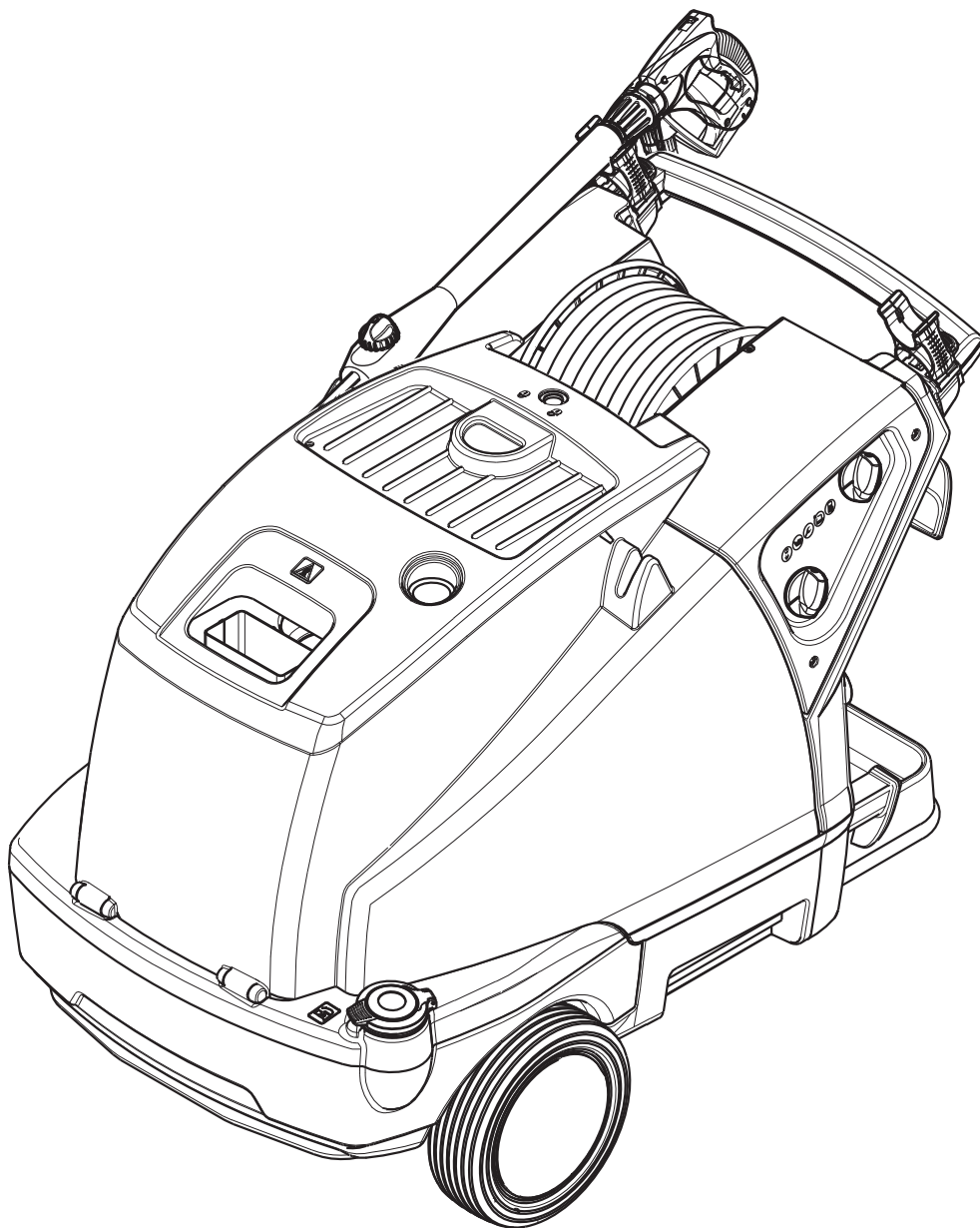
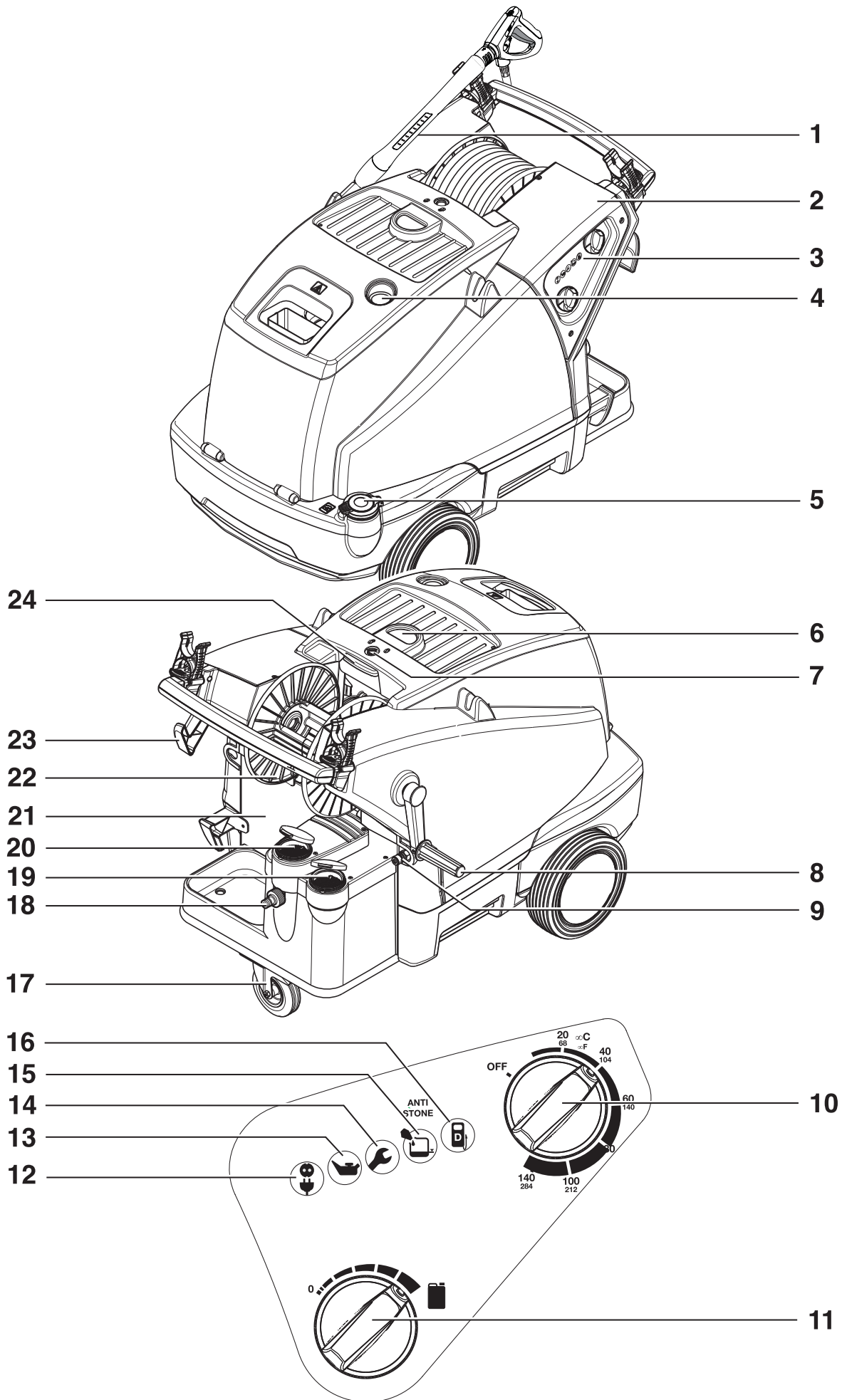


MH 4M - Instructions for use

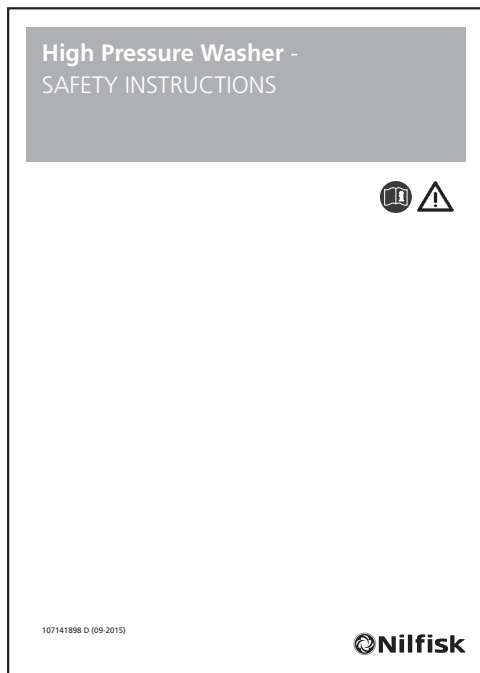




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1 Safety instructions



2 Description

2.1 Purpose

This high-pressure cleaner has been designed for professional use. It can be used for cleaning agricultural and construction equipment, stables, vehicles, rusty surfaces, etc.

The cleaner has not been approved for cleaning surfaces which comes into contact with food.

Chapter 5 describes the use of the high-pressure cleaner for various cleaning jobs.

Always use the cleaner as described in these operating instructions. Any other use may damage the cleaner or the surface to be cleaned or may result in severe injury to persons.

2.2 Operating elements

- | | | | |
|----|--|----|---------------------------------------|
| 1 | Spray lance | 11 | Detergent metering knob ¹⁾ |
| 2 | Spray lance storage | 12 | Power ON |
| 3 | Control panel | 13 | Pump oil low ¹⁾ |
| 4 | Pressure gauge | 14 | Service interval due/expired |
| 5 | Tank filler for fuel | 15 | Nilfisk AntiStone low ¹⁾ |
| 6 | Receptacle for service crane and lifting ring ¹⁾ | 16 | Fuel low ¹⁾ |
| 7 | Top cover release | 17 | Castor with parking brake |
| 8 | Crank handle for High pressure hose reel (MH 4M..X) | 18 | Supply water connection |
| 9 | High pressure hose connection for machines without hose reel | 19 | Tank filler for anti-freeze |
| 10 | Main switch with temperature controller | 20 | Tank filler for Nilfisk AntiStone |
| | | 21 | Canister for detergent |
| | | 22 | High pressure hose reel (MH 4M..X) |
| | | 23 | Cable hook |
| | | 24 | Grip for top cover |

See fold-out page at front of these operating instructions.

3 Before starting the cleaner

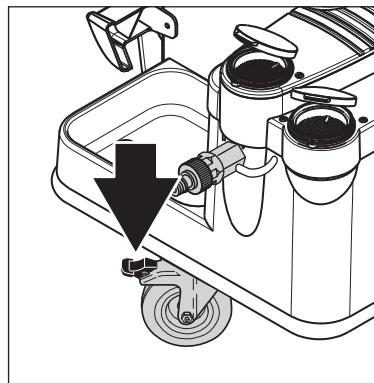
3.1 Setting up the cleaner

Every fuel-burning appliance, such as pressure washers, depends upon a proper mix of fuel and air (by weight) for proper combustion. Therefore some adjustment of the air regulation to the burner may be necessary to take account of altitude and the resulting air pressure. This is true whether your fuel is 'Natural gas', Propane or Diesel. Your Nilfisk hot water pressure washer was thoroughly tested and adjusted for optimum per-

formance before it left our factory. The factory is located at approximately 120m (390 ft) above sea level, and the combustion settings are optimal for that elevation.

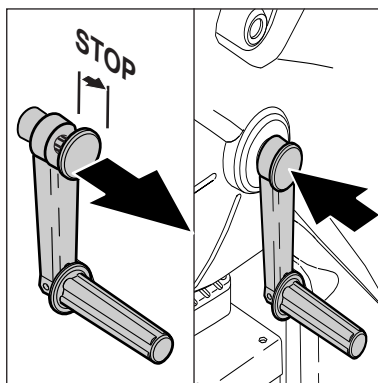
If your location is higher than 1200m (3900 ft) above sea level, your burner may require re-adjustment for proper performance and best fuel economy. Contact your Dealer or Nilfisk for assistance.

3.2 Set the brake



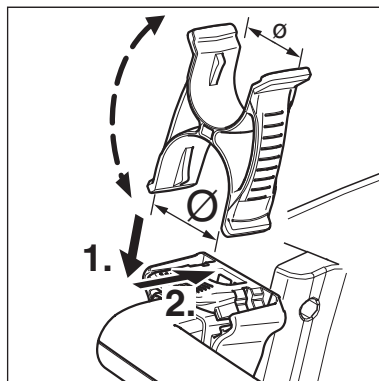
1. Before using the cleaner for the first time, check it carefully to detect any faults or damage.
2. Run the machine only when it is in perfect condition.
3. Set the brake.
4. The slope of which the high pressure cleaner is placed must not exceed more than 10° in any direction.

3.3 Install Crank handle for high pressure hose reel¹⁾



1. Pull cap of crank in arrow direction.
2. Align tabs on crank with slot in axle.
3. Put crank on axle of high pressure hose reel.
4. Fix crank by pushing the cap.

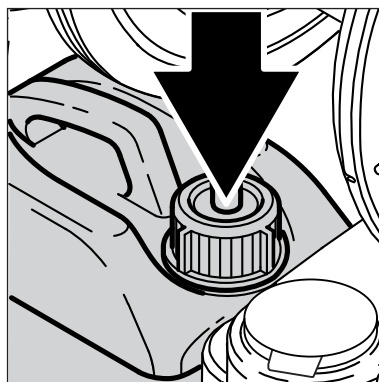
3.4 Fit clamp for high-pressure jet tube¹⁾



1. Insert clamp into the holder on the sliding guard:

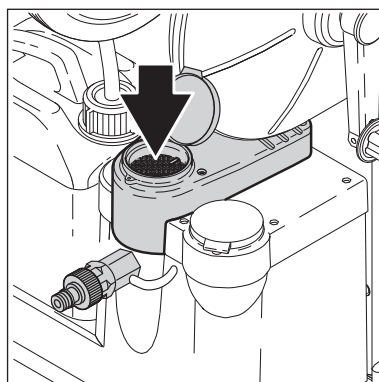
High-pressure jet lance ¹⁾	clamp

3.5 Fill up detergent tank¹⁾



1. Fill up detergent tank with prediluted detergent. Capacity see chapter 9.4 Technical Data

3.6 Fill up tank for Nilfisk AntiStone¹⁾



1. Fill up Nilfisk Anti-Stone/water softener reservoir with the sample bottle¹⁾ provided. Nilfisk Anti-Stone prevents any deposits of scale and acts at the same time as a corrosion inhibitor.

For compatibility reasons, use only the tested „Nilfisk Anti-Stone“. Order the refill pack in good time (Order no. 8466, 6 x 1 l).

3.7 Antiscale

The Nilfisk Antiscale dosing system is set by the factory. To adjust the water hardness we recommend that the inlet water is tested accordingly.

Use the schematic to find the right dosage of No Scale/anti stone and water, and add the mixture to the antiscale tank.

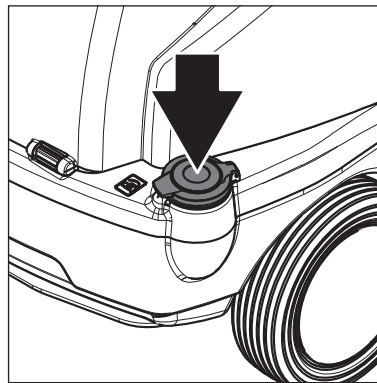


Machine flow L/h	Pump size ml/h	°dH	°f	°e	Dosage
800	35	0-12	0-21,5	0 - 15	1:1 = 17ml/h
800	35	12-30	21,5 - 53,7	15 - 37,5	Pure = 35ml/h
900	35	0-12	0-21,5	0 - 15	1:1 = 17ml/h
900	35	12-30	21,5 - 53,7	15 - 37,5	Pure = 35ml/h
1000	35	0-12	0-21,5	0 - 15	1:1 = 17ml/h
1000	35	12-30	21,5 - 53,7	15 - 37,5	Pure = 35ml/h

3.8 Fill up fuel tank

NOTE!

At temperatures below 8° C, the fuel oil begins to solidify (paraffin precipitation). This can lead to difficulties in starting the burner. Before the winter period either add a solidification point / flow improver (available from the fuel oil trade) to the fuel or use winter diesel fuel.



With the machine cold:

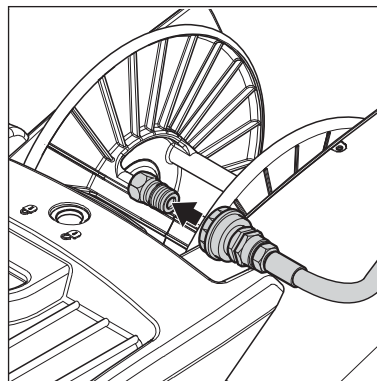
1. Fill fuel tank from a clean container with a fresh fuel, heating oil, DIN 51603-1 (without bio diesel) or Diesel EN 590

(Diesel with a bio diesel content up to 7%).

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 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.

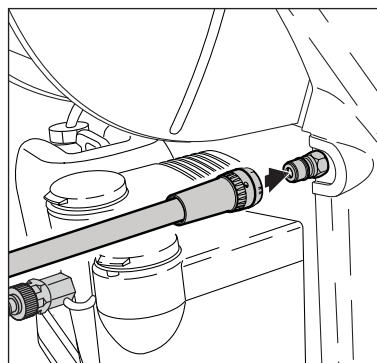
3.9 Connecting the high pressure hose

3.9.1 Machines with high pressure hose reel



1. Put the quick connector of the high pressure hose onto the nipple on the axle.

3.9.2 Machines without high pressure hose reel



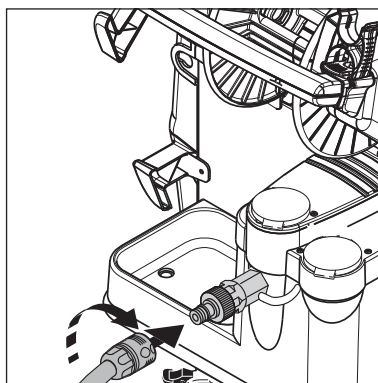
1. Put the quick connector of the high pressure hose onto the nipple on the cleaner.

3.10 Connecting the water supply

NOTE!

See chapter 9.4 Technical Data for required quantity of water and water pressure.

In order to comply with national regulations and those of the water supply companies, it must be ensured that water cannot flow back if the pressure in the water mains falls below atmospheric pressure.

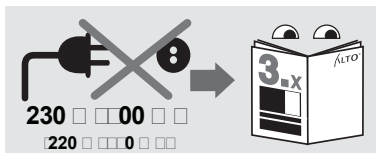
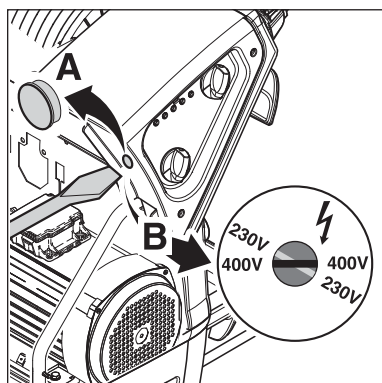


In the case of poor water quality (sand, etc.), we recommend that a fine water filter is fitted in the water inlet.

1. Rinse the water supply hose briefly in order to prevent sand and other dirt particles entering into the machine.
2. Connect water supply hose to the machine.
3. Open water tap.

We recommend the use of a textile-reinforced water hose with a nominal diameter of min. 3/4" (19 mm).

3.11 Electrical connection



Before connecting devices with voltage changeover¹⁾: Check that the pre-selected voltage on the machine corresponds with the voltage of the electrical instal-

lation. Otherwise the electrical devices of the machine can be destroyed.

CAUTION!

When using cable reels:

1. Due to the risk of overheating and fire, always unwind the power supply cord fully.

The cleaner may only be connected to a correctly installed electrical installation.

1. Observe safety instructions in chapter 1.
2. Put the plug into the electrical socket.

3.12 Antifreeze - before first use

The machine is protected with anti-freeze from the factory. Catch the liquid discharging at

first (approx. 5 l) for re-use in a container.

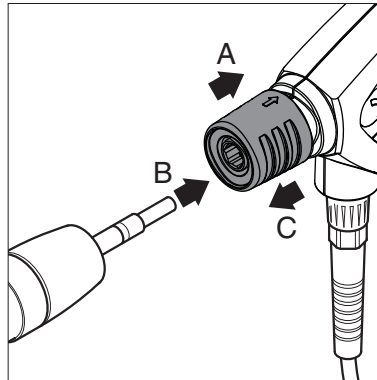
4 Control / Operation

4.1 Connections

4.1.1 Connecting the spray lance to the spray gun

NOTE!

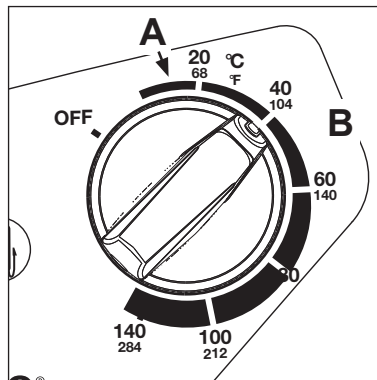
Always remove any dirt from the nipple before connecting the spray lance to the spray gun.



1. Pull the blue quick-release grip (A) of the spray gun backwards.
2. Insert the nipple of the spray lance (B) into the quick-release connection and release it.
3. Pull the spray lance (or other accessory) forwards to check that it is securely attached to the spray gun.

4.2 Switching on the cleaner

4.2.1 Cold water operation / Hot water operation (up to 100°C)



1. Move main switch into position 'Cold Water' (A).

The control electronics system performs a self-test, all the LEDs light up once.

The motor starts.

 lights up.

2. Move main switch into position 'Hot Water' (B) and select the temperature.

3. Unlock the spray gun and actuate it.

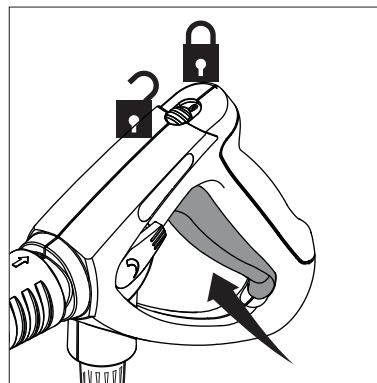
The burner switches on.

In case of interruptions in work: Also be sure to insert the safety catch even during short interruptions in work (see Fig. in section 6.1)

IMPORTANT!

In the case of appliances with a hose reel:

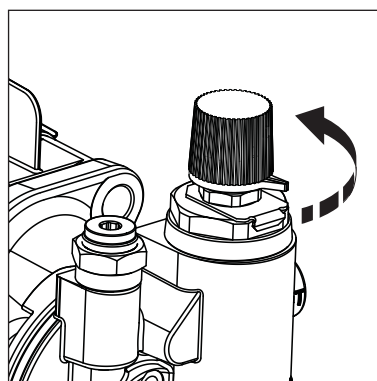
In hot water mode, unwind the high-pressure hose fully from the hose reel, as otherwise the hose reel may become warped due to the effects of the heat.



4.2.2 Steam operation (over 100°C (212°F))¹⁾



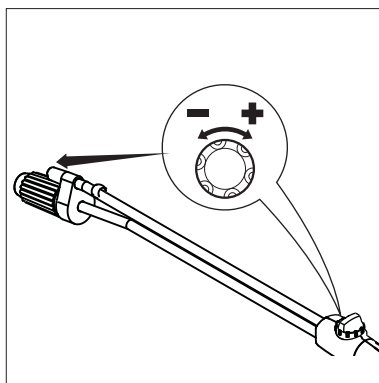
Beware of hot water and steam discharge up to 150°C when operating in steam stage.



1. Open cover.
2. Turn the twist grip on the safety control block completely to the left (anticlockwise direction).
3. Turn the main switch into position 'Hot Water'.
4. Select temperature (over 100°C).

For special applications: replace the standard nozzle with the steam spray nozzle (accessory).

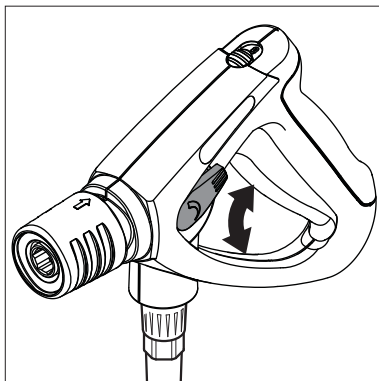
4.3 Pressure regulation (Tornado Lance)¹⁾



1. Turn the twist grip on the spray unit:
 - High pressure = clockwise (+) for high pressure
 - Low pressure = anticlockwise (–) for low pressure.


4.4 Pressure regulation (VarioPress Gun)¹⁾

For safety reasons, never tie back or wedge open the trigger of the spray gun in open position during operation. The trigger must be free to close when released, thus interrupting the flow of the water.

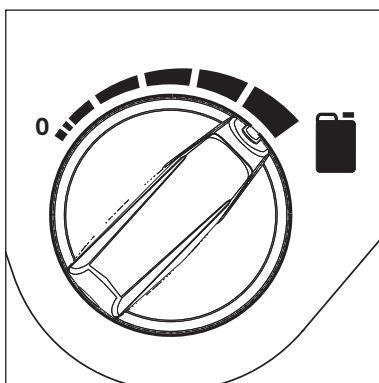
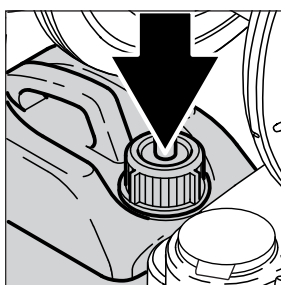


1. Turn the twist grip on the spray unit:

Water volume

(–) min.  (+) max.

4.5 Using cleaning agents¹⁾



1. Set the desired concentration of cleansing agent at the cleansing agent dosing facility.
2. Spray the object to be cleaned.
3. Allow the cleaning agent to work, depending on the degree of soiling. Then rinse off with the high pressure spray jet.

For special applications (e.g. disinfection) the exact detergent concentration has to be determined by measuring cup. For water throughput of the machine see chapter 9.4 technical data.

CAUTION!

Never allow cleaning agent to dry on the surface to be cleaned. The surface may be damaged.

5 Applications and methods

5.1 Techniques

Efficient high pressure cleaning is achieved by following a few guidelines, combined with your own personal experience of specific cleaning tasks. Accessories and detergents, when correctly chosen, can increase the efficiency of your pressure washer. Here is some basic information about cleaning.

5.1.1 Soaking

Encrusted or thick layers of dirt can be loosened or softened up by a period of soaking. This is for example an ideal method within agriculture – for example, within pig sties. The ideal soaking method can be achieved via use of foam or simple alkaline detergent. Let the product lie on the dirty surfaces for around 30 minutes before pressure washing. The result will be a much quicker high pressure cleaning process.

5.1.2 Detergent and Foam

Foam or detergent should be applied onto dry surfaces so that the chemical product is in direct contact with the dirt. Detergents are applied from bottom to top, for example on a car bodywork, in order to avoid “super clean” areas, where the detergent collects in higher concentration and streams downwards. Let the detergent work for several minutes before rinsing but never let it dry on the surface being cleaned.

5.1.3 Temperature

Detergents are more effective at higher temperatures. Greases, oils and fats can be broken down more easily at higher temperatures also. Proteins can be cleaned at temperatures of around 60°C. Oils, traffic film around 70°C, and grease can be cleaned at 80°C - 90°C.

5.1.4 Mechanical Effect

In order to break down tough layers of dirt, additional mechanical effect may be required. Special lances and rotary or wash brushes offer this supplementary effect that cuts through dirt.

5.1.5 High Water Flow or High Pressure

High pressure is not always the best solution and high pressure may damage surfaces. The cleaning effect also depends upon water flow. Pressure levels of around 100 bar may be sufficient for vehicle cleaning (in association with hot water). Higher flow levels give the possibility to rinse and flush away large amounts of dirt easily.

5.2 Some typical cleaning tasks

5.2.1 Agriculture

Task	Accessories	Method
Stables Pig Pens, Sties	Chemical Foam Injectors Foam lance	1. Soaking – apply foam to all surfaces (bottom to top) and wait for approx. 30 minutes.
Cleaning of walls, floors and equipment	Powerspeed lance Floor Cleaner	2. Remove the dirt from surfaces with the high pressure lance or chosen accessory. Again, clean from bottom to top on vertical surfaces.
Disinfectant	Detergents Universal Alkafoam	3. To flush away large quantities of dirt, change to low pressure mode and use the higher flow to push away the dirt.
	Disinfectant DES 3000	4. Use recommended disinfectant products and methods to ensure hygiene. Apply DES 3000 disinfectant once the surfaces are perfectly clean.
Machinery Tractors ploughs etc.	Detergent injection Powerspeed lances Curved lances and underchassis washers Brushes	1. Apply detergent to vehicle or equipment surfaces in order to soften up dirt and grime. Apply from bottom to top. 2. Proceed with cleaning using the high pressure lance. Clean again from bottom to top. Use accessories to clean in difficult to reach places. 3. Clean fragile areas such as motors, rubber at lower pressure levels to avoid damage.

5.2.2 Vehicle

Task	Accessories	Method
Vehicle bodywork	Standard lance Detergent injection Curved lances and underchassis washers brushes Detergents Active Shampoo Active Foam Sapphire Super Plus Active Wax Allosil RimTop	<ol style="list-style-type: none"> 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. 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 undercarriage washers can be valuable for the cleaning of car underchassis and wheel arches. 3. Clean fragile areas such as motors, rubber at lower pressure levels to avoid damage. 4. Apply a liquid wax using the pressure washer in order to protect the bodywork from pollution.

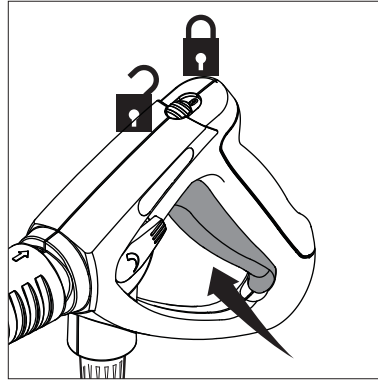
5.2.3 Buildings and Equipment

Task	Accessories	Method
General surfaces Metallic equipment	Foam injectors Standard lance Curved lances Tank cleaning head Detergents Intensive J25 Multi Combi Active Alkafoam Disinfectant DES 3000	<ol style="list-style-type: none"> 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. 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. 3. Apply DES 3000 disinfectant once the surfaces are perfectly clean. <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>
Rusted or damages surfaces prior to treatment	Wet Sandblasting equipment	<ol style="list-style-type: none"> 1. Connect the sandblasting lance to the pressure washer and place the suction tube in the sand. 2. Always wear protective equipment during sandblasting. 3. Spray the surfaces to be treated with the mix of water and sand. Rust, paint etc will be stripped off.

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 representative in order to discuss the best solution for your own cleaning tasks.

6 After using the cleaner

6.1 Switching off the cleaner



1. Turn the main switch to position „OFF“.
2. Close water tap.
3. Squeeze the spray gun handle until the cleaner is depressurised.
4. Lock the safety catch on the spray gun.

6.2 Disconnecting supply lines

1. Close water tap.
2. Squeeze the spray gun handle until the cleaner is depressurised.
3. Lock the safety catch on the spray gun.

4. Switch off the cleaner.
5. Remove the water hose from the cleaner.
6. Pull out the plug from the electrical socket.

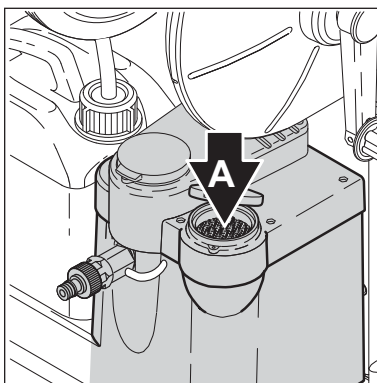
6.3 Rolling up the electrical cord and storing accessories

Risk of tripping!

To prevent accidents, always carefully roll up the electrical cord.

1. Wind up the cord
2. Wind up the high pressure hose.
3. Place the spray lance into the spray lance storage.

6.4 Storing the cleaner (below 0°C (32°F))



Store the cleaner in a dry room without danger of frost or protect as below:

1. Remove the water inlet hose from the cleaner.
2. Remove the spray lance.
3. Switch on the cleaner with the main switch in position "Cold Water".
4. Operate the spray gun.
5. Gradually pour antifreeze (approx. 5 litres) into the water tank (A).
6. During suction operate the spray gun two or three times.
7. The machine is protected

against frost when antifreeze solution emerges from the spray gun.

8. Lock the safety catch on the spray gun.
9. Switch off the cleaner.
10. To avoid any risks, store the cleaner temporarily in a heated room before using it again.
11. When the machine is put into service again, the antifreeze solution can be collected and stored for future use.

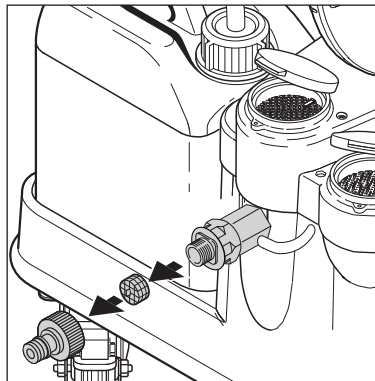
7 Maintenance

7.1 Maintenance plan

	Weekly	After the first 50 operating hours	Every six months or 500 operating hours	As required
7.2.1 Water filters				●
7.2.2 Fuel filter				●
7.2.3 Checking the pump oil quality	●			
7.2.4 Changing the pump oil		●	●	
7.2.5 Emptying the fuel oil tank				●
7.2.6 Flame Sensor				●

7.2 Maintenance work

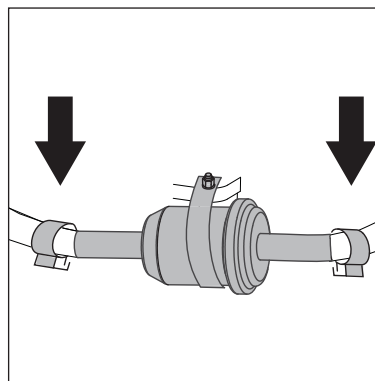
7.2.1 Water filters



A water filter is fitted on the water inlet to prevent large particles of dirt from entering into the pump.

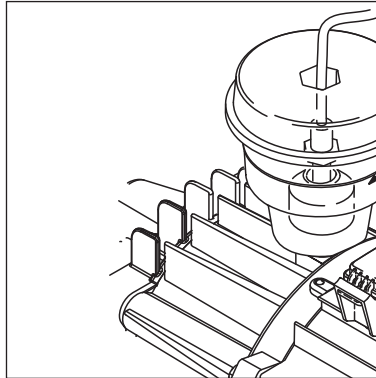
1. Unscrew quick coupling.
2. Remove filter with tool and clean it.

7.2.2 Maintenance of fuel filter



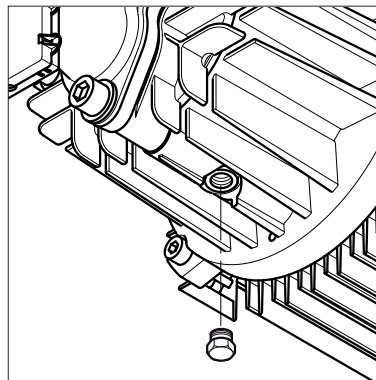
1. Open hose clips
2. Replace fuel filter
3. Close hose clips
4. Dispose the cleaning solution/damaged filter in accordance with the disposal regulations.

7.2.3 Checking the pump oil quality



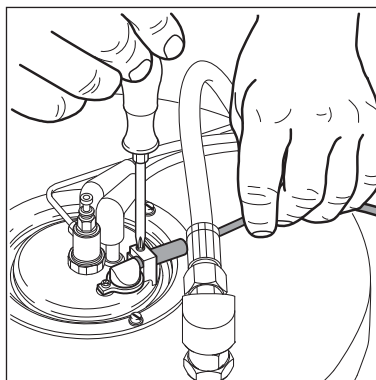
1. Check colour of pump oil. If the oil has a grey or white shade, change the oil (see chapter 7.2.4)
2. Top up cold pump with fresh oil if necessary. Oil type see chapter 9.4 Technical Data.

7.2.4 Changing the pump oil



1. Unscrew the oil drain plug (A) on the pump housing and dispose of the old oil in accordance with the disposal regulations.
2. Check the drain plug gasket and screw in the plug again.
3. Fill with oil and close the oil filler plug. Oil grade and capacity see chapter '9.4 Technical Data'.








7.2.5 Flame sensor¹⁾







1. Remove the sensor and clean with a soft cloth.
2. Ensure that the sensor is correctly seated when installing again - the symbols must face upwards.

8 Troubleshooting



8.1 Indications on Display

Indication lights				Cause	Remedy
				<ul style="list-style-type: none"> > Constant light <ul style="list-style-type: none"> - The appliance is ready for operation When switching on, all the LEDs light up once before the motor is switched on > Flashing light <ul style="list-style-type: none"> - Flow sensor fault - Water tap closed or water shortage - Detergent tank empty - Pressure regulation on the safety control block or VarioPress-lance¹⁾ set to low water volume - Machine scaled 	<ul style="list-style-type: none"> > Contact Nilfisk Service > Cold water operation possible > Required volume flow and pressure see chapter 9.4 Technical Data > Top up detergent tank or set detergent metering to "OFF" > Turn the twist grip on safety control block or VarioPress lance¹⁾ to higher water volume (see chapter 4.4) > Contact Nilfisk Service
				<ul style="list-style-type: none"> > Constant light <ul style="list-style-type: none"> - Fuel shortage 	<ul style="list-style-type: none"> > Top up fuel > Cold water operation is possible
				<ul style="list-style-type: none"> > Flashing light <ul style="list-style-type: none"> - Nilfisk AntiStone shortage 	<ul style="list-style-type: none"> > Top up Nilfisk AntiStone
				<ul style="list-style-type: none"> > Constant light <ul style="list-style-type: none"> - Service interval has expired > Flashing light <ul style="list-style-type: none"> - Service interval due in 20 hours 	<ul style="list-style-type: none"> > Contact Nilfisk Service > Contact Nilfisk Service
				<ul style="list-style-type: none"> > Constant light <ul style="list-style-type: none"> - Pump oil low 	<ul style="list-style-type: none"> > Top up pump oil
				<ul style="list-style-type: none"> > Flashing light (simultaneously) <ul style="list-style-type: none"> - Leakage or inadmissible operating condition by short-time operation - Spray gun leaking - High pressure hose, coupling or line system leaking - Detergent tank empty - Water inlet filter dirty - High-pressure pump drawing in air 	<ul style="list-style-type: none"> > After three times of short-time operation the machine switches off. Reset: Turn main switch to position "OFF", then start again. Keep spray gun pressed for longer than 3 seconds. If a leak occurs causing the machine to start and stop briefly 3 times, then the machine will switch off. > Check Spray gun > Replace high pressure hose, retighten screw fittings > Top up detergent tank or set detergent metering to "OFF" > Clean filter (see chapter 7.2.1) > Repair leaks

Continued ▶

			> Flashing light (alternately) - Motor overheated	> • Turn main switch in position "OFF", let the machine cool down • Remove/disconnect extension cable • Possible phase failure; have electrical connection checked
			> - Machine overheated	> Contact Nilfisk Service
 slow		 rapid	> Flashing light - Flame sensor sooted - Ignition or fuel system failure	> Clean flame sensor (see chapter 7.2.5) > Contact Nilfisk Service > Cold water operation possible

8.2 Other Faults

Fault	Cause	Remedy
 not ON	> Plug not connected to the electrical plug socket	• Put the plug into the electrical socket. • Check fuse (see chapter 9.4 Technical Data)
Pressure too low	> High pressure nozzle worn out > Pressure regulation set to low pressure or VarioPress-lance ¹⁾ set to low water volume.	• Replace nozzle • Turn the twist grip on safety control block clockwise (+) or set VarioPress-lance ¹⁾ to higher water volume (see chapter 4.4)
Machine is running with pulsating pressure and makes knocking noise	> Pump has drawn in air as the detergent tank is empty	• Close detergent valve. Remove lance from gun. Operate spray gun and let machine run until air in pump is gone and the machine is running normally/calm again.
No detergents drawn in	> Detergent tank empty > Dirt in detergent tank > Suction valve at cleaning agent inlet soiled	• Top up detergent tank • Clean detergent tank • Remove suction valve and clean or replace
Burner soots	> fuel contamination > Burner sooted or adjustment incorrect	 Contact Nilfisk Service

9 Further information

9.1 Recycling the cleaner



Make the old cleaner unusable immediately.

1. Unplug the cleaner and cut the power cord.

Do not discard of electrical appliances with household waste.

As specified in European Directive

2012/19/EU on old electrical and electronic appliances, used electrical goods must be collected separately and recycled ecologically. Contact your local authorities or your nearest dealer for further information.

9.2 Guarantee

Our general conditions of business are applicable with regard to the guarantee.

Unauthorized modifications to the appliance, the use of incorrect accessories, spare parts and cleaning chemicals in addition to using the appliance in a way other than for the intended purpose exempt the manufacturer from any liability for the resulting damage.

US only:

This warranty is in effect from the first day of purchase by the end user.

Each machine will have one (1) year coverage, from date of purchase by the end user, covering parts found defective due to faulty components, materials and/or bad workmanship. Not included in this warranty coverage are parts found defective due to:

- Normal wear and tear (such as seals, valves, pistons, bearings, etc.)
- Machine working under abnormal conditions.

- Machines being misused.
- Machines being repaired or tampered with by unauthorized person(s).
- The use of parts other than Nilfisk Cleaning Systems, Inc. original spare parts and/or accessories.

The burner coil on all Nilfisk Cleaning Systems, Inc. hot water/steam cleaners is under warranty for two (2) years against defects, and the high pressure hose is covered for an initial 30 days, under the same conditions described above.

Nilfisk Cleaning Systems, Inc. will cover labor by an authorized Nilfisk CSI Dealer for a 12-month period after the date of purchase of the machine by the end user. No other costs, other than laid out in this warranty program, will be covered by the warranty.

Dated, End-User proof of purchase must be submitted with any claim for Warranty Service.

9.3 EU Declaration of Conformity

We,
Nilfisk A/S
Kornmarksvej 1,
DK-2605 Broendby
DENMARK

Hereby declare, that the
Product: HPW - Professional - Mobile
Description: 230V 1~, 400V 3~,
50/60Hz, IPX5
Type: MH 4M*

Are in compliance with the following standards:

EN 60335-1:2012
EN 60335-2-79:2012
EN 55014-1:2006+A1:2009+A2:2011
EN 55014-2:1997+A1:2001+A2:2008
EN 61000-3-2:2014
EN 61000-3-11:2000
EN 50581:2012

Following the provisions of:
Machinery Directive 2006/42/EC
EMC Directive 2004/108/EC
RoHS Directive 2011/65/EC
Noise Emission Directive 2000/14/EC
– Conformity assessment procedure according to Annex V.

- Measured noise level [dB]: 75-80
- Guaranteed noise level [dB]: 91-94

Hadsund 04-03-2015



Anton Sørensen
Senior Vice President – Global R&D

9.4 Technical Data



MH 4M	Descr.	4M-140/560 X	4M-165/820 X	4M-180/860 L	4M-180/860 X	4M-170/890	4M-170/890	4M-190/960	4M-190/960 X	4M-190/960 X	4M-200/1010	4M-200/1010 X	4M-200/1010	
Voltage 200 V / 3~ / 50Hz							JP							
Voltage 200 V / 3~ / 60Hz								JP						
Voltage 220 V / 1~ / 60Hz														
Voltage 230 V / 1~ / 50Hz			EU											
Voltage 230 V / 1~ / 60Hz														
Voltage 240 V / 1~ / 50Hz														
Voltage 400 V / 3~ / 50Hz				EU	EU	EU			EU / AU			EU		
Voltage 400/230 V / 3~ / 50Hz										NO				
Voltage 220/440 V / 3~ / 60Hz													EXPT	
Fuse		A	16	16	16	16	20	20	16	25 / 16	16		15 / 25	
Power rating		kW	3.1	4.7	5.2	5.2	4.8	4.7	6 / 6.1	6.2 / 6	6.5 / 6.7		6.4 / 6.3	
Power consumption		A	15.1	9.2	9.7	9.7	18.9	16.8	13 / 13.1	22.5 / 12.4	12.5 / 12.7		12.4 / 22.5	
Type of protection			IP X5	IP X5	IP X5	IP X5	IP X5	IP X5	IP X5	IP X5	IP X5		IP X5	
Working pressure		bar (Mpa)	135 (13.5)	165 (16.5)	180 (18)	180 (18)	170 (17)	170 (17)	190 (19)	190 (19)	200 (20)		200 (20)	
Permissible pressure P _{max}		bar (Mpa)	210	250	250	250	250	250	250	250	250		250	
Volume flow (max)		l/h	565	820	860	860	890	890	960	960	1010		1010	
Volume flow Q _{REC}		l/h	525	760	800	800	830	830	900	900	960		960	
High pressure nozzle			0340	0450	0450	0450	0500	0500	0500	0500	0500		0550	
Temperature t _{max} hotwater		°C	90	90	90	90	90	90	90	90	90		90	
Temperature t _{max} steam		°C	150	150	150	150	150	150	150	150	150		150	
Max. water inlet temperature		°C	40	40	40	40	40	40	40	40	40		40	
Max. water inlet pressure		bar (Mpa)	10(1)	10(1)	10(1)	10(1)	10(1)	10(1)	10(1)	10(1)	10(1)		10(1)	
Dimensions l x w x h		mm	1053 x 687 x 760	1053 x 687 x 760	1053 x 687 x 760	1053 x 687 x 760	1053 x 687 x 760	1053 x 687 x 760	1053 x 687 x 760	1053 x 687 x 760	1053 x 687 x 760		1053 x 687 x 760	
Weight		kg	136	136	125	136	136	136	136 / 141	136 / 141	136 / 141		136 / 141	
Calculated sound pressure at a distance of 1 m EN 60704-1 L _{PA} +/- K _{PA} *		dB(A)	80 +/- 1,5	80 +/- 1,5	80 +/- 1,5	80 +/- 1,5	75 +/- 1,5	75 +/- 1,5	76 +/- 1,5	76 +/- 1,5	77 +/- 1,5		77 +/- 1,5	
Sound power level L _{WA} MAX including K _{WA} = 1,5dB*		dB(A)	94	94	94	94	91	91	91	91	92		92	
Vibration ISO 5349		m/s ²	≤ 2,5	≤ 2,5	≤ 2,5	≤ 2,5	≤ 2,5	≤ 2,5	≤ 2,5	≤ 2,5	≤ 2,5		≤ 2,5	
Recoil forces		N	18.2	30.1	33.3	33.3	36	37	38	38	42		42	
Heating capacity		kW	48	61	51	61	66	66	66	66	66		66	
Fuel tank		l	15	15	15	15	15	15	15	15	15		15	
Detergent tank A / B		l	10	10	10	10	10	10	10	10	10		10	
Oil quantity		l	1	1	1	1	1	1	1	1	1		1	
Oil type			BP Energol GR-XP 220											

* Noise emission acc. to EN 60335-2-79 ZAA.2.7



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