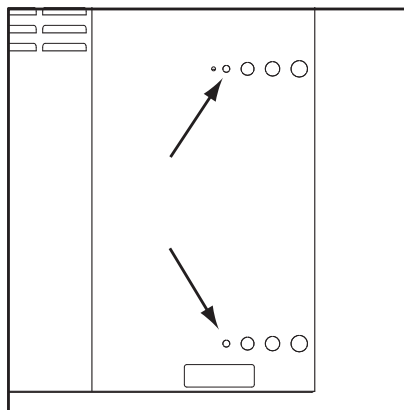
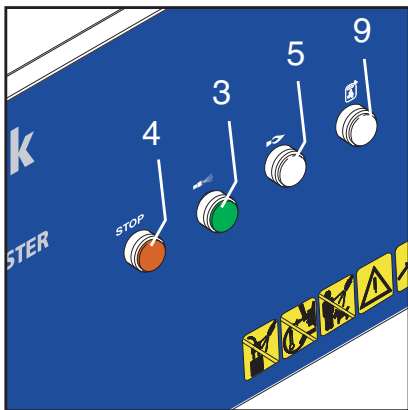
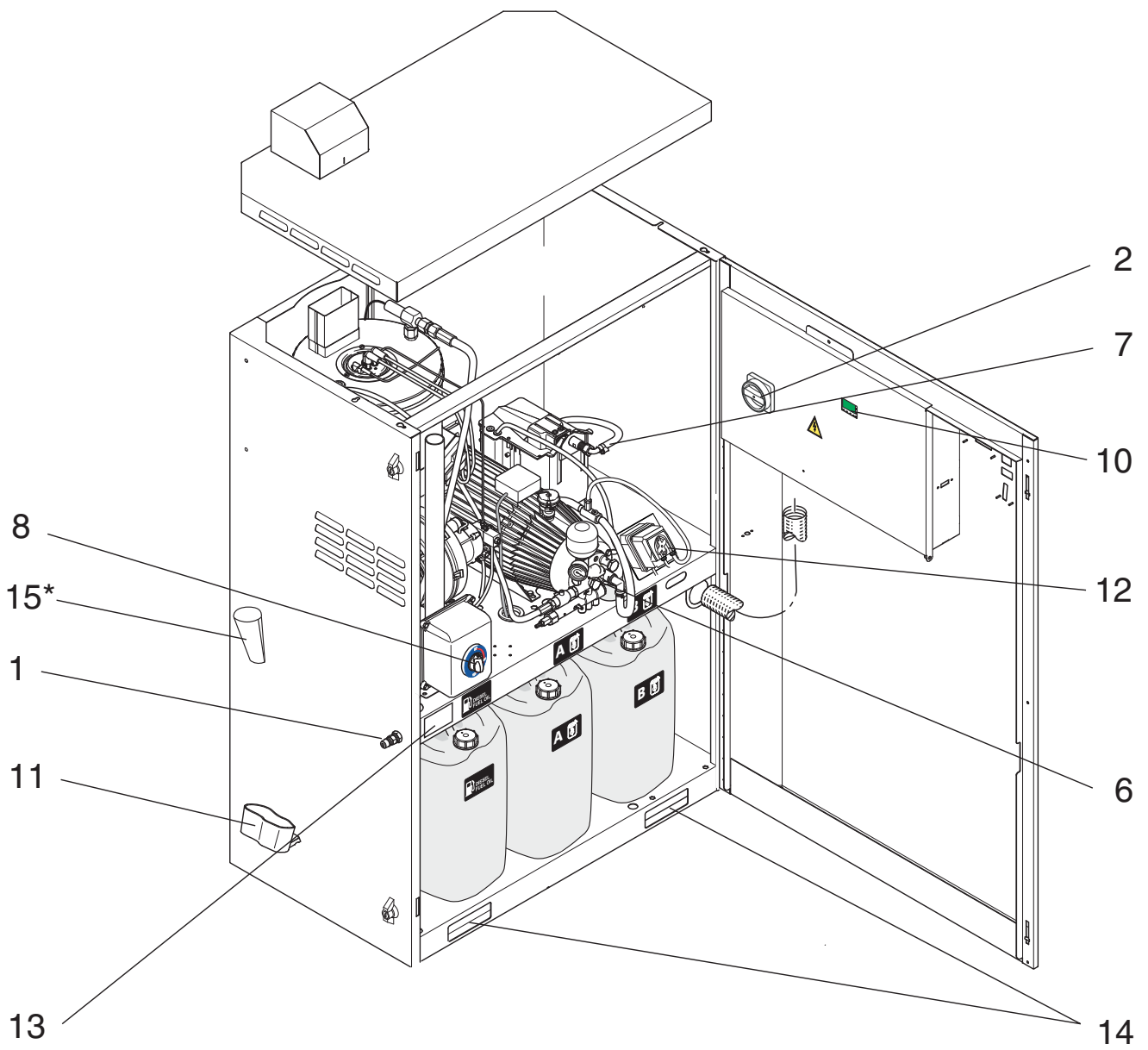








 <b>EC Declaration of Conformity</b>	
<b>Product:</b>	High Pressure Washer
<b>Type:</b>	TRUCK BOOSTER
<b>The design of the unit corresponds to the following pertinent regulations:</b>	EC Machine Directive 2006/42/EC EC Low-voltage Directive 2006/95/EC EC EMC Directive 2004/108/EC EC RoHS Direktivet 2011/65/EC EC PED Direktivet 97/23/EC
<b>Applied harmonised standards:</b>	EN 60335-2-79 (2006), EN 55014-1 (2006), EN 55014-2 (2001), EN 61000-3-2 (2006)
<b>Applied national standards and technical specifications:</b>	DS EN 60335-2-79
<b>Name and address of the person authorised to compile the technical file:</b>	Anton Sørensen General Manager, Technical Operations EAPC  Nilfisk-Advance A/S Sognevej 25 DK-2605 Brøndby
<b>Identity and signature of the person empowered to draw up the declaration on behalf of the manufacturer:</b>	  Anton Sørensen General Manager, Technical Operations EAPC  Nilfisk-Advance A/S Sognevej 25 DK-2605 Brøndby
<b>Place and date of the declaration</b>	Hadsund, 19.02.2013



# Nilfisk ALTO

works for you

## HEAD QUARTER

### DENMARK

Nilfisk-Advance A/S  
Sognevej 25  
DK-2605 Brøndby  
Tel.: (+45) 4323 8100  
www.nilfisk-advance.com

## SALES COMPANIES

### ARGENTINA

Nilfisk-Advance srl.  
Herrera 1855, 6 floor, Of. A-604  
ZC 1293 – Ciudad Autónoma  
de Buenos Aires – Argentina  
www.nilfisk-alto.com

### AUSTRALIA

Nilfisk-ALTO  
Unit 1, 13 Bessemer Street Blacktown  
NSW 2148 Australia  
www.nilfisk-alto.com.au

### AUSTRIA

Nilfisk-ALTO  
Geschäftsbereich der Nilfisk-Advance GmbH  
Metzgerstraße 68  
A-5101 Bergheim/Salzburg  
www.nilfisk-alto.at

### BELGIUM

Nilfisk-Advance NV/SA  
Riverside Business Park  
Boulevard Internationalelaan 55  
Bâtiment C3/C4 Gebouw  
Bruxelles 1070 Brussel  
www.nilfisk.be

### CHILE

Nilfisk-Advance S.A.  
San Alfonso 1462, Santiago  
www.nilfisk.com

### CHINA

Nilfisk-Advance Cleaning Equipment  
(Shanghai) Co Ltd.  
No. 4189, Yindu Road  
Xinzhuang Industrial Park  
Shanghai 201108  
www.nilfisk.cn

### CZECH REPUBLIC

Nilfisk-Advance s.r.o.  
Do Certous 1  
VGP Park Horní Pocernece, Budova H2  
CZ-190 00 Praha 9  
www.nilfisk.cz

### DENMARK

Nilfisk-ALTO Danmark  
Industrivej 1  
Hadsund, DK-9560  
www.nilfisk-alto.dk

### FINLAND

Nilfisk-Advance OY Ab  
Koskelontie 23E  
Espoo, FI-02920  
www.nilfisk.fi

### FRANCE

Nilfisk-Advance SAS  
Division ALTO  
BP 246  
91944 Courtaboeuf Cedex  
www.alto-fr.com

### GERMANY

Nilfisk-ALTO  
Geschäftsbereich der Nilfisk-Advance AG  
Guido-Oberdorfer-Straße 10  
89287 Bellenberg  
www.nilfisk-alto.de

### GREECE

Nilfisk-Advance A.E.  
8, Thoukididou Str.  
Argiroupoli, Athens, GR-164 52  
www.nilfisk.gr

### HOLLAND

Nilfisk-Advance B.V.  
Versterkerstraat 5  
1322 AN ALMERE  
www.nilfisk.nl

### HONG KONG

Nilfisk-Advance Ltd.  
2001 HK Worsted Mills Ind'l Bldg.  
31-39 Wo Tong Tsui St.  
Hong Kong, Kwai Chung, N.T.  
www.nilfisk.com

### HUNGARY

Nilfisk-Advance Kereskedelmi Kft.  
H-2310 Szigetszentmiklós-Lakihegy  
II. Rákóczi Ferenc út 10.  
www.nilfisk.hu

### INDIA

Nilfisk-Advance India Limited  
Pramukh Plaza, 'B' Wing, 4th floor, Unit No. 403  
Cardinal Gracious Road, Chakala  
Andheri (East), Mumbai 400 099  
www.nilfisk.com

### IRELAND

Nilfisk-Advance  
1 Stokes Place  
St. Stephen's Green  
Dublin 2, Ireland  
www.nilfisk-alto.ie

### ITALY

Nilfisk-Advance S.p.A.  
Strada Comunale Della Braglia, 18  
Guardamiglio, Lombardia, I-26862  
www.nilfisk.it

### JAPAN

Nilfisk-Advance Inc.  
1-6-6 Kita-Shinyokohama  
Kouhoku-Ku  
Yokohama 223-0059  
www.nilfisk-advance.co.jp

### KOREA

Nilfisk-Advance Korea  
471-4, Kumwon B/D 2F,  
Gunja-Dong, Gwangjin-Gu, Seoul  
www.nilfisk-advance.kr

### MALAYSIA

Nilfisk-Advance Sdn Bhd  
SD 33, Jalan KIP 10  
Taman Perindustrian KIP  
Sri Damansara  
52200 Kuala Lumpur  
Malaysia  
www.nilfisk.com

### MEXICO

Nilfisk Advance de Mexico S. de R.L. de C.V.  
Agustin M. Chavez 1, PB-004  
Col. Centro Ciudad Santa Fe  
C.P. 01210 México, D.F.  
www.nilfisk-advance.com.mx

### NEW ZEALAND

Nilfisk-Advance NZ Ltd  
Danish House  
6 Rockridge Avenue  
Penrose Auckland NZ 1135  
www.nilfisk.com.au

### NORWAY

Nilfisk-Advance AS  
Bjørnerudvejen 24  
Oslo, N-1266  
www.nilfisk-alto.no

### POLAND

Nilfisk-Advance Sp. z o.o.  
ul. 3-go Maja 8, Bud. B4  
Pruszków, PL-05-800  
www.nilfisk-alto.pl

### PORTUGAL

Nilfisk-Advance, Lda.  
Sintra Business Park  
Zona Industrial Da Abrunheira  
Edificio 1, 1o A  
Sintra, P-2710-089  
www.nilfisk.pt

### RUSSIA

Nilfisk-Advance LLC  
Vyatskaya str. 27, bld. 7, 1st floor  
Moscow, 127015  
www.nilfisk.ru

### SOUTH AFRICA

WAP South Africa (Pty) Ltd  
12 Newton Street  
1620 Spartan, Kempton Park  
www.wap.co.za

### SINGAPORE

Nilfisk-Advance Pte Ltd  
22 Tuas Avenue 2  
Singapore 639453  
www.nilfisk.com

### SPAIN

Nilfisk-Advance, S.A.  
Torre D'Ara  
Passeig del Rengle, 5 Pta.10ª  
Mataró, E-0830222  
www.nilfisk.es

### SWEDEN

Nilfisk-ALTO  
Aminogatan 18  
Möndal, S-431 53  
www.nilfisk-alto.se

### SWITZERLAND

NA Sondergger AG  
Nilfisk-ALTO Generalvertretung  
Mühlestrasse 10  
CH-9100 Herisau  
www.nilfisk-alto.ch

### TAIWAN

Nilfisk-Advance Ltd.  
Taiwan Branch (H.K.)  
No. 5, Wan Fang Road, Taipei  
www.nilfisk-advance.com.tw

### THAILAND

Nilfisk-Advance Co. Ltd.  
89 Soi Chokechai-Ruammitr  
Viphavadee-Rangsit Road  
Jomphol, Jatuchak  
Bangkok 10900  
www.nilfisk.com

### TURKEY

Nilfisk-Advance A.S.  
Şerifali Mh. Bayraktar Bulv. Sehit Sk. No:7  
Ümraniye, Istanbul 34775  
www.nilfisk.com.tr

### UNITED KINGDOM

Nilfisk-ALTO  
Bowerbank Way, Gilwilly Industrial Estate  
Penrith, Cumbria  
GB-CA11 9BQ  
www.nilfisk-alto.co.uk

### UNITED ARAB EMIRATES

Nilfisk-Advance Middle East Branch  
SAIF-Zone, P. O. Box 122298  
Sharjah  
www.nilfisk.com

### USA

Nilfisk-Advance  
14600 21st Ave. North  
Plymouth MN 55447-3408  
www.nilfisk-alto.us

### VIETNAM

Nilfisk-Advance Co., Ltd.  
No.51 Doc Ngu Str. Lieu Giai Ward  
Ba Dinh Dist. Hanoi  
www.nilfisk.com