

 Please read and comply with these original instructions prior to the initial operation of your appliance and store them for later use or subsequent owners.

- Before first start-up it is definitely necessary to read the operating instructions and safety indications Nr. 5.951-949!
- In case of transport damage inform vendor immediately
- Check the contents of the pack before unpacking.

Contents

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Environmental protection

	The packaging material can be recycled. Please do not throw the packaging material into household waste; please send it for recycling.
	Old appliances contain valuable materials that can be recycled; these should be sent for recycling. Batteries, oil, and similar substances must not enter the environment. Please dispose of your old appliances using appropriate collection systems.

Please do not release engine oil, fuel oil, diesel and petrol into the environment. Protect the ground and dispose of used oil in an environmentally-clean manner.

Notes about the ingredients (REACH)

You will find current information about the ingredients at:

www.kaercher.com/REACH

Symbols in the operating instructions

Danger

Immediate danger that can cause severe injury or even death.

Warning

Possible hazardous situation that could lead to severe injury or even death.

Caution

Possible hazardous situation that could lead to mild injury to persons or damage to property.

Overview

Device elements

Figure 1

- 1 Cover
- 2 Support for spray lance (both sides)
- 3 System care Advance RM 110/RM 111
- 4 Steering roller with fixed position brake
- 5 Mounting location for transport (both sides)
- 6 Folding compartment (M/S only)
- 7 High pressure connection (M/S only)
- 8 High pressure hose
- 9 Hand spraygun
- 10 Spray lance
- 11 High-pressure nozzle (stainless steel)
- 12 Steam nozzle (brass)
- 13 Power supply
- 14 Safety latch of the hand spray gun
- 15 Pressure/ quantity regulation at the hand spray gun
- 16 Connection for water supply with filter
- 17 Exit opening of the high-pressure hose (MX/SX only)
- 18 Step depression
- 19 Pouring vent for detergent 2
- 20 Hand crank for hose drum (MX/SX only)
- 21 Pouring vent for detergent 1
- 22 Hose drum (MX/SX only)
- 23 Pouring vent for fuel
- 24 Handle
- 25 Operating field
- 26 Closing flap for storage compartment
- 27 Storage compartment for accessories
- 28 Nameplate
- 29 Cover lock
- 30 Oil tank
- 31 Pressure/quantity regulation of the pump unit

- 32 Oil drain screw
- 33 Backflow valve of the detergent infeed
- 34 Detergent suction hose 1 with filter
- 35 Detergent suction hose 2 with filter
- 36 Fuel filter
- 37 Service switch
- 38 Water shortage safe guard with sieve
- 39 Float tank
- 40 Fine filter (water)

Operating field

Figure 2

- A Power switch
- B Temperature controller
- C Dosage valve for detergent
- D Manometer
- 1 Indicator lamp pump
- 2 Indicator lamp rotation direction (not HDS 7/9, HDS 7/10, HDS 7/12)
- 3 "Ready for use" indicator lamp
- 4 Fuel indicator lamp
- 5 Indicator lamp : Detergent 1 (HDS 12/18 only)
- 6 Engine indicator lamp
- 7 Indicator lamp burner failure
- 8 Indicator lamp service
- 9 Indicator lamp system care
- 10 Indicator lamp : Detergent 2 (HDS 12/18 only)

Symbols on the machine



High-pressure jets can be dangerous if improperly used. The jet may not be directed at persons, animals, live electrical equipment or at the appliance itself.

Proper use

Cleaning of: Machines, Vehicles, Structures, Tools, Facades, Terraces, Gardening tools, etc.

⚠ Danger

Risk of injury! Follow the respective safety regulations when operating at gas stations or other dangerous areas.

Please do not let mineral oil contaminated waste water reach soil, water or the sewage system. Perform engine cleaning and bottom cleaning therefore only on specified places with an oil trap.

Safety instructions

- Please follow the national rules and regulations for fuel spray jets of the respective country.
- Please follow the national rules and regulations for accident prevention of the respective country. Fuel spray jets must be tested regularly and the results of these tests must be documented in writing.
- The heating appliance of the machine is an ignition plant. All national laws and regulations about heating systems must also be followed.
- As per the applicable national guidelines, the first time this high-pressure cleaner must be taken into operation by a skilled person. KÄRCHER has already performed this initial start-up for you and has documented it accordingly. The documentation can be requested at your KÄRCHER partner. Please have the part and plant number of the appliance available when enquiring about the documentation.
- We would like to point out that the appliance must be repeatedly checked by a skilled person as prescribed by the applicable national regulations. Please contact your KÄRCHER partner.

Safety Devices

Safety devices serve for the protection of the user and must not be put out of operation or bypassed with respect to their function.

Overflow valve with two pressure switches

- While reducing the water supply at the pump head or with the Servopress - regulation the overflow valve opens and part of the water flows back to the pump suck side.
- If the hand-spray gun is closed, so that the whole water flows back to the pump suck side, the pressure switch at the overflow valve shuts down the pump.
- If the hand spray gun is opened, the pressure switch on the cylinder head turns the pump back on.

The overflow valve is set by the manufacturer and sealed. Setting only by customer service.

Safety valve

- The safety valve opens, when the overflow valve resp. the pressure switch is broken.

The safety valve is set by the manufacturer and sealed. Setting only by customer service.

Water shortage safeguard

- The water shortage safeguard prevents the burner to be turned on when there is water shortage.
- A sieve prevents the contamination of the safeguard and must be cleaned regularly.

Temperature stop for exhaust gases

- The temperature stop switches off the machine when the waste gases have reached very high temperatures.

Start up

⚠ Warning

Risk of injury! Device, tubes, high pressure hose and connections must be in faultless condition. Otherwise, the appliance must not be used.

➔ Lock parking brake.

Installing the handle

Figure 3

Caution

Hook the electric supply line into the cable guide of the right handle bow. Ensure that the cable is not damaged.

Replace the system care bottle

Note: Push the bottle in securely to penetrate the closure. Do not remove bottle until it is empty.

Note: To protect the device, the burner is switched off 5 hours after the system care bottle is empty.

- The system care prevents the calcification of the heating spiral while operating with calciferous tap water. It is dosed into the supply in the float container drop by drop.
- The metering is set to medium water rigidity by the manufacturer

Note: A system care bottle is included in the delivery.

→ Replace the system care bottle.

Adjusting the dosage of the system care Advance RM 110/RM 111

- Determining the hardness of tap water:
- through the public water supply works,
 - using a hardness tester (order no. 6.768-004)

Water hardness (°dH)	Scale on the service switch
<3	OFF (no dosing)
3...7	1
7...14	2
14...21	3
>21	4

→ Set the service switch according to the water hardness in the table.

Note: Observe the following when using system care Advance 2 RM 111:

- Calcification protection: See table
- Pump care and black water protection: Set the service switch to at least setting 3.

Refill fuel

⚠ Danger

Risk of explosion! Only refill diesel oil or light fuel oil. Unsuitable fuels, e.g. petrol, are not to be used.

Caution

Never operate device with empty fuel tank. The fuel pump will otherwise be destroyed.

- Refill fuel.
- Close tank lock.
- Wipe off spilled fuel.

Refill detergent

Caution

Risk of injury!

- Use Kärcher products only.
- Under no circumstances fill solvents (petrol, acetone, diluting agent etc.)
- Avoid eye and skin contact.
- Observe safety and handling instructions by the detergent manufacturer.

Kärcher offers an individual cleaning and care appliances program.

Your dealer will consult you gladly.

→ Refill detergent.

Install the hand-spray gun, the jet pipe, the nozzle and the high pressure hose

Figure 4

- Connect ray tube with hand spray gun
- Tighten the screw connection of the spray lance fingertight.
- Insert high pressure nozzle into covering nut
- Install covering nut and tighten firmly
- Appliance without hose drum: Connect the high pressure hose to the high pressure connection point of the machine.
- Device with hose drum: Connect high pressure hose to hand spray gun

Caution

Always unwind high pressure hose completely

Installing the replacement high-pressure hose (appliances without hose drum)

Figure 5

Installing the replacement high-pressure hose (appliances with hose drum)

Figure 6

- Completely roll off the high-pressure hose from the hose drum.
- Rotate the hose drum until the screwed-on semibowl is pointing toward the top. Loosen all three screws and remove the loosened semibowl.

Figure 7

- Unlatch the fastening clamp for the high-pressure hose and pull the hose out.
- Route the new high-pressure hose through the intended hose guide and the deflection pulley at the bottom of the appliance.
- Slide the hose nipple all the way into the knot section of the hose drum and secure with the fastening clamp.
- Replace the half bowl.

Water connection

For connection values refer to technical specifications

- Connect the supply hose (minimum length 7.5 m, minimum diameter 3/4") to the water connection point of the machine and at the water supply point (for e.g. a tap).

Note: The supply hose is not included.

Suck in water from vessel

If you want to suck in water from an external vessel, the following modification is necessary:

Figure 8

- Remove the system care bottle.
- Release and remove the cover of the system care.
- Remove water connection from the fine filter.
- Unscrew the fine filter from the pump head.

Figure 9

- Remove the system care reservoir.
- Unscrew the top supply hose to the swimmer container.

Figure 10

- Connect the top supply hose at pump head.
 - Replug the rinse line of the detergent dosing valve.
 - Connect suction hose (minimum diameter 3/4") with filter (accessory) to the water connection point.
 - Max. suck height: 0.5 m
- Until the pump sucked in water, you should:
- Set the pressure/quantity regulation at the pump unit to maximum quantity.
 - Close the dosing valve for the detergent.

⚠ Danger

Never suck in water from a drinking water container. Never suck in liquids which contain solvents like lacquer thinner, petrol, oil or unfiltered water. The sealings within the device are not solvent resistant. The spray mist of solvents is highly inflammable, explosive and poisonous.

Note: Assembly in reverse order. Ensure that the solenoid valve cable on the reservoir of the system care is not pinched.

Power connection

- For connection values, see technical data and type plate.
- The electrical connections must be done by an electrician according to IEC 60364-1.

⚠ Danger

Danger of injury by electric shock.

- *Unsuitable extension cables can be hazardous. Only use extension cables outdoors which have been approved for this purpose and labelled with a sufficient cable cross section:*
 - *Always unwind extension lines completely.*
 - *The plug and coupling of the extension cable used must be watertight.*

Caution

The highest allowed net impedance at the electrical connection point (refer to technical data) is not to be exceeded. In case of confusion regarding the power impedance present on your connection, please contact your utilities provider.

Operation

⚠ Danger

Risk of explosion!
Do not spray flammable liquids.

⚠ Danger

Risk of injury! Never use the appliance without the spray lance attached. Check and ensure proper fitting of the spray lance prior to each use. The screw connection of the spray lance must be fingertight.

Caution

Never operate device with empty fuel tank
The fuel pump will otherwise be destroyed.

Safety instructions

⚠ Warning

Long hours of using the appliance can cause circulation problems in the hands on account of vibrations.

It is not possible to specify a generally valid operation time, since this depends on several factors:

- Proneness to blood circulation deficiencies (cold, numb fingers).
- Low ambient temperature. Wear warm gloves to protect hands.
- A firm grip impedes blood circulation.
- Continuous operation is worse than an operation interrupted by pauses.

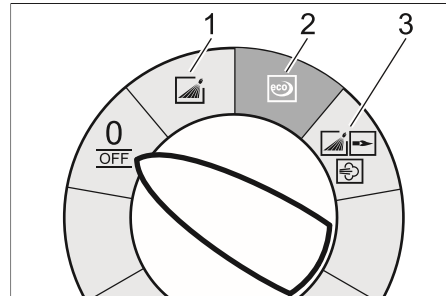
In case of regular, long-term operation of the device and in case of repeated occurrence of the symptoms (e.g. cold, numb fingers) please consult a physician.

Replace the nozzle

⚠ Danger

Switch the appliance off prior to replacing nozzle and activate hand spray gun until device is pressureless.

Operating modes



0/OFF = Off

- 1 Operating with cold water
- 2 Eco operation (hot water max. 60 °C)
- 3 Operating with hot water/steam

Turning on the Appliance

- ➔ Set appliance switch to desired operating mode.
Indicator lamp for operational readiness lights up.

The device starts briefly and turns off, as soon as the working pressure is reached.

Note: If the indicator lamps for pump, rotation direction, burner malfunction or engine are on during operation, turn off the appliance immediately and repair malfunction, refer to "Help with malfunctions".

- ➔ Release the trigger gun.

When activating the hand spray gun the device switches back on.

Note: If no water comes out of the high pressure nozzle, vent pump. Refer to "Help with malfunctions - appliance is not building up pressure".

Adjust cleaning temperature

- ➔ Set temperature regulator to desired temperature.

30 °C to 98 °C

- Clean with hot water.

100 °C to 150 °C

- Clean using steam.

⚠

- ➔ Replace the high-pressure nozzle (stainless steel) with steam nozzle (brass), (refer to "Using steam").

Set working pressure and flow rate

Pressure/quantity regulation of the pump unit

- Turn the regulation spindle in a clockwise direction: Increase working pressure (MAX).
- Turn the regulation spindle in an anti-clockwise direction: Reduce working pressure (MIN).

Pressure/ quantity regulation at the hand spray gun

- Set thermostat to max. 98 °C.
- Set the operating pressure on the pump unit to the maximum value.
- Set the working pressure and feed quantity by turning (steplessly) the pressure/quantity regulation mechanism at the hand spray gun (+/-).

⚠ Danger

When adjusting the pressure/quantity regulation, make sure that the screw connection of the spray lance does not become loose.

Note: For long term work with low pressure, set pressure at the pump unit.

Operation with detergent

- For considerate treatment of the environment use detergent economically.
- The detergent must be suitable for the surface to be cleaned.
- With support of the detergent dose valve set detergent concentration as determined by the manufacturer.

Note: Recommended values at the control panel at maximum working pressure.

Cleaning

- Set pressure/temperature and detergent concentration according to the surface to be cleaned.

Note: To prevent damage due to too much pressure, always position high pressure ray first from a greater distance towards object to be cleaned.

Recommended cleaning method

- Loosen the dirt:
 - Spray detergent economically and let it work for 1...5 minutes but do not let it dry up.
- Remove the dirt:
 - Spray off loosened dirt with the high-pressure jet.

Operating with cold water

Removal of light contaminations and clear rinse, i.e.: Gardening tools, terrace, tools, etc.

- Set operating pressure according to need.

Eco operation

The appliance works in the most economical temperature range.

Note: The temperature can be regulated up to 60 °C.

Operating with hot water/steam

We recommend the following cleaning temperatures:

- Light contaminations
30-50 °C
- Contaminations containing protein, i.e. in the food processing industry
max. 60 °C
- Vehicle cleaning, machine cleaning
60-90 °C
- De-preserve, contaminations containing strong fat contents
100-110 °C
- De-frosting of surcharge substances, partially facade cleaning
up to 140 °C

Operating with hot water

⚠ Danger

Scalding danger!

- Set temperature regulator to desired temperature.

Operating with steam

Danger

Scalding danger! The operating pressure must not exceed 3,2 MPa (32 bar) when operating with temperatures above 98 °C. Therefore the following measures must definitely be performed:



- **Replace high pressure nozzle (stainless steel) with steam nozzle (brass, order see specification).**
- Open up the pressure/ quantity regulator on the hand spray gun completely, direction + until stop.
- Set the operating pressure on the pump unit to the minimum value.
- Set temperature regulator to min. 100 °C.

After operation with detergent

- Set dosing value for detergent to "0".
- Set the appliance switch to "1" (operation with cold water).
- Open the hand spray gun and rinse the appliance for at least 1 minute.

Turn off the appliance

Danger

Danger of scalding by hot water. After the operation with hot water or steam, the device must be operated with openend gun with cold water for at least two minutes.

- Set the appliance switch to "0/OFF".
- Shut off water supply.
- Open the hand spray gun.
- Turn on pump shortly (appr. 5 seconds) with device switch.
- Pull main plug out of socket with dry hands only.
- Remove water connection.
- Activate hand spray gun until device is pressure less.
- Lock the trigger gun.

Storing the Appliance

- Lock in the steel pipe into the holder of the appliance hood.
- Roll up high pressure hose and electrical conduit and hang them into the respective holders.

Device with hose drum:

- Before rolling up, stretch out the high pressure hose.
- Turn the hand crank clockwise (Direction of the arrow).

Note: Do not twist high pressure hose and electrical conduit.

Frost protection

Caution

Frost will destroy the not completely water drained device.

- Store in a frost free area.

If the device is connected to a chimney, the following must be observed:

Caution

Threat of damage by penetrating cold air through the chimney.

- Disconnect device from chimney when outside temperature drops below 0 °C.

If it is not possible to store frost free, shut down device.

Shutdown

For longer work breaks or if a frost free storage is not possible:

- Drain water.
- Flush device with anti-freeze agent.
- Empty detergent tank.

Dump water

- Screw off water supply hose and high pressure hose.
- Screw off supply hose at boiler bottom and drain heating spiral empty.
- Operate device for max. 1 minute until the pump and conduits are empty.

Flush device with anti-freeze agent

Note: Observe handling instructions of the anti-freeze agent manufacturer.

- Fill anti-freeze agent of the trade into swimmer container.
- Switch on appliance (without heater) till the appliance has been completely rinsed.

A certain corrosion protection is achieved with this as well.

Storage

Caution

Risk of injury and damage! Note the weight of the appliance in case of storage.

Transport

Figure 11

Caution

Risk of damage! When loading the appliance with a forklift, observe the illustration.

Caution

Risk of injury and damage! Observe the weight of the appliance when you transport it.

- When transporting in vehicles, secure the appliance according to the guidelines from slipping and tipping over.

Maintenance and care

Danger

Risk of injury by inadvertent startup of appliance and electrical shock.

First pull out the plug from the mains before carrying out any tasks on the machine.

- Set the appliance switch to "0/OFF".
- Shut off water supply.
- Open the hand spray gun.
- Turn on pump shortly (appr. 5 seconds) with device switch.
- Pull main plug out of socket with dry hands only.
- Remove water connection.
- Activate hand spray gun until device is pressure less.
- Lock the trigger gun.
- Allow device to cool down.

Your Kärcher vender will inform you about the performance of a periodic safety inspection resp. signing of a maintenance contract.

Maintenance intervals

Weekly

- Clean the sieve in the water connection.
- Clean the fine filter.
- Check oil level.

Caution

In case of lacteous oil inform Kärcher customer service immediately

Monthly

- Clean sieve in the water shortage safe guard.
- Clean filter at the detergent suck hose.

After 500 operating hours, at least annually

- Oil change.

At least every 5 years, recurring

- Perform the pressure test as per manufacturer's instructions.

Maintenance Works

Clean the sieve in the water connection

- Take out sieve.
- Clean sieve in water and reinstall.

Cleaning the fine filter

- Unpressurize the appliance.
- Unscrew the fine filter from the pump head.
- Remove the fine filter and the filter insert.
- Clean the filter with clean water or compressed air.
- Reinstall in reverse sequence.

Clean sieve in the water shortage safe guard

- Loosen covering nut and take off hose.
- Take out sieve.

Note: If necessary turn in screw M8 appr. 5 mm inwards and therewith pull out sieve.

- Clean sieve in water.
- Push sieve inwards.
- Put on hose.
- Tighten covering nut firmly.

Clean filter at the detergent suck hose

- Take out detergent suck supports.
- Clean filter in water and reinstall.

Oil change

- Ready a catch bin for appr. 1 Liter oil.
- Loosen release screw.

Dispose of old oil ecologically or turn in at a gathering point.

- Tighten release screw.
- Fill oil slowly up to the MAX marking.

Note: Air pockets must be able to leak out.
For oil type refer to technical specifications.

Troubleshooting

Danger

*Risk of injury by inadvertent startup of appliance and electrical shock.
First pull out the plug from the mains before carrying out any tasks on the machine.*

Indicator lamp pump

1x blinking

- Lack of oil
- Replenish oil.

2x blinking

- Leak in the high pressure system
- Check high pressure system and connections for tightness.

3x blinking

- Water shortage
- Check water supply, check connections.

4x blinking

- Obstructed reed switch in the water shortage safe guard.
- Check water shortage safe guard.

Indicator lamp of rotational direction is blinking (not HDS 7/9, HDS 7/10, HDS 7/12)

Figure 12

- Exchange the poles at the appliance plug.

Indicator lamp "Ready for use" turns off

- No line voltage, see "Appliance is not running".

Engine indicator lamp

1x blinking

- Contactor error
- Set the appliance switch to "0/OFF".
- Turn on the appliance.
- Error occurs repeatedly.
- Inform Customer Service

2x blinking

- Engine overload/overheat
- Set the appliance switch to "0/OFF".
- Allow device to cool down.
- Turn on the appliance.
- Error occurs repeatedly.
- Inform Customer Service

3x blinking

- Fault in the voltage supply.
- Check main connections and mains fuse.

4x blinking

- Excessive power consumption.
- Check main connections and mains fuse.
- Inform Customer Service

Indicator lamp burner failure

1x blinking

- The exhaust temperature limiter has been triggered.
- Set the appliance switch to "0/OFF".
- Allow device to cool down.
- Turn on the appliance.
- Error occurs repeatedly.
- Inform Customer Service

2x blinking (option)

- The flame sensor turned the burner off.
- Inform Customer Service

3x blinking

- System care detection defective
- ➔ Inform Customer Service

4x blinking

- Temperature sensor defective
- ➔ Inform Customer Service

Indicator lamp service

- Service interval
- ➔ Perform service work.

Fuel indicator lamp glows

- Fuel tank empty.
- ➔ Refill fuel.

Indicator lamp system care is illuminated

- Note:** Burner can operate 5 more hours.
- System care bottle empty.
 - ➔ Replace the system care bottle.

Indicator lamp system care is blinking

- Note:** Burner operation no longer possible.
- System care bottle empty.
 - ➔ Replace the system care bottle.

Indicator lamp detergent 1 is illuminated (HDS 12/18 only)

- Detergent tank 1 is empty.
- ➔ Refill detergent.

Indicator lamp detergent 2 is illuminated (HDS 12/18 only)

- Detergent tank 2 is empty.
- ➔ Refill detergent.

Appliance is not running

- No power
- ➔ Check power connection/conduit.

Device is not building up pressure

- Air within the system

Vent pump:

- ➔ Set dosing value for detergent to "0".
- ➔ With open hand spray gun turn device on and off multiple times with the device switch.
- ➔ Open and close the pressure/quantity regulation at the pump unit with the hand spray gun open.

Note: By dismantling the high pressure hose from the high pressure connection the venting process is accelerated.

- ➔ If detergent tank is empty, refill.
- ➔ Check connections and conduits.
- Pressure is set to MIN
- ➔ Set pressure to MAX.
- Sieve in the water connection is dirty
- ➔ Clean sieve.
- ➔ Clean the fine filter; replace it, if necessary.
- Amount of water supply is too low.
- ➔ Check water supply level (refer to technical data).

Device leaks, water drips from the bottom of the device

- Pump leaky

Note: 3 drops/minute are allowed.

- ➔ With stronger leak, have device checked by customer service.

Device turns on and off while hand spray gun is closed

- Leak in the high pressure system
- ➔ Check high pressure system and connections for tightness.

Device is not sucking in detergent

→ Leave device running with open detergent dosage valve and closed water supply, until the swimmer tank is sucked empty and the pressure falls to "0".

→ Open the water supply again.

If the pump still is not sucking in any detergent, it could be because of the following reasons:

- Filter in the detergent suck hose dirty
- Clean filter.
- Backflow valve stuck
- Remove the detergent hose and loosen the backflow valve using a blunt object.

Burner does not start

- System care bottle empty.
- Replace the system care bottle.
- Fuel tank empty.
- Refill fuel.
- Water shortage
- Check water supply, check connections.
- Clean sieve in the water shortage safe guard.
- Fuel filter dirty
- Change fuel filter.
- No ignition spark
- If device is in use and no ignition spark can be seen through the viewing glass, have device checked by customer service.

Set temperature is not achieved while using hot water

- Working pressure/flow rate too high
- Reduce working pressure/flow quantity at the pressure/volume regulator in the pump unit.
- Sooty heating spiral
- Have device de-sooted by customer service.

If malfunction can not be fixed, the device must be checked by customer service.

Warranty

The warranty terms published by our competent sales company are applicable in each country. We will repair potential failures of the appliance within the warranty period free of charge, provided that such failure is caused by faulty material or defects in fabrication.

Accessories and Spare Parts

Note: When connecting the appliance to a chimney or if the device cannot be accessed visually, we recommend the installation of a flame monitor (option).

- Only use accessories and spare parts which have been approved by the manufacturer. The exclusive use of original accessories and original spare parts ensures that the appliance can be operated safely and trouble free.
- At the end of the operating instructions you will find a selected list of spare parts that are often required.
- For additional information about spare parts, please go to the Service section at www.kaercher.com.

EC Declaration of Conformity

We hereby declare that the machine described below complies with the relevant basic safety and health requirements of the EU Directives, both in its basic design and construction as well as in the version put into circulation by us. This declaration shall cease to be valid if the machine is modified without our prior approval.

Product: High-pressure cleaner
Type: 1.071-xxx
Type: 1.077-xxx

Relevant EU Directives

97/23/EC
2006/42/EC (+2009/127/EC)
2004/108/EC
1999/5/EC
2000/14/EC

Applied conformity evaluation method for 2000/14/EC

2000/14/EC: Appendix V

Component category

II

Conformity procedure

Module H

Heating coil

Conformity assessment Module H

Safety valve

Conformity assessment Art. 3 para 3

control block

Conformity assessment Module H

various pipes

Conformity assessment Art. 3 para 3

Applied harmonized standards

EN 55014-1: 2006 + A1: 2009
EN 55014-2: 1997 + A2: 2008
EN 60335-1
EN 60335-2-79
EN 61000-3-2: 2006 + A2: 2009
EN 62233: 2008
HDS 7/9, HDS 7/10, HDS 8/17, HDS 8/18,
HDS 9/18:
EN 61000-3-3: 2008
HDS 7/12, HDS 10/20, HDS 12/18:
EN 61000-3-11: 2000
EN 300 330-2 V1.5.1 : 2010
EN 301 489-1 V1.8.1 : 2008
EN 301 489-3 V1.4.1 : 2002

Applied specifications:

Based on AD 2000
Based on TRD 801

Name of the appointed agency: for 97/23/EG

TÜV Rheinland Industrie Service GmbH
Am Grauen Stein
51105 Köln
ID No. 0035

Sound power level dB(A)

HDS 7/9, HDS 7/10, HDS 7/12

Measured: 86
Guaranteed: 88

HDS 8/17, HDS 8/18

Measured: 86
Guaranteed: 88

HDS 9/18

Measured: 86
Guaranteed: 88

HDS 10/20

Measured: 88
Guaranteed: 90

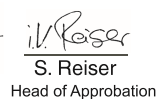
HDS 12/18

Measured: 88
Guaranteed: 90

5.957-902

The undersigned act on behalf and under the power of attorney of the company management.


H. Jenner
CEO


S. Reiser
Head of Approbation

Authorised Documentation Representative
S. Reiser

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Winnenden, 2010/09/01

Technical specifications

		HDS 7/9	HDS 7/10	HDS 7/12	HDS 8/17
Main Supply					
Voltage	V	100	240	230	400
Current type	Hz	1~ 50	1~ 50	1~ 50	3~ 50
Connected load	kW	3,2	3,1	3,4	5,5
Protection (slow)	a	30	13	16	16
Maximum allowed net impedance	Ohm	–	–	(0,321+ j0,200)	–
Water connection					
Max. feed temperature	°C	30	30	30	30
Min. feed volume	l/h (l/min)	1000 (16,7)	1000 (16,7)	1000 (16,7)	1100 (18,3)
Suck height from open container (20 °C)	m	0,5	0,5	0,5	0,5
Max. feed pressure	MPa (bar)	0,6 (6)	0,6 (6)	0,6 (6)	0,6 (6)
Performance data					
Water flow rate	l/h (l/min)	350-700 (5,8-11,7)	350-700 (5,8-11,7)	350-700 (5,8-11,7)	400-800 (6,7-13,3)
Operating pressure of water (using standard nozzle)	MPa (bar)	3-9 (30-90)	3-10 (30-100)	3-12 (30-120)	3-17 (30-170)
Max. excess operating pressure (safety valve)	MPa (bar)	11 (110)	13 (130)	15 (150)	20,5 (205)
Steam flow rate	l/h (l/min)	330-360 (5,5-6)	330-360 (5,5-6)	330-360 (5,5-6)	340-420 (5,6-7)
Max. operating pressure for working with steam (using steam nozzle)	MPa (bar)	3,2 (32)	3,2 (32)	3,2 (32)	3,2 (32)
Part no. of steam nozzle	–	2.885-119.0	2.885-119.0	2.885-039.0	2.885-119.0
Max. operating temperature of hot water	°C	98	98	98	98
Working temperature steam operation	°C	155	155	155	155
Detergent suck in	l/h (l/min)	0-45 (0-0,75)	0-45 (0-0,75)	0-45 (0-0,75)	0-50 (0-0,8)
Burner performance	kW	58	58	58	67
Maximum consumption of heating oil	kg/h	4,6	4,6	4,6	5,3
Max. recoil force of hand spray gun	N	13,5	17,9	17,9	24,3
Nozzle size	–	060	054	047	047
Values determined as per EN 60355-2-79					
Noise emission					
Sound pressure level L _{pA}	dB(A)	70	70	70	71
Uncertainty K _{pA}	dB(A)	2	2	2	2
Sound power level L _{WA} + Uncertainty K _{WA}	dB(A)	88	88	88	88
Hand-arm vibration value					
Hand spraygun	m/s ²	1,1	1,1	1,1	1,0
Spray lance	m/s ²	3,4	3,4	3,4	3,4
Uncertainty K	m/s ²	1,0	1,0	1,0	1,0
Fuel					
Fuel	–	Fuel oil EL or Diesel	Fuel oil EL or Diesel	Fuel oil EL or Diesel	Fuel oil EL or Diesel
Amount of oil	l	0,75	0,75	0,75	0,75
Oil grade	–	0W40	0W40	0W40	SAE 90
Dimensions and weights					
Length x width x height	mm	1330 x 750 x 1060	1330 x 750 x 1060	1330 x 750 x 1060	1330 x 750 x 1060
Weight without attachments, M/S	kg	163	146	146	155
Weight without attachments, MX/SX	kg	171	154	154	163
Fuel tank	l	25	25	25	25
Detergent Tank	l	10+20	10+20	10+20	10+20

		HDS 8/18	
Main Supply			
Voltage	V	230	400
Current type	Hz	3~ 50	3~ 50
Connected load	kW	5,5	5,5
Protection (slow)	a	16	16
Maximum allowed net impedance	Ohm	--	
Water connection			
Max. feed temperature	°C	30	
Min. feed volume	l/h (l/min)	1100 (18,3)	
Suck height from open container (20 °C)	m	0,5	
Max. feed pressure	MPa (bar)	0,6 (6)	
Performance data			
Water flow rate	l/h (l/min)	400-800 (6,7-13,3)	
Operating pressure of water (using standard nozzle)	MPa (bar)	3-18 (30-180)	
Max. excess operating pressure (safety valve)	MPa (bar)	20,5 (205)	
Steam flow rate	l/h (l/min)	340-420 (5,6-7)	
Max. operating pressure for working with steam (using steam nozzle)	MPa (bar)	3,2 (32)	
Part no. of steam nozzle	--	2.885-119.0	
Max. operating temperature of hot water	°C	98	
Working temperature steam operation	°C	155	
Detergent suck in	l/h (l/min)	0-50 (0-0,8)	
Burner performance	kW	67	
Maximum consumption of heating oil	kg/h	5,3	
Max. recoil force of hand spray gun	N	24,3	
Nozzle size	--	043	
Values determined as per EN 60355-2-79			
Noise emission			
Sound pressure level L _{pA}	dB(A)	71	
Uncertainty K _{pA}	dB(A)	2	
Sound power level L _{WA} + Uncertainty K _{WA}	dB(A)	88	
Hand-arm vibration value			
Hand spraygun	m/s ²	1,0	
Spray lance	m/s ²	3,4	
Uncertainty K	m/s ²	1,0	
Fuel			
Fuel	--	Fuel oil EL or Diesel	
Amount of oil	l	0,75	
Oil grade	--	SAE 90	
Dimensions and weights			
Length x width x height	mm	1330 x 750 x 1060	
Weight without attachments, M/S	kg	155	
Weight without attachments, MX/SX	kg	163	
Fuel tank	l	25	
Detergent Tank	l	10+20	

		HDS 9/18		HDS 10/20		HDS 12/18	
Main Supply							
Voltage	V	230	400	230	400	400	
Current type	Hz	3~ 50	3~ 50	3~ 50	3~ 50	3~ 50	
Connected load	kW	6,4	6,4	7,8	7,8	8,4	
Protection (slow)	a	28	16	28	16	16	
Maximum allowed net impedance	Ohm	--		(0,169+ j0,105)		(0,163+ j0,102)	
Water connection							
Max. feed temperature	°C	30		30		30	
Min. feed volume	l/h (l/min)	1200 (20)		1300 (21,7)		1500 (25)	
Suck height from open container (20 °C)	m	0,5		0,5		0,5	
Max. feed pressure	MPa (bar)	0,6 (6)		0,6 (6)		0,6 (6)	
Performance data							
Water flow rate	l/h (l/min)	450-900 (7,5-15)		500-1000 (8,3-16,7)		600-1200 (10-20)	
Operating pressure of water (using standard nozzle)	MPa (bar)	3-18 (30-180)		3-20 (30-200)		3-18 (30-180)	
Max. excess operating pressure (safety valve)	MPa (bar)	21,5 (215)		24 (240)		21,5 (215)	
Steam flow rate	l/h (l/min)	390-450 (6,5-7,5)		460-520 (7,6-8,6)		550-610 (9,1-10,1)	
Max. operating pressure for working with steam (using steam nozzle)	MPa (bar)	3,2 (32)		3,2 (32)		3,2 (32)	
Part no. of steam nozzle	--	2.885-040.0		2.885-041.0		2.885-120.0	
Max. operating temperature of hot water	°C	98		98		98	
Working temperature steam operation	°C	155		155		155	
Detergent suck in	l/h (l/min)	0-54 (0-0,9)		0-60 (0-1)		0-72 (0-1,2)	
Burner performance	kW	75		83		100	
Maximum consumption of heating oil	kg/h	5,8		6,4		7,7	
Max. recoil force of hand spray gun	N	28,2		33,0		37,6	
Nozzle size	--	050		054		068	
Values determined as per EN 60355-2-79							
Noise emission							
Sound pressure level L _{pA}	dB(A)	71		73		73	
Uncertainty K _{pA}	dB(A)	2		2		2	
Sound power level L _{WA} + Uncertainty K _{WA}	dB(A)	88		90		90	
Hand-arm vibration value							
Hand spraygun	m/s ²	1,0		1,2		1,5	
Spray lance	m/s ²	3,6		5,2		4,8	
Uncertainty K	m/s ²	1,0		1,0		1,0	
Fuel							
Fuel	--	Fuel oil EL or Diesel		Fuel oil EL or Diesel		Fuel oil EL or Diesel	
Amount of oil	l	0,75		1,0		1,0	
Oil grade	--	SAE 90		SAE 90		SAE 90	
Dimensions and weights							
Length x width x height	mm	1330 x 750 x 1060		1330 x 750 x 1060		1330 x 750 x 1060	
Weight without attachments, M/S	kg	156		171		178	
Weight without attachments, MX/SX	kg	161		180		185	
Fuel tank	l	25		25		25	
Detergent Tank	l	10+20		10+20		10+20	

Recurring tests

Note: The recommended testing frequencies of the respective statutory regulations of the country of operation are to be followed.

Testing done by:	External testing	Internal testing	Leak-proof tests
Name	Signature of the authorised person/ date	Signature of the authorised person/ date	Signature of the authorised person/ date
Name	Signature of the authorised person/ date	Signature of the authorised person/ date	Signature of the authorised person/ date
Name	Signature of the authorised person/ date	Signature of the authorised person/ date	Signature of the authorised person/ date
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