

Operation Manual

HIGH PRESSURE CLEANER

1K

Type:

44032

60012

140054

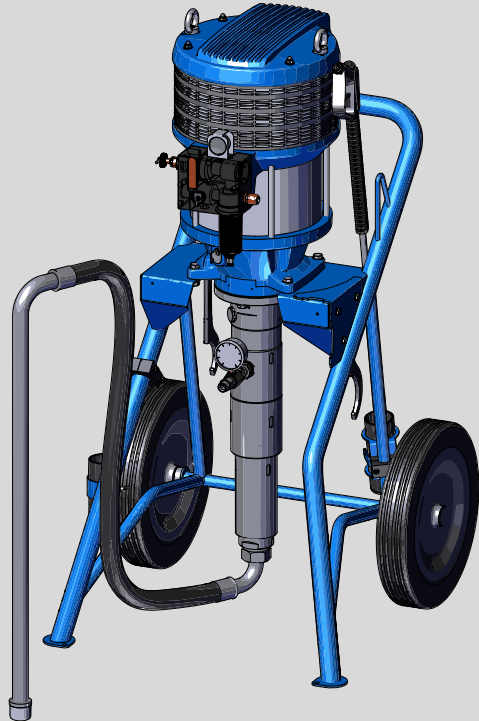
230027

270049

333037

60001

Serial No.:



EU declaration of conformity



in accordance with ATEX Directive 2014 / 34 / EU and Annex II, No. 1 A of Machine Directive 2006 / 42 / EG

The company **WIWA Wilhelm Wagner GmbH & Co. KG**
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Germany

hereby declares that the **HIGH PRESSURE CLEANER**
machine type
with serial no.

conforms with aforementioned provisions.

The listed machine is assigned to Group II, Category 2G.

Labeling:  II 2G Ex h IIB T4 Gb

Responsible for documentation: **WIWA**, +49 (0)6441 609-0

Lahnau, December 19, 2025

Place, Date



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1 Foreword

Dear valued customer,

We are delighted that you have chosen one of our machines.

This operation manual is directed at the operating and maintenance personnel. It contains all information required in order to work with this machine.



The owner must ensure that the operating and maintenance personnel always have access to a copy of the operation manual in a language that they understand.

In addition to the operation manual, further information is also essential for the safe operation of the machine. Read and observe the directives and accident prevention regulations valid in your country.

In Germany, these are:

- ▶ DGV rule 100-500, chap. 2.29 “Processing coating materials”,
- ▶ DGV rule 100-500, chap. 2.36 “Working with fluid jets”,

both from the professional association for gas, district heating and water management.

We recommend enclosing all relevant directives and accident prevention regulations with the operation manual.

Furthermore, always observe the safety data sheets, manufacturer’s instructions and processing guidelines for coating or conveyance materials.

If questions should arise, we would be happy to assist you.

We wish you excellent working results with your machine

WIWA Wilhelm Wagner GmbH & Co. KG

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2 Safety

This machine has been designed and manufactured taking into consideration all safety aspects. It conforms to the current state of the art and the applicable accident prevention regulations. The machine left the factory in faultless condition and guarantees a high level of technical safety. However, improper operation and misuse will pose a risk to:

- ▶ the life and limb of the operator or third parties,
- ▶ the machine and other property of the owner,
- ▶ the efficient function of the machine.

It is fundamentally prohibited to implement any method of work that has a negative influence on the safety of the operating personnel and the machine. All persons involved in the installation, commissioning, operation, care, repair and maintenance of the machine must have read and understood the operation manual beforehand – in particular the “Safety” chapter.

Your safety depends on it!

We recommend that the machine owner have this confirmed in writing.

2.1 Explanation of symbols

Safety notes warn of potential accident risks and describe the measures required for accident prevention. In the **WIWA** operation manuals, safety notes are highlighted and labeled as follows:

DANGER

Signals a risk of accidents that are very likely to result in serious injuries and even death, if the safety note is not observed!

WARNING

Signals a risk of accidents that may result in serious injuries and even death, if the safety note is not observed!

CAUTION

Signals a risk of accidents that may result in injuries, if the safety note is not observed!



Signals important information for proper handling of the machine. A failure to observe this may result in damage to the machine or its environment.

Various pictograms are used in the safety notes for accident risks that may result in injury, depending on the hazard source.

Examples:



General risk of accident



Risk of explosion due to explosive atmosphere



Risk of explosion due to explosive substances



Risk of accident due to electricity or electrostatic charge



Warning of crushing



Warning of corrosive substances



Risk of injuries due to rotating machine parts



Risk of burning due to hot surfaces



Risk of freezing due to cold surfaces

The first line of the safety instructions indicates the personal protective equipment that must be worn. This is also highlighted and labeled as follows:



Wear protective clothing

Signals an instruction to wear the prescribed protective clothing, in order to prevent skin injuries due to the processing material or gases.



Use eye protection

Signals an instruction to wear protective goggles, in order to prevent eye injuries due to material spray, gases, vapors or dust.



Use ear defenders

Signals an instruction to wear ear defenders, in order to prevent damage to hearing caused by noise.



Use respiratory protection

Signals an instruction to use respiratory protection, in order to prevent damage to the respiratory tract caused by gases, vapors or dust.



Wear protective gloves

Signals an instruction to wear protective gloves in order to prevent injuries due to aggressive chemicals, burns when processing heated materials, or freezing due to contact with very cold surfaces.



Wear safety shoes

Signals an instruction to wear safety shoes, in order to prevent foot injuries due to falling, toppling or rolling objects, as well as slipping on slippery floors.



Signals references to directives, work instructions and operation manuals that contain very important information and must be observed.



Indicates a special note on explosion protection.



Indicates a special note on grounding.

2.2 Safety notes



WARNING

Always remember that this machine operates at high pressures and can cause life-threatening injuries if handled incorrectly!

Do not leave the machine unattended during operation. You must be able to intervene immediately in an emergency.

Do not insert tools or other objects into the ventilation openings of motors or pumps and make sure that no dirt gets inside, otherwise injuries and damage to the machine may occur.



Always observe and follow all information in this operation manual and in the separate operation manuals for the individual machine parts and optional accessories.

2.2.1 Working pressure



WARNING

Parts that are not designed for the maximum permissible working pressure may rupture and cause serious injuries.

- It is essential to observe the prescribed maximum working pressures for all parts. With varying working pressures, the lowest value always applies as the maximum working pressure for the complete machine.
- Material hoses and hose assemblies must comply with the maximum operating pressure including the required safety factor.
- Material hoses may not exhibit leakage, kinks, signs of wear or bulges.
- Hose assemblies must be tight.

2.2.2 Risks due to hot or cold surfaces



CAUTION

When using material heaters, the machine surfaces may become hot. A risk of burns exists.



- When processing heated materials always wear protective gloves with forearm protection.



CAUTION

Air motors can become very cold during operation. Local frostbite can occur due to contact with very cold surfaces.



- Prior to all work on the machine, heat air motors up to a temperature above 10°C.
- Wear suitable protective gloves!

2.2.3 Risks due to the high pressure jet



WARNING

The high pressure jet is very sharp and can cause serious injuries through its cutting action, or by penetrating the skin or eyes. If the high pressure jet is pointed at electrical units or sockets, this could cause an electric shock. The object to be cleaned can be damaged in the event of sensitive surfaces and too little spraying distance (e. g. rubberized vehicle parts such as tires, gaskets etc.)

- ▶ Never aim the high pressure cleaner gun at yourself, other persons or animals!
- ▶ Never hold your fingers or hand in front of the high pressure cleaner gun!
- ▶ Never reach into the high pressure jet!
- ▶ Never aim the high pressure jet at electrical units, sockets or at the device itself.
- ▶ Always hold the high pressure cleaner gun securely with both hands during the work, since the high pressure jet generates a recoil.
- ▶ Always check if the high pressure cleaner is suitable for the object to be cleaned.
- ▶ Always observe the manufacturer's instructions and maintain a sufficient spraying distance from parts with sensitive surfaces (min. 30 cm).



WARNING

An unintended ejection of material from the high pressure cleaner gun can cause personal injury and property damage.

- ▶ Do not clamp the trigger of the high pressure cleaner gun during operation!
- ▶ Secure the high pressure cleaner gun whenever interrupting work!
- ▶ Prior to each commissioning, always check the high pressure cleaner gun lock!

2.2.4 Risks due to electrostatic charge



WARNING

The high flow velocities can result in an electrostatic charge. Static discharges can result in fire and explosions.

- ▶ Make sure that the device is correctly grounded!
- ▶ Only use electrically conductive material hoses. All original material hoses from **WIWA** are conductive and designed for our devices.



WARNING

Dirty devices can become electrostatically charged. Static discharges can result in fire and explosions.

- ▶ Keep the device clean.
- ▶ Always perform the cleaning work outside of EX zones.


2.2.5 Explosion protection

The following short designations are used in the instructions of **WIWA**:

- ▶ Ex protection: Explosion protection
- ▶ Ex area: potentially explosive or non-explosion protected area
- ▶ Non-Ex area: non-explosive or explosion protected area
- ▶ Ex zone: Explosion protection zone according to ATEX Directive
- ▶ ATEX knowledge: Knowledge of explosion protection according to ATEX Directive



Machines and accessories that are not explosion-protected may not be used in operating facilities that fall under the explosion protection ordinance!

Explosion-protected machines can be identified by the corresponding  mark on the type plate and/or the ATEX-declaration of conformity provided.

When using the machine in Ex zones, the specialist personnel must have knowledge of ATEX.

Explosion-protected machines meet the requirements of the ATEX Directive for the device group, device category and temperature class cited on the type plate or in the declaration of conformity.

The owner is responsible for designating the zoning in accordance with ATEX Directive, Appendix II, No. 2.1–2.3 in accordance with the stipulations of the responsible regulatory body. The owner is required to check and ensure that all technical data and labeling comply with the applicable stipulations according to ATEX.

For applications where a failure of the device could lead to dangers to personnel, the owner is required to implement appropriate safety measures.

Please note that some parts have their own type plate with separate labeling according to ATEX. In this case, the lowest explosion protection of all labels displayed applies to the entire machine.

If agitators, heaters or other electrically operated accessories are attached, the explosion protection must be checked. Plugs for heaters, agitators, etc. that do not have explosion protection may only be plugged in outside of areas that fall under the explosion protection ordinance, also if the accessory itself is explosion protected.

2.2.6 Health risks



CAUTION

Depending on the materials being processed, solvent vapors may arise, which could cause damage to health and property.

- ▶ Make sure the workplace is sufficiently ventilated and aired.
- ▶ Always observe the safety data sheets and processing instructions of the material manufacturer.



When handling paint, solvents, oils, greases, and other chemical substances, observe the safety and portioning instructions of the manufacturer and the generally applicable regulations.



Only use suitable skin protection, skin cleansing and skincare products for cleansing the skin.

In systems that are closed or under pressure, dangerous chemical reactions may arise, if parts produced from aluminum or galvanized parts come into contact with 1,1,1 - trichloroethane, methylene chloride or other solvents that contain halogenated chlorinated hydrocarbons (CFCs). If you wish to process materials that contain the aforementioned substances, we recommend that you contact the material manufacturer to clarify their suitability for use.

A range of machines in rust and acid-resistant designs is available for these types of materials.

2.3 Safety signs

The safety signs attached to the machine, such as the orange tag (see Fig. 1), indicate possible dangers and must be observed.

By scanning the QR code, the most important safety information for this machine can be accessed. Also read and observe the safety notes in the operation manual!

Additional symbols on the machine correspond to the labeling of the safety notes described in section 2.1 on page 3.

The safety signs may not be removed from the machine.

Damaged and illegible safety signs must be replaced immediately.



Fig. 1: Safety notes

2.4 Safety features



WARNING

If one of the safety features is missing or is not fully functional, the operating safety of the machine is not guaranteed!

- ▶ Put the machine out of operation immediately if you detect safety feature defects or any other faults on the machine.
- ▶ Only put the machine back into operation once the faults have been fully rectified.

The machine is equipped with the following safety features:

- ▶ Safety valve,
- ▶ Compressed air shut-off valves and

- ▶ Ground cable.

Check the safety features on the machine:

- ▶ Prior to commissioning,
- ▶ Always prior to starting work,
- ▶ After all set-up work,
- ▶ After all cleaning, maintenance, and repair work.

Checklist on the pressureless machine:

- Seal on the safety valve OK?
- Safety valve externally free of damage?
- Ground cable free of damage?
- Are the connections of the ground cable to the machine and to the conductor OK?
- Function of the compressed air shut-off valves OK?

Checklist on the pressurized machine:

- Function of the safety valve OK? (For function test, see section 6.3 on page 42.)



When checking additional safety features, observe the operation manuals for the optional accessories.

2.4.1 Safety valve

A safety valve is located on the air motor (behind the covering of the muffler).

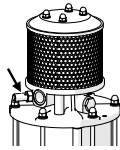


Fig. 2: Installation location of the safety valve for type 60012, 44032, and 140054

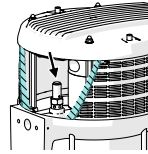


Fig. 3: Installation location of the safety valve for type 230027, 270049 and 333037

The safety valve prevents the maximum permissible air inlet pressure from being exceeded.

If the air inlet pressure exceeds the limit value setting, the safety valve discharges. (Functionality test see section 6.3.1 on page 42.)



WARNING

If the maximum permissible air inlet pressure is exceeded, parts may rupture. The consequences may be personal injuries and property damage.

▶ Operate the machine only with a functional safety valve!

2.4.2 Compressed air shut-off valve

The air supply of the machines with pneumatic drives can be interrupted with the compressed air shut-off valve on the maintenance unit.

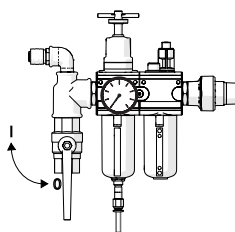


Fig. 4: Type 44032

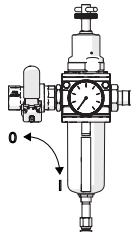


Fig. 5: Type 60012

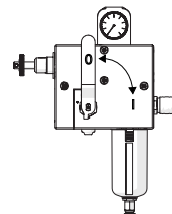


Fig. 6: Types 230027, 270049 and 333037

The functional principle of all compressed air shut-off valves installed on the machine is the same:

- ▶ Open ⇒ Position ball valve in the flow direction
- ▶ Close ⇒ Position ball valve transverse to the flow direction



After shutting off the air, the machine remains under pressure. It is therefore always necessary to fully relieve the pressure prior to any maintenance and repair work.

2.4.3 Ground cable

The ground cable serves to prevent an electrostatic charging of the device.

The ground cable is already connected to the cart at the time of delivery.

If a ground cable is lost or defective, it must be replaced immediately!

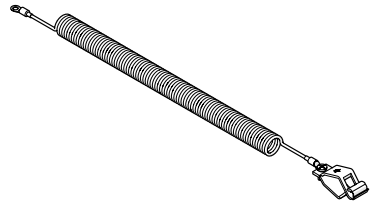


Fig. 7: Ground cable



The grounding point on this machine is labeled with the symbol shown on the left.

2.5 Operating and maintenance personnel

2.5.1 Obligations of the owner

The owner:

- ▶ is responsible for training the operating and maintenance personnel,
- ▶ must instruct the operating and maintenance personnel on correct handling of the machine, and on wearing the correct work clothing and protective equipment,

- ▶ must make work aids, such as e. g. lifting gear for transporting the machine or container, available to the operating and maintenance personnel,
- ▶ must make the user manual accessible to the operating and maintenance personnel and must ensure that it remains constantly available,
- ▶ must ensure that the operating and maintenance personnel have read and understood the user manual.

Only then are they permitted to put the machine into operation.

2.5.2 Personnel qualifications

Differentiation is made between two groups of personnel, depending on their qualifications:

- ▶ **Instructed operators** have received verified instruction from the machine owner regarding the tasks entrusted to him and the possible risks if the correct procedure is not followed.
- ▶ **Trained personnel** have received instruction provided by the machine manufacturer and are capable of carrying out maintenance and repair work on the machine, independently recognizing possible dangers and avoiding risks.

2.5.3 Authorized operator

Activity	Qualification
Set-up and operation	Instructed operator
Cleaning	Instructed operator
Maintenance	Trained personnel
Repair	Trained personnel



Children, young persons under the age of 16 and untrained personnel may not operate this high pressure cleaner!

2.5.4 Personal protective equipment

The operating personnel must wear the necessary protective equipment. The high pressure cleaner may not be operated in the presence of persons without sufficient protective equipment.



Wear protective clothing

Always wear the protective clothing prescribed for your work environment (e. g. anti-static protective clothing in potentially explosive atmospheres).



Wear eye protection

Wear protective goggles in order to prevent eye injuries due to material spray, gases, vapors or dust.



Use ear defenders

The high pressure jet can generate a high sound pressure level. If the sound pressure level exceeds the permissible limit values, the operator and other persons in the vicinity must wear suitable ear defenders.



Wear safety shoes

Wear anti-static safety shoes, in order to prevent foot injuries due to falling, toppling or rolling objects, as well as slipping on slippery floors.

2.6 Warranty and liability

Except when otherwise stipulated,

- ▶ our General Terms and Conditions (GTC) apply for deliveries within Germany,
- ▶ our Orgalime SI 14 apply for deliveries to all other countries.

2.6.1 Spare parts

- ▶ When repairing and maintaining the machine, original spare parts from **WIWA** must be used.
- ▶ If spare parts are used that have not been produced or supplied by **WIWA**, the warranty is void and all liability shall be excluded.

2.6.2 Accessories

- ▶ If you use original **WIWA** accessories, their suitability for use in our machines is guaranteed.
- ▶ If you use third-party accessories, these must be suitable for the machine – in particular with respect to the working pressure, the current connection data, the connection variables, and use in Ex-zones, if applicable. **WIWA** will not be liable for any damage or injuries due to these parts.
- ▶ It is essential to observe the safety provisions applicable to the accessories. You can find these safety provisions in the separate operation manuals for the accessories.

2.7 How to respond in an emergency

2.7.1 Shutting down the device and relieving the pressure

In an emergency, bring the device to an immediate standstill and relieve the pressure.

1. Close the compressed air shut-off valve.
2. Hold the high pressure cleaner gun into a collecting vessel.
3. Release the high pressure cleaner gun and fire it until the spraying pressure is completely relieved.
4. Let go of the high pressure cleaner gun trigger and engage the trigger lock.

2.7.2 Leakage



WARNING

In case of leakage, material may escape under very high pressure and cause serious physical injuries and property damage.

- ▶ Stop the machine immediately and relieve the pressure.
- ▶ Tighten threaded connections and replace defective parts (must be performed by trained personnel).
- ▶ Do not seal leakage at connections and on high pressure hoses with the hand or by wrapping.
- ▶ Do not patch material / high pressure hoses!
- ▶ Check hoses and threaded connections for leak-tightness before starting the machine up again.

2.7.3 Injuries

A doctor must be consulted immediately for injuries during the handling of high pressure cleaners!

3 Device description

The high pressure cleaner operates with a high pressure jet, with which stubborn impurities or layers of paint can be removed.

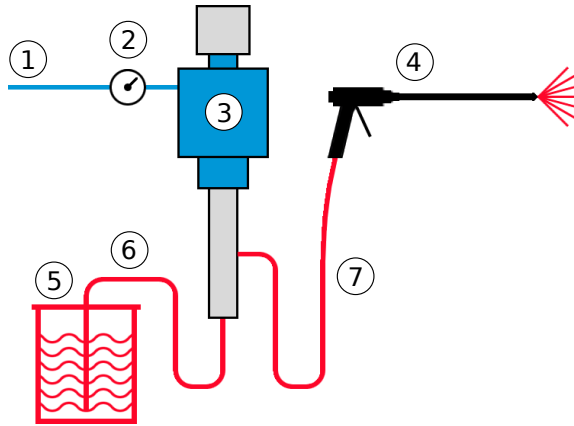


Fig. 8: Functional diagram

No.	Designation
1	1 Connection to the compressed air supply or 2 connections to the hydraulic unit
2	Regulator cluster with pressure regulator and pressure gauge
3	High pressure pump, consisting of an air motor or hydraulic motor and a fluid pump
4	High pressure cleaner gun
5	Container with cleaning solution
6	Suction intake
7	Material hose

The high pressure cleaner is connected to a compressed air or hydraulic supply depending on the device type. The inlet pressure is infinitely adjustable with a pressure regulator. The set inlet pressure can be read on a pressure gauge.

Water is generally used as the cleaning solution. If necessary, a cleaning agent can be added to the water. The cleaning solution is conveyed from the container with a suction hose to the high pressure cleaner and, from there, is supplied under high pressure to the high pressure cleaner gun via a material hose. A direct connection to the water pipe is also possible.

3.1 Intended use

The high pressure cleaner is intended for professional use during cleaning work in the industrial sector, such as e.g.

- ▶ Facades
- ▶ Vehicles
- ▶ Containers
- ▶ Paving slabs
- ▶ Stables
- ▶ Removing old paint
- ▶ Machines



Intended use also includes:

- ▶ observing the technical documentation and
- ▶ complying with the operating, maintenance and servicing guidelines.

3.2 Erroneous use

Any use other than that stipulated in the technical documentation is deemed to be improper use and will void the warranty.

Erroneous use applies in particular if

- ▶ the device is used to remove materials that are harmful to health, such as e.g. materials containing asbestos or solvents,
- ▶ unauthorized modifications or changes are implemented,

- ▶ the safety features are removed, modified or bypassed,
- ▶ spare parts are installed that were not manufactured or delivered by **WIWA** (see section 2.6.1 on page 18),
- ▶ accessories are used that are not suitable for the device (see section 2.6.2 on page 18).
- ▶ the device is operated outside of the operating limits according to the type plate.

3.3 Construction

The high pressure cleaners from **WIWA** can be equipped with both a pneumatic drive and a hydraulic drive. The series with a pneumatic drive is divided into several types, which primarily differ in the size of the air motors and fluid pumps (see section 8.1 on page 52).

High pressure cleaner with pneumatic drive

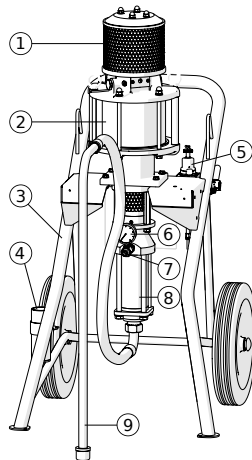


Fig. 9: Type 60012

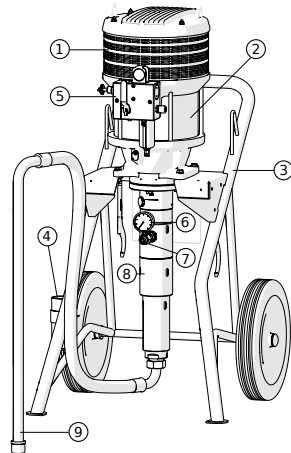


Fig. 10: Types 230027, 270049 and 333037

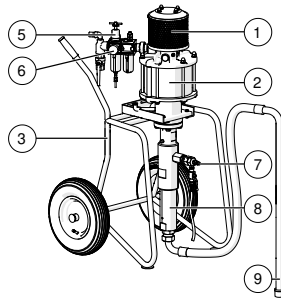


Fig. 11: Type 44032

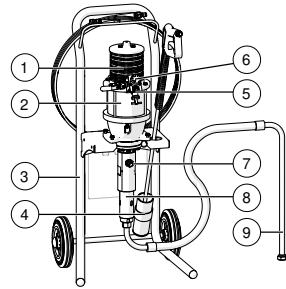


Fig. 12: Type 140053

No.	Designation
1	Muffler
2	Air motor
3	Cart
4	Holder for high pressure cleaner gun
5	Regulator cluster or maintenance unit
6	Pressure gauge for displaying the material pressure
7	Material hose connection
8	Fluid pump
9	Suction for the cleaning solution

High pressure cleaner with hydraulic drive

No.	Designation
1	Hydraulic motor
2	Pressure gauge for displaying the material pressure
3	Connection for the material hose
4	Fluid pump
5	Holder for high pressure cleaner gun
6	Suction for the cleaning solution
7	Cart
8	Hydraulic connection inlet
9	Hydraulic connection outlet

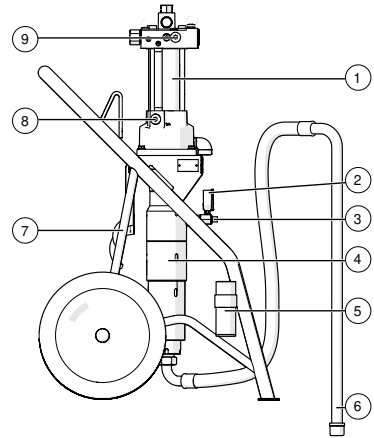


Fig. 13: Type 60001

3.4 Regulator cluster and maintenance unit

Depending on the device type, pneumatically operated high pressure cleaners are equipped with a regulator cluster or maintenance unit, on which the air inlet pressure can be regulated and read.

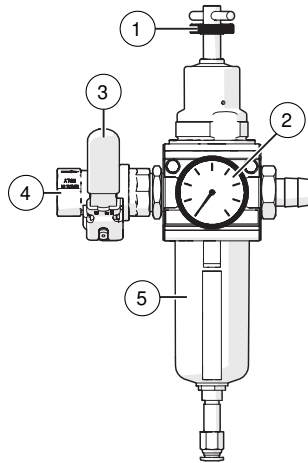


Fig. 14: Regulator cluster type 60012

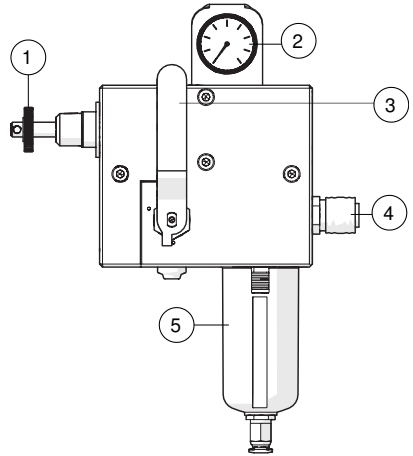


Fig. 15: Maintenance unit of the types 230027, 270049 and 333037

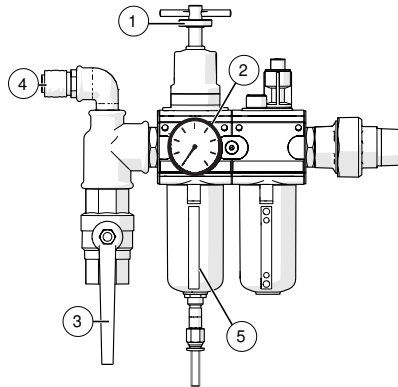
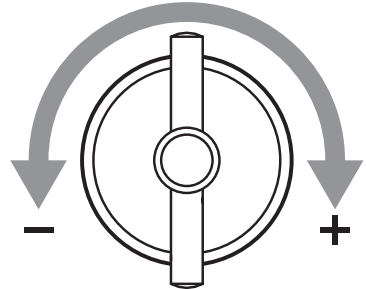


Fig. 16: Maintenance unit type 44032

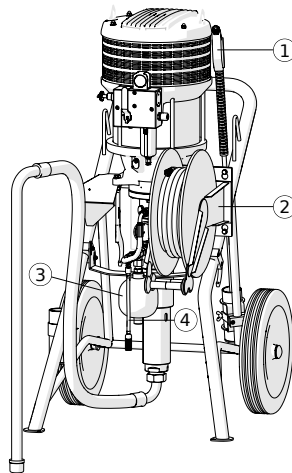
No.	Designation
1	Lock nut for fixing the adjusting screw
2	Pressure gauge for displaying the air inlet pressure
3	Compressed air shut-off valve
4	Compressed air connection
5	Water separator

The functional principle of all compressed air regulators installed on the machine is the same:

- ▶ To increase the pressure, ☹ turn clockwise,
- ▶ To decrease the pressure, ☺ turn counter-clockwise.



3.5 Optional expansions and accessories



An extensive range of accessories is available for the high pressure cleaners from **WIWA**.

No.	Designation
1	High pressure cleaner gun with material hose and mounting
2	Hose reel
3	Pulsation damper
4	Foam injection

Fig. 17: Example of a high pressure cleaner with full equipment

3.5.1 High pressure cleaner gun with material hose and mounting

The high pressure cleaner gun, the material hose and the mounting for the high pressure cleaner gun are combined in an mounting kit.

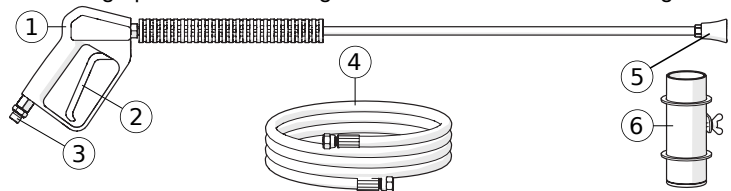


Fig. 18: High pressure cleaner gun with material hose and mounting

No.	Designation
1	High pressure cleaner gun
2	Trigger
3	Connection for the material hose
4	15 m material hose
5	Nozzle protector with spray nozzle (exchangeable)
6	Mounting for the high pressure cleaner gun

The high pressure cleaner gun is opened by actuating the trigger. The cleaning solution is conveyed to the spray nozzle. The spray nozzle atomizes the cleaning solution into a high pressure jet.

By releasing the trigger, the high pressure cleaner gun is closed and the discharge of cleaning solution from the spray nozzle is ended. The high pressure pump stops. The high pressure cleaner gun must be secured during work interruptions in order to prevent an unintended actuation of the trigger. To do so, fold the trigger lock out of the trigger as shown in Fig. 19 and engage it in the gun grip.

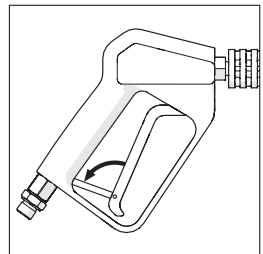


Fig. 19: Trigger lock

The material hose is used to connect the high pressure cleaner gun to the material outlet of the high pressure cleaner.

The mounting for the high pressure cleaner gun is screwed onto the frame of the high pressure cleaner. The high pressure cleaner gun can be set down in the mounting during work interruptions.

3.5.2 Hose reel

The material hose can be automatically rolled up using the hose reel. It is installed in the material flow between the material outlet of the high pressure cleaner and the material hose. The hose reel has several stopping points, through which the material hose can be pulled out to different lengths. The individual stopping points are audible through a clicking noise. To roll up the material hose, pull it somewhat past the current stopping point and then let it roll up automatically.

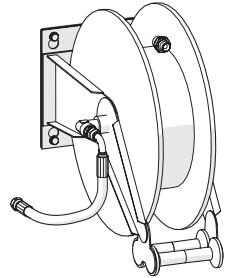


Fig. 20: Hose reel

3.5.3 Pulsation damper

The pulsation damper balances the pulsations of the high pressure pump and therefore ensures a consistent conveying speed and output.

It is installed in the material flow between the material outlet of the high pressure cleaner and the material hose.

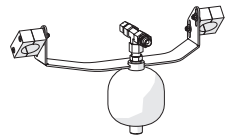


Fig. 21: Pulsation damper

3.5.4 Foam injection

Using the foam injection, foam can be added into the cleaning solution. The foam injection is installed in the material flow between the material outlet of the high pressure cleaner and the material hose.

The injector (see Fig. 22, no. 1) generates a negative pressure, through which the foam is suctioned into the cleaning solution that is flowing through. The replaceable nozzle (see Fig. 22, no. 2) is equipped with two different-sized nozzles for operation with foam (large nozzle) and without foam (small nozzle).

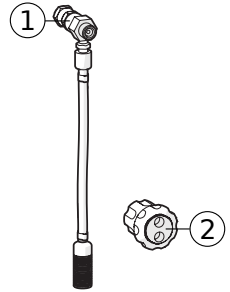


Fig. 22: Foam injection

4 Transport, installation, and assembly



The machine left the factory in faultless condition, packaged correctly for transport.

Check the machine at the time of receipt for any transport damage and for completeness.

4.1 Transport

When transporting the machine, observe the following information:

- ▶ When loading the machine, ensure sufficient load-bearing capacity of the lifting gear and lifting accessories. The dimensions and weight of the machine can be found on the machine card and type plate.
- ▶ Place the high pressure cleaner on a transport pallet for lifting.
- ▶ There are two eyebolts on the motor, which are only used for assembly and disassembly of the high pressure pump. Do not lift the machine by means of the eyebolts!
- ▶ Never stand under suspended loads or in the loading area. There is a risk of death here!
- ▶ When lifting or loading the high pressure cleaner, do not transport other objects simultaneously (e.g. material drums) with the machine.
- ▶ Tilt the machine backwards by the handle and move it on the attached transport rollers. The handle is not intended for lifting the machine!

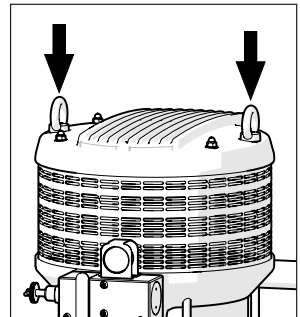


Fig. 23: Crane eyes

- ▶ Secure the load on the transport vehicle to prevent sliding and falling.

If the high pressure cleaner has previously been in operation, please observe the following:

- ▶ Disconnect the entire energy supply to the machine - even for short transport distances.
- ▶ Empty the machine prior to transport - residual liquids may still leak out of the machine during transport.
- ▶ Remove all loose parts (e.g. tools) from the machine.

4.2 Installation site

Ambient temperature:

- ▶ minimum: 0 °C or 32 °F
- ▶ maximum: 40 °C or 104 °F



WARNING

If the machine is used outdoors during a storm, a life-endangering situation may arise for the operating personnel due to lightning!

- ▶ Never operate a machine outdoors during a storm!
- ▶ The owner must ensure that the machine is equipped with suitable lightning protection equipment.

Safety measures at the installation site:

- ▶ Position the machine horizontally on a floor that is level, firm and free of vibrations. The machine may not be tilted or tipped.
- ▶ Make sure that all controls and safety features are easy to reach.
- ▶ Keep the working area clean, especially all walking and standing areas. Remove any spilled cleaning solution immediately.
- ▶ Always observe and follow the safety data sheets and processing instructions of the material manufacturer.

- ▶ Protect all items neighboring the object against possible damage due to spray mist.

4.3 Assembly



WARNING

If untrained personnel carry out assembly work, they endanger themselves and others, and risk the operational safety of the machine.



WARNING

During assembly work, ignition sources may arise (e. g. due to mechanical sparks, electrostatic discharge, etc.).

- ▶ Carry out all assembly work outside of potentially explosive areas.



WARNING

Parts that are not designed for the maximum permissible working pressure of the high pressure cleaner may rupture and cause serious injuries.

- ▶ Prior to installing accessories, make sure that these are designed for the maximum working pressure of the high pressure cleaner.

4.3.1 Connecting the material hose and high pressure cleaner gun

1. Connect the material hose to the material inlet of the high pressure cleaner gun (Fig. 24).
2. Connect the material hose to the material outlet of the high pressure cleaner (Fig. 25).

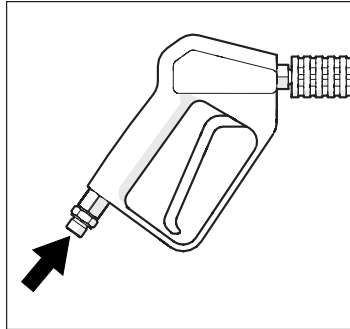


Fig. 24: Connection for the material hose

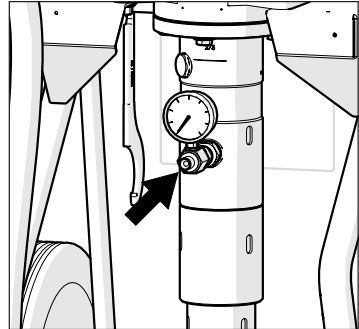


Fig. 25: Connection for the material hose



In order to prevent damage to the material hose:

- ▶ Do not pull the material hose with loops or over sharp edges.
- ▶ Do not bend the material hose.

4.3.2 Grounding the machine



WARNING

The high flow velocities during operation can result in an electrostatic charge. Static discharges can result in fire and explosions.

- ▶ Ensure that the machine is properly grounded outside of Ex zones!
- ▶ Ensure correct grounding of the object to be coated.

4.3.3 Connecting the compressed air supply

High pressure cleaners with pneumatic drives are connected to the compressed air supply that is provided by the owner.



CAUTION

Lines laid on walking surfaces are a tripping hazard capable of causing injuries to the operating personnel.

- ▶ Place the compressed air line so that a tripping hazard for the operating personnel cannot result.



To ensure the required quantity of air, the compressor output must comply with the air requirement of the machine, and the diameter of the air supply hoses must match the connections.



Operation with contaminated or moist compressed air leads to damage in the machine's pneumatic system.

- ▶ Use only dried, oil-free and dust-free compressed air, which corresponds to purity class [7:5:4] according to ISO 8573-1:2010!

1. Ensure that
 - ▶ the compressed air shut-off valve is closed and
 - ▶ the compressed air regulator is completely throttled back.
2. Connect the compressed air line to the compressed air connection of the regulator cluster or maintenance unit (see Fig. 14 on page 25).

4.3.4 Connecting the hydraulic supply

High pressure cleaners with hydraulic drives are connected to a hydraulic unit provided by the owner.

Hydraulic unit requirements	
Conveyed volume per double stroke	0.94 l

Maximum oil temperature	60 °C
-------------------------	-------

The following is also required to operate the machine:

- ▶ a hydraulic valve to regulate the oil pressure, with a pressure limit at a max. of 145 bar,
- ▶ a hydraulic accumulator,
- ▶ a pressure gauge for checking the oil pressure,
- ▶ a thermometer for checking the oil temperature,
- ▶ a filter and
- ▶ a return for the oil.

5 Operation



Only put the machine into operation if you are equipped with the prescribed personal protective equipment. Details on this can be found in section 2.5.4 on page 17.

Prerequisites:

- ▶ The high pressure cleaner must be correctly installed and connected to a suitable compressed air or hydraulic supply.
- ▶ The cleaning solution must be available in sufficient quantity.

5.1 Commissioning

Checklist prior to commissioning:

- ▶ Check if a system separator is necessary to protect the drinking water.
 - ▶ Check if all safety features are present and fully functional.
 - ▶ Check the release agent level of the high pressure pump and refill it if necessary (see section 6.8 on page 47).
 - ▶ During commissioning, check if all parts of the high pressure cleaner are leak-tight and tighten the connections if necessary.
 - ▶ Make sure that the high pressure cleaner is properly grounded (see section 4.3.2 on page 33).
1. Place the suction in the container with the cleaning solution.
 2. Make sure that the compressed air regulator is turned all the way down.
 3. Open the compressed air shut-off valve.
 4. Set the compressed air regulator to approx. 2 bar.
 5. Hold the high pressure cleaner gun in a collecting vessel.

6. Unlock the high pressure cleaner gun and pull the trigger until clean cleaning solution escapes.
7. Set the required working pressure on the compressed air regulator.

5.2 Pressure relief

1. Close the compressed air shut-off valve.
2. Turn the compressed air regulator down.
3. Hold the high pressure cleaner gun in a collecting vessel.
4. Unlock the high pressure cleaner gun and pull the trigger until the spraying pressure is completely relieved.
5. Release the high pressure cleaner gun trigger and engage the trigger lock.

5.3 Decommissioning

The work process during decommissioning depends on whether the machine is only going to be taken out of operation temporarily or for longer periods or permanently.

5.3.1 Temporary decommissioning

1. Perform a pressure relief as described in section 5.2 on page 37.
2. Set down the high pressure cleaner gun in the mounting provided for this on the frame of the high pressure cleaner.

5.3.2 Long-term or permanent decommissioning

1. Perform a pressure relief as described in section 5.2 on page 37.
2. Set down the high pressure cleaner gun in the mounting provided for this on the frame of the high pressure cleaner.
3. Shut off the air supply to the compressor.

4. Discharge the compressed air line of the compressor to the compressed air connection of the high pressure cleaner.
5. Disconnect the compressed air line of the compressed air connection of the high pressure cleaner.

5.4 Storage

The location for storing the machine must be

- ▶ clean,
- ▶ dry,
- ▶ frost-free and
- ▶ protected against direct sunlight.

Storage temperature:

- ▶ minimum: 0 °C or 32 °F
- ▶ maximum: 40 °C or 104 °F

5.5 Disposal

Residues of processing material, flushing agents, oils, greases and other chemical substances must be collected according to the legal regulations for recycling or disposal. The official local waste water protection laws apply.

At the end of the machine's use it must be put out of use, disassembled and disposed of according to the legal regulations.

- ▶ Thoroughly clean the machine of material residues.
- ▶ Disassemble the machine and separate the materials – metals must be taken to a scrap metal depot, plastic parts can be disposed of with household waste.

6 Maintenance



Only perform maintenance on the machine if you are equipped with the prescribed personal protective equipment. Details on this can be found in section 2.5.4 on page 17.



WARNING

If untrained personnel carry out maintenance and repair work, they endanger themselves and others, and risk the operational safety of the machine.

- ▶ Maintenance and repair work on electrical parts may only be performed by specialist personnel with electrical qualifications — all other maintenance and repair work may only be done by **WIWA** customer service or specially trained personnel.



WARNING

During maintenance work, ignition sources may arise (e. g. due to mechanical sparks, electrostatic discharge, etc.).

- ▶ Carry out all maintenance work outside of potentially explosive areas.



Observe the maintenance information in the operation manual for the optional accessories.

Prior to maintenance and repair work:

1. Shut off the compressed air supply.
2. Completely relieve the pressure in the high pressure cleaner.

**WARNING**

If parts of the high pressure cleaner are clogged, it is not possible to fully relieve the pressure. During disassembly work, residual pressure may escape and cause serious injuries.

- ▶ Protect yourself against suddenly escaping material by covering threaded connections with a cloth while loosening them.
- ▶ Loosen threaded connections particularly cautiously and allow the pressure to escape slowly.
- ▶ Eliminate the blockages (see fault table in section 7 on page 49)

After completion of the maintenance and repair work:

- ▶ Check the function of all safety features and the faultless function of the machine.

6.1 Regular testing

The machine must be inspected and maintained regularly by a specialist:

- ▶ prior to first commissioning,
- ▶ after changes to / the servicing of parts of the installation that affect safety,
- ▶ after an interruption to operation lasting more than 6 months,
- ▶ although at least every 12 months.

In the case of machines that have been put out of use, the test can be delayed until the next time commissioning takes place.

The results of the tests must be recorded in writing and stored until the next test. The test certificate or a copy of this must be available at the machine's place of use.



Have repair work carried out exclusively by **WIWA** Service or trained specialist personnel (in/from authorized workshops if necessary).



When using the machine in Ex zones, the specialist personnel must have knowledge of ATEX.

6.2 Maintenance schedule

Time frame	Activity	for further reading
Prior to each commissioning	Checking the release agent level in the high pressure pump	section 6.5 on page 45
Once per week	Check and clean the water separator (only for pneumatically operated high pressure cleaners)	section 6.4 on page 44
	Visual inspection of the compressed air, hydraulic and material hoses	section 6.7 on page 46
Every 3 years	Inspection of the compressed air, hydraulic and material hoses by a specialist and replacement if necessary	section 6.7 on page 46
Every 6 years at the latest (incl. storage duration of the hose lines)	Complete replacement of the compressed air, hydraulic and material hoses	section 6.7 on page 46

6.3 Safety valve

6.3.1 Checking the safety valve



Only perform the function test with a filled pump!

Depending on the size of the pump used and the required working pressure, safety valves with a 1/4" or 1/2" connection are used.

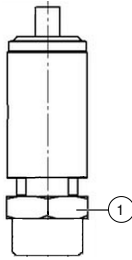


Fig. 26: 1/4" connection safety valve

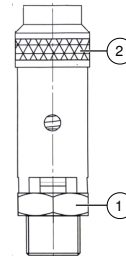


Fig. 27: 1/2" connection safety valve

No.	Description
1	Hexagon nut
2	Knurled nut

This is how to check the function of the safety valve:

Safety valves with a 1/4" connection:

1. Increase the air inlet pressure on the completely filled machine briefly to approx. 10% over the maximum permissible pressure according to the type plate. The safety valve must discharge!

Safety valves with a 1/2" connection:

Only perform the test by hand. To prevent damage to the safety valve, do not use any tools to release the knurled nut.

1. Reduce the air inlet pressure on the completely filled machine to approx. 10 % below the maximum permissible pressure according to the type plate.
2. Open the safety valve for a few seconds by turning the knurled nut (Fig. 27 on page 42) counterclockwise. During this process, the closure of the safety valve opens, whereby the air must escape.
3. After this check, retighten the knurled nut clockwise.

6.3.2 Replacing the safety valve

Before replacing the safety valve, observe the following:

- ▶ the machine must be switched off and relieved of pressure,
 - ▶ the data noted on the new valve must correspond to the data specified on the machine card. The calibration pressure specified on the safety valve may not be higher than the permissible working pressure of the machine,
 - ▶ the new safety valve may not have any damage.
1. Attach an open end spanner to the spanner flat (Fig. 26 on page 42 and Fig. 27 on page 42) and unscrew the safety valve by turning counter-clockwise.
 2. Check the connection point. It must be free of blockages and clean.
 3. Insert a new safety valve and screw it tight clockwise with the open end spanner. The maximum torque is 30 Nm for a 1/4" connection and 40 Nm for a 1/2" connection.

6.4 Checking and cleaning the water separator

The water separator filters moisture and particles of dirt ($> 5 \mu\text{m}$) from the compressed air. This prevents condensation water from penetrating the device, and the static charging of the pneumatic hoses. Any condensation water that collects is automatically drained through the drain valve.

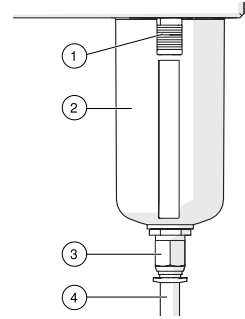


Fig. 28: Water separator

No.	Designation
1	Locking slide
2	Container
3	Drain valve
4	Drainage hose

1. Guide the drainage hose into an empty collecting vessel. The drain valve opens as soon as the compressed air shut-off valve is closed.
2. Push up the locking slide on the water separator container and unscrew the container counter-clockwise.



Be aware of the o-ring that is used to seal the container. It can slip during disassembly or even fall out.

3. Check if the o-ring is correctly seated - insert it correctly, if necessary.
4. Check the container for dirt residue and clean it if necessary.



Use only water, soap, or a similar neutral product for cleaning the container.

5. Firmly screw the container back onto the water separator.

6.5 Checking the release agent level in the high pressure pump

The release agent cup for the high pressure pump must be filled with release agent to keep the wear of the packing as low as possible. Check the release agent level in the high pressure pump before each commissioning and refill the release agent with the help of the dosage bottle if necessary.

The high pressure pump for the device type 60012 is equipped with an open release agent cup (see Fig. 29).

At maximum filling, the release agent is up to the edge of the release agent cup.

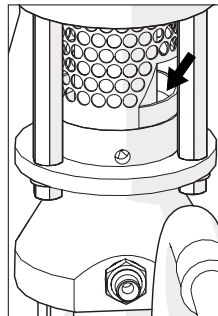


Fig. 29: Release agent cup

The high pressure pumps for the device types 44032, 230027, 270049, 333037 and 60001 are equipped with a closed release agent cup. To check the release agent level for device types 230027, 270049, 333037 and 60001, unscrew the screw plug from the release agent cup (see Fig. 30).

At maximum filling, the release agent is up to the bottom edge of the threaded hole.

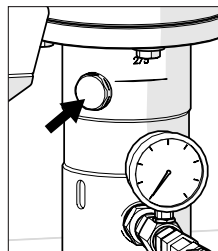


Fig. 30: Screw plug

For device type 44032, the filler opening plug must be unscrewed in order to fill the release agent. The total filling quantity is approx. 100 ml (see Fig. 31).

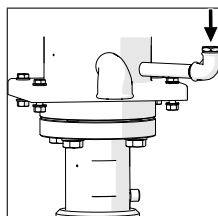


Fig. 31: Filling the release agent

6.6 Replacing the packing of the high pressure pump

If the cleaning solution leaks into the release agent, the packing of the high pressure pump is worn and must be replaced.



CAUTION

The replacement of the pump packing may only be performed by trained personnel or by **WIWA** customer service.

▶ Contact your **WIWA** customer service.

6.7 Checking the compressed air, hydraulic and material hoses

Check the compressed air, hydraulic and material hoses weekly for externally visible damage, such as kinks, cracks, signs of wear or bulges.



Improper use and impermissible stress are the most frequent causes of damage. Damaged hoses must be replaced immediately.

Hose lines are subject to a natural aging even with proper use and permissible stress. Their duration of use is thereby limited. Therefore, the compressed air, hydraulic and material hoses must be checked by a specialist every 3 years.



The duration of use of a hose line, including any possible storage duration, should not exceed 6 years.

The manufacturing date of a hose line (month/year) is stamped on the ferrule.

6.8 Recommended operating fluids

Only use original operating fluids from **WIWA**:

Operating fluid	WIWA order number
Release agent, yellow, standard (0.5 l) ¹	0163333
Release agent, red, for isocyanate (0.5 l) ¹	0640651
Anti-freeze agent (0.5 l) ²	0631387
Pneumatic oil (0.5 l) ²	0632579

¹ Plasticizer for filling the release agent vessels of e. g. the proportioning pump, feed pump and flush pump as well as the dosing valves

² for the maintenance unit

The release agent and pneumatic oil are also available in larger containers on request.

6.9 Special tool

Hook wrenches or pin wrenches are supplied as needed for the assembly and disassembly of the fluid pumps and high pressure filters.

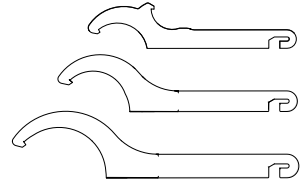


Fig. 32: Hook wrench

Air motor \varnothing [mm]	Wrench size [mm]	WIWA order number
79 / 134 / 330 / 580	50 / 68 / 75	0666533
580	80 / 90	0660287
270 / 230	110 / 115	0660288
HPF type 11, 13	10 (pin)	0414719

7 Eliminating operational faults



Only eliminate operational faults if you are equipped with the prescribed personal protective equipment. Details on this can be found in section 2.5.4 on page 17.

fault	possible cause	remedy
High pressure pump does not work.	Compressed air supply interrupted	Check compressed air supply.
	Suction filter clogged	Clean suction filter.
	Suction hose or suction pipe clogged	Clean suction hose and/or suction pipe.
	Ball valve clogged	Disassemble and clean fluid pump.
	Air motor defective	Notify WIWA customer service.
High pressure pump runs consistently, but does not suction any material.	Ball sticks in the inlet valve (dried material)	Lift the ball in the inlet valve through the inlet hole, therefore releasing it.
	Screw connection of the suction hose or suction pipe leaking	Tighten screw connection of the suction hose or suction pipe, seal the screw connection again, if necessary.
	Suction filter clogged	Clean suction filter.

fault	possible cause	remedy
High pressure pump runs inconsistently and the output has decreased.	Valves dirty	Clean fluid pump and possibly leave standing in thinner.
	Valves, packings or piston rod worn	Replace worn parts.
	Conveying pressure too low	Increase air inlet pressure.
	Suction filter clogged	Clean suction filter.
	Air motor defective	Notify WIWA customer service.
High pressure pump runs when high pressure cleaner gun is closed	Valves, packings or piston rod worn	Replace worn parts.
Air motor freezes.	Number of strokes is too high	Reduce air inlet pressure.
	High humidity	Empty water separator more often.
Although the pressure gauge displays pressure, no cleaning solution escapes when the high pressure cleaner gun is open.	Spray nozzle clogged	Clean spray nozzle.
Pressure collapses	Compressor too small	Use a stronger compressor.

8 Technical Information

8.1 Technical data

Type	140053	44032	60012	230027	270049	333037	60001
Art.no.:	0673976	0653796	0665428	0665429	0665447	0665448	0665449
Drive	pneumatic						hydraulic
Motor	D140/75	D230/120	D200/120	D230/120	D270/120	D333/120	D100/120
Fluid pump	43.1/175	306/120	600/120	360/120	275/120	550/120	550/120
Output per DS	43.1 cm ³	306 cm ³	600 cm ³	360 cm ³	275 cm ³	550 cm ³	550 cm ³
Output at 60 DS/min	2.58 l/min	18.3 l/min	36 l/min	21.6 l/min	16.5 l/min	33 l/min	33 l/min
Pressure ratio	53:1	32:1	12:1	27:1	49:1	37:1	1.7:1
Max. inlet pressure	6 bar / 87 psi	8 bar / 116 psi	7 bar / 101 psi	8 bar / 116 psi	5 bar / 72 psi	6.5 bar / 94 psi	145 bar / 2102 psi
Max. working pressure	320	256 bar / 3713 psi	84 bar / 1218 psi	216 bar / 3132 psi	245 bar / 3552 psi	240.5 bar / 3487 psi	247 bar / 3581 psi
Air consumption (per DS at 1 bar air inlet pressure) l/min	2.6	10.7	8.1	10.7	14.8	22.5	—

DS = Double stroke

8.2 Machine card

The machine card contains all important and safety-relevant data and information for the machine.

- ▶ precise designation and manufacturer's data
- ▶ technical data and limit values
- ▶ equipment and test confirmation
- ▶ procurement data
- ▶ machine identification (machine components and accessories supplied with article and spare parts numbers)
- ▶ a list of the supplied documentation.

8.3 Type plate

The type plate is located on the side on the cart. It contains the most important technical data for the device:

- ▶ the device type,
- ▶ the output per double stroke in cm³ and fl/oz,
- ▶ the pressure ratio,
- ▶ the maximum permissible air inlet pressure and working pressure in bar and PSI,
- ▶ the maximum material application temperature in °C and °F,
- ▶ the weight in kg and lbs as well as
- ▶ the serial number and the production year.



Please ensure that the data on the type plate matches the information on the machine card. In case of errors or a missing type plate, please inform us immediately.

8.4 Emission sound pressure level in the workplace

Air motor size	200	230	270	333
Sound pressure level at 15 DS with 8 bar L_{pA} (dB(A))	85	85	83	84,5
Sound power level L_{wA} (dB(A))	96	96	94	95,5



Your project deserves it.

Headquarter and production

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