

OERTZEN®

... for a cleaner world ☀



To be read before start-up!



Operation Manual

The Power of Water

E 1000



CE

10/06

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1. Introduction

With this OERTZEN high pressure cleaner you have purchased one of the most durable and reliable machines available on the market. Its balanced ratio of water flow (temperature) and working pressure perfectly meets all cleaning requirements. The OERTZEN high pressure cleaners conform to all European safety regulations which is guaranteed by the CE symbol.

- This manual to be made available to the operating personnel and to be read completely before start-up. We point out that we cannot be held responsible for any damage or malfunctions as a result of ignoring this manual.
- The machine described in this manual to be inspected every year by qualified personnel. Inspection results to be recorded and to be made available to authorities their on request.
- The packing materials (plastic foil, wood, cardboard boxes, nails etc.) are potentially dangerous, should be kept away from children and disposed according to environmental requirements.



This symbol appears at all operating and safety instructions dealing with the dangers for personal entirety and life.



This warning symbol appears in the operating manual at all operating safety instructins dealing with risks due to electric power.



This symbol appears at all operating and safety instructions dealing with the fulfilment of rules, regulations and instructions for the proper operation to avoid destruction of the machine.

This manual is subject to technical alteration.

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2. Safety Instructions

The following instructions to be followed before, during and after work:

This instruction manual to be read completely before initial start-up. If strictly followed, no dangers should occur.

This machine must only be run by qualified adult persons who are fully familiar with possible dangers. "Directives for Liquid Blasters" (ZH 1/406) and operation instructions "Working with Liquid Blasters" (BGV D 15) to be followed.

The machine is not suitable for unattended operation and must be operated according to specification. Water repellent clothing, helmet/visor, gloves, safety footwear, ear protection according to DIN to be worn. When working on scaffolds, additional safety measures are required (DIN safety belts).

The water jet emerging from the spray pistol has a dangerous cutting effect. Therefore the water jet must never be directed onto persons, animals or electrical installations. It must never be used for cleaning of clothes, shoes and the like. Be aware of torque and recoil. Ensure stable foothold.

The max. allowed pressure which is stated on the type plate must not be exceeded. The safety/control valve opens, if the max. operating pressure is exceeded by more than 10 %. The safety/control valve is workshop-set and sealed. Adjustment must not be changed.

Unsuitable respectively defective high pressure hoses often cause severe accidents during operation. Therefore high pressure hoses to be carefully inspected before start-up and replaced by original OERTZEN equipment in case of damage. Use of other than original OERTZEN equipment results in expiration of the EC Declaration of Conformity, as well as product liability and warranty.

Repair work in the high pressure section of the machine (pump, hoses, piping) only to be carried out by qualified personnel.

Worn-out or damaged high pressure hoses must never be repaired and reused but to be replaced by original OERTZEN equipment.

Spray pistols with delayed closing mechanism must not be used because of risk of injuries.

Lever in open position must never be blocked or fixed in any way.

Use of spray wands of a length below 750 mm is prohibited.

The machine must not be run in areas jeopardized by fire or explosions. During operation at filling stations "Technical for flammable liquids" (TfbF) to be observed.

Consumables to be handled thoroughly according to technical rules and safety and environmental regulations to be observed.

Machine must not be started, if power cable, plug, switches, etc. are defective.



Only extension cables designed according to VDE to be used. Extension cables on reels to be reeled off during operation in order to avoid overheating of the reel. Plug, couplings to be watertight. A faulty current protection switch to be added.

Before opening the machine in case of malfunction or emergency, switch off by means of the main switch and disconnect it from electric power source.

Electric power can cause severe injuries. All symptoms of faulty electric components to be taken seriously and possible causes for accidents to be eliminated immediately. All repair work only to be carried out by qualified service personnel.

Make sure that the machine cannot move. The machine is equipped with a brake which must be set during working.

During loading hoisting device to be fastened properly at jack rings. Ensure balanced load distribution.

After work the machine to be locked and secured against unauthorized/accidental operation by means of the safety lever.

Use of equipment and/or consumables which is not delivered or expressly approved by OERTZEN results in expiration of the EC Declaration of Conformity, as well as product liability and warranty.

3. Configuration, Operation, Illustration

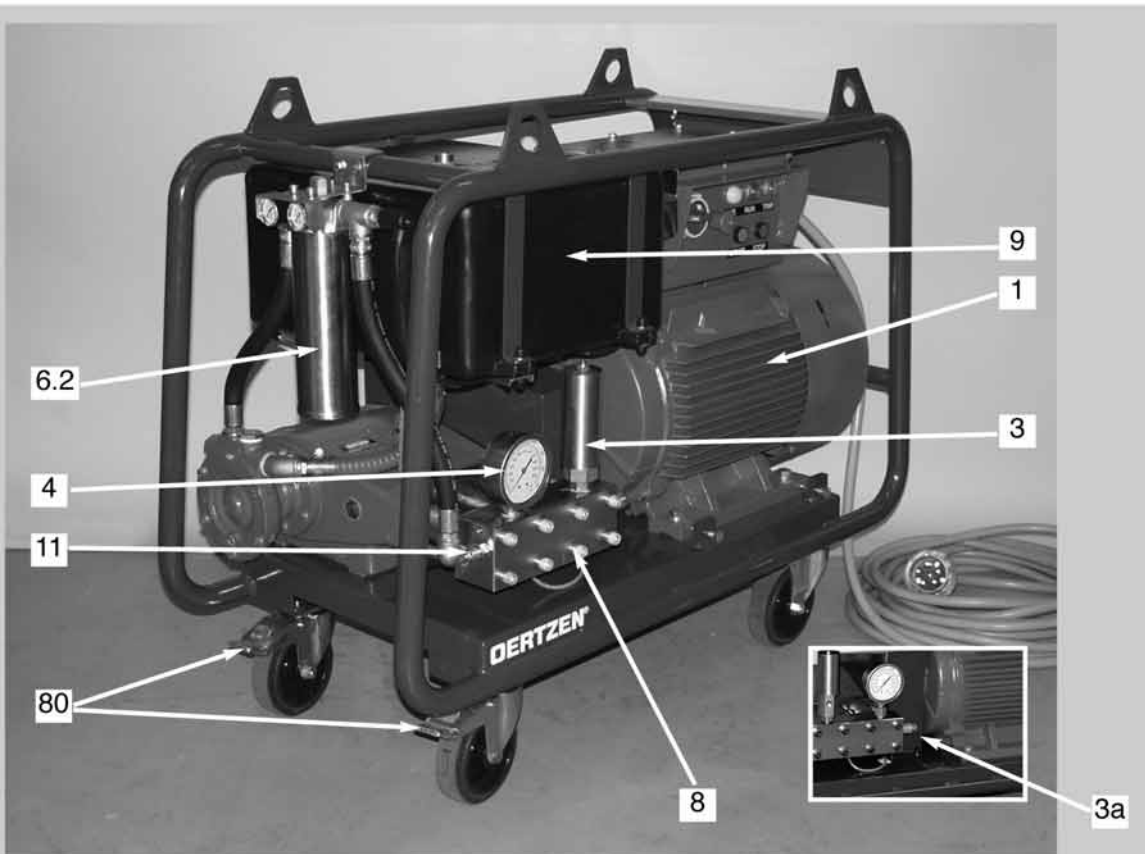
The cold water machines of this series mainly comprise of a low speed high pressure inline plunger pump, which is driven by a 100 % duty electric motor via a maintenance-free tooth belt .

The feed water is directed via a pre-filter to the high pressure pump which – in connection with the required spray nozzle – boosts it to the stated/adjusted working pressure. In order to protect the pump against cavitation due to poor water flow, a low water cut-out is arranged which stops the machine as soon as the flow pressure drops below limits.

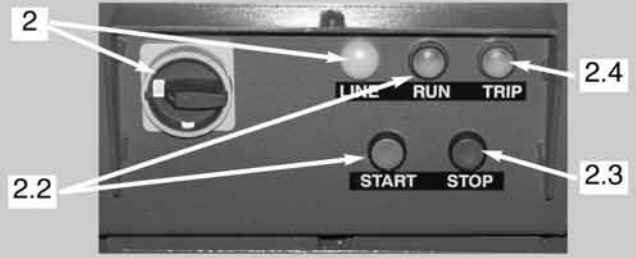
A locked and sealed safety/control valve is installed in the high pressure section, which opens as soon as the operating pressure is exceeded by more than 10 % and returns the water which cannot be taken by the nozzle back into the suction line of the pump. As a second safety device a pressure relief valve with burst disc is installed, which is activated if working pressure is exceeded by more than 30 %.

When closing the dump gun, then water is discharged via a by-pass through the spray wand. When opening the dump gun again, the pressure is generated immediately so that works can be continued without delay.

The range of applications can be extended by a variety of accessories available from OERTZEN. Contact your local distributor.



- 1 electric motor
- 2 main switch w. running light white
- 2.2 push button "START" w. running light green
- 2.3 push button "STOP"
- 2.4 indication "TRIP"
- 3 safety valve
- 3 a rupture disc
- 4 pressure gauge
- 6 water inlet/filter
- 6.2 second filter
- 8 high pressure pump
- 9 water tank
- 11 high pressure water outlet
- 29 high pressure hose/ spray equipment (see page 10)
- 80 brake



4. Start-up / Shut-down

Before Start-up:

Read and observe operation manual.

ATTENTION

In order to guarantee proper function and trouble-free operation, the following checks to be carried out before start-up:

- General condition of the unit (connections, gaskets, etc.).
- Power cables/connections.
- High pressure hoses, hose lines, whether damaged.
- Air supply, fresh air grill must not be covered.
- Filling of consumables.
- Correct oil level of high pressure pump (sight glass/dip stick).
High pressure pump: OERTZEN OSHP special pump oil.
- Pump/pump connections whether leaking.
- Machine only to be run with absolutely clean water. Before connecting the water supply hose, rinse it thoroughly. Depending on feed water quality, regularly check water filter in short intervals, replace if needed.
- Machine only to be run horizontally (+/- 5°).

ATTENTION

In order to guarantee proper function and trouble-free operation, the following checks to be carried out during working:

- Observe function of indicator lights/monitors.
- Observe pressure variations
- Observe leaks at high pressure pump, hose pipes, connections.
- Observe unnormal noise.

In case of malfunctions immediately stop machine, eliminate cause according to chapter „Trouble Shooting“, call qualified service.

Connections

Water Supply

Connect water inlet (6) of the machine to water source with a clean hose (diameter see table below). Before connecting water supply hose, rinse it thoroughly. In case of connection to the potable water distribution, observe DIN 1988 (for momentary connections use a backflow preventer with non-return function and ventilation).

Flow pressure	Water supply hose
minimum: 2 bar / maximum: 8 bar	$\frac{3}{4}$ "

ATTENTION

Insufficient water supply will cause heavy damage on high pressure pump (cavitation).



Power Supply

Insert plug into a 400 V socket which is protected by 3 x 63 A (slow). Only extension cables designed according to VDE to be used. Extension cables on reels to be reeled off during operation in order to avoid overheating of the reel. Plug, couplings to be watertight. A faulty current protection switch to be added. VDE regulations to be observed.

ATTENTION

Ensure correct direction of rotation (see marking on electric motor fan cover). Operation with incorrect direction of rotation will cause heavy damage on motor/pump system.





Important Note:

High Pressure Connection/Change of Spray Nozzle/Nozzle Arrangement
All maintenance/repair work in this section to be carried out by qualified personnel only. Ensure absolute cleanliness of all seal faces and connections. Connections to be tightened with suitable tools. Fix connections by means of a second wrench in order to avoid twisting. Use suitable grease for self sealing connections (VA).

High Pressure Connection

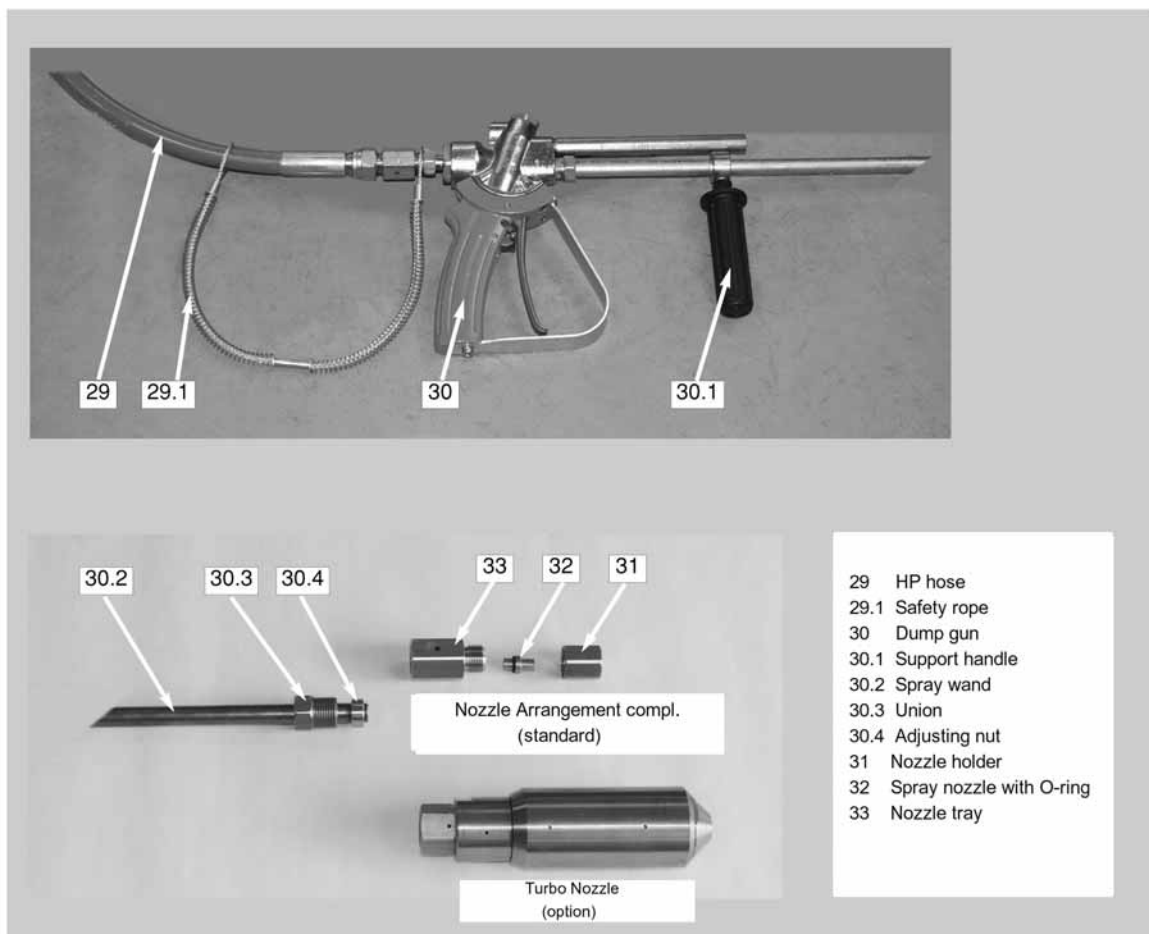
Connect one end of the high pressure hose by means of the union to high pressure outlet (11), the other end to the dump gun. Use suitable tools. Fix connections by means of a second wrench in order to avoid twisting.

Change of Spray Nozzle (Item 32)

Loosen nozzle tray (33) by means of suitable tools, avoid twisting by means of a second wrench. When changing nozzle ensure correct position of O-ring. Tighten connection properly.

Change of Nozzle Arrangement (Items 31 - 33)/Turbo Nozzle (option)

Loosen nozzle arrangement by means of suitable tools, avoid twisting by means of a second wrench. Turn centring ring towards thread, then turn it back by 90°. Tighten connection properly. No water must emerge from the relief bores.



Operation



The electric motor starts in star connection and switches over to star-delta connection after a few seconds. This process is audible. After the electric motor has switched over to star-delta connection unlock spray pistol, firmly seize support handle and pull trigger of dump gun.



When opening the spray pistol, full working pressure is achieved within a few seconds. At 500 bar the high pressure hose shortens by approx. 2 %. Particularly when working with extra long hoses or on scaffolds, take care that operators will not be jeopardized.



Observe torque and recoil, as well as shortening of high pressure hose. Ensure stable foothold.

- Fully open water source
- Unlock and open dump gun, bleed unit, close dump gun.
- Switch on main switch (2) – white running light is on.
- Press push button START (2.2) – green running light is on.
- Firmly seize support handle, open dump gun.

ATTENTION

Be aware of significant recoil. Ensure stable foothold.

- Carry out cleaning task.

When closing dump gun, water emerges from discharge pipe/spray wand. Therefore, during working breaks stop unit by pressing push button STOP. Switch out main switch after work.

After Work

- Stop machine by pressing push button STOP (2.3).
- Switch off main switch (2) – white running light goes out.
- Depressurize dump gun by shortly opening and closing.
- Lock dump gun.
- Disconnect machine from water and power sources.
- Thoroughly clean high pressure hose. In case of (cuts, abrasions, kinks, etc.) replace high pressure hose for safety reasons.
- Only original OERTZEN high pressure hoses (marked) to be used. Otherwise EC Declaration of Conformity and warranty will expire.
- Reel up high pressure hose properly without any loops.
- Store machine and accessories in a dry, frost-protected area.
- Drain pump completely in case of extended shut-down periods.



Particularly note:

In case of malfunctions, eliminate cause according to chapter „Trouble Shooting“, call qualified service.

In case frost is likely, frost protection to be carried out (see chapter „Maintenance and Care“), otherwise severe damage will be the result.

5. Maintenance and Care

Every machine is only as reliable as maintenance is carried out.

ATTENTION

In order to guarantee reliability and trouble free operation of the machine, it is of vital interest to follow the instructions below:

ATTENTION

If the required maintenance intervals are disregarded, warranty will expire.

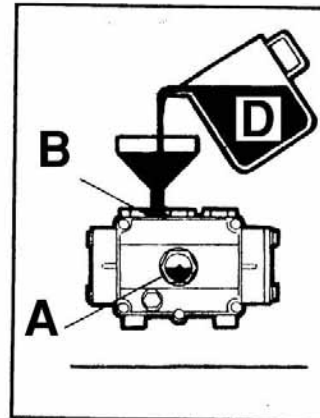
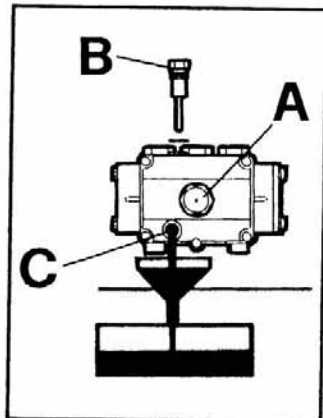
High Pressure Pump

First oil change after 50 operating hours, further oil changes after every 500 operating hours, minimum once per year. In case the oil becomes milky due to condensate formation, stop the machine immediately and carry out oil change. If this happens repeatedly, arrange replacement of all pump seals by qualified personnel.

ATTENTION

For OERTZEN high pressure pumps only OERTZEN OSHP special pump oil to be used, as otherwise you will lose your right to claim under guarantee. OERTZEN OSHP special pump oil is available from your OERTZEN dealer.

Oil Check / Oil Change



- A (13) Oil sight glass, level in center
- B (12) Oil filling hole/dip stick
- C Oil discharge screw
- D OSH special pump oil
P/N 10.80.030 - to be used only

Pre-Filter

ATTENTION

A water filter (6) installed in the water inlet. The filter cartridge to be replaced whenever.

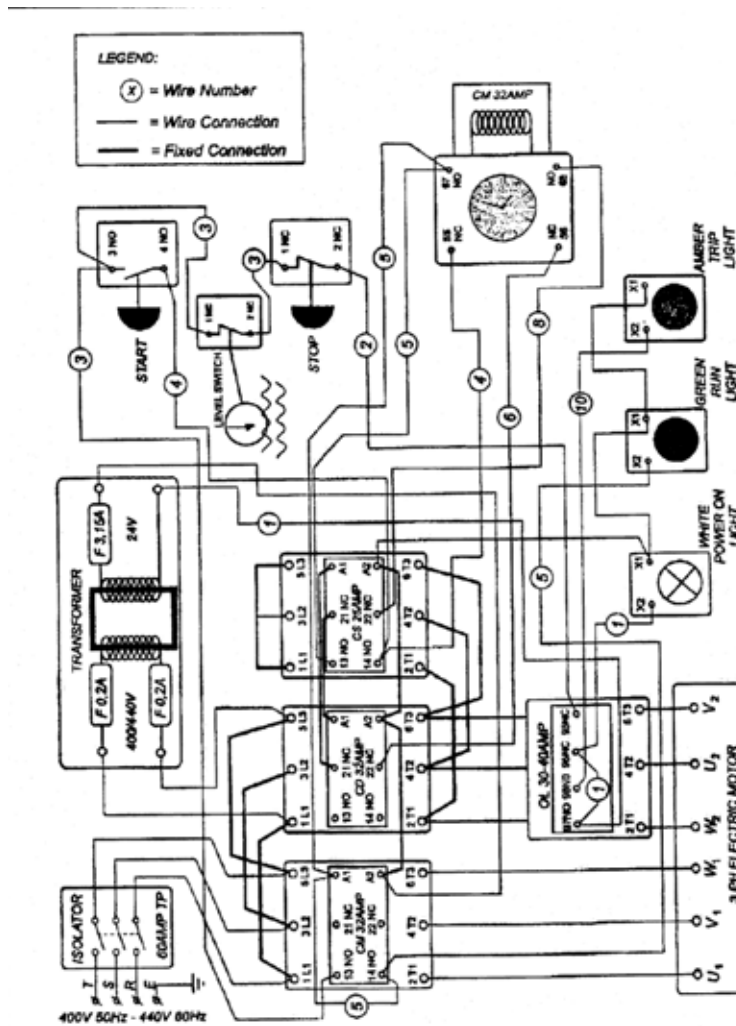
Frost Protection

ATTENTION

Frost protection of the entire water system during storage and transport is a must, as otherwise heavy damage on the system and severe dangers during operation may occur.

The best frost protection is to store the machine and accessories in a frost-protected room.

6. Electric Wiring Diagrams



7. Technical Data

Technical Data	E 1000
Water flow/adjustable	1250 l/h
Unloading pressure	1000 bar
Water feed temperature max.	60 °c
Working pressure	950 bar
Normal current (50 Hz)	3 ~ 400 V
Power output	48 HP/36 kW
Motor/pump speed	1760/1120 1/min
Power consumption	54,7 A
Starting device	automatic Star Delta
Noise level Lp/Lw acc. to DIN EN ISO 3744	95/112 dB(A)
Recoil	123 Nm
Dimensions (L x W x H mm)	1275 x 580 x 1090 mm
Weight	460 kg
Spray nozzle	0.9
Pump oil, P/N 10.802.030	OSHP, 4 l

8. Trouble Shooting

Electrical energy can cause severe injuries. Defective electrical components to be immediately replaced, possible causes for accidents to be eliminated without delay. Any repair work must only be carried out by qualified personnel.

Only original OERTZEN equipment to be installed, as otherwise warranty and Declaration of Conformity will cease, health and safety standards are not guaranteed.

During repair or maintenance work, unit to be disconnected from electrical network.



Malfunction	Cause	Remedy
Electric motor does not start.	<ul style="list-style-type: none"> - Machine not connected to power source. - Fuse burnt. - Low water cut-out activated. - Main switch off. - Push button ON not pressed. - Phase missing. 	<ul style="list-style-type: none"> - Connect machine to power source, switch on main switch. - Replace fuse. If it burns again, call qualified service. - Ensure sufficient water supply. - Switch on main switch. - Press push button ON. - Phase to be mounted as per electric wiring diagram.
Electric motor suddenly stops.	<ul style="list-style-type: none"> - Low water supply - Filter clogged - Fuse burnt. (phase missing). - Low voltage. 	<ul style="list-style-type: none"> - Eliminate cause and re-start machine with push button ON. - Replace filter cartridge. - Replace fuse. If it burns again or motor gives noise, call qualified service. - Ensure correct power supply.
Electric motor gives noise upon start-up.	<ul style="list-style-type: none"> - Fuse burnt. (phase missing). - Fault in electrical network 	<ul style="list-style-type: none"> - Replace fuse. If it burns again, call qualified service. - Check phases in electric plug.
Operating pressure not achieved/varies	<ul style="list-style-type: none"> - Air in unit. - Insufficient water supply - Nozzle worn. - Incorrect nozzle. - Nozzle partly clogged. - Nozzle leaking. - Water filter dirty. - Unloader valve leaking. - Burst disc broken. 	<ul style="list-style-type: none"> - Bleed unit. - Check water supply line/water filter. - Replace nozzle. - Install correct nozzle. - Remove/clean/re-install nozzle. - Clean nozzle, seal off. - Replace filter cartridge. - Call qualified service. - Replace burst disc. If occurring repeatedly, call qualified service..
Vibrations on high pressure hose and spray pistol	<ul style="list-style-type: none"> - Air in unit 	<ul style="list-style-type: none"> - Bleed unit. - Open dump gun, run machine until air is removed..
Heavy vibrations on machine	<ul style="list-style-type: none"> - Air in unit - Insufficient water supply. - Nozzle worn. - Incorrect nozzle. - Nozzle partly clogged. - Nozzle leaking. - Water filter dirty. - Unloader valve leaking. - Burst disc broken. 	<ul style="list-style-type: none"> - Bleed unit. - Open dump gun, run machine until air is removed. - Check water supply line/water filter. - Replace nozzle. - Install correct nozzle - Remove/clean/re-install nozzle. - Clean nozzle, seal off. - Replace filter cartridge. - Call qualified service. - Replace burst disc. If occurring repeatedly, call qualified service

**EC-Konformitätserklärung
Declaration of Conformity**

Geräteart / Description: Unbeheiztes Hochdruck-Reinigungssystem / Cold water high-pressure cleaning system

Gerätetyp / Model: E 1000 (Elektromotor / electric drive, 3~400 V/50 Hz) 1000 bar

Serien Nr. /
Serial No.:

Wir bestätigen, daß das oben genannte Erzeugnis nachfolgenden Anforderungen entspricht:
We hereby declare that above mentioned product is in conformity with the following provisions:

- | | | |
|--|--|---------------------------------|
| • EG-Maschinenrichtlinie | EC-Machinery Directive | 98 / 37 EG (98 / 79) |
| • EG-Niederspannungsrichtlinie | EC-Low Voltage Directive | 73 / 23 EG (93 / 78) |
| • EG-Richtlinie EMV | EC-EMC Directive | 89 / 336 EG (92 / 31) (93 / 68) |
| • ZH 1/406 (RFI) | | |
| • EN 292 Teil 1 und 2 | | |
| <input checked="" type="checkbox"/> EN 55014 | <input type="checkbox"/> EN 60335-2-67 | |
| <input type="checkbox"/> EN 50081-1 | <input type="checkbox"/> EN 60335-2-69 | |
| <input type="checkbox"/> EN 60 335-2-79 | <input type="checkbox"/> EN 60335-2-72 | |
| <input checked="" type="checkbox"/> EN 1829 | | |

Bei nicht von uns genehmigten Änderungen der Maschine verliert diese Erklärung ihre Gültigkeit.
This declaration is ceased in case of alterations of the product not approved by us.

Ammersbek, 19. Februar 2007


ppa. Grigoleit
Technischer Leiter/Technical Manager
ARNDT H. von OERTZEN (GmbH&Co)